Curriculum: Foundations, Principles, and Issues

SEVENTH EDITION

Allan C. Ornstein • Francis P. Hunkins

Seventh Edition

Global Edition

CURRICULUM

FOUNDATIONS, PRINCIPLES, AND ISSUES

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ABOUT THE AUTHORS

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PREFACE

Curriculum: Foundations, Principles, and Issues, Seventh Edition, is a book for researchers, theoreticians, and practitioners of curriculum. It is a basic text for those studying curriculum planning, development, implementation, and evaluation, as well as a reference for teachers, supervisors, and administrators who participate in curriculum making.

The book is a comprehensive and thoroughly documented overview of the foundations, principles, and issues of curriculum. *Foundations* are the areas of study outside curriculum that have an impact on the field; *principles* are the means and methods used in reflecting about the totality of curriculum and in designing, developing, implementing, and evaluating curriculum; *issues* are the current and evolving educational, political, and social dynamics that influence the curriculum field.

NEW TO THIS EDITION

The seventh edition has been thoroughly updated to address every aspect of curriculum foundations, principles, and issues. All chapters have been revised to reflect the latest scholarship and thinking regarding curriculum, writ large.

The following provide the specifics enacted in this new edition:

- All chapters begin with a listing of specific Learning Outcomes to guide students' reading.
- All chapters conclude with discussion questions designed to engage students in dialogue concerning the content.
- Several reference videos, corresponding to the presented subject matter (such as career and technical education (CTE) and digital literacy), supplement the contents of each chapter, and can be accessed by entering the YouTube URL provided.
- Updated information is provided on the Common Core (Chapter 2), accountability (Chapter 2), and universal pre-K (Chapter 5), which are some of the most significant reform initiatives.
- The importance of digital literacy and global skills in a 21st century curriculum, as well as the impact of technology (e.g., social media) on students' cognitive development.
- Updates to discussion on major learning theories and principles (Chapter 4).
- New content on executive function, social and emotional intelligences and learning, and non-cognitive skills (like grit and perseverance) as critical components of curricula (Chapter 4).
- New content on social foundations that provides bases for helping educators formulate excellent curricula (Chapter 5).
- Discussion on income inequality—a "defining" issue currently impacting schools and their curricula and challenging educators to formulate more equal opportunities for students (Chapter 5).
- Major discussions and reports on international achievement tests (including PISA, TIMSS, PIAAC, and PIRLS) as well as an emphasis on global issues and approaches to education in general and curriculum in particular (Chapters 5, 9, and 10).
- A new section on curriculum design theoretical frameworks: modern-influenced designs (constructivist perspective) and postmodernism-influenced designs (postconstructivist perspective) (Chapter 6).
- New discussion relating the technical-scientific approach to its modernist perspective (Chapter 7).
- New discussion relating the nontechnical-nonscientific approach to its postmodernist, postconstructivist perspective (Chapter 7).

- Updated material relating modernist approaches to curriculum implementation (Chapter 8).
- New information included on postmodernist approaches to curriculum implementation (Chapter 8).
- Expanded treatment of modernist and postmodernist approaches to curriculum evaluation (Chapter 9).
- Updated information on high-stakes testing (Chapters 9, 10).
- Expanded discussion on five nations in the international community (Chapters 5, 10).

OVERVIEW OF THE TEXT

The book consists of a one-chapter introduction to the field plus three major parts. Part I, "Foundations of Curriculum," has four chapters: one each on the curriculum's philosophical, historical, psychological, and social foundations. Part II, "Principles of Curriculum," is composed of chapters on curriculum design, development, implementation, and evaluation. Part III, "Curriculum Issues and the World Scene," consists of one chapter, "International Scenes in Education."

This book differs from other curriculum texts in several ways. Most texts focus on either theory or practice. Some texts advance a particular political or social position. Others approach the field of curriculum as an administrative challenge. This text provides a balanced and comprehensive view of the field of curriculum. We have avoided taking a particular philosophical, educational, political, or social stance. Instead, we have aimed at providing a complete view of the field of curriculum so that readers can consider choices and formulate their own views on curriculum foundations, principles, and issues. In short, we have supplied a mix of materials to help researchers and practitioners develop their own interpretations of the field—past, present, and future.

This seventh edition provides the following instructional and learning tools: Learning Outcomes for each chapter, Curriculum Tips, Overview Tables, and Discussion Questions to conclude each chapter. Learning Outcomes furnish the reader with what is minimally expected of him or her. The Curriculum Tips give practical meaning to the research and insights into the curriculum process. The Overview Tables enhance more meaningful learning and provide recaps of the major concepts and principles in the chapter. Discussion Questions challenge the reader to engage fellow students in reviews of the chapter content and to expand their grasp of the chapter's information.

Additionally and hopefully, the reader in engaging the content of this text will be stirred emotionally to relish the curricular challenges known and emergent in the 21st century. Ideally, the reader will recognize and accept the role of curricularist.

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The Field of Curriculum

1

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Identify and differentiate the six curriculum approaches, and discuss which approach(es) educators tend to adopt

2. Define curriculum and articulate the challenges in defining it

3. Identify the commonly accepted foundations of curriculum

4. Explain why curriculum development, curriculum design, and planned/ unplanned curriculum are crucial curriculum knowledge domains

5. Discuss the challenges involved in translating curriculum theory into practice

6. Explain the roles that students, teachers, and principals may play in shaping curriculum

Curriculum as a field of study has been characterized as elusive, fragmentary, and confusing. Certainly, the field can be all that at times, but curriculum as a field of study is crucial to the health of schools and society. Whether we consider curriculum narrowly, as subjects taught in schools, or broadly, as experiences that individuals require for full participation in society, there is no denying that curriculum affects educators, students, and other members of society.

Given the plethora of books, articles, and treatises on curriculum, many people in the field feel frustrated with the continuing confusion. However, the field of curriculum is intended not to provide precise answers, but to increase our understanding of its complexities. Curriculum results from social activity. It is designed for both present and emerging purposes. Curriculum is a dynamic field.[1]

Analyzing the concept of curriculum in a broad context illuminates what we mean by curriculum, what it involves, and who is involved in and served by the curriculum. We thus look at curriculum in terms of approach (an orientation or perspective) and definition. We also consider the relationships and differences among curriculum's foundations and domains, its theory and practice, and the roles of participants in the field of curriculum.

■ CURRICULUM APPROACHES

Our approach to curriculum reflects our perceptions, values, and knowledge. A curriculum approach reflects a *holistic* position, or a *metaorientation,* encompassing curriculum's foundations (a person's philosophy, view of history, view of psychology and learning theory, and view of social issues), curriculum domains (common, important knowledge within the field), and curricular theory and practice. An approach expresses a viewpoint about curriculum's development and design; the role of the learner, teacher, and curriculum specialist in planning curriculum; the curriculum's goals; and the important issues that must be examined.

A curriculum approach reflects our views of schools and society. By understanding our curriculum approach and that of our school or school district, it is possible to conclude whether our professional view conflicts with the formal organizational view.

Although schools, over time, tend to commit to a particular curriculum approach, many educators are not strongly committed to one approach. Rather, they emphasize one approach in some situations and advocate other approaches in other situations. Curriculum textbook writers sometimes adhere to more than one curriculum approach. Curriculum specialists, even curriculum students, must examine their approaches.

Curriculum approaches can be viewed from a technical/scientific or nontechnical/nonscientific perspective. Technical/scientific approaches coincide with traditional theories and models of education and reflect established, formal methods of schooling. Nontechnical/nonscientific approaches evolved as part of avant-garde and experimental philosophies and politics; they tend to challenge established, formalized education practices and be more fluid and emergent.

The remainder of this section outlines six curriculum approaches. The first three may be classified as technical or scientific and the last two as nontechnical and/or nonscientific.

Behavioral Approach

Rooted in the University of Chicago school (from Franklin Bobbitt and W. W. Charters to Ralph Tyler and Hilda Taba), the behavioral approach is the oldest and still the dominant approach to curriculum.[2] Logical and prescriptive, it relies on technical and scientific principles and includes paradigms, models, and step-by-step strategies for formulating curriculum. This approach is usually based on a plan, sometimes called a *blueprint* or *document*. Goals and objectives are specified, content and activities are sequenced to coincide with the objectives, and learning outcomes are evaluated in relation to the goals and objectives. This curriculum approach, which has been applied to all subjects since the early 1920s, constitutes a frame of reference against which other approaches to curriculum are compared. The approach has also been called logical, conceptual-empiricist, experientialist, rational-scientific, and technocratic.[3]

The behavioral approach started with the idea of efficiency, influenced by business and industry, and the scientific management theories of Frederick Taylor, who analyzed factory efficiency in terms of time-and-motion studies and concluded that each worker should be paid on the basis of his or her individual output, as measured by the number of units produced in a specified period of time. Efficient operation of schools became a major goal in the 1920s. (Some critics have termed Taylor's approach "machine theory.")

Ensuring efficiency in schools often meant eliminating small classes, increasing student-teacher ratios, hiring fewer administrators, reducing teacher salaries, maintaining or reducing operational costs, and so on, and then preparing charts and graphs to show the resultant cost reductions. Raymond Callahan later branded this approach the "cult of efficiency."[4] The goal was to reduce teaching and learning to precise behaviors with corresponding measurable activities.

Bobbitt set out to organize a course of studies for the elementary grades: "We need principles of curriculum making. We did not know that we should first determine objectives from a study of social needs. . . . We had not learned that [plans] are means, not ends."[5] He developed his approach in the early 1920s in *How to Make a Curriculum,* in which he outlined more than

800 objectives and related activities to coincide with predetermined student needs. These activities ranged from teeth and eye care, to keeping home appliances in good condition, to spelling and grammar.[6] Bobbitt's methods were sophisticated for his day; however, taken out of context, his machine analogy and his list of hundreds of objectives and activities were easy to criticize.

It was left to Tyler, who took a number of Bobbitt's courses at the University of Chicago, to recognize the need for behavioral objectives that were not so small or lockstep. He combined basic techniques of curriculum, instruction, and evaluation into a simple plan. Tyler advocated using a school's (or school district's) philosophy "in making decisions about objectives." Tyler's approach combined behaviorism (objectives were important) with progressivism (the learner's needs were emphasized). Tyler was influenced by Edward Thorndike, John Dewey, and the "scientific movement of curriculum [making] during the . . . thirty years" prior to his classic text.[7]

Today, few educational behaviorists continue the tradition of Ivan Pavlov's and John Watson's stimulus-response (S-R) theories, but many formulate precise objectives and evaluate programs according to those objectives, urging accountability plans, outcome-based education, and standards-based education. Many still rely on direct instruction, practice and drill, monitoring students, and prompt feedback. Behaviorism has evolved over the years to address the complexities of human learning; it now allows for research that investigates the mind's depths.[8] Most behaviorist educators now perceive learners as cognitive individuals functioning within a social context. Individual students experience and respond to the same curriculum in different ways, depending on their cultural interpretations and prior life activities. The behavioral approach to curriculum, with its dependency on technical means of selecting and organizing curricula, is likely to continue to serve us well in the future.

Managerial Approach

Reminiscent of organizational theory, the managerial approach considers the school as a social system in which students, teachers, curriculum specialists, and administrators interact. Educators who rely on this approach plan the curriculum in terms of programs, schedules, space, resources and equipment, and personnel. This approach advocates selecting, organizing, communicating with, and supervising people involved in curriculum decisions. Consideration is given to committee and group processes, human relations, leadership styles and methods, and decision making.[9]

An offshoot of the behavioral approach, the managerial approach also relies on a plan, rational principles, and logical steps. It tends to focus on curriculum's supervisory and administrative aspects, especially the organizational and implementation process (see Curriculum Tips 1.1).

Advocates of the managerial approach are interested in innovation and in how curriculum specialists, supervisors, and administrators can facilitate change. The curriculum specialist or supervisor (sometimes the same person) is considered a practitioner, not a theorist—a change agent, resource person, and facilitator. This person reports to an administrator and adheres to the school's mission and goals. The school may resist or support change.[10] If the school is innovative or reform minded, then the school culture tends to create and sustain a culture for change. If the school emphasizes the "three *R*'s" (reading, writing, and arithmetic), the curriculum specialist introduces plans accordingly. Managers communicate a desire for change or stability to subordinates (teachers).

The managerial approach is rooted in the organizational and administrative school models of the early 1900s, a period that combined a host of innovative plans involving curriculum and instruction that centered on individualization, departmentalization, nongrading, classroom grouping, and homeroom and work-study activities. It was an era when superintendents introduced school district plans to modify schools' horizontal and vertical organization. The plans' names usually reflected the school district's name or organizational concept, as in Batavia (New York) Plan, Denver Plan, Portland Plan, Platoon Plan, and Study Hall Plan. Superintendents and associate superintendents were involved in curriculum leadership, often developing a plan in one school district and also implementing it in another. Many administrators combined managerial and curriculum leadership skills.[11]

CURRICULUM TIPS 1.1 The Role of the Curriculum Supervisor

Regardless of the curriculum approach, a curriculum supervisor or specialist performs certain roles and many important tasks within the school or school district, such as the following:

1. Help develop the school's or community's *educational goals*
2. *Plan curriculum* with students, parents, teachers, and support personnel
3. Coordinate or evaluate a *survey of student needs*
4. *Design programs* of study by grade level and/or subject
5. *Plan* or *schedule classes;* plan the school calendar
6. Develop or help staff to write *behavioral objectives* for subject areas
7. Prepare *curriculum guides* or *teacher guides* by grade level or subject area
8. Formulate or revise *resource units* and *unit plans*
9. Help select and evaluate *textbooks*
10. Organize, select, or order instructional *materials* and *media*
11. Serve as a *resource agent* for teachers
12. *Observe teachers* and hold pre- and post-observation conferences
13. Help teachers *implement curriculum* in the classroom
14. Help redefine or *improve content*
15. Work with staff in *writing grants*
16. Encourage curriculum *innovation;* serve as a change agent
17. *Conduct curriculum research* and/or work with curriculum consultants within the school
18. Develop standards for curriculum and instructional *evaluation*
19. Coordinate or plan *staff development* programs
20. *Work with supervisors,* subject chairs, resource personnel, testing and technology specialists, and teachers within the school (and school district)

The managerial approach became the dominant curriculum approach in the 1950s and 1960s. During this period, principals were seen as curriculum leaders, instructional leaders, and managers. Midwest school administrators and professors with administrative backgrounds dominated the field of curriculum in setting policies and priorities, establishing the direction of change, planning and organizing curriculum, and carrying out its instruction.

These administrators were politically active. They used supervisory and curriculum associations and their respective journals and yearbooks as platforms for their ideas. Many, such as William Alexander, Robert Anderson, Leslee Bishop, Gerald Firth, Arthur Lewis, John McNeil, and J. Lloyd Trump, became curriculum professors at major universities; others became active as board directors and executive committee members of professional organizations that had major impact on curriculum, supervision, and administration. Many published curriculum books that expressed their managerial views.[12]

These school administrators were less concerned about content than about organization and implementation. They were less concerned about subject matter, methods, and materials than about improving curriculum in light of policies, plans, and people on a systemwide basis. They envisioned curriculum changes as they administered resources and restructured schools.

Many of today's ideas about school reform and restructuring derive from the 1950s and 1960s: A current emphasis on standards and high-stakes testing reflects an earlier emphasis on state control of schools. Many current plans related to school-based management and empowerment are based on the previous era's career ladder, team teaching, and differential staffing models. Much of the new legislative and administrative support for improving curriculum and instruction is based on the changing roles of the superintendent and principal as curriculum and instructional leaders that blossomed during the 1950s and 1960s.

Systems Approach

A managerial view that emphasizes organizing people and policies led to an emphasis on organizing curriculum into a system. The organization's units and subunits are viewed in relation to the whole. The curriculum plan often entails organizational diagrams, flow charts, and committee structures. Sometimes referred to as *curriculum engineering,* the approach includes the processes by which *engineers,* such as superintendents, directors, coordinators, and principals, plan the curriculum, the curriculum's *stages* (development, design, implementation, and evaluation), and the curriculum's *structures* (subjects, courses, unit plans, and lesson plans).

Systems theory, systems analysis, and systems engineering influenced the systems approach to curriculum. School managers widely employ concepts developed by social scientists when they discuss administrative and organizational theory. The military, business, and industry use the systems approach to ensure that people master the tasks they must perform.[13]

In the systems approach to curriculum, the parts of the school or school district are examined in terms of their interrelatedness. Departments, personnel, equipment, and schedules are planned to change people's behavior. Information is usually communicated to administrators, who then consider choices.

A school district's organizational chart represents a systems approach, showing line-staff relationships of personnel and how decisions regarding special areas (i.e., curriculum, instruction, testing and evaluation, personnel, and budgeting) are made. In large school districts (50,000 or more students), teachers, supervisors, and principals at the school or local level often seem distant from top administration at the school district or central level. In small school districts, the central office is less bureaucratic (and less distant from the local level) because there are fewer layers. Two educators have written, "The organizational hierarchy of larger school districts [is] cumbersome, and those with 100,000 or more students (0.01 percent of all school districts) often have charts extending off the page. Most readers would have difficulty understanding [or following] these charts, not because they are unknowledgeable," but because of the complex systems and hierarchical arrangements of large (city or county) school districts.[14]

RAND Corporation developed one application of the systems approach that has rapidly spread from government to business agencies. Called the Planning, Programming, Budgeting System (PPBS), it integrates planning, programming, and budgeting into the system's structure, functions, and capabilities. In our case, the system is curriculum.

Currently, many schools use a systems approach, known as *total quality management* (TQM), based on Ed Deming's 14 points for improving the system in which people work. This approach, also drawn from industry, represents a paradigm shift emphasizing client priority (in our case, students), extensive data collection and analysis, self-monitoring and inspection, collaboration, communication, cooperation, and team responsibility.[15]

When applying TQM to curriculum development and implementation, participants realize that their function depends on acquiring and applying what is called *profound knowledge.* Such knowledge is based on four components: systematic thinking, theory of variation, theory of knowledge, and knowledge of psychology. *Systematic thinking* enables people to realize that their actions interact with others' actions and that the total organization entails the dynamic interaction of many subprocesses. The *theory of variation* recognizes that curriculum activity entails common and special causes and effects. A school is a community in which people exhibit individual differences. They must learn to communicate, cooperate, respect others' opinions, and reach a consensus. According to the *theory of knowledge,* the knowledge possessed by the people within the system is essential to curricular success. The *knowledge of psychology* supports TQM by optimizing the participation and learning of students and teachers. To use this approach successfully, individuals must understand, respect, and care for one another.

George Beauchamp described the first systems theory of curriculum. He postulated five equally important components of education: (1) administration, (2) counseling, (3) curriculum, (4) instruction, and (5) evaluation.[16] Many professors of education (outside of curriculum) do

not accept this notion of equal components; they view their own field as most important. For example, school administrators often delegate supervisors to take care of curriculum matters, especially if the administrators view their leadership role as chiefly managerial. Curriculum specialists usually view curriculum as the major component and see related fields such as teaching, instruction, and supervision as subsystems that help implement the curriculum.[17] However, Beauchamp was trying to convey that the five components of education draw their ideas from psychology, sociology, history, philosophy, and so on. In any event, practitioners should use whichever procedures are most helpful and applicable to the real world.

Curriculum specialists who value the systems approach view curriculum broadly and are concerned with curriculum issues relevant to the entire school or school system, not just particular subjects or grades. They are concerned with theory in which the curriculum is related across different programs and content areas, the extent to which the curriculum reflects the school's (or school system's) organization, the participants' needs and training, and various methods for monitoring and evaluating results. Long-term planning is fused with short-term, or incidental, planning.

Academic Approach

Sometimes referred to as the *traditional, encyclopedic, synoptic, intellectual,* or *knowledge-oriented approach,* the academic approach attempts to analyze and synthesize major positions, trends, and concepts of curriculum. This approach tends to be historical or philosophical and, to a lesser extent, social or practical. The discussion of curriculum development is usually scholarly, theoretical, and concerned with many broad aspects of schooling, including the study of education.

This approach is rooted in the works of John Dewey, Henry Morrison, and Boyd Bode,[18] and it became popular during the 1930s and carried through the 1950s. The influx of new topics related to curriculum during this period expanded the field to include many trends and issues and led to the integration of various instructional, teaching, learning, guidance, evaluation, supervision, and administrative procedures.

After the 1950s, interest in curriculum centered on the structure of disciplines and qualitative methods. The academic approach lost some of its glamour. The texts that continued to reflect this approach in the second half of the 20th century (such as those by William Schubert, Daniel and Laurel Tanner, and Robert Zais)[19] tended to overwhelm the beginning curriculum student, who usually lacked sufficient background knowledge. This "fear of knowledge" or cultural resistance among students in general has led to an overemphasis on the learner as an individual who needs to be validated rather than as a social being.[20] Students lose the privileges that knowledge affords. Curriculum, according to a recent curriculum theorist, should therefore start not from the student as learner, but from his or her entitlement, or access, to knowledge.[21]

The academic approach has partly returned in the current focus on the nature and structure of knowledge as current curricularists address curriculum from a postmodern academic perspective. Attention is now on understanding how knowledge can be constructed, deconstructed, and then reconstructed. As William Pinar noted, academics and schools must strive to comprehend the field of curriculum.[22] However, it is doubtful that the academic approach will become popular among practitioners.

The academic approach to curriculum addresses much more than subject matter and pedagogy. Academics cover numerous foundational topics (usually historical, philosophical, social, and political), thus presenting an overview of curriculum. They consider areas of study not usually included in curriculum deliberation and action, such as religion, psychotherapy, literary criticism, and linguistics. To many educators, such fields seem very foreign at first. However, educators are beginning to realize the need to perceive curriculum as diverse discourse. Everyone involved in the academic approach to curriculum is in the "business" of words and ideas.[23]

Humanistic Approach

Some curriculum leaders contend that the preceding approaches are too technocratic and rigid. They contend that curricularists who try to be scientific and rational miss the personal and social aspects of curriculum and instruction; ignore subject matter's artistic, physical, and cultural aspects; rarely consider the need for self-reflectiveness and self-actualization among learners; and overlook the sociopsychological dynamics of classrooms and schools. This view is rooted in progressive philosophy and the child-centered movement of the early 1900s (first spearheaded at the University of Chicago, when Dewey, Charles Judd, and Francis Parker developed progressive teaching methods based on the student's natural development and curiosity).[24]

In the 1920s and 1930s, the progressive movement moved east and was dominated by Teachers College, Columbia University, and by such professors as Boyd Bode, Frederick Bosner, Hollis Caswell, L. Thomas Hopkins, William Kilpatrick, Harold Rugg, and John Dewey (who was by then at Columbia).[25] This approach gained further impetus in the 1940s and 1950s with the growth of child psychology and humanistic psychology (which deals with valuing, ego identity, psychological health, freedom to learn, and personal fulfillment).

Mainly at the elementary school level, curriculum activities emerged from this approach, including lessons based on life experiences, group games, group projects, artistic endeavors, dramatizations, field trips, social enterprises, learning and interest centers, and homework and tutoring stations (or corners). These activities include creative problem solving and active student participation. They emphasize socialization and life adjustment for students, as well as stronger family ties and school–community ties. They are representative of Parker, Dewey, Kilpatrick, and Carleton Washburne's ideal school and the kinds of curriculum activities they put into practice. Such activities are still practiced in the Parker School in Chicago; Dewey's lab school at the University of Chicago; Washburne's school district in Winnetka, Illinois; Kilpatrick's Lincoln School of Teachers College, Columbia University; many other private and university lab schools; and some recent charter schools.

Various developmental theories (e.g., those of Frederick Erikson, Robert Havighurst, and Abraham Maslow) and child-centered methods (e.g., those of Friedrich Froebel, Johann Pestalozzi, and A. S. Neill) for curriculum derive from the humanistic approach, which considers informal as well as formal curricula. This approach considers the whole child, not only the cognitive dimension. The arts, the humanities, and health education are just as important as science and math.

Curriculum specialists who believe in this approach tend to put faith in cooperative learning, independent learning, small-group learning, and social activities, as opposed to competitive, teacher-dominated, large-group learning. Each child has considerable input into the curriculum and shares responsibility with parents, teachers, and curriculum specialists in planning classroom instruction. In schools that adopt this approach, curriculum leaders and supervisors tend to permit teachers more input into curriculum decisions, and the ideas of professional collegiality and mentor systems are more pronounced. Curriculum committees are *bottom-up* instead of *top-down,* and students often are invited into curriculum meetings to express their views.[26]

The humanistic approach became popular again in the 1970s as relevancy, radical school reform, open education, and alternative education became part of education's reform movement. Today, however, demands for educational excellence and academic productivity have resulted in an emphasis on cognition, not humanism, and on subjects such as science and math, rather than art and music. Nonetheless, the humanistic approach may be gaining adherents as more people come to realize the interdependence of cognition and affect,[27] specifically noncognitive and social-emotional skills like focus, grit, and understanding others.[28] Nel Noddings believes any 21st century curriculum approach must integrate the three great domains of human life: home and personal life; occupational life; and civic life.[29] They extend her theory of caring in education from the 1980s. To be sure, the student's self-concept, self-esteem, and personal identity are essential factors in learning, which involves social and moral, not just cognitive, aspects.

Postmodern Approach

To some curriculum scholars, the postmodern, or reconceptualist, approach to curriculum largely extends the humanistic approach. Others argue that postmodernism is concerned chiefly with change and reform. Still others argue that reconceptualists lack an approach because they lack a model for developing and designing curriculum.

Postmodern curriculum theorists focus on education's larger ideological issues. They investigate and influence society's social, economic, and political institutions. Postmodernists are more interested in theory than practical applications. Pinar has gone so far as to state that the era of curriculum development has passed.[30] Pinar's viewpoint would be considered impractical by a practitioner who has to deal with the selection and organization of content. However, Pinar is addressing not practitioners, but other theorists—an example of the divide that exists between theorists and practitioners.

Some curricularists who associate with the postmodernists' camp contend that there is no one precise, certain way to create curricula; curriculum development is more like a communal conversation.[31] Curriculum development is not a closed system, but remains open.

Postmodernists are interested in curricula's interactions with political, economic, social, moral, and artistic forces.[32] They see the school as an extension of society and students as capable of changing society. Many postmodernists see current curricula as overly controlling and designed to preserve the existing social order and its inequalities.

Postmodernists have brought greater diversity to curricular dialogue. Postmodernism is rooted in the philosophy and social activism of such early reconstructionists as George Counts, Harold Rugg, and Harold Benjamin.[33] Today's postmodern thinkers, however, are more likely to speak in terms of inequality, discrimination, and oppression. Henry Giroux, for example, believes America's youth has been systematically undermined by authoritarian and morally malicious policies and actions of a government beholden to corporate, religious, and military interests.[34] Only through a new pedagogy and a from-the-ground-up approach can a genuine democracy be restored. Peter McLaren makes a similar point in *Life in Schools,* arguing that low-income and minority students are "silenced" in school and socially, politically, and economically dominated and victimized as adults.[35] For the greater part, teachers assume an oppressor's role, as they represent the dominant group. Hence, they often prevent their students from becoming fully human by teaching them to conform and be docile in school. Class and caste continue to influence the norms of school and society.

■ DEFINITION OF CURRICULUM

What is curriculum? What is its purpose? How does it affect students and teachers? By and large, the way we define curriculum reflects our approach to it. We can specify five basic definitions of curriculum.

First, curriculum can be defined as a *plan* for achieving goals. This position, popularized by Tyler and Taba, exemplifies a linear view of curriculum. The plan involves a sequence of steps. Today, most behavioral and some managerial and systems people agree with this definition. For example, J. Galen Saylor, William Alexander, and Arthur Lewis define curriculum as "a plan for providing sets of learning opportunities for persons to be educated."[36] David Pratt writes, "Curriculum is an organized set of formal education and/or training intentions."[37] Jon Wiles and Joseph Bondi view curriculum as a development process that (1) identifies a philosophy; (2) assesses student ability; (3) considers possible methods of instruction; (4) implements strategies; (5) selects assessment devices; and (6) is continually adjusted.[38]

Second, curriculum can be defined broadly as dealing with the learner's *experiences.* By this definition, almost anything planned in or outside of school is part of the curriculum. This definition is rooted in Dewey's definition of experience and education and in Hollis Caswell and Doak Campbell's view from the 1930s that curriculum is "all the experiences children have

under the guidance of teachers."[39] Humanistic curricularists and elementary school curricularists subscribe to this definition, which textbook writers have interpreted more broadly over the years. Elliot Eisner describes the curriculum as a "program" that a school "offers to its students," a "preplanned series of educational hurdles and an entire range of experiences a child has within the school."[40] Marsh and Willis view curriculum as all the "experiences in the classroom [that are] planned and enacted." However, they note a difference between what the school plans and what the teacher enacts.[41]

Third, curriculum can be defined as a *field of study* with its own foundations, knowledge domains, research, theory, principles, and specialists. Those who adopt this definition tend to discuss curriculum in theoretical rather than practical terms. They are concerned with broad historical, philosophical, or social issues. Academics often subscribe to this view of curriculum—for example, William Reid, Schubert, and the Tanners.[42]

Finally, curriculum can be defined in terms of *subject matter* (math, science, English, history, and so on) or content (the way we organize and assimilate information). We can also talk about subject matter or content in terms of *grade levels.* People who adopt this definition emphasize the facts and concepts of particular subject areas. Most U.S. school districts subscribe to this definition in light of the national focus on language arts and mathematics proficiency. Yet, university courses in elementary and secondary school curriculum rarely are subject specific (e.g., on math or biology curricula); they emphasize generic principles of curriculum that cut across and encompass most, if not all, subjects.

The Challenges of Definition

Definitional debates take time and energy, but they address important curriculum issues. The language of curricularists is neither philosophically nor politically neutral.[43] Variations in the way curriculum is defined provide needed scope and diversity. The more precise one's definition of curriculum and the more a person relies on a preconceived plan or document, the greater the tendency to omit or miss relevant (but hard to observe) sociopsychological factors related to teaching and learning. Ronald Doll points out, "Every school has a planned, formal acknowledged curriculum," but it also has "an unplanned, informal and hidden one" that must be considered.[44] The *planned,* formal curriculum focuses on goals, objectives, subject matter, and organization of instruction; the *unplanned,* informal curriculum deals with sociopsychological interaction among students and teachers, especially their feelings, attitudes, and behaviors. We must also realize the power of the *hidden* curriculum—the part of the curriculum that, while not written, will certainly be learned by students. If we define curriculum too narrowly, we overlook what Eisner has called the *null curriculum,* subject matter and experiences that are not taught.[45] Not everything that goes on in school can or should be discussed in terms of curriculum.

Other critics, such as Larry Cuban and Alfie Kohn, have argued that with the current emphasis on testing, the curriculum has become *narrow* and *bland.* Certain subjects, such as reading and math, are emphasized at the expense of subject matter that has moral, creative, and emotional value.[46] Teaching to the text seems to placate the public, especially if such actions lead to improvement of student test scores. The focus on facts for the purpose of testing is often at the expense of discussion topics and questions that ask, "Why?" and "What if?"

This narrowing of the curriculum, however, coincides with Taylor's machine theory and Bobbitt and Charters's school of scientific curriculum making. This guide to curriculum making was and is still advocated by educators who want to concentrate on precise objectives and subject matter and purposeful activities that correspond to the desired objectives and subject matter.

Background Issues for Defining the Field

Content or subject matter issues are relevant, too. Is it appropriate to talk about a social studies or math curriculum or about curriculum in general? Are there principles of curriculum that apply to all subjects, or principles that apply only to specific subjects? Should subject matter

be organized around separate disciplines or based on interdisciplinary and core approaches? To what extent is subject content a matter of student, professional, or parental choice? Should it be determined by the community, state, or nation? How should subjects be organized—around behavioral objectives, student activities, social or community values, future jobs? Which content should be graded? What portion of subject matter should be classified as general, specialized, or elective? What is the appropriate mix of required versus optional subjects? What is the appropriate stress on facts, concepts, and principles of subject matter? As Beauchamp writes, "The posture . . . one assumes with respect to the content of a curriculum inevitably will be of great influence upon . . . theory and planning."[47] Actually, that posture influences everything that follows, including developing, implementing, and evaluating the curriculum.

Other issues are related to people. Who are the major participants? To what extent should students, teachers, parents, and community members be involved in curriculum planning? Why are school administrators assuming greater roles in curriculum matters and curriculum specialists assuming fewer roles? What are the roles and responsibilities of researchers and practitioners in curriculum making? How do we improve their communication?

Fundamental Questions

Asking the right questions is crucial for addressing basic concerns in curriculum and for determining the basic concepts, principles, and research methods of the field. If we ask the wrong questions, the discussions that follow—and even the answers—are of little value. The danger in listing a host of fundamental questions, however, is that they tend to become translated as a set of principles or steps to be blindly followed. However, appropriate questions can be used as a base for raising issues and problems that curriculum specialists must address, whether they deal in theory, practice, or both.

The first list of fundamental questions was formulated by a famous 12-person committee on curriculum making, headed by Harold Rugg and organized in 1930 for the Twenty-sixth Yearbook of the National Society for the Study of Education (NSSE). This group of curriculum specialists, perhaps the most prestigious ever convened to present a general system on the principles of curriculum making, started the second volume of the yearbook with 18 "fundamental questions" to serve as a basis for "viewing . . . the issues and problems of curriculum" for that era.[48] These questions centered on subject matter, learning, and the guiding objectives, activities, materials, and outcomes of the curriculum, as well as the role of school in American society.

A more recent set of questions was presented more than 50 years later and is shown in Table 1.1. These questions focus on the place and function of subject matter, the methods and materials for facilitating learning, the role of the curriculum specialist, and the relationship between curriculum, instruction, supervision, and government levels of curriculum making.

These fundamental questions help establish what Tyler called curriculum's "rationale," Saylor, Alexander, and Lewis later called its "purpose," and Schubert more recently called the "paradigm" that governs inquiry in the field of curriculum.[49] Curriculum specialists can delineate important theories, concepts, and methods in the field by asking, "What?" "Who?" and "How?"

■ FOUNDATIONS OF CURRICULUM

Debate continues regarding curriculum's meaning, foundations, and knowledge domains. Current knowledge concerning curriculum is "ill-fitted and inappropriate to problems of actual teaching and learning," "widely scattered," and either "unknown or unread" by most who teach or practice curriculum.[50] Some people believe that the field lacks purpose and direction because it has extensively "adapted and borrowed subject matter from a number of [other] disciplines," including its major "principles, knowledge and skills."[51] This is basically the same criticism that Joseph Schwab made in 1969, when he complained that the field was "moribund [because] it has

Table 1.1 | Fundamental Questions about Curriculum

1. How is curriculum defined?
2. What philosophies and theories are we communicating, intentionally or not, in our curriculum?
3. What social and political forces influence curriculum? Which ones are most pertinent? Which impose limitations?
4. How does learning take place? What learning activities will best meet our learners' needs? How can these activities best be organized?
5. What are the domains of curriculum knowledge? What types of curriculum knowledge are essential?
6. What are a curriculum's essential parts?
7. Why do changes in curriculum occur? How does change affect the curriculum?
8. What are the curriculum specialist's roles and responsibilities?
9. How is the curriculum best organized?
10. What are the roles and responsibilities of the teacher and student in organizing curriculum?
11. What are our aims and goals? How do we translate them into instructional objectives?
12. How do we define our educational needs? Whose needs? How do we prioritize these needs?
13. What subject matter is most worthwhile? What are the best forms of content? How do we organize them?
14. How do we measure or verify what we are trying to achieve? Who is accountable? For what and to whom?
15. What is the appropriate relationship between curriculum and instruction? Curriculum and supervision? Curriculum and evaluation?

Source: Allan C. Ornstein, "The Theory and Practice of Curriculum," *Kappa Delta Pi Record* (Fall 1987), p. 16. Used with permission.

adopted theories from outside the field of education."[52] However, the field's lack of unity also suggests flexibility and richness.

The foundations of curriculum set the external boundaries of the knowledge of curriculum and define what constitutes valid sources from which to derive the field's theories, principles, and ideas. Curriculum's commonly accepted foundations are philosophical, historical, psychological, and social—areas that will each be expanded upon in subsequent chapters. Two other areas, however, deserve equal attention in 21st century society, but have been largely ignored—*globalization* and *technology*.

Like the other four foundational disciplines, globalization and technology have a significant, yet distinct, influence over curriculum. Globalization has allowed people around the world to exchange goods, services, and ideas more easily, which significantly changes the way they live and work. It was a process Nobel Prize–winning journalist Thomas Friedman popularly foretold in his 2005 book, *The World Is Flat*. More recently, billionaire entrepreneur and PayPal cofounder Peter Thiel argued that many unchartered frontiers remain unexplored and that only by learning to think for oneself can one develop new ideas.[53] This kind of global perspective has already spurred growing demand for technology in classrooms—including massive open online courses (MOOC), the flipped classroom, digital literacy skills, online testing, and high-speed Internet access in classrooms. Curricularists, at some point, will need to acknowledge that globalization and technology are distinctly foundational to education.

1.1 The 21st Century Learner
Think about how you grew up learning. Did you mostly learn inside the classroom? Listen to lectures? Perhaps used websites to help write book reports? Watch this video on 21st century learning and discuss how it differs from the way you grew up.

https://www.youtube.com/watch?v=c0xa98cy-Rw

■ CURRICULUM DOMAINS

Whereas curriculum's foundations represent the field's *external* boundaries, curriculum's domains define the field's internal boundaries—the accepted knowledge *within* the field presented in published articles and books. Although curriculum specialists generally agree on the foundation areas, they often disagree on curriculum's knowledge domains. Many efforts have been made to determine these domains. However, much literature on the subject is largely unread,[54] and in other cases, it is considered diffuse and fragmentary.

The lack of consensus of the curriculum domains is illustrated by the experts themselves. Beauchamp divided curriculum knowledge into planning, implementation, and evaluation.[55] Fenwick English viewed curriculum in terms of ideological (philosophical-scientific), technical (design), and operational (managerial) issues.[56] Edmund Short listed curriculum's domains as policy making, development, evaluation, change, decision making, activities or fields of study, and forms and language of inquiry.[57]

Linda Behar established an empirical format for identifying *curriculum domains* (broad areas of knowledge based on the most influential curriculum textbooks over a 20-year period) and *curriculum practices* (precise activities teachers and curriculum specialists engage in while inquiring about planning or implementing the curriculum). As many as 49 curriculum practices were validated and then rated in importance by U.S. curriculum professors. These practices were grouped into nine curriculum domains: (1) curriculum philosophy, (2) curriculum theory, (3) curriculum research, (4) curriculum history, (5) curriculum development, (6) curriculum design, (7) curriculum evaluation, (8) curriculum policy, and (9) curriculum as a field of study.[58] The nine domains help establish recommended content for a curriculum text, because the domains outlined were based on assessing the most influential texts in the field over a 20-year period.

Allan Glatthorn and Jerry Jailall describe seven types of curriculum: (1) *recommended curriculum* delineated by scholars and professional organizations; (2) *written curriculum* that appears in state and school district documents; (3) *taught curriculum* that teachers attempt to implement; (4) *supported curriculum* that helps implement or deliver the curriculum resources such as textbooks and computers; (5) *assessed curriculum* that is tested and evaluated; (6) *learned curriculum,* what the students actually learn; and (7) *hidden curriculum,* unintended curriculum.[59] Traditionally, teachers have been most influenced by learned and assessed curriculum—making their curriculum decisions on the basis of students' needs and responses to the taught curriculum. Since 2000, the standards-education movement has resulted in school administrators becoming increasingly concerned with aligning the *written curriculum* (content) with the *assessed curriculum* (especially as assessed through high-stakes tests).

Despite this lack of consensus, however, it is important to establish a framework for conceptualizing the domains of curriculum—that is, the significant and indispensible curriculum knowledge necessary to conduct research and make theoretical and practical decisions about curriculum. The problem is that few curriculum writers can agree on the domains of curriculum knowledge; in some cases, no framework exists that connotes curriculum as a distinct enterprise with its own boundaries, internal structures, relations, and activities. We maintain that, of all the domains of curriculum knowledge, the *development* and *design* of the curriculum—what some observers refer to as the *theoretical aspects* and what others call the *technical aspects* of curriculum—are crucial for any text.

Curriculum Development

We maintain that, of all domains of curriculum knowledge, curriculum *development* and *design* (its theoretical or technical aspects) are most crucial in any curriculum text. Analyzing curriculum in terms of development is the traditional and most common approach to the field. The idea is to show how curriculum is planned, implemented, and evaluated as well as what people, processes, and procedures are involved in constructing the curriculum. Such development is usually examined in a logical step-by-step fashion, based on behavioral and managerial approaches to

curriculum and rooted in scientific principles of education. Many curriculum texts today use the terms *development* and *plan* in their titles and thus reflect this thinking.

Most curriculum textbooks offer some development model, outline, or plan. Starting with a philosophy or set of objectives, this model includes student assessment, content selection and organization, implementation, and evaluation. The number of steps ranges from four (Tyler; Saylor Alexander, and Lewis; Wiles and Bondi) to seven (Taba) or more (Doll). More concerned with standards, Glatthorn and Jailall as well as David Squires emphasize the need to align the curriculum with what is being tested.[60]

All these development models attempt to show the relationship of curriculum to various decisions, activities, and processes. They provide guideposts. The models tend to be graphically or pictorially illustrated. They show input, transformations, and output and treat curriculum as a system composed of subsystems. Theoretical and scientific, the development models are conceived in technical terms. One must have knowledge of the field to fully appreciate and understand them. Such models tend to ignore processes that are not easily observed, measured, or controlled. They sometimes ignore attitudes, emotions, feelings, and beliefs linked to teaching and learning.

By adopting development models, curricularists tend to constrain curriculum choices. They sometimes forget that the path to curriculum development is strewn with qualitative judgments, concessions to social and political realities, and the need to serve diverse students and teachers. However, some curricularists argue that being systematic doesn't preclude flexibility and that their models consider multiple variables and permit choices.

This textbook gives considerable attention to nontechnical models. Doll notes that postmodernists often say that there are no universal principles; everything is relational or contextual.[61] Similarly, William Reid claims that we must go beyond rational and logical methods and rethink the curriculum in terms of aesthetics, morality, and spirituality.[62] In contrast, technical models sometime discourage change, which they treat as disruptive and inefficient.

A system of curriculum development can be open or closed. Open systems are dynamic and evolutionary; they develop through change. Closed systems are static and unable to accommodate change. Perhaps everyone involved should think of curriculum development as an open system—a journey, rather than a destination.

Curriculum Design

Curriculum design refers to the way we conceptualize the curriculum and arrange its major components (subject matter or content, instructional methods and materials, learner experiences or activities) to provide direction and guidance as we develop the curriculum. Most curriculum writers do not have a single or pure design for curriculum. They are influenced by many designs and approaches; they draw bits and pieces from different designs.

In general, a curriculum design should provide a basic frame of reference, a template if you wish, for planning what the curriculum will look like after engaging in curriculum development. If we liken a curriculum to a painting, *design* refers to how we want our artistic composition arranged. Whereas a curriculum design is influenced to some extent by the writer's curriculum approach, just as a painting is influenced to some degree by the artist's approach, it is the writer's views of the world and his or her views of teaching, learning, and instruction that are key to design selection.

The way people design a curriculum is partly a product of their view of curriculum. For example, those who view curriculum in behaviorist terms and favor a prescribed plan and set of learning outcomes produce different curriculum designs than those who view curriculum as a system of managing people and organizing procedures. Those who view teaching and learning in primarily psychological terms present different curriculum designs than those who view it in social or political terms. Whereas curriculum development tends to be technical and scientific, curriculum design is more varied because it is based on curricularists' values and beliefs about education.

If academic knowledge is paramount to a curricularist, his or her design most likely stresses disciplined knowledge. If, instead, students' overall growth is central, the curricularist designs with social and psychological concerns in mind. In general, curriculum design should provide a framework for planning what the curriculum will look like after curriculum development.

For most of the 20th century, curriculum specialists who started out as teachers were content oriented, emphasizing the core academic disciplines. Many people believe that we need designs that focus more on the student and less on the content, but such designs have not gained wide acceptance. It is not likely that schools will become more receptive to novel and radical designs in the near future. After all, schools socialize students in accordance with a society's norms and are, therefore, inherently conservative. Moreover, we as educators are in the midst of high-stakes testing and standards, which emphasize knowledge and information—what most of us in the field of teaching simply call *content*.

Planned and Unplanned Curriculum

What students learn in school extends beyond the *planned* (*formal* or *explicit*) curriculum. The planned curriculum translates the school's goals into the subjects that students are expected to learn, the measured objectives of the courses and lessons (often stated in the teachers' unit plans and lesson plans), and the subject's assigned readings. However, a school also transmits an *unplanned* (*informal*) curriculum, one that is not intended or stated.[63]

Eisner also distinguishes between the planned and the operational curriculum. The planned curriculum is developed after considering several options and is usually prepared by a curriculum committee of the school or school district. The *operational* curriculum emerges in the classroom as a result of the actual situation and requires that teachers make adjustments as needed.[64]

Then, there is the *hidden* curriculum, which arises from interactions among students and between students and teachers. Too often, curriculum texts ignore the powerful influence of the hidden curriculum, which is built around the peer group and often competes with the teacher's planned curriculum. It influences thinking and behavior in classrooms, sometimes even conflicting with the primary goals and values of the school and larger society.

When teachers and schools put too much emphasis on grades, the hidden curriculum elevates correct answers over understanding, facts over ideas, conforming behavior over independent behavior, and getting on the honor roll over helping others. Critics argue that the hidden curriculum teaches students that "beating the system" or "winning" is more important than anything else.[65]

As part of the socialization process, schools and society require that students conform and remain largely passive and compliant in the classroom. Students must stay in their seats, raise their hands and wait to be called on, line up as required, and so on. Children are socialized to follow rules and regulations.

Phillip Jackson summarizes schools' hidden curriculum: "It is expected that children will adapt to the teacher's authority by becoming 'good workers' and 'model students.' The transition from classroom to factory or office is made easier by those who have developed 'good work habits' in their early years."[66] John Holt also describes the socialization process: The aim of teachers and schools is to create student "producers," not thinkers, to reward right-answer-oriented students and discourage creative or divergent responses.[67] Producers follow rules and conform to teachers' expectations. Thinkers raise questions, come up with novel answers, and grapple with ideas. In an era of curriculum standards and high-stakes testing, the emphasis too often is on fact accumulation rather than critical thinking.

As previously mentioned, Eisner also distinguishes between the *implicit* curriculum (what the school teaches as having cognitive and social value) and the *null* curriculum (omitted content and values). For example, the public school curriculum generally avoids topics dealing with death, sex, and spirituality. Schools also may neglect nonverbal and nonliteral thinking, such as "visual, auditory and metaphoric . . . forms of expression."[68] Omissions should arise from objective criteria, not ignorance or bias.

To some extent, the null curriculum goes back to William Reid's point that curriculum involves deliberate choices; educators are inclined to emphasize agreed-on content and perspectives and systematically omit others.[69] For researchers, the curriculum can be viewed in terms of *content analysis*—that is, the attempt to sample, record, and justify the knowledge and information.[70] Certain facts, ideas, and values are represented and considered "commonly shared content"; the norms and rules that govern are *implicit.* Other data are omitted; this exclusion coincides with the null curriculum and unplanned curriculum.

The point is, whether we use terms such as *unplanned, hidden,* or *null curriculum,* certain subjects have always been considered more important than others. This controversy can be traced back to John Dewey and Boyd Bode (also a progressive educator), who reminded us that all subjects, including literature, art, music, dance, and vocational education, serve as means to an end, expand the learner's understanding of culture, and enhance the learner's sensitivities and appreciation of the norms and values of society.[71]

Although Dewey and Bode never used the aforementioned curriculum terms, they were concerned that certain subjects would be deemphasized and the spirit of individual creativity would be curtailed because of content omission; moreover, the idea of democracy would be left to the care of itself and be divorced from educational leadership.

1.2 Explicit and Implicit Curriculum
This video describes more about the hidden curriculum. What other unintended outcomes can you think of that are borne from the schooling process?

https://www.youtube.com/watch?v=eY2hpAOJTRQ

■ THEORY AND PRACTICE

A field of study involves theoretical and practical knowledge. By *theory,* we mean the most advanced views within a field. Theory often establishes the field's framework and helps researchers and practitioners analyze and synthesize data, organize concepts and principles, suggest new ideas and relations, and speculate about the future. According to Beauchamp, *theory* may be defined as the knowledge and statements that "give functional meaning to a series of events [and] take the form of definitions, operational constructs, assumptions, postulates, hypotheses, generalizations, laws or theorems." Curriculum theory involves "decisions about . . . the use of a curriculum, the development of curriculum, curriculum design and curriculum evaluation."[72] This definition suggests a scientific and technical approach to curriculum.

Good curriculum theory describes and explains the concepts, principles, and relationships that exist within the field. It also has predictive value; rigorous laws yield high probability and control. Good theory also prescribes actions to be taken. However, it is impossible to fully predict educational outcomes. Like other aspects of education, curriculum involves judgments, hunches, and insights that are not always conducive to laws, principles, or generalizations. Often, a curriculum does not emerge as a tightly regulated and concise set of enterprises, but evolves as one action or choice that leads to another.

Nonetheless, all curriculum texts should try to incorporate theory, to be systematic in their approach, and to establish worthwhile practices. As expressed by Taba, "Any enterprise as complex as curriculum requires some kind of theoretical or conceptual framework of thinking to guide it."[73]

From Theory to Practice

The test of good theory is whether it can guide practice. Good practice, in turn, is based on theory. By *practice,* we mean applied procedures, methods, and skills. Successful teaching results in procedures, methods, and skills that can be effectively applied in different situations.

People directly involved with curriculum must deal with practice. These people include administrators, supervisors, and teachers; curriculum developers and curriculum evaluators; textbook authors and test makers; and individuals assigned to curriculum committees, accrediting agencies, school boards, and local, regional, state, and federal educational agencies. Theories should be workable for these practitioners, make sense, have explanatory power, and be applicable to the real world of classrooms and schools (see Curriculum Tips 1.2.).

According to Elizabeth Vallance, "Much ado [is] made about the split between theory and practice in the dialogues and concerns about professional curriculum workers." The crux of the

| CURRICULUM TIPS 1.2 | **Translating Theory into Practice** |

To progress toward successfully blending curriculum theory and practice, we must recognize certain basic steps:

1. *Read the literature.* Any attempt to merge theory and practice must be based on knowledge of the professional literature.
2. *Identify the major terms.* Curriculum theorists and practitioners must identify and agree on the major constructs, concepts, and questions for discussion.
3. *Check the soundness of existing theories.* Existing theories must be analyzed in terms of their validity, accuracy, assumptions, logic, coherence, generalizability, values, and biases.
4. *Avoid fads.* Fads and "hot topics" must not be introduced to practitioners under the guise of a new theory, reform, or innovation. When a professional publication or conference introduces a new program or method, that program or method should be evaluated before being adopted.
5. *Align theory with practice.* Theory must be considered within the context of classrooms and schools; it must be readily applicable.
6. *Test theory.* If a theory is credible and makes sense, it must be empirically tested by trying it in practice and by measuring the results. A theory should first be applied on a small scale and involve a comparison of experimental and control schools.
7. *Interpret theory.* A theory must be tested in realistic situations. It must be evaluated in schools for at least one year and ideally for three years.
8. *Modify theory; reduce its complexity.* A theory is a generalizable construct supported by language or quantitative data. Nonetheless, theory must be modified from paper to practice, from the abstract to the concrete world, and from complex concepts to lay terms. When we put theory into practice, we involve many people and resources to make it work. Theory must be modified to suit people if it is to move from idea to action.

matter is to provide "practical answers to very practical questions having to do with design, development, implementation, and evaluation of curricula." The distinctions between theory and practice are secondary to Vallance because both aspects of curriculum focus on the "same curriculum problems."[74]

The problem is that most curricularists, including those who write textbooks, have difficulty fusing theory and practice. This is true even though many curriculum books emphasize either theory and practice[75] or principles and processes.[76] Perhaps curricularists have difficulty connecting theory and practice because their methods of inquiry lend themselves more to theoretical discussions than to practical matters. Although theory is recognized by professors of curriculum as a worthwhile endeavor, good practice is often misconstrued by theoreticians as a "cookbook" or as simple "dos" and "don'ts" that are unimportant.

Decker Walker notes that theory should provide a framework with which to conceptualize and clarify important problems and techniques. He states, however, that "curriculum theories . . . that are correct and complete to serve as . . . a basis for practical decisions do not exist." Educators, including curricularists, tend to embrace "theory as an ideology," even though much of what they say is based on their philosophical or social lens and closes us to "other aspects of reality and other values."[77]

Most curriculum texts are more theoretical than practical, but so are education textbooks in general. Despite their claims, curricularists seem unable to make the leap from theory to practice, from the textbook and college course to the classroom and school (or other organizations). Good theory in curriculum (and in other fields of education) often gets lost as practitioners (say, teachers) try to apply what they learned in college to the job setting in a search for practical solutions to common everyday problems.

The problem of translating theory into practice is further aggravated by practitioners who feel that practical considerations are more worthwhile than theory; most teachers and principals

view theory as unpractical and "how-to-do" approaches as helpful. In short, many theoreticians ignore the practitioners, and many practitioners ignore the theoreticians. Moreover, many theoretical discussions of curriculum are divorced from practical application in the classroom, and many practical discussions of curriculum rarely consider theoretical relationships.[78]

Practice involves selecting strategies and rules that apply to various situations. Adopting the right method for the appropriate situation is not an easy task and involves a good deal of common sense and experience. Good curriculum practice includes understanding the constraints and specifics operating within the school and comprehending the school's priorities and the needs of the students and staff. Also, successful practitioners can develop, implement, and evaluate the curriculum. They can select and organize (1) goals and objectives; (2) subject matter; (3) methods, materials, and media; and (4) suitable learning experiences and activities; and then (5) assess these processes.

In an attempt to blend theory and practice in curriculum, curriculum specialists have relied on teacher-authored articles, teacher-professor research teams, teachers' voices and stories, case studies and scenarios, planning guides, computerized media, blogs, wikis, and podcasts. These so-called theoretical and practical features fall short and don't really get to the heart of the problem, because the courses are not tightly integrated with fieldwork or school-based internships. Faculty members often lack knowledge in either theory or practice because of their own professional background and experiences. The result is that most newly hired curriculum workers in schools sink or swim on their own, relying on a mix of experience, personality, common sense, and luck.

In a final analysis, it is up to the curriculum specialist to recognize that the theoretician and practitioner have different agendas and perceptions of what is important. The practitioner does not function as the mere user of the theoretician's or researcher's product, and the theoretician is often interested in knowledge that has little value to practitioners. One role for the curriculum specialist, what some educators call the *reflective practitioner,* is to generate dialogue between the theoretician and practitioner and establish modes of collaboration that can benefit both groups.[79]

Curriculum Certification

In most states, curriculum lacks certification (specified requirements). This situation increases the difficulty of defining and conceptualizing the field and agreeing on curriculum courses at the level of higher education. The closest thing to certification is an endorsement or license (issued by the state department of education and sometimes by a city school district) as a supervisor or principal. We need people qualified to serve as curriculum generalists and specialists, both as resource agents and decision makers, as well as people who can maintain a balanced curriculum in terms of goals, subject matter, and learning activities when special-interest groups seek to impose their brand of education. Currently, minimum requirements for curriculum personnel vary within and between states, and curriculum programs vary considerably among colleges and universities. Because there are no licensing requirements or state or professional regulations, each school of education usually decides on its own program requirements and the courses it offers to meet these requirements. The result is a proliferation of elective courses in curriculum programs and a lack of specialized and general agreed-on courses. Even when curriculum course titles are similar, wide differences in content and level of instruction are common.

Ironically, the curriculum field is very unclear as to its curriculum. Although there are many curriculum programs at the university level, there is little guarantee that people who graduate from such a program will know how to develop, implement, and evaluate a curriculum or know how to translate theory into practice. Some curriculum students (especially those in administration) may not have taken courses in development, implementation, or evaluation. No test or screening device helps school systems or school board officials assess the abilities of curriculum personnel. This also adds to the problem of defining the roles and responsibilities of curriculum specialists and generalists.

Professionals are certified in such fields as teaching, counseling, school psychology, supervision, and administration. Job descriptions and related course requirements are defined. In contrast, curriculum jobs are not well defined, and there are few certification requirements or licenses. Curriculum positions are available in schools, universities, and local, regional, state, and federal education agencies, but without certification, people other than curriculum experts can obtain those positions—in some cases having been exposed to only one or two curriculum courses.

Many curriculum specialists who work in schools are certified in other fields. Similarly, most professors of curriculum have never been required to meet any state or national standards or pass any certification tests with regard to curriculum.

The lack of certification weakens curricularists' role in the schools and their influence at the university level. In still other cases, school principals who are expected to be curriculum leaders may not have had more than one or two curriculum courses at the university level because their certification requirements often limit such courses to one or two. It also encourages local and state policy makers and legislators to develop and design the school curriculum; these nonexperts impose standards and approve programs in terms of goals, content, and subject matter. This is especially true in large states such as California, Florida, Illinois, New York, and Texas, where pressure groups often influence standards, programs, and textbook adoptions. Because the field lacks professional certification, the responsibilities of curriculum leaders are vague and diffuse, and a strong and organized constituency is lacking at the K–12 school and university levels.

Although there are hundreds of educational leadership programs across the country, it is difficult to know just how many reflect a strong curriculum focus or whether they incorporate the latest research findings. First, there is little relationship between university preparation programs, leadership certification, and license requirements. Most states have ineffectual accreditation requirements—"making it easy for weak programs to produce hundreds . . . and thousands of underprepared candidates for school leadership [and curriculum] positions." Programs are usually evaluated according to "the number of graduates who pass certification exams," and not based on the features of the program or whether the candidates who take positions are competent.[80]

It would behoove the field's professional organizations (e.g., the Association for Supervision and Curriculum Development [ASCD]), leading curriculum journals (e.g., the *Journal of Curriculum Studies* and the *Journal of Curriculum and Supervision*), leading curriculum professors (e.g., the "100 Professors of Curriculum" at AERA), and practitioners at the central school districts and state departments of education who develop curriculum to pressure local and state agencies to formulate curriculum policy and certification.

■ THE ROLES OF THE CURRICULUM WORKER

Much has been written about the curriculum worker's roles and responsibilities. The term *curriculum worker* (used interchangeably with *curriculum supervisor, curriculum leader, curriculum coordinator,* and *curriculum specialist*) encompasses various educators, from teachers to superintendents. Anyone involved in curriculum development, implementation, or evaluation is a curriculum worker. A *curriculum supervisor*—usually a chairperson, assistant principal, or principal—generally works at the school level. A *curriculum leader* can be a supervisor or administrator: a chairperson, principal, or director or associate superintendent of curriculum. A *curriculum coordinator* usually heads a program at the school district, regional, or state level; the program may be a special government-funded program or a traditional subject-area program such as a math or English program. A *curriculum specialist* is a technical consultant from the district level, a regional or state department of education, or a university. A curriculum specialist provides advice or in-service assistance, sometimes in the classroom but usually at meetings, conferences, or staff sessions. Most of these terms, as well as the related responsibilities and

functions, depend on the philosophy and organization of the school district (or state education agency) and the administration's personal preferences and views. The terms are also rooted in the ASCD's original mission and practice, when it emphasized curriculum and supervision, as opposed to today's emphasis on curriculum, teaching, learning, and standards.

There is further confusion regarding whether curriculum planning or development takes place at the local, state, or national level. In the past, emphasis on curriculum development was at the school or school district level. Since the mid-1980s, the school-reform movement has shifted some curriculum responsibilities to the state level, and there is serious talk of movement to the national level. The state and national testing and standards movement that began in the 1990s and accelerated in the 21st century encourages this reform notion of curriculum. (Most other nations have a national ministry of education with major curriculum responsibilities.)

In the past, curriculum roles were defined at the local level, and decisions to groom curriculum leaders were made at the subject chair's and principal's levels. Most school districts depend on teachers and supervisors to develop curriculum (usually without pay, unless they meet in the summer). Also, parents are included in many curriculum committees at the school level. Staff limitations make it unlikely that the central office of the school district will provide curriculum specialists, especially specialists who aren't burdened with other responsibilities. Only large school districts can afford to have a curriculum department with a full staff of specialists. In such school districts, most curriculum development takes place at the district level; teachers often complain that their professional input is minimal, consisting of nothing more than implementing predetermined and prepackaged materials from the district office.

The Curriculum Worker's Responsibilities

What are a curriculum worker's responsibilities? Assigned responsibilities within the school structure are important, but they are unclear because different people (teachers, supervisors, principals, district personnel, and others) are usually expected to serve as curriculum workers. Each position holder has different professional responsibilities, needs, and expectations and must make adjustments. For example, teachers must, of course, provide instruction, and principals must manage a school and assist teachers. And who is supposed to align the school curriculum to the Common Core State Standards?

The teacher works with supervisors and administrators as part of the curriculum team. Early identification of teachers who can serve as curriculum workers is essential for the teacher's growth and the school's (and school district's) vitality. The following clarifies the responsibilities of curriculum workers:

1. Develop *technical methods* and tools to carry out curriculum planning in the school (school district or state agency).
2. Blend *theory* building with *practice;* obtain curriculum knowledge and apply it in the real world of classrooms and schools.
3. Agree on what is involved in curriculum *development* and *design,* including the relationships among the curriculum's elements.
4. Agree on and align the relationships among *curriculum, standards (and other mandates), instruction,* and *supervision,* including their interdependencies. This is particularly essential when working with newer standards like the Common Core.
5. Be a *change agent* who considers schools within the context of society. Balance the demands and views of the local community with state and national goals and interests.
6. Create a *mission* or *goal statement* to provide direction and focus behavior within the organization.
7. Be open to new *curriculum trends* and thoughts. Examine various proposals and suggest modifications. Do not fall victim to fads or particular pressure groups.
8. Confer with parental, community, and professional groups. Develop skills in human relations and in *working with individuals and groups.*

9. Encourage colleagues and other professionals to *solve professional problems*. Innovate; become familiar with and use new programs and ideas.
10. Develop a program for continuous *curriculum development, implementation,* and *evaluation.*
11. Balance different *subject areas and grade levels,* and integrate them into the total curriculum. Pay close attention to scope and sequence by subject and grade level.
12. Understand current *research in teaching and learning,* as well as new programs relevant to target students.

The Student's Role

Student involvement in curriculum planning can be traced to the ideas of Kilpatrick and Rugg, who were child and activity centered in outlining the roles and concepts of curriculum making. Discussed freely in the 1920s and 1930s, the premise of student involvement was to plan themes, units, lesson plans, and school projects that allowed for considerable student input. Dewey, however, downplayed the students' role because he felt students would express interest in certain topics in order to please their teachers. In the final analysis, it was the teacher's responsibility to plan and implement curriculum and to be "aware more than the children themselves of what the children want and need."[81]

Whereas Tyler did not clearly describe the student's role in *Basic Principles of Curriculum and Instruction,* his colleague Taba was clear about student involvement. According to Taba, curriculum making should start with "diagnosing the needs of students."[82] She considered curriculum "as a plan for learning." Therefore, knowledge of the students and their potential contributions had a "bearing on shaping [the] curriculum." Because learning was developmental, the curriculum should proceed "only after some information is obtained regarding . . . ideas, forms of thought, feelings, habits and skills of students."[83]

More recently, Doll has spoken of student involvement in curriculum planning related to students' rights and the fact that students are the program's recipients. Students should be consulted at least "informally in classroom and school activities [since they] offer important clues about actions to be taken."[84] Peter Oliva feels students should participate in curriculum development, subject to "a number of variables such as intelligence, motivation and knowledge" and, most importantly, their "maturity." He distinguishes between input from high school students and younger students.[85]

The authors' view is that students are neither experts nor professionals, so their role in curriculum planning should be limited to providing information. Teachers who encourage student or parental input in curriculum planning run the risk of reducing their influence and getting bogged down on tangential subjects.

The Teacher and the Curriculum

Although Doll views the curriculum expert primarily as a subject chair or principal, he is concerned with the teacher's role in planning and implementing the curriculum at the classroom, school, and district levels. In his opinion, the teacher should be involved "in every phase" of curriculum making, including the planning of "specific goals, . . . materials, content, and methods." Teachers should have a curriculum "coordinating body" to unify their work and develop "relationships with supervisors [and] other teachers" involved in curriculum.[86]

Oliva has a broader view of the teacher's role. For him, teachers are the "primary group in curriculum development." They constitute the "majority or the totality of the membership of curriculum committees and councils." Their role is to develop, implement, and evaluate curriculum. In his words, teachers work in committees and "initiate proposals, . . . review proposals, gather data, conduct research, make contact with parents and other lay people, write and create curriculum materials, . . . obtain feedback from learners, and evaluate programs."[87]

Doll's and Oliva's views suggest a *bottom-up* approach to curriculum, in which the teacher plays a major role. Taba popularized the bottom-up view in her classic text on curriculum development.[88] Rugg introduced the view that teachers must be released from classroom duties to "prepare courses of study, and assemble materials, and develop outlines of the entire curriculum." Later, Caswell and Campbell envisioned teachers participating in curriculum committees at the school, district, and state levels during summers and sometimes to fulfill special assignments during the school year.[89]

Carl Glickman takes a broad view of teacher involvement in curriculum. He considers three levels. In level 1, the teachers' role is *maintenance,* whereby they rely on prescribed textbooks, workbooks, and printed materials. Teachers at level 2 are *meditative,* and curriculum planning is confined to refining or modifying the agreed-on content. In level 3, what he refers to as a *creative* or *generative* stage, the curriculum is examined at the departmental or school level; the content is changed regularly, teachers are considered to be professionals, and they have greater responsibility for curriculum decisions.[90]

James Beane advocates a lesser role for the teacher. Although teachers may emerge as curriculum leaders, the "major responsibility of administrative and supervisory personnel should be to provide leadership and assistance in curriculum development and implementation." Other aspects of curriculum work, such as "budget development, grant writing, and interaction with school boards," should be carried out by supervisors and administrators "in such a way as to facilitate curriculum planning." Nonetheless, the school district has the ultimate responsibility to employ support personnel who have skill in curriculum planning, and such personnel may include "teachers, school officials, and citizens."[91]

Glatthorn is even more top-down. He makes little provision for teacher input, and discusses the role of "coordinators" at the district level and that of principals, assistant principals, and chairs at the school level. He envisions a "teacher specialist" as a member of a subject or grade-level team only at the elementary school level, and in that case confined mainly to reading and math.[92]

Based on traditional theories of social organization and open systems and our current knowledge of effective schools, we see the teacher's role in curriculum making as central. Teachers bring the curriculum to life through instruction. Their diverse methods of instruction—which might include lectures, close reading, discussions, and group work—will shape how students receive the curriculum. One topic, like the Gettysburg Address, can produce many different curricula depending on the teacher—even if he or she references the same textbook. And with the implementation of the Common Core State Standards, teachers will continue to play an outsized role in shaping the curriculum students encounter.

The Principal and the Curriculum

Although there is consensus in the literature that the principal should be a leader in curriculum and instruction, there is considerable disagreement regarding the principal's specific roles. Surveyed principals often say that they consider curriculum and instruction top priorities and recognize the need to spend more time on these areas of development.[93]

However, Glatthorn notes that "most experts who have examined school leadership [or the principal's role] have focused unduly on the principal as a leader of instruction, ignoring the role of curriculum leader."[94] Given the national and state standards movement and the need to upgrade the curriculum to meet these standards, school principals' attention has increasingly focused on curriculum, especially on aligning curriculum with state standards and high-stakes tests, which can jeopardize schools' reputations as well as principals' and teachers' jobs.

However, data suggest that teachers do not view curriculum-instructional leadership as a major responsibility of principals, do not see much evidence of such leadership on the part of principals, and are reluctant to accept principals in this leadership capacity.[95] Often, teachers believe that principals are incapable of providing such leadership and don't want their assistance in

these technical areas, which teachers consider more appropriate for peer coaching and collegial staff development.[96]

Historically, principals have spent only about 15–20 percent of their time coordinating activities in curriculum and instruction (combined)[97] and have spent only 3–10 percent of their time observing teachers in the classroom.[98] Principals have contended that dealing with the school's daily operation, especially writing memos, attending meetings, and speaking on the telephone, takes up most of their time.

Thelbert Drake and William Roe, who have been writing about principals since the early 1980s, also note a wide discrepancy between actual and desired amount of time on leadership tasks. Of the 14 most common tasks rated by school principals, curriculum development was considered the second most important. However, on average, principals spent only 7.9 percent of their professional time on curriculum development.[99] Two administrators have listed 74 items principals must attend to in order to begin a school year effectively, none of which deal with curriculum or instruction.[100]

Thus, principals look to assistant principals or chairpersons to meet responsibilities of curriculum, instruction, and program development.[101] Most secondary school principals rely on other staff members (teachers and supervisors) to plan, implement, and evaluate the curriculum. Principals must deal with many problems and issues involving students, teachers, and parents. Curriculum gets pushed to the background.

Although the National Association of Elementary School Principals and the National Association of Secondary School Principals envision the principal as a curriculum and instructional leader—and this theme continually appears in their journals (which principals read)—the realities of a principal's job do not permit a focus on these leadership areas. Principals have the knowledge and experience to know what works in schools. Yet, many principals take notice of curriculum only to the extent that it raises the level of learning in their school or improves test scores.

Changing Professional Roles: Standards and Testing

As the states have mandated curriculum standards and high-stakes testing, and as the federal government moves toward national assessment, teachers' individual and collective thinking about curriculum content and what is worth teaching and how it should be taught has diminished. Similarly, the role of the principal as a curriculum or instructional leader has been diminished. Critics such as Michael Apple refer to this trend as *deprofessionalism,* and James Popham refers to it as *professional impotence.*

In short, the states and federal government are reducing curriculum decision making at the local or school district level and moving in the direction of indirectly controlling curriculum decisions. When aligned with state standards, high-stakes tests can be used to determine whether teachers and principals are implementing the curriculum. In the states without a mandated curriculum, the teachers wind up teaching toward the test. According to Carl Glickman and colleagues, "the test itself becomes the curriculum."[102] Curriculum alignment is turned *upside down*. Instead of starting with the curriculum and aligning instruction and assessment with the curriculum, the opposite happens: Teachers (and principals) start with the statewide test and align curriculum and instruction to the test.

In states where curriculum content is recommended or required, usually accompanied by formal and written standards, teachers tend to follow in lockstep; moreover, instructional leaders become "inspectors," or "cops," who observe and evaluate teachers. They ensure teachers are on task and following the recommended or required standards and that students are being taught prescribed content and are being prepared for the high-stakes tests that are being used to evaluate students. This "new Taylorism" hearkens back to the early 1900s, when Frederick Taylor's scientific management principles were applied to workers to streamline their labor and maximize their output.[103]

The irony is, according to Popham, teachers and principals know very little—if not next to nothing—about educational testing and measurements because they have not been trained in assessment methods. Given that students' test scores have become significant today, educators "who choose to remain unaware of assessments' key concepts [and techniques] are being dangerously naïve" and are inviting "professional suicide."[104] In an era of high-stakes testing, it is essential that educators involved in curriculum, teaching, and supervision not necessarily know how to carry out testing and measurement procedures, but at least understand and be able to interpret those *concepts* and techniques.

Although the reliability and validity of these tests can be questioned, government and business officials view this criticism as excuses and do not want to hear this discussion. In an age of global competitiveness and accountability, we are told the data systems provide us with knowledge about evaluating student learning and assessing teacher effectiveness. Nevertheless, as professionals, educators must refrain from "gaming" the system: teaching toward the test, "cooking results," and manipulating which students take the exams. Finally, they must defend themselves from being bullied or pressured into unethical behavior because of the consequence of the exams and the fear at possibly losing their jobs.

> **1.3 Curriculum vs. Standards**
> Watch this video describing the difference between curriculum and standards. What is the major misconception that parents, students, and even teachers have about standards? How will you clarify this to them?
>
> https://www.youtube.com/watch?v=ZLzzQK4bzVM

Conclusion

We presented different definitions of curriculum, discussed the relationship between curriculum foundations and domains, illustrated how theory and practice interrelate within the field of curriculum, and described the curriculum worker's roles and responsibilities. In effect, we have told readers that they can focus on approaches and definitions, foundations and domains, and theory and practice of curriculum and instruction. No one can fully integrate the field of curriculum. Each individual should consider different definitions, approaches, development and design models, and curriculum roles.

Discussion Questions

1. What are the six different curriculum approaches? Describe each briefly.
2. State any two definitions of curriculum that apply to your country. Reflecting on the dynamics of curriculum, what do you think are some of the challenges in defining it?
3. How do the foundations of education influence curriculum? Which foundation areas are most important? Why?
4. What is a hidden curriculum? Discuss two examples of hidden curricula that you have come across.
5. What is the importance of curriculum certification? What form does curriculum certification take in your country?
6. What are the responsibilities of the different curriculum workers within schools?

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2

Philosophical Foundations of Curriculum

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Describe how philosophy influences curriculum workers
2. Identify and differentiate the four major philosophies that influenced U.S. education
3. Discuss how the four philosophies of education—perennialism, essentialism, progressivism, and reconstructionism—differ from each other and influenced education over time

Philosophy is central to curriculum. The philosophy of a particular school and its officials influences the goals, content, and organization of its curriculum. Usually, a school reflects several philosophies. This diversity enhances the curriculum's dynamics. Studying philosophy allows us not only to better understand schools and their curricula, but also to deal with our own personal beliefs and values.

Philosophical issues have always had an impact on schools and society. Contemporary society and its schools are rapidly changing. The special need for continuous reappraisal calls for a philosophy of education. As William Van Til puts it, "Our source of direction is found in our guiding philosophy. . . . Without philosophy, [we make] mindless vaults into the saddle" and we have a tendency to "ride madly off in all directions."[1] To a large extent, our philosophy of education determines our educational decisions, choices, and alternatives.

Philosophy deals with the larger aspects of life and the way we organize our thoughts and interpret facts. It is an effort to understand life—its problems and issues in full perspective. It involves questions and our own point of view as well as the views of others; it involves searching for defined values and clarifying our beliefs.

■ PHILOSOPHY AND CURRICULUM

Philosophy provides educators, especially curriculum workers, with a framework or frameworks for organizing schools and classrooms. It helps them determine what schools are for, what subjects have value, how students learn, and what methods and materials to use. It clarifies education's goals, suitable content, teaching and learning processes, and the experiences and activities that schools should emphasize. Philosophy also provides a basis for deciding which textbooks to use, how to use them, and how much homework to assign, how to test students and use the test results, and what courses or subject matter to emphasize.

L. Thomas Hopkins writes the following:

> Philosophy has entered into every important decision that has ever been made about curriculum and teaching in the past and will continue to be the basis of every important decision in the future.
>
> When a state office of education suggests a pupil-teacher time schedule, this is based upon philosophy, either hidden or consciously formulated. When a course of study is prepared in advance in a school system by a selected group of teachers, this represents philosophy because a course of action was selected from many choices involving different values. When high school teachers assign to pupils more homework for an evening than any one of them could possibly do satisfactorily in six hours, they are acting on philosophy although they are certainly not aware of its effects. When a teacher in an elementary school tells a child to put away his geography and study his arithmetic, she is acting on philosophy for she has made a choice of values. . . . When teachers shift subject matter from one grade to another, they act on philosophy. When measurement experts interpret their test results to a group of teachers, they act upon philosophy, for the facts have meaning only within some basic assumptions. There is rarely a moment in a school day when a teacher is not confronted with occasions where philosophy is a vital part of action. An inventory of situations where philosophy was not used in curriculum and teaching would lead to a pile of chaff thrown out of educative experiences.[2]

Hopkins's statement reminds us how important philosophy is to all aspects of curriculum making, whether we know that it is operating or not. Indeed, almost all elements of curriculum are based on a philosophy. As John Goodlad points out, philosophy is the beginning point in curriculum decision making and the basis for all subsequent decisions. Philosophy becomes the criterion for determining the aims, means, and ends of curriculum.[3] It is crucial for nearly all decisions regarding teaching and learning.

Philosophy and the Curriculum Worker

Our philosophy reflects our background and experiences. Our decisions are based on our worldview, attitudes, and beliefs. Philosophy guides action.

No one can be totally objective, but curriculum workers can broaden their knowledge and understanding by considering problems from various perspectives. Someone who rigidly adheres to a particular personal philosophy may come into conflict with others. Ronald Doll notes, "Conflict among curriculum planners occurs when persons . . . hold [different] positions along a continuum of beliefs and . . . persuasions." The conflict may become so intense that "curriculum study grinds to a halt." Usually, the differences can be reconciled "temporarily in deference to the demands of a temporary, immediate task. However, teachers and administrators who are clearly divided in philosophy can seldom work together in close proximity for long periods of time."[4]

At the same time, curriculum workers who lack a coherent philosophy can easily lack clarity and direction. A measure of positive conviction is essential for prudent action. Ideally, curriculum workers have a personal philosophy that can be modified. They base their conclusions on the best evidence available, and they can change when better evidence surfaces. Indeed, mature people are more capable of examining their philosophy and appreciate other points of view, especially when facts or trends challenge their original beliefs and values.

Philosophy as a Curriculum Source

Philosophy's function can be conceived as either (1) the starting point in curriculum development, or (2) a function interdependent with other functions in curriculum development. John Dewey represents the first school of thought. He contended that "philosophy may . . . be defined as the general theory of education" and that "the business of philosophy is to provide" the framework for schools' "aims and methods." For Dewey, philosophy is a way of thinking that gives meaning to our lives.[5] It is not only a starting point for schools, but it is also crucial for all curriculum activities. "Education is the laboratory in which philosophic distinctions become concrete and are tested."[6]

In Ralph Tyler's curriculum framework, philosophy is commonly one of five criteria used in selecting "educational purposes." The relationships between philosophy and the other criteria—studies of learners, studies of contemporary life, suggestions from subject specialists, and the psychology of learning—are shown in Figure 2.1. Influenced by Dewey, Tyler seems to place greater importance on philosophy than on other criteria for developing educational purposes. He writes, "The educational and social philosophy to which the school is committed can serve as the first screen for developing the social program." He concludes that "philosophy attempts to define the nature of the good life and a good society" and that the educational philosophies in a democratic society are likely "to emphasize strongly democratic values in schools."[7]

For Goodlad, we must agree on the nature and purpose of education before we can pursue curriculum's philosophy, aims, and goals. According to Goodlad, the school's first responsibility is to the social order (which he calls the "nation-state"), but our society emphasizes individual growth.[8] Society versus the individual has been a major philosophical issue in Western society for centuries and was also important in Dewey's works. As Dewey stated, we wish "to make [good] citizens and workers" but also want "to make human beings who will live life to the fullest." American education, in this century, can be viewed as a process that fosters both the growth of individuals and a good society. For Dewey and Goodlad, education is growth—and
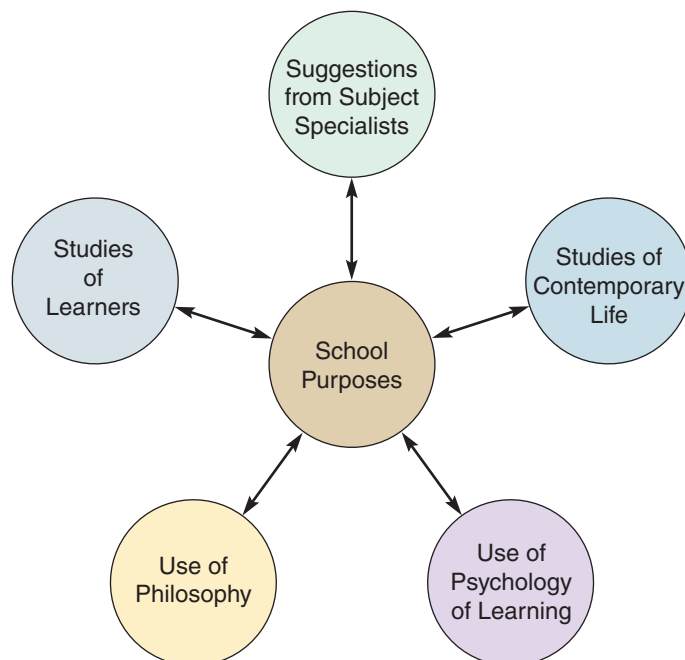
FIGURE 2.1 Tyler's View of Philosophy in Relation to School Purposes

the meaning that growth has for the individual and society; it is a never-ending process, and the richer the child's growth, the better the quality of the educational process and society in general.

■ MAJOR PHILOSOPHIES

Four major philosophies have influenced U.S. education: idealism, realism, pragmatism, and existentialism. The first two philosophies are traditional; the last two are contemporary.

Idealism

Plato is often credited with formulating *idealist* philosophy, one of the oldest that exists. The German philosopher Hegel presented a comprehensive view of the historical world based on idealism. In the United States, transcendentalist philosophers Ralph Waldo Emerson and Henry Thoreau outlined an idealist conception of reality. In education, Fredrich Froebel, the founder of kindergarten, was a proponent of idealist pedagogy. William Harris, who popularized the kindergarten movement when he was superintendent of schools in St. Louis, Missouri, and who became U.S. commissioner of education at the turn of the 20th century, used idealism as a source for his administrative philosophy. To most educators, idealism's leading U.S. proponent is J. Donald Butler. To the authors, however, a better-known person is William Bennett, a strong believer in values and virtues.[9]

Heavily influenced by Plato and Augustine, U.S. idealists agree that the highest aim is the search for truth and enduring values. As expressed in Plato's *Republic* and later Christian doctrine, Plato believed that ideas could be integrated into universal concepts and a meaningful whole. Truth can be found through reasoning, intuition, and religious revelation.[10] Some idealists, such as Kant, believe it is possible to achieve moral clarification but not possible to arrive at absolute or universal truths. Perhaps the most influential idealist, Hegel thought that one could progress toward truth by continually synthesizing thesis and antithesis, thereby arriving at ever-higher levels of understanding.

To idealists, learning is a primarily intellectual process that involves recalling and working with ideas; education is properly concerned with conceptual matters. The idealist educator prefers a curriculum that relates ideas and concepts to one another. The curriculum is hierarchical; it constitutes humankind's cultural heritage and is based on learned disciplines, as exemplified by the liberal arts curriculum. At the top of the hierarchy are the most abstract subjects: philosophy and theology. Mathematics, too, is important because it cultivates abstract thinking. History and literature rank high because they offer moral and cultural models. Language is also important because it enables communication and conceptual thought. Lower on the curricular ladder are the sciences, which deal with particular cause-and-effect relationships.

Realism

Aristotle is often linked to the development of *realism,* another traditional school of thought. Thomas Aquinas's philosophy, which combined realism with Christian doctrine, developed an offshoot of realism called *Thomism,* in which much of contemporary Catholic education is rooted. Johann Pestalozzi's instructional principles, which began with concrete objects and ended with abstract concepts, were based on realism. Such modern educators as Harry Broudy and John Wild are leading realists.[11]

Realists view the world in terms of objects and matter. People can come to know the world through their senses and their reason. Everything is derived from nature and is subject to its laws. Human behavior is rational when it conforms to nature's laws and when it is governed by physical and social laws.

Aristotle believed that everything had a purpose and that humans' purpose is to think. In Buddhism, however, true peace is derived not from thinking about something, but from thinking about nothing. For Aristotle, and later Aquinas, the universe is ordered; things happen for

a purpose, and education should illuminate purpose. Aristotle encourages people to live a rational life of moderation, to strive for the "golden mean," a compromise between extremes.

Like idealists, realists stress a curriculum comprising separate content areas, such as history and zoology. Also like idealists, realists rank the most general and abstract subjects at the top of the curricular hierarchy. Lessons that cultivate logic and abstract thought are stressed. The three *R*'s are basic to education.[12] Whereas idealists consider the classics ideal subject matter because they convey enduring moral truths, realists value the sciences as much as the arts.

Pragmatism

In contrast to the traditional philosophies, *pragmatism* (also referred to as *experimentalism*) is based on change, process, and relativity. Whereas idealism and realism emphasize subject matter, pragmatism construes knowledge as a process in which reality is constantly changing. Learning occurs as the person engages in problem solving, which is transferable to a wide variety of subjects and situations. Both the learner and the learner's environment are constantly changing. Pragmatists reject the idea of unchanging and universal truths. The only guides that people have when they interact with their social world or environment are established generalizations, assertions subject to further research and verification.

To pragmatists, teaching should focus on critical thinking. Teaching is more exploratory than explanatory. The method is more important than the subject matter. The ideal teaching method is concerned not so much with teaching the learner what to think as with teaching the learner to critically think. Questions such as "Why?" "How come?" and "What if?" are much more important than "What?" "Who?" or "When?"

Scientific developments around 1900 fostered pragmatic philosophy. Society increasingly accepted scientific explanations for phenomena. In 1859, Charles Darwin's *The Origin of Species* shook the foundations of the religious, human-centered worldview. Mathematician Charles Peirce and psychologist William James developed the principles of pragmatism, which (1) rejected the dogmas of preconceived truths and eternal values, and (2) promoted testing and verifying ideas. Truth no longer was absolute or universal.[13]

The great educational pragmatist was Dewey, who viewed education as a process for improving the human condition. Dewey saw schools as specialized environments within the larger social environment. Ideally, curriculum was based on a child's experiences and interests and prepared the child for life's affairs.[14] The subject matter was interdisciplinary. Dewey emphasized problem solving and the scientific method.

Existentialism

Whereas pragmatism is mainly a U.S. philosophy that evolved just prior to 1900, *existentialism* is mainly a European philosophy that originated earlier but became popular after World War II. In U.S. education, Maxine Greene, George Kneller, and Van Cleve Morris are well-known existentialists who stress individualism and personal self-fulfillment.[15]

According to existentialist philosophy, people continually make choices and thereby define themselves. We are what we choose to be; in doing so, we make our own essence, or self-identity. Hence, the essence we create is a product of our choices; this varies, of course, among individuals. Existentialists advocate that students be free to choose how and what they study. Critics argue that such free choice would be too unsystematic and laissez-faire, especially at the elementary school level. Existentialists believe that the most important knowledge is knowledge of the human condition. Education should develop consciousness of choices and their significance.[16] Existentialists reject the imposition of group norms, authority, and established order. They recognize few standards, customs, or opinions as indisputable.

Some critics (mainly traditionalists or conservatives) claim that existentialism has limited application to schools because education in our society—and in most other modern societies—involves institutionalized learning and socialization, which require group instruction, restrictions

Table 2.1 | Overview of Major Philosophies

Philosophy	Reality	Knowledge	Values	Teacher's Role	Emphasis on Learning	Emphasis on Curriculum
Idealism	Spiritual, moral, or mental; unchanging	Rethinking latent ideas	Absolute and eternal	To bring latent knowledge and ideas to consciousness; to be a moral and spiritual leader	Recalling knowledge and ideas; abstract thinking is the highest form	Knowledge based; subject based; classics or liberal arts; hierarchy of subjects: philosophy, theology, and mathematics are most important
Realism	Based on natural laws; objective and composed of matter	Consists of sensation and abstraction	Absolute and eternal; based on nature's laws	To cultivate rational thought; to be a moral and spiritual leader; to be an authority	Exercising the mind; logical and abstract thinking are highest form	Knowledge based; subject based; arts and sciences; hierarchy of subjects: humanistic and scientific subjects
Pragmatism	Interaction of individual with environment; always changing	Based on experience; use of scientific method	Situational and relative; subject to change and verification	To cultivate critical thinking and scientific processes	Methods for dealing with changing environment and scientific explanations	No permanent knowledge or subjects; appropriate experiences that transmit culture and prepare individuals for change; problem-solving activities
Existentialism	Subjective	Knowledge for personal choice	Freely chosen; based on individuals' perception	To cultivate personal choice and individual self-definition	Knowledge and principles of the human condition; acts of choosing	Choices in subject matter, electives; emotional, aesthetic, and philosophical subjects

on individuals' behavior, and bureaucratic organization. Schooling is a process that limits students' freedom and is based on adult authority and generally accepted behavior and beliefs. As students, most of us follow rules; as teachers, most of us enforce rules. The individual existentialist, exerting his or her will and choice, will encounter difficulty in school—and other formal organizations.

An existentialist curriculum consists of experiences and subjects that lend themselves to individual freedom and choice. For example, the arts are stressed because they cultivate self-expression and portray the human condition and situations involving choices. Teachers and students discuss their lives and choices.[17] In particular, literature, drama, filmmaking, music, and art reflect self-expressive activities and illustrate emotions, feelings, and insights—all conducive to existentialist thinking (see Table 2.1).

◾ EDUCATIONAL PHILOSOPHIES

Four agreed-on philosophies of education have emerged: perennialism, essentialism, progressivism, and reconstructionism. Each of these philosophies has roots in one or more of the four major philosophical traditions. For example, perennialism draws heavily on realism, essentialism is

rooted in idealism and realism, and progressivism and reconstructionism stem from pragmatism. Some reconstructionism has links to existentialist views.

Perennialism

Perennialism, the oldest and most conservative educational philosophy, is rooted in realism. It dominated much of American education from the colonial period to the early 1990s. At the elementary school level, the curriculum stressed the three *R*'s as well as moral and religious training; at the secondary level, it emphasized such subjects as Latin, Greek, grammar, rhetoric, logic, and geometry.

As a philosophy of education, perennialism relies on the past and stresses traditional values. It emphasizes knowledge that has stood the test of time and cherished values of society. It is a plea for the permanency of knowledge and values that have stood the test of time—an unchanging view of the human nature, truth, and virtue. Robert Hutchins, a longtime advocate of perennialism, has noted that a person's function is "the same in every society. . . . The aim of the educational system is the same in every age and in every society where such a system can exist. That aim is to improve people."[18]

For perennialists, human nature is constant. Humans have the ability to reason and to understand nature's universal truths. The goal of education is to develop the rational person and uncover universal truths by developing students' intellect and moral character.

The perennialist's curriculum is subject centered; it relies heavily on defined disciplines or logically organized bodies of content, emphasizing language, literature, mathematics, and sciences. Teachers are viewed as authorities in their fields. They stimulate discussion and students' rational powers. Teaching is based primarily on the Socratic method: oral exposition, lecture, and explication. Here is one curriculum for all students, with little room for elective subjects or vocational or technical subject matter. Character training is also important as a means of developing the student's moral and spiritual being.

PERMANENT STUDIES.   According to perennialists, the liberal arts comprise our intellectual heritage, as exemplified by Robert Hutchins's book series *Great Books of the Western World.* The series covers the foundations of Western thought and its scientific and cultural knowledge. By studying the great ideas of the past, we can better cope with the present and future. Students read and discuss the works of great thinkers and artists such as Plato, Aristotle, and Shakespeare in order to cultivate their intellect. Students are encouraged to learn Latin and Greek so that they can read ancient classics in their original language. In addition to the classics and the study of language, Hutchins urges the study of the three *R*'s, grammar, rhetoric, logic, advanced mathematics, and philosophy.[19] This curriculum treats human nature as rational and knowledge as unchanging. For Hutchins, this type of education is not "specialized," "preprofessional," or "utilitarian." It is broad based, academic, and "calculated to develop the mind."[20] It is a universal, broad education that prepares the individual to think, to prepare for many jobs, and to deal with life. By studying the great ideas of the past, we can better cope with the future.

THE PAIDEIA PROPOSAL.   Mortimer Adler's book *The Paideia Proposal* revived perennialism. Adler advocated three types of learning that improve the intellect: acquisition of *organized knowledge,* to be taught by didactic instruction; development of *basic learning skills* through coaching and presentation of *ideas;* and acquisition of *values,* to be taught by the Socratic method.[21] Further outlined in Table 2.2, these three types of learning are the same that Dewey outlined in *Democracy and Education* (1916) and Ralph Tyler later presented in *Basic Principles of Curriculum and Instruction* (1949).

Adler considers a broad liberal education the best education for *all* students. He advocates that the same curriculum and quality of teaching be provided to all students. He considers an academic curriculum to have more practical value than vocational or specialized training. Such a curriculum, he believes, prepares students for a wide range of jobs. Adler considers these

Table 2.2 | The Paideia Course of Study

Curriculum/Instructional Concentration	Method	Content
Acquisition of knowledge	Didactic instruction, teaching by telling Lectures, explanations Standard questions Laboratory demonstrations Use of textbooks	Language Literature Math Science History, geography Fine arts
Learning (intellectual) skills	Coaching Exercises, problems Supervised practice Use of computers and other instructional tools	Reading, writing, speaking, listening Observing, measuring, estimating Critical judgment
Ideas and values	Socratic questioning Active participation Philosophical essays and debates Creative products	Discussion of major books, not textbooks Interdisciplinary subject matter (literature, history, science, philosophy, etc.) Involvement in linguistic and artistic activities

Source: Adapted from Mortimer J. Adler, *The Paideia Proposal: An Educational Manifesto* (New York: Macmillan, 1982), pp. 23–32.

subjects indispensable: language, literature, fine arts, mathematics, natural sciences, history, and geography. Although it emphasizes fundamental subjects, *The Paideia Proposal* does not present subject matter as an end in itself, but as the context for developing intellectual skills that include the three *R*'s, speaking, listening, observing, measuring, estimating, and problem solving. Together, the fundamental subjects and intellectual skills lead to a higher level of learning, reflection, and awareness. For Adler, as for Hutchins, education's purpose is to cultivate significant knowledge and thinking skills, to read the best books—"great books," as they were called by Hutchins—which are recommended by the Paideia program.

Perennialism appeals to a small group of educators who stress intellectual meritocracy. Such educators emphasize testing, tougher academic standards and programs, and identification of gifted and talented students. They advocate a uniform curriculum, usually liberal arts, with few electives. For perennialists, educational equality results from providing all students with high-quality academic education; they believe tracking some students into a vocational curriculum would deny them an equal education.

RETURNING TO THE LIBERAL ARTS.   In *The Closing of the American Mind*, Allan Bloom voiced concern about a lack of universal standards and subjects within education.[22] Like other perennialists, he asserts that cultural relativism—with its emphasis on trivial pursuits, quick fixes, and relevancy—has degraded U.S. education. According to Bloom, U.S. schools fail to foster critical thinking. Deprived of a serious liberal arts and science education, unfamiliar with the great works and ideas of the past, U.S. students lack mental depth. We have rejected universal standards of morality and excellence. Like Hutchins before him, Bloom seeks to reestablish the benefits of reading classics and obtaining a liberal arts education. Bloom calls for intellectually challenging education that helps preserve what is best in the national culture.[23]

On a national level, Bloom contends we are heading for *educational nihilism*—a disrespect for tough academics and critical thought. Our schools, and especially universities, are not

places where serious thought occurs. Our educational institutions fail in their fundamental task of educating people and providing a place for serious learning and scholarship. We have welcomed the false doctrine of equality and have rejected universal standards of excellence. We refuse to take a position on what is right and wrong based on standards of truth (of course, we can argue whose truth); rather, we welcome easy or no-fault choices.

According to Charles Murray in his book *Coming Apart*, such moral and cultural relativism reflects America's shift away from its foundational values, which are embedded in family and community life, hard work, and religion. Yet, those in the upper class continue to emphasize these ideals and select mates in the same cognitive stratum. Over decades, these differences widen the economic and sociocultural gap, Murray argues.[24] This suggests that a lack of emphasis on cognitive rigor and virtuous living is a societal problem, rather than a racial or ethnic one.

Indeed, if we want to ask ourselves how and where we went wrong, why we are in social and economic decline, Bloom offers a conservative analysis and sense of fundamental reform. To remedy American education and to neutralize the problems caused by cultural relativism and the influx of media and technology, Bloom and other scholars, as did Hutchins more than 60 years ago, seek to reestablish the idea of an educated person along the line of great books and great thinkers and to reestablish the virtues of a liberal education.[25]

Essentialism: Reaffirming the Best and Brightest

As noted previously, in perennialism, the stress is on preserving the best knowledge, values, dispositions, and mores of societies from the distant and recent past. Education's challenge is to offer curricula that enable students to comprehend their history and culture. Education aims to foster in students, our future citizens, a reaffirmation of commitment to their society and a renewal of valuing their culture's contributions.

Essentially, perennialism is a Western philosophy tracing its roots back to Aristotle's development of realism. Over the centuries, other Western thinkers have contributed to this philosophy. Today, some may argue that some educators have used this philosophy to tout Western culture's contributions to society. Indeed, this zealous pride seems to be behind the demands of some educators and members of the public that American students must be number one in the world. We must claim the best and the brightest.

Like perennialists, many essentialists emphasize mastering the skills, facts, and concepts that form the basis of the subject matter. Hyman Rickover writes, "For all children, the educational process must be one of collecting factual knowledge to the limit of their absorptive capacity."[26] A curriculum that takes students' interests or social issues into account is regarded as wasteful, as are teaching methods that rely on psychological theories. Arthur Bestor declares, "Concern with the personal problems of adolescents has grown so excessive as to push into the background what should be the schools' central concern, the intellectual development of its students."[27] The school is viewed as sidetracked when it focuses on students' social and psychological problems rather than on cognition. (Most current task force reports on academic excellence, incidentally, agree with this assessment.) Discipline, training, homework, and serious study are emphasized. According to Rickover, "The student must be made to work hard, and nothing can really make it fun."[28]

The role of the essentialist teacher follows perennialist philosophy. The teacher is considered a master of a particular subject and a model worthy of emulation. The teacher is responsible for the class and decides on the curriculum with minimal student input. The teacher is respected as an authority, exhibits high standards, and expects the same from students.

Essentialism is reflected in the current public demand to raise academic standards. It is evidenced in reports such as *A Nation at Risk* and, more recently, No Child Left Behind (NCLB). (Other reports on excellence are discussed in Chapter 5.) Recent proposals outlined in Ernest Boyer's *High School* (1983), Theodore Sizer's *Horace's Compromise* (1987; also about high schools), and Richard Allington's *Schools That Work* (2006; focusing on elementary schools)

also reflects essentialism. Although current essentialist philosophy is more moderate than it was in the 1950s during the post-Sputnik era (e.g., it somewhat accommodates less able students), it still emphasizes academics (not play) and cognitive thinking (not the whole child).

FROM BACK-TO-BASICS TO STANDARDS-BASED REFORM.   Automatic promotion of marginal students, a dizzying array of elective courses, and textbooks designed more to entertain than to educate are frequently cited as reasons for the decline in students' basic skills. Annual Gallup polls have asked the public to suggest ways to improve education; since 1976, "devoting more attention to teaching the basics" and "improving curriculum standards" have ranked no lower than fifth in the list of responses; in the 2000s, a "back-to-basic curriculum" has been consistently ranked among people's top two suggestions. The call is for a return to basics, which was realized under No Child Left Behind, an initiative that sought to raise achievement and close gaps in reading, writing, and math through annual high-stakes testing.

Yet stakeholders recognized that a back-to-basics curriculum was not enough, for a variety of reasons. First, there were wide discrepancies in achievement among states, due mostly to the fact that each state was responsible for setting its own definition of proficiency. Next, high school graduates often required remedial instruction in college, which implied that K–12 schools were lowering their standards. Finally, U.S. students lacked the academic proficiency to compete in international tests of reading, writing, math, and science. The back-to-basics movement required a more rigorous and uniform set of standards to boost America's education standing. This led the Council of Chief State School Officers and the National Governors Association, two state organizations, to develop the Common Core State Standards (CCSS) in 2010.

The CCSS, which outlined what students should know and be able to do at the end of each grade, was created to ensure students were proficient in core subjects, and that they would have the "skills and knowledge necessary to succeed in college, career and life, regardless of where they live."[29] Developers wanted these standards to be "fewer, clearer, and higher" and to emphasize higher-order thinking skills on top of the three *R*'s. Under the federal Race to the Top program, states that agreed to adopt these standards would get a piece of the $4.3 billion in grants. As of 2014, 43 states have adopted the Common Core, but politics continue to plague its implementation. Advocates, including business leaders, however, believe such rigor is necessary to compete with other countries in the 21st century.

The standards-based reform movement has also seen a renewed focus on teachers. After all, they significantly influence student achievement—perhaps more than any other in-school factor.[30] Yet stakeholders believe too many teachers are not qualified to help academically disadvantaged students. As such, accountability-based reforms were necessary. They would allow district and school administrators to (1) evaluate their teachers based on student performance; (2) reward their best members financially (through merit pay); (3) fire their weakest ones; and (4) recruit top candidates from other fields. Theoretically, such "get tough" policies would ensure a highly qualified teaching pool. Yet critics like Linda Darling-Hammond and Diane Ravitch believe they undermine the profession and damage student performance.[31] Reforming teacher preparation programs—by raising entry standards for pre-service (or candidate) teachers and implementing rigorous performance assessments—would be more effective.

Although the back-to-basics movement is spreading, and state legislators and the public seem convinced of the need for higher standards, unanswered questions remain. What should we do with students who fail to meet these standards? Are we punishing students for schools' inability to educate them? How will the courts and then the school districts deal with the fact that proportionately more minority than White students fail competency tests? Is the issue minimum competency or equal educational opportunity?

EMPHASIZING CONTENT, DEEMPHASIZING PROCESS.   E. D. Hirsch's *Cultural Literacy,* a national bestseller, focuses on the background knowledge necessary for cultural (Hirsch calls it *functional*) literacy and effective communication in the United States. Hirsch has compiled some

5,000 "essential" items from history, geography, literature, science, and technology.[32] More than 80 percent of the total items refer to events, people, or places from previous centuries, and about 25 percent deal with the classics. Instead of emphasizing critical thinking or process, Hirsch stresses information at all grade levels of schooling. We don't have to know the finer details, but there should be some minimum level of understanding and competence, depending on the subject area and topic, for effective communication. Hirsch maintains that low-income students, ethnic minorities, and otherwise disadvantaged learners have been hurt the most by the movement toward "child-centered" learning theories and those that focus on how children think (i.e., process). They conflict with how children really develop. The outcome is widening inequality and a decline in national literacy. For traditional educators, an educated person must have command of knowledge; the goal of education is to transmit adult society's shared knowledge and values to youth. Without this transmission, traditionalists argue, U.S. society will become fragmented, and its ability to accumulate information and communicate it to various segments of the populace will be diminished.

Contemporary society also requires an ability to understand and manipulate technological tools, a skill known as *digital literacy*. Children often have difficulty navigating the Internet and evaluating content even though they are surrounded by laptops, smartphones, and social media. As such, they have become *consumers* of technology rather than producers. Yet the exponential growth and availability of information, often referred to as *big data*, requires much more than the ability to consume it. It demands keen analytic skills. Employers need graduates who can harness data, analyze them, and provide business solutions that reduce costs, identify new customers, or determine root causes of failures, for instance.[33] In many industries, the ability to manage big data will separate workers from average to above-average jobs.

Advocates believe digital literacy starts with learning how to program (or code),[34] which would help students not only gain a facility with voluminous information, but also spur them to create new technology. Yet U.S. schools have been slow to integrate digital literacy skills into their curriculum compared with many industrialized countries. Finland, England, and Singapore, for example, have already started to introduce coding at an early age in schools.[35]

EXCELLENCE IN EDUCATION.   The back-to-basics movement led to a demand in the 1980s for educational excellence and tougher academics. Today, this demand is part of a broader theme of military defense and technological and economic competition. *A Nation at Risk* (which appeared in the mid-1980s), *National Goals for Education* (initially published in 1990 and revised in 1994 and 1998), NCLB (published in 2001), and "Race to the Top" in 2010 all called for improved U.S. education and emphasized international "competition" and "survival"—themes reminiscent of the post-Sputnik era and, eventually, of the development of the national standards movement.[36]

Overall, the trend is for higher achievement (not just minimum competency) for all children (not just college-bound students) in the academic areas. Economists Eric Hanushek and Ludger Woessman contend that knowledge and cognitive skill are in fact fundamental to long-term economic prosperity in their book, *The Knowledge Capital of Nations*.[37] Cognitive achievement is stressed, along with rigorous testing, accountability, and competition. Some advocates of this approach promote intellectually demanding high school content such as calculus, physics, and advanced foreign languages. Some would make digital literacy the fourth *R,* because they consider this skill essential in a technological world. The emphasis is on academic and economic productivity. The vitality of the U.S. economy and U.S. political hegemony are linked to strengthening the nation's educational institutions.

Other educators allow wider latitude in defining excellence and permit various models or criteria of excellence. Still, many criticize the overemphasis on mathematical and scientific excellence in the schools and the consequent underemphasis or ignoring of other conceptions of excellence—linguistic, humanistic, musical, spatial, kinesthetic, moral, interpersonal,

CURRICULUM TIPS 2.1 **Recognizing and Rewarding Academic Excellence**

Along with higher academic standards, schools are introducing academic incentives for greater student achievement. Here are some ways to motivate and reward high-achieving students:

1. Involve parents in their children's learning, especially in early grades. Provide classes that show parents how to help children learn, motivate them, and encourage academic initiative and independence.
2. Display past and current scholars, such as straight-A students, National Merit finalists, and valedictorians on an Academic Honors Wall. Display photographs permanently.
3. Recognize improvement and achievement by expanding honor rolls, sending personalized letters to parents, and printing names in school newsletters.
4. Each quarter or semester, have teachers select top scholars from their respective grade levels. Award certificates, plaques, medals, trophies, savings bonds, or classic books.
5. Conduct a special academic assembly each semester. Recognize high-achieving students in local newspapers and magazines. Honor students (and their parents) with a special luncheon or dinner.
6. Develop enrichment classes (at the elementary level) and advanced-level and honor programs at the secondary level for the talented and academically gifted.
7. Develop homework and tutoring programs for at-risk students as well as average students who may need assistance in one or two subjects. Use high-achieving students as peer tutors.
8. Recognize academic students at least as much as the school's athletes. Form academic clubs that provide status and publicity for the participants.
9. Cooperate with local business and industry to publicize or award high-achieving students.
10. Make school videos of student leaders, including past and present high achievers, and associate academic excellence with successful alumni.
11. Be sensitive to too much academic competition among students. Try to maintain a balance between cognitive and social goals and to recognize deserving (not necessarily only A) students.
12. Implement study clubs, reading clubs, or special skills clubs on Saturdays or during the summer for students who need extra help in selected areas or who are studying for National Assessment of Educational Progress (NAEP), ACT, or SAT tests.

intrapersonal, and information-processing areas.[38] Some are also concerned that equity and equality will be swept under the rug, with too much stress on academic standards at the expense of moral knowledge, community service, and caring—in general, on cognitive excellence—and a return to post-Sputnik-type emphasis on academically talented students, but not low-achieving students or high school dropouts.[39] Some fear that this emphasis on excellence will lead to disappointment; they say it is wrong to assume that increased testing and more course requirements will automatically raise the level of student performance. Students, teachers, and parents must also be motivated, and technical and financial support at the school and school district level must be evidenced (see Curriculum Tips 2.1).

Progressivism

Progressivism developed from pragmatic philosophy, as a backlash against perennialist thinking in education. The progressive movement in education was part of the larger social and political reform movement that characterized U.S. society around 1900. It grew out of the political thought of progressives such as Robert LaFollette, Theodore Roosevelt, and Woodrow Wilson, and out of the muckraker movement of the 1910s and 1920s. Progressivism is considered a contemporary reform movement in educational, social, and political affairs.

Progressivism's educational roots can be traced back to the reform writings of Thomas Jefferson and Benjamin Rush in the 18th century, Horace Mann and Henry Barnard in the 19th century, and John Dewey in the early 20th century.[40] In *Democracy and Education*, Dewey claims that democracy and education go hand in hand. He viewed the school as a miniature democratic society in which students learn the skills necessary for democratic living.[41]

According to progressivist thought, these skills include problem-solving and scientific methods. Schools should nurture cooperation and self-discipline and transmit the society's culture. Because reality is constantly changing, Dewey saw little need to focus on a fixed body of knowledge. Progressivism emphasized *how* to think, not *what* to think. Traditional education, with its "method of imposition from the side of the teacher and reception [and] absorption from the side of the pupil," Dewey wrote, "may be compared to inscribing records upon a passive phonographic disc to result in giving back what has been inscribed when the proper button is pressed in recitation or examination."[42]

For Dewey and other progressivists, the curriculum should be interdisciplinary, and teachers should guide students in problem solving and scientific projects. Dewey saw the teacher as the "leader of group activities" and allowed students to analyze and interpret data and to draw their own conclusions. The teacher and students planned activities together (although Dewey affirmed that final authority rested with the teacher).

However, William Kilpatrick, his former student and later colleague at Columbia University (Dewey left the University of Chicago for Columbia University in 1904), envisioned a greater role for students in curriculum making, and in the 1920s and 1930s, he urged elementary school teachers to plan and organize around social activities, group enterprises, and group activities. Kilpatrick encouraged teachers to allow students to say what they think and to think for themselves, not just please the teacher. In comparing Dewey and Kilpatrick, the latter was more progressive and, unlike Dewey, was heavily involved in many social issues related to schools and society and edited the leftist journal *New Leader*. Whereas Dewey sought a new curriculum with organized subjects based on the child's experiences, Kilpatrick maintained that the child's needs and interests were uncertain and rejected the notion of a fixed curriculum. Dewey was a chore to read, often writing 25- to 30-word sentences. Kilpatrick interpreted Dewey and made his ideas more manageable for the average reader.

The progressive movement split into several groups: the child centered, activity centered, creative, and neo-Freudian. Dewey criticized progressivist educators who devalued knowledge or thought it had little value, but also progressivists who rejected adult authority over schoolchildren. He declared "progressive extremists" and "laissez-faire" philosophies to be destructive to the ideas of progressivism and warned, "Any movement that thinks and acts in terms of an ism becomes so involved in reaction against other isms that it is unwittingly controlled by them."[43]

Boyd Bode, another leading progressivist, warned his associates of an impending crisis in *Progressive Education at the Crossroads*.[44] The movement had "nurtured the pathetic hope that it could find out how to educate by relying on such notions as interests, needs, growth and freedom," he wrote. Its "one-sided devotion to the child" actually betrayed the child by depriving him or her of appropriate subject matter. Unless progressivism changed course, it would be "circumvented and left behind."[45] Bode's words proved prophetic. More and more progressive thinkers responded to the growing criticism with self-justifying theories and impractical methods that most school districts simply ignored.

Progressivists were united in opposing (1) authoritarian teaching, (2) overreliance on textbook methods, (3) memorization of factual data by constant drill, (4) static aims and materials that fail to take account of a changing world, (5) intimidation or corporal punishment as a form of discipline, and (6) attempts to separate education from individual experiences and social reality. However, according to Lawrence Cremin, the movement's inability to reach a consensus on the purpose of schooling, or even establish a set of pedagogical principles, led to its downfall.[46]

Progressivists rejected rote learning, lesson recitations, and textbook authority. They also criticized conventional subject matter and experimented with other approaches to curriculum. Progressive education focused on the learner rather than the subject, emphasized activities and experiences rather than verbal or mathematical skills, and encouraged cooperative group-learning activities rather than competitive individual learning. Progressivism also cultivated a cultural relativism that often clashed with traditional philosophy and values.

Although progressive education waned in the 1940s and 1950s with the advent of essentialism, the philosophy has continued to leave a mark. Contemporary progressivism manifests as calls for a relevant curriculum, humanistic education, and radical school reform.

RELEVANT CURRICULUM.   As the 1960s unfolded, students took a more active role in their education and demanded a more progressive and student-centered curriculum. Students and educators now argued that students must be motivated and interested in the learning task, and that the classroom should build on life experiences and interesting activities. They demanded relevance, advocating (1) individualized instruction (e.g., independent study and special projects); (2) revised and new courses of interest to students (e.g., courses on sex education, drug addiction, race relations, and urban problems); (3) educational alternatives (e.g., electives, minicourses, open classrooms); (4) the extension of the curriculum beyond the school's walls (e.g., work-study programs, credit for life experiences, off-campus courses, and external degree programs); and (5) the relaxation of academic standards and admission standards to schools and colleges.[47]

Today, calls for a relevant curriculum reflect the demand for 21st century workers who are adaptable, creative, and digitally fluent. The digital revolution is transforming the way we work and learn in much the same way the Industrial Revolution did in the early 1900s. Didactic instruction is giving way to student interaction and collaboration. Learning has moved beyond the classroom and into the mobile realm—whether at home, at a café, or abroad. Content has evolved as well, from basic skills and disciplinary knowledge to portable skills and the ability to keep learning.[48] In many ways, employers in the business, technology, and other STEM fields are driving this demand for a more relevant, 21st century curriculum.

HUMANISTIC CURRICULUM.   The humanistic curriculum began as a reaction to a perceived overemphasis on subject matter and cognitive learning in the 1960s and 1970s. In his best-selling book *Crisis in the Classroom*, Charles Silberman advocated humanizing U.S. schools.[49] He charged that schools are repressive and that they teach students docility and conformity. He suggested that elementary schools adopt the methods of British infant schools and that secondary schools incorporate independent study, peer tutoring, and community and work experiences.

The humanistic model of education, which stems from the human potential movement in psychology, reflects the work of Arthur Jersild, Arthur Combs, and Donald Snygg. Jersild linked good teaching with knowledge of self and students. Combs and Snygg explored the impact of self-concept and motivation on achievement.[50] They considered self-concept the most important determinant of behavior.

A humanistic curriculum emphasizes affective, rather than cognitive, outcomes. It draws heavily on the works of Abraham Maslow and Carl Rogers.[51] Its goal is to produce "self-actualizing people," in Maslow's words, or "total human beings," in Rogers's words. The works of both psychologists are laced with terms such as *maintaining, striving, enhancing, experiencing, independence, self-determination, integration,* and *self-actualization.* A humanistic curriculum emphasizes happiness, aesthetics, spirituality, caring, and empathy.

By the end of the 20th century, the humanistic teacher was depicted by William Glasser's "positive" and "supportive" teacher who could manage students without coercion and teach without failure.[52] It was also illustrated by Robert Fried's "passionate" teacher and Vito Perrione's "teacher with a heart"—teachers who live to teach young children and refuse to submit to apathy or criticism that may infect the school in which they work.[53] These teachers are dedicated and caring, they actively engage students in their classrooms, and they affirm their identities. The students do not have to ask whether their teacher is interested in them, thinks of them, or knows their interests or concerns. The answer is definitely yes.

The humanistic teacher is also portrayed by Theodore Sizer's mythical teacher "Horace," who is dedicated and enjoys teaching, treats learning as a humane enterprise, inspires his

students to learn, and encourages them to develop their powers of thought, taste, and character.[54] Yet the system forces Horace to make a number of compromises in planning, teaching, and grading, which he knows that, if we lived in an ideal world (with more than 24 hours in a day), he would not make. He hides his frustration. Sizer simply states, "Most jobs in the real world have a gap between what would be nice and what is possible. One adjusts."[55] Hence, most caring and dedicated teachers are forced to make some compromises, take some shortcuts, and make some accommodations. As long as no one gets upset and no one complains, the system permits a chasm between rhetoric (the rosy picture) and reality (slow burnout).

There is also the humanistic element in Nel Noddings's ideal teacher, who focuses on the nurturing of "competent, caring, loving, and loveable persons." To that end, she describes teaching as a caring profession in which teachers should convey to students a caring way of thinking about one's self, siblings, strangers, animals, plants, and the physical environment. She stresses the affective aspect of teaching: the need to focus on the child's strengths and interests, the need for an individualized curriculum built around the child's abilities and needs,[56] and the need to address home and personal life.[57] Caring, according to Noddings, cannot be achieved by a formula or checklist. It calls for different behaviors for different situations, from tenderness to tough love. Good teaching, like good parenting, requires continuous effort, trusting relationships, and continuity of purpose—the purpose of caring, appreciating human connections, and ideas from a historical, multicultural, and diverse perspective.

Actually, the humanistic teacher is someone who highlights the personal and social dimension in teaching and learning, as opposed to the behavioral, scientific, or technological aspects. We might argue that everything that the teacher does is "human" and the expression *humanistic teaching* is a cliché.

Advocates of humanistic education contend that the present school curriculum has failed miserably. Teachers and schools, they say, overemphasize cognitive ability and seek to control students not for the students' benefit, but for the benefit of adults. They see the schools as unconcerned about affective processes, self-knowledge, and higher domains of consciousness.

A broader focus on the "whole person" is even more relevant in the global economy. For one, students are expected to think more broadly and creatively, which requires a strong foundation in the humanities and the liberal arts.[58] Andy Hargreaves believes schools should inspire us through a shared moral purpose, one that shifts us "from the government driving and delivering services, to a position where it creates platforms so that people can support themselves."[59] Teachers would focus more on fostering student independence, self-direction, and acceptance of self and others. They would also facilitate students' self-understanding and psychological health by helping learners cope with their psychological needs and problems.

The support for nonacademic abilities has increased significantly in light of the demand for global skills. Emerging research point to the importance of certain cognitive and noncognitive functions associated with academic and life success, such as *executive function* capacities (the ability to deal with novel, confusing, or unpredictable situations and information),[60] social and emotional intelligence (the competencies related to self-awareness, self-management, social awareness, and relationship management),[61] and character skills (the ability to regulate oneself and orient one's disposition, e.g., conscientiousness and curiosity).[62] James Heckman, Daniel Goleman, and Carol Dweck believe these overlapping abilities, often termed "soft skills," can be developed in school. Such a curriculum can better help students—particularly those who have been disadvantaged—succeed in 21st century life.

A drawback to the humanistic approach is its lack of attention to intellectual development. When asked to judge their curriculum's effectiveness, humanists generally rely on testimonials and subjective assessments by students and teachers. They may also present materials such as student paintings and poems or speak of "marked improvement" in student behavior and attitudes. They present very little empirical evidence to support their stance (see Curriculum Tips 2.2).

CURRICULUM TIPS 2.2 **Affective Methods to Enhance Learning**

Progressive philosophy and humanistic education increase students' self-understanding, personalize and individualize learning, and provide academic experiences that take students' personal needs and interests into account. The classroom is characterized by activity, not passivity; cooperation, not competition; and many learning opportunities other than textbooks and teacher-dominated situations. The following guidelines can help teachers and curriculum workers provide leadership within progressive and humanistic approaches.

1. Demonstrate interest in and concern for each student.
2. Challenge students to be actively involved in their own learning; encourage self-direction and self-control.
3. Help students define personal goals; recognize their efforts in pursuit of a chosen goal.
4. Structure learning activities so that students can accomplish their personal goals.
5. Relate content to students' personal goals, needs, and interests.
6. Match task requirements to students' age, development, and abilities.
7. Offer constructive feedback.
8. Test students if necessary, but delay grading their performance (say, until the fourth or fifth grade).
9. Use local resources to obtain information and solve problems. Actively involve students in learning that involves different materials, people, and places.
10. Provide alternative ways to learn; minimize memory, rote, and drill activities.
11. Help students achieve competence and mastery; let them know that their learning results from their own efforts.
12. Recognize student improvement and achievement.
13. Encourage students to share materials and resources and to work in groups.
14. Encourage students to contribute their ideas and feelings, to accept and support one another, and to be considerate of those who need help.

RADICAL SCHOOL REFORM. Since the late 1960s and now in the 21st century, *radical romanticists* (or *neoprogressives*) have criticized the educational establishment. The criticisms originally appeared in major publications such as *Atlantic Monthly* and *New York Times Magazine*. The radical critics also wrote popular books on their views.

Early prominent radicals such as Edgar Friedenberg, John Holt, Paul Goodman, and A. S. Neill expressed disdain for established schooling methods, compulsory schooling, adult authority, and school rules. The later crop of radicals, such as Ivan Illich, Henry Giroux, and Peter McLaren, expressed contempt for the society within which schools exist. All these critics essentially viewed students as prisoners, teachers as prison guards or system lackeys, and schools as prisons where students are intellectually and emotionally confined. They considered schools highly discriminatory places that (1) sort and track students for various jobs that perpetuate class differences and (2) perpetuate a culture of production and consumption that benefits the few and exploits the many.[63]

Friedenberg has argued that teachers "dislike and distrust" their students and "fear being involved with young people in any situation that is not under their complete control." Teachers feel "repressed hostility," suppressed anger, and jealousy toward their students because of students' youthful energy and freedom.[64]

Holt's book *How Children Fail* is his most influential text. It contains nothing positive about teachers or schools. Holt describes teachers as enforcing rigid rules and schoolchildren as learning to be stupid and how to focus on right answers. He goes into great detail about how children adapt strategies of fear and failure to please their teachers. The "successful" students become cunning strategists in a game of beating the system and outwitting the teacher—figuring out how to get away with the least amount of work, getting the answer out of the teacher, or faking the answer.[65]

Goodman's thesis is that our society is sick, full of false values that have produced sick schools. He contends that schools exist primarily to channel people into jobs and to provide

a market for textbook companies, building contractors, and teachers. Elementary schools provide a "baby-sitting service" for parents and keep kids off the street. Secondary schools are "the arm of the police, providing cops and concentration camps paid for in the budget under the heading of 'Board of Education.'" From kindergarten to college, schools teach youth to adjust to a sick society and provide "a universal trap [in which] democracy begins to look like regimentation."[66] Goodman's solution is to eliminate compulsory education, which he refers to as "miseducation," and "drastically cut back formal schooling because the present extended tutelage is against nature and arrests growth."[67]

Neill, a romantic progressivist, recounted the way he operated his school Summerhill in Suffolk, England: "We set out to make a school in which we should allow children to be themselves. In order to do this, we had to renounce all discipline, all direction, all suggestion, all moral training. . . . All it required was what we had—a complete belief in the child as a good, not an evil, being. For almost forty years, this belief in the goodness of the child has never wavered; it rather has become a final faith."[68] Neil considered children "innately wise and realistic." If left to themselves, they will develop as normal adults. Those "who are to become scholars will be scholars"; those "who are only fit to sweep the streets will sweep streets."[69] Neill was not concerned with formal instruction; he did not believe in exams or homework. Those who want to study will study; those who prefer not to study will not. Neill's criterion for success was an ability to "work joyfully" and "live positively." By this contention, most Summerhill students allegedly succeeded. A few years after his death, Summerhill closed—indicating that it was perhaps Neill's personality, not his philosophy, that was the key to Summerhill's story.

Illich argued for a new society that could emerge only after deschooling.[70] He advocated eliminating schools, thereby liberating people from institutional and capitalistic indoctrination. Society would no longer discriminate on the basis of one's degree of formal education. In lieu of school, Illich recommended small learning networks characterized by (1) *educational objects* (shops, libraries, museums, art galleries, and so on) open to learners; (2) *peer matching* (identifying and bringing together students who wish to engage in a particular learning activity); (3) *skill exchanges* (exchanges between those who are competent in a particular skill and wish to teach it, and those who wish to learn it); and (4) *educators at large* (counselors who advise students and parents, and intellectual initiators and administrators who operate the networks).

Giroux posits that public education is in a dire state that negatively affects all society. In this view, a change in the nature of democracy has produced a crisis in education.[71] Giroux interprets democracy from a Marxist viewpoint. Essentially, he views current democracy as exclusive rather than inclusive: Many do not benefit from the system. Giroux laments the "refusal to grant public schooling a significant role in the ongoing process of educating people to be active and critical citizens capable of fighting for and reconstructing democratic public life."[72]

McLaren goes further as an ideologue. He states that capitalist schooling is generally perverse in that it strives, through its curriculum, to create a culture of desire. Instead of nurturing consensus, it hides inequality and intolerance. He writes, "Perverts cannot tolerate difference," so they present an illusion of harmony.[73] McLaren rejects a goal of shaping students into productive, loyal citizens. The exhortation that students "be all that they can be [is] situated within a total obedience to normative codes of conduct and standardized regimes of valuing."[74] According to McLaren, education as presently structured is not empowering. Students are treated as objects of consumption and taught to become consumers.[75] Schools mold students to conform to society's capitalist inequities.

Reconstructionism

Reconstructionist philosophy is based on socialistic and utopian ideas of the late 19th and early 20th centuries; yet the Great Depression gave it new life. The progressive educational movement was at the height of its popularity then, but a small group of progressive educators became disillusioned with U.S. society and impatient for reform. Members of this group argued

that progressivism overemphasized child-centered education and mainly served the middle and upper classes with its play theories and private schools. They advocated greater emphasis on society-centered education that addressed the needs of all social classes.

At the 1932 annual meeting of the Progressive Education Association, George Counts urged progressive educators to consider the era's social and economic problems and use the schools to help reform society. In his speech "Dare the School Build a New Social Order?" (later published as a book), Counts criticized his progressive colleagues for not being more involved in social and economic issues, and that many of their progressive ideas had led to "play schools" for upper-middle- and upper-class children. He suggested that progressive educators became more socially involved in the issues of the day (and, if the authors may add, as the early 20th century muckrakers were involved in social and economic issues). He also suggested that teachers organize into unions and teachers and schools become agents of social reform.

Counts stated, "If Progressive Education is to be genuinely progressive, it must . . . face squarely and courageously every social issue, come to grips with life in all its stark reality, establish an organic relation with the community, develop a realistic and comprehensive theory of welfare, fashion a compelling and challenging vision of human destiny, and become less frightened than it is today at the bogeys of imposition and indoctrination."[76] According to Counts, progressive education had ignored the social problems of the 1920s and 1930s, which included discrimination, poverty, and unemployment.

Theodore Brameld, often credited with coining *reconstructionism* in 1950 (actually, Dewey coined the term),[77] asserted that reconstructionism is a crisis philosophy and, therefore, suited to today's society, which is in crisis.[78] According to Brameld, students and teachers must improve society. Classroom political neutrality, disguised as objectivity and scientific inquiry, does not suit the democratic process. Brameld writes, "Teachers and students have a right to take sides, to stand up for the best reasoned and informed partialities they can reach as a result of free, meticulous examination and communication of all relevant evidence." In particular, teachers must measure up to their social responsibilities. "The immediate task before the [teaching] profession is to draw upon this strength and thus to strengthen control of the schools by and for the goal-seeking interests of the overwhelming majority of mankind."[79]

Curriculum must be transformed in keeping with a new social-economic-political education; it must incorporate reform strategies. For reconstructionists, analysis, interpretation, and evaluation of problems are insufficient; students and teachers must effect change. Society is always changing, and the curriculum has to change. A curriculum based on social issues and services is ideal.

In the 1960s, the heyday of the War on Poverty and the Civil Rights Movement, reconstructionism focused on issues related to equality and equity, such as compensatory funding and school desegregation. Proponents of this era include Christopher Jencks, Jonathan Kozol, Gary Orfield, and William Wilson.[80] These reconstructionists advocated a program of education that (1) critically examines a society's cultural heritage, (2) examines controversial issues unabashedly, (3) commits to bringing about constructive social change, (4) cultivates a future-oriented attitude that considers school reform, and (5) enlists students and teachers to enhance educational opportunities for *all* children and youth. In such a program, teachers are considered agents of social change. They organize not to strengthen their professional security, but to encourage widespread experimentation in the schools and to challenge society's outdated structures. They are the vanguard of a new social order.

Today *critical pedagogy,* which is rooted in reconstructionist philosophy and the ideas of Counts and Brameld, begins with the idea that students have the capacity to think, question, and be critical. Teachers and schools need to educate students to be informed citizens and agents for change. The students must be viewed as the major resource for promoting and protecting democracy, informed and educated in the Jeffersonian sense that no democracy can exist without an educated populace. The schools are seen by critical pedagogists as a means to educate students in the ideas of democracy and to encourage then to question textbooks, teachers, and

political pundits. Instead of schools serving as agents for the capitalist and corporate world and thus maintaining a dominant and subordinate class system, they are viewed ideally as an institution for encouraging social reform and social justice.

Increasingly, critical pedagogy questions the increasing focus of market-driven curricula that aim to educate globally competitive and innovative individuals. Such curricula emphasize STEM subjects, AP classes, career and technical education, and other disciplines that cultivate job skills. Henry Giroux believes educators have the responsibility, as public intellectuals, to defend public and higher education as a general good,[81] which entails teaching students to "feel a responsibility toward others and the planet, to think in a critical fashion, and to act in ways that support the public good."[82] Michael Apple asks if education has a substantive role to play in building a more socially conscious society,[83] reminiscent of George Counts's titular question in 1932 when he asked, "Dare the School Build a New Social Order?" While similarly troubled by the market-driven curricula, Nel Noddings takes a less sociopolitical approach. She sees a richer, broader perspective of education, with a socio-humanistic curriculum aimed simply to "produce better adults."[84]

GLOBALISTS.   Today's reconstructionist educators tend to be sensitive to global issues, which they analyze as part of the larger social order. Historically, the United States has taken a relatively isolationist position, but interdependence among nations no longer allows Americans to remain ignorant of developments in distant countries. Educators now feel the need to emphasize understanding of other nations and cultures.

Such terms as *global village, global interdependence, shrinking world,* and *greenhouse effect* reflect new global concerns. This group of curriculum experts is seeking an *international component* in U.S. curricula. Students would acquire knowledge and skills essential for global peace and cooperation.[85] Joel Spring advocates such an international curriculum component. He maintains that students must acquire an awareness of global events and an understanding of "worldwide systems." These systems are social, political, economic, physical, cultural, communicative, and historical.[86] This new curriculum would focus on the earth's ecosystem and world problems. According to Spring, it might address Western imperialism, Arab nationalism, and the growing economic influence of China and India.

Other experts are seeking not just a global component, but also a completely redesigned curriculum that emphasizes a global approach. It means identifying or reframing real-world problems by asking questions, thinking flexibility and across disciplines (what Yong Zhao calls thinking "entrepreneurially"), working autonomously yet able to collaborate across networks, manipulating information in new ways, communicating effectively, and generating novel solutions.[87] This way of learning contrasts with how schools typically engage their students: by answering predefined problems, thinking in linear and intra-disciplinary ways, working around the teacher, and recalling old (or existing) information. Students typically feel disconnected and apathetic, and as such, lack *ownership*—a critical component of future work.[88]

In *Class Counts,* Allan Ornstein maintains "there are some 2 to 2.5 billion people marginally existing on either $1 or $2 a day, and another 1.5 to 2 billion people [worldwide] earning between $2 and $3.50 a day, and the number is growing because of the 'population bomb.' The U.S. represents 4 percent of the world population, consumes 25 percent of the world's resources and produces 38 percent of the world's gross domestic product."[89] How much of a divide between "haves" and "have-nots" can the world tolerate without instability?

Ornstein continues to outline the global economic landscape. It's not a pretty picture. The American workforce has lost its place in the sun, along with its industrial model. It was good while it lasted, and we were the envy of the rest of the world. They were good days, but now they are coming to an end. "We need to understand that America as a nation is moving into the slow lane. Our last cutting-edge industries—semiconductors, telecommunications, computer software, nanotechnology, and Internet services—are slowly moving into the Asian rim where talented technical specialists are cheaper and in abundance."[90] Similarly, U.S. science and technology companies are being challenged by the technological and entrepreneurial

growth of Europe and emerging nations. It's happening all around us; it is reflected in our unemployment and underemployment trends (totaling 20 percent in 2010), individual plastic debts (averaging some $10,000 per person), and the national debt (some $14 trillion), plus the fact that the Chinese (and a few other nations) have to lend us trillions to keep us from drowning.

Linda Darling-Hammond uses the words *flat world* in her recent book to comment on U.S. education and globalization in the 21st century. She warns that the United States is falling behind in the world's ranking of science and math and that lack of equality of educational opportunity for low-income and minority students has dire consequences in a competitive and global economy. Everyone benefits when all students have equal and fair opportunities to achieve their human potential.[91] Keep in mind that the U.S. dropout rate is the highest among industrialized nations, approaching 15 percent, and as high as 35 percent in big cities. Also consider that the United States regularly falls in the bottom half, and often the bottom 20 percent, among their industrialized counterparts on international tests in math and science.

The education and economic crisis we now face will become a generational journey we will face for the remaining century, as we try to transform ourselves and cope with the coming storm. "This crisis will not be solved by rallies in the streets (a liberal response) or by paying executives more money (a conservative response). It will be resolved by painful changes involving a shared moral foundation and a sense of justice, adopting new education policies that provide education and equity for all students and new work-related policies that protect American workers from the Walmarts of America (average wage of $8 per hour) and from foreign competition, providing progressive taxes and regulating the big banks, and marching to the ballot boxes in record numbers in order to elect people willing to make these kinds of changes."[92]

RECONCEPTUALISTS.   Reconceptualists view the technical or Tylerian approach to curriculum development as overly narrow.[93] They have criticized most curricularists for using a technocratic, bureaucratic approach that is insensitive to people's feelings and experiences. Reconceptualists include the intuitive, personal, mystical, linguistic, political, social, and spiritual in their approach to curriculum. They believe that current society is marked by alienation, a failure to accommodate diversity, and indifference to people's needs.[94] In their view, a more traditional and technical approach to curriculum perpetuates inequities within and outside the school.

According to William Pinar, the field of curriculum has already been reconceptualized.[95] Postmodernists may argue, instead, that the field simply is always developing. Reconceptualists have brought aesthetic and existentialist views into the field. They tend to be socially sensitive and politically concerned intellectuals who stress broad problems and issues of society.

Reconceptualists accept many aspects of progressive philosophy, including learner-centered, relevant, humanistic, and radical school-reform models. However, they are more concerned with personal self-knowledge, particularly mystical, spiritual, and moral introspection.

The reconceptualist curriculum emphasizes language and communication skills, personal biographies, art, poetry, dance, drama, literature, psychology, and ethics. Maxine Greene advocates such a curriculum, which stresses "personal expression," "aesthetic ideas," "intellectual consciousness," and "reflective self-consciousness."[96] Paulo Freire contends that reconceptualist curricula focus on human problems and have the potential to "transform the world."[97] According to Pinar, a reconceptualist curriculum deals with "personal becoming," "affiliative needs," "sensitivity," and "enjoyment."[98]

Reconceptualist views reflect reconstructionist philosophy. Rooted in the school of Dewey, Counts, and Rugg, many reconceptualist ideas deal with socioeconomic relationships, gender and racial roles and attitudes, the relationship between labor and capital, and the consequences of political power. Reconceptualists are concerned about technocratic and bureaucratic systems that oppress and dehumanize individuals. Many see schools as an instrument of society that coerces students through various customs, mores, and practices.

Some reconceptualists have been labeled neo-Marxists. Michael Apple, for one, speaks of schools' (and society's) political, economic, and cultural domination of the individual. Such domination "is vested in the constitutive principles, codes, and especially the common sense consciousness and practices underlying our lives, as well as by overt division and manipulation."[99] In other words, society's structures and institutions, including schools, perpetuate the social, political, and economic system. Apple points out that just as there is "unequal distribution of economic capital in society, so, too is there a similar system of distribution surrounding cultural capital." In technological societies, schools are "distributors of this cultural capital."[100] They distribute knowledge in a way that suits those in power. Poor and working-class students are discriminated against in schools and society because they lack power; critical knowledge is passed on to those children whose parents possess political and economic power.

Illich outlines a less institutionalized, formal, and discriminatory curriculum aimed at "emancipation." He advocates a "grass-roots" curriculum that engages students, teachers, and community members.[101] Similarly, Freire advocates "pedagogy for the oppressed" (the poor) and describes how people can be empowered to take action and overcome oppression. When they reach a "critical transforming stage," they can change the social order. Freire calls for dialogue among students and adults sensitive to change. The curriculum should focus on community, national, and world problems and should be interdisciplinary.[102]

In general, reconceptualists such as Illich and Freire emphasize the social sciences—history, political science, economics, sociology, and to some extent, psychology and philosophy—not the hard sciences. The goal is to develop student self-realization and freedom so that students will liberate themselves and others from society's restrictions. James Macdonald views the reconceptualist agenda as "utopian," a "form of political and social philosophizing."[103] For Maxine Greene, the curriculum instills "intellectual and moral habits," "critical understanding," "existentialist renewal," and "discovery of 'otherness,'" so that students become more accepting of diversity.[104] All who are oppressed—youth, the poor, members of minorities, women, and so on—are considered potential agents for change. In essence, reconceptualism is an updated version of old reconstructionism, which viewed students and teachers as agents of change. In reconceptualism, however, the teacher sometimes is viewed as an agent of oppression, a representative of the larger coercive society.

EQUAL EDUCATIONAL OPPORTUNITY.   The U.S. notion of equality is rooted in the Constitution, written nearly 200 years before reconstructionism emerged as a philosophy. U.S. public schools grew out of the concept of equal opportunity and the notion of universal, free education. Horace Mann spearheaded the rise of the "common school." He asserted, "Education beyond all other devices of human origin is the greatest equalizer of the condition of men—the balance-wheel of the social machinery."[105] Equal opportunity in this context would not lead to equal outcomes or a classless society.

As David Tyack has written, "For the most part, working men did not seek to pull down the rich; rather they sought equality of opportunity for their children, an equal chance at the main chance."[106] In the 19th and early 20th centuries, equal opportunity meant an equal start for all children, but it was assumed that some would go further than others. Differences in backgrounds and abilities, as well as motivation and luck, would create differences in outcomes among individuals, but the school would ensure that children born into any class would have the opportunity to achieve the same status as children born into other classes. "Schools represented the means of achieving the goal . . . of equal chances of success" relative to all children in all strata.[107]

Schools did not fully achieve this goal because school achievement and economic outcomes are highly related to social class and family background.[108] However, without public schools, social mobility would have been less. The failure of the common school to provide social mobility raises the question of the role of the school in achieving equality—and the question of just what the school can do to affect economic outcomes.

The more modern view of educational equality, which emerged in the 1950s and continued through the 1990s, goes much further than the old view. James Coleman has outlined five factors relevant to equal or unequal educational opportunity (all but the first reflect reconstructionist philosophy): (1) offering the same curriculum to all children, with the intent that school facilities be equal; (2) schools' racial composition; (3) intangible characteristics such as teacher morale and teachers' expectations of students; (4) cognitive and economic outcomes for students with *equal* backgrounds and abilities; and (5) cognitive and economic outcomes for students with *unequal* backgrounds and abilities.[109] Current scholars like Greg Duncan and Richard Murnane believe equality will depend on a broad commitment to supporting: (1) a comprehensive definition of schooling (that may include extended-day or extended-year programs and services for disadvantaged children); (2) clear and uniform standards; (3) extensive professional development for teachers; (4) organizational partnerships that serve students' needs; and (5) internal accountability.[110]

When we view educational equality or inequality in terms of cognitive and economic outcomes, we start comparing racial, ethnic, and religious groups. Such comparisons raise controversial issues, including how much to invest in human capital, how to determine the cost-effectiveness of social and educational programs, who should be taxed and how much, whether slow learners should receive more attention than fast learners, and whether affirmative action constitutes reverse discrimination.[111]

In his classic text on excellence and equality, John Gardner writes, "Extreme equalitarianism—or what I would prefer to say equalitarianism wrongly conceived—which ignores differences in native capacity and achievement, has not served democracy well. Carried far enough, it means . . . the end of that striving for excellence which has produced mankind's greatest achievements." At the same time, he notes, "No democracy can give itself over to extreme emphasis on individual performance and still remain a democracy. . . . Society such as ours has no choice but to seek the development of human potentialities at all levels. It takes more than an educated elite to run a complex, technological society. Every modern industrialized society is learning that hard lesson."[112]

The issues raised by Gardner have received considerable attention over the past 25 years. That attention has resulted in legislation aimed at educational equality. Among other educators, reconstructionists have raised issues such as school desegregation, compensatory education, multicultural education, disability education, more effective schooling, and affirmative action (see Table 2.3). More recently, advocates have focused on early childhood education efforts—especially high-quality prekindergarten (pre-K) for poor and moderate-income children. Results from long-term studies show early intervention can increase the rate of high school graduation and employment, among other societal benefits.[113] On the other end of the spectrum, leaders are also looking to enhance high schools and community colleges. They believe ideas like scaling up career and technical education (formerly called vocational school) and making community colleges free will help students gain valuable "middle skills" jobs, like medical technician and computer support.[114] These initiatives reflect the high rate of poverty among children in the United States (22 percent), who now comprise the majority of public school students.[115]

Despite the concerns for equal opportunity and social justice, a level-playing field remains elusive in America. The idea of rugged individualism and the "self-made" man—who makes no excuses in overcoming obstacles—is too ingrained in the national psyche. The public will accept some inequality as long as they believe there is opportunity to move up, a belief that polls consistently suggest.[116] Aside from this heritage, the national emphasis on competition, economic growth, and global influence also undermines any real attempts to help disadvantaged groups. They will not progress if the gatekeepers of elite institutions (like Ivy League universities, Wall Street, and Silicon Valley) continue to pass their wealth and power to their own kind.

Table 2.3 | Overview of Educational Philosophies

Educational Philosophy	Philosophical Base	Aim of Education	Knowledge	Role of Education	Curriculum Focus	Related Curriculum Trends
Perennialism	Realism	To educate the rational person; to cultivate the intellect	Focus on past and permanent studies; mastery of facts and timeless knowledge	Teacher helps students think rationally; based on Socratic method, oral exposition; explicit teaching of traditional values.	Classical subjects; literary analysis; constant curriculum	Great books; Paideia proposal; returning to the liberal arts
Essentialism	Idealism, realism	To promote the intellectual growth of the individual; to educate the competent person	Essential skills and academic subjects; mastery of concepts and principles of subject matter	Teacher is authority in particular subject area; explicit teaching of traditional values.	Essential skills (three *R*'s) and essential subjects (English, science, history, math, and foreign languages)	Back to basics; cultural literacy; excellence in education
Progressivism	Pragmatism	To promote democratic, social living	Knowledge leading to growth and development; a living-learning process; focus on active and relevant learning	Teacher is guide for problem solving and scientific inquiry.	Based on students' interests; addresses human problems and affairs; interdisciplinary subject matter; activities and projects	Relevant curriculum; humanistic education; radical school reform
Reconstructionism	Pragmatism	To improve and reconstruct society; to educate for change and social reform	Skills and subjects needed to identify and ameliorate society's problems; active learning concerned with contemporary and future society	Teacher serves as an agent of change and reform; acts as a project director and research leader; helps students become aware of problems confronting humankind.	Emphasis on social sciences and social research methods; examination of social, economic, and political problems; focus on present and future trends as well as on national and international issues	International education; reconceptualism; equality of educational opportunity

Conclusion

Philosophy directs our actions. In the absence of a coherent philosophy, an educator is unduly influenced by external pressures. To a large extent, curriculum reflects philosophy. Dewey was so convinced of the importance of philosophy that he viewed it as the all-encompassing aspect of the educational process—as necessary for "forming fundamental dispositions, intellectual and emotional, toward nature and fellow man."

Major philosophical viewpoints have emerged within the curriculum field: idealism, realism, pragmatism, and existentialism. These viewpoints range from traditional and conservative to contemporary and liberal. They have influenced educational theories: perennialism and essentialism, which are traditional and conservative;

and progressivism and reconstructionism, which are contemporary and liberal (see Table 2.4). Few schools adopt a single philosophy; most combine various philosophies. We believe that no single philosophy, old or new, should exclusively guide decisions about schools and curriculum. The most important thing is that a school's approach to curriculum be politically and economically feasible and that it serve the needs of students and society.

Too often, teachers and administrators plan and implement behavioral objectives with minimal regard to a school's overall philosophy. Curriculum workers must help develop and design school practices in harmony with the philosophy of the school and community.

Table 2.4 | Traditional and Contemporary Education Philosophies

Traditional Philosophy (Perennialism, Essentialism)	Contemporary Philosophy (Progressivism, Reconstructionism)
Society and Education	
1. Formal education begins with the school; schools are considered the major institution of the child's education.	1. Formal education begins with the family; the parents are considered the most important influence in the child's education.
2. School transmits the common culture; individual's major responsibility is to society, performing societal roles; conformity and cooperation are important.	2. School improves society; individual's fulfillment and development can benefit society; independence and creativity are important.
3. Education promotes society's goals; it involves authority and moral restraint.	3. Education involves varied opportunities to develop one's potential and engage in personal choices.
4. Certain subjects and knowledge prepare students for democracy and freedom.	4. Democratic experiences in school help prepare students for democracy and freedom.
5. Education is formulated mainly in cognitive terms; focuses on academic subjects.	5. Education is concerned with social, moral, and cognitive terms; focus on the whole child.
6. Values and beliefs tend to be objective and, if not absolute, based on agreed-on standards or truths.	6. Values and beliefs are subjective, based on the individual's view of the world.
Knowledge and Learning	
7. The emphasis is on knowledge and information.	7. The emphasis is on resolving problems and functioning in one's social environment.
8. The emphasis is on subjects (content).	8. The emphasis is on students (learners).
9. Subject matter is selected and organized by teacher.	9. Subject matter is planned by teacher and students.
10. Subject matter is organized in terms of simple to complex, centered on the past.	10. Subject matter is organized in terms of understanding relationships, centered on present or future.
11. Unit or lesson plans are organized according to topics or concepts.	11. Unit or lesson plans are organized according to problems or student interests.
12. Subject matter is compartmentalized according to distinct fields, disciplines, or study areas.	12. Subject matter is integrated; includes more than one related subject.

(Continued)

Table 2.4	(Continued)	

Traditional Philosophy (Perennialism, Essentialism)	**Contemporary Philosophy (Progressivism, Reconstructionism)**
Instruction	
13. Textbooks and workbooks dominate; teaching and learning are largely confined to classroom.	**13.** There are varied instructional materials; teaching and learning include community resources.
14. There are whole-group learning, fixed schedules, and uniform time periods.	**14.** There are whole, small, and individualized groups, flexible schedules, and adjustable time periods.
15. There is homogeneous grouping; tracking of students into special programs.	**15.** Grouping is heterogeneous; some tracking of students but widely differentiated programs.
16. Students passively assimilate what teacher or textbook says.	**16.** Students actively seek information that can be used or applied.
17. The emphasis is on uniformity of classroom experiences and instructional situations.	**17.** The emphasis is on variability of classroom experiences and instructional situations.
Purpose and Programs	
18. The emphasis is on liberal arts and science.	**18.** There is a mix of liberal arts, practical, and vocational subjects.
19. The emphasis is on specialization or scholarship.	**19.** There is general emphasis for the layperson.
20. Curriculum is prescribed; little room for electives.	**20.** Curriculum is based on student needs or interests; room for electives.
21. There are excellence and high standards; special consideration for high achievers.	**21.** There are equality and flexible standards; special consideration for low achievers.

Source: Adapted from Allan C. Ornstein, "Philosophy as a Basis for Curriculum Decisions," *High School Journal* (December–January 1991), pp. 106–107.

Discussion Questions

1. How does philosophy influence curriculum workers?
2. In what way did each of the four major philosophies influence U.S. education?
3. What are the differences between perennialism, essentialism, progressivism, and reconstructionism?
4. What are some of the works that embodied each of the philosophies of education? Describe them.
5. How do relevant curriculum, humanistic curriculum, and radical school reform differ?
6. Discuss two traditional and two contemporary educational philosophies that have been influential in your country.

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Historical Foundations of Curriculum

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Identify the differences between the various types of colonial schools and describe some European influences

2. Explain how democratic ideas contributed to the rise of public schooling during the national period

3. Describe the enduring contributions made by the 19th century European educators Pestalozzi, Froebel, Herbart, and Spencer

4. Explain how education evolved to meet the needs of the masses during the rise of universal education

5. Discuss the transition from the traditional, standardized curriculum to the modern curriculum

6. Explain the influence that behaviorism and scientific principles had on curriculum in the early to mid-1900s

A knowledge of curriculum's history provides guidance for today's curriculum makers. We begin our discussion with the colonial period and proceed through the 18th, 19th, and 20th centuries. Most of our discussion focuses on the past 100 years.

■■ THE COLONIAL PERIOD: 1642–1776

Curriculum's historical foundations are largely rooted in the educational experiences of colonial Massachusetts. Massachusetts was settled mainly by Puritans, who adhered to strict theological principles. The first New England schools were closely tied to the Puritan church. According to educational historians, a school's primary purpose was to teach children to read the scriptures and notices of civil affairs.[1] Reading was the most important subject, followed by writing and spelling, which were needed for understanding the catechism and common law. Since colonial days, therefore, reading and related language skills have been basic to American education and the elementary school curriculum.

Three Colonial Regions

Schools in colonial Massachusetts derived from two sources: (1) 1642 legislation, which required parents and guardians to ensure that children could read and understand the principles of religion and the laws of the Commonwealth; and (2) the "Old Deluder Satan" Act of 1647, which required every town of 50 or more families to appoint a reading and writing teacher. Towns of 100 or more families were to employ a teacher of Latin so that students could be prepared to enter Harvard College.[2] Except for Rhode Island, the other New England colonies followed Massachusetts's example. These early laws reveal how important education was to the Puritan settlers. Some historians consider these laws to be the roots of U.S. school law and the public school movement. The Puritans valued literacy partly as a way of preventing the formation of a large underclass, such as existed in England and other parts of Europe. They also wanted to ensure that their children would grow up committed to the religious doctrines.

Unlike New England, the middle colonies had no language or religion in common. George Beauchamp writes, "Competition among political and religious groups retarded willingness to expend the public funds for educational purposes."[3] No single system of schools could be established. Instead, parochial and independent schools related to different ethnic and religious groups evolved. Schools were locally rather than centrally controlled. The current notion of cultural pluralism thus took shape some 250 years ago.

Until the end of the 18th century, educational decisions in the southern colonies were generally left to the family. On behalf of poor children, orphans, and illegitimate children, legislation was enacted to ensure that their guardians provided private instruction—for example, in vocational skills. However, the plantation system of landholding, slavery, and gentry created great educational inequity. In general, the White children of plantation owners were privately tutored, but poor Whites received no formal education. Unable to read and write, many poor Whites became subsistence farmers like their parents. The law prohibited slave children from learning to read or write. The South's economic and political system "tended to retard the development of a large-scale system of schools. This education [handicap] was felt long after the Civil War period."[4]

Despite the regional variations, the schools of New England, the middle Atlantic colonies, and the South all were influenced by English political ideas. Also, despite differences in language, religion, and economic systems, religious commitment was a high priority in most schools. "The curriculum of the colonial schools consisted of reading, writing, and [some] arithmetic along with the rudiments of religious faith and lessons designed to develop manners and morals."[5] It was a traditional curriculum, stressing basic skills, timeless and absolute values, social and religious conformity, faith in authority, knowledge for the sake of knowledge, rote learning, and memorization. The curriculum reflected the belief that children were born in sin, play was idleness, and children's talk was gibberish. The teacher applied strict discipline. This approach to the curriculum dominated American education until the rise of progressivism.

Colonial Schools

Schools were important institutions for colonial society. However, a much smaller percentage of children attended elementary or secondary school than they do today.

TOWN SCHOOLS.   In the New England colonies, the town school was a locally controlled public elementary school. Often it was a crude, one-room structure dominated by the teacher's pulpit at the front of the room and attended by boys and girls of the community. Students sat on benches and studied their assignments until the teacher called on them to recite. The children ranged in age from 5 or 6 to 13 or 14. Attendance was not always regular; it depended on weather conditions and on the extent to which individual families needed their children to work on their farms.[6]

PAROCHIAL AND PRIVATE SCHOOLS. In the middle colonies, parochial and private schools predominated. Missionary societies and various religious and ethnic groups established elementary schools for their own children. Like the New England town schools, these schools focused on reading, writing, and religious sermons. In the South, upper-class children attended private schools oriented toward reading, writing, arithmetic, and studying the primer and Bible; less fortunate children might attend charity schools, where they learned the "three *R*'s," recited religious hymns (which was less demanding than reading the Bible), and learned vocational skills.

LATIN GRAMMAR SCHOOLS. At the secondary level, upper-class boys attended Latin grammar schools, first established in Boston in 1635, as preparation for college. These schools catered to those who planned to enter the professions (medicine, law, teaching, and the ministry) or become business owners or merchants.[7] A boy would enter a Latin grammar school at age 8 or 9 and remain for eight years. His curriculum focused on the classics. "There were some courses in Greek, rhetoric, . . . and logic, but Latin was apparently three-quarters of the curriculum in most of the grammar schools, or more."[8] The other arts and sciences received little or no attention. "The religious atmosphere was quite as evident . . . as it was in the elementary school," with the "master praying regularly with his pupils" and quizzing them "thoroughly on the sermons."[9] The regimen of study was exhausting and unexciting, and the school served the church. As Samuel Morrison reminds us, the Latin grammar school was one of colonial America's closest links to European schools. Its curriculum resembled the classical humanist curriculum of the Renaissance (when schools were intended primarily for upper-class children and their role was to support the era's religious and social institutions).[10]

ACADEMIES. Established in 1751, the academy was the second American institution to provide education. Based on Benjamin Franklin's ideas and intended to offer a practical curriculum for those not going to college, it had a diversified curriculum of English grammar, classics, composition, rhetoric, and public speaking.[11] Latin was no longer considered a crucial subject. Students could choose a foreign language based on their vocational needs. For example, a prospective clergyman could study Latin or Greek, and a future businessman could learn French, German, or Spanish. Mathematics was taught for its professional uses rather than as an abstract intellectual exercise. History, not religion, was the chief ethical study. The academy also introduced many practical and manual skills into the formal curriculum: carpentry, engraving, printing, painting, cabinet making, farming, bookkeeping, and so on. These skills formed the basis of vocational curriculum in the 20th century.

COLLEGES. Most students who graduated from Latin grammar schools went to Harvard or Yale University. College was based on the Puritan view that ministers needed to be soundly educated in the classics and scriptures. The students had to demonstrate competency in Latin and Greek and the classics. As is the case today, secondary education prepared students for college. Ellwood Cubberley writes, "The student would be admitted into college 'upon Examination' whereby he could show competency 'to Read, Construe, Parce Tully, Vergil and the Greek Testament; and to write Latin in Prose and to understand the Rules of Prosodia and Common Arithmetic' as well as to bring 'testimony of his blameless and inoffensive life.'"[12]

The Harvard/Yale curriculum consisted of courses in Latin, grammar, logic, rhetoric, arithmetic, astronomy, ethics, metaphysics, and natural sciences. The curriculum for the ministry or other professions also included Greek, Hebrew, and ancient history.

Old Textbooks, Old Readers

The hornbook, primer, Westminster Catechism, Old Testament, and Bible were considered textbooks. Until the American Revolution, most elementary textbooks were of English origin or directly imitated English textbooks.[13] Children learned the alphabet, the Lord's Prayer, and some

syllables, words, and sentences by memorizing the *hornbook*, a paddle-shaped board to which was attached a sheet of parchment covered with a transparent sheath made from flattened cattle horns.

When the *New England Primer* was published in the 1690s, it replaced the English primer. The first American basal reader, it would remain the most widely used textbook in the colonies for more than 100 years; more than three million copies were sold. Religious and moral doctrines permeated the *New England Primer*. The somber caste of Puritan religion and morals was evident as students memorized sermons and learned their ABCs through rote and drill:

> A— *In Adam's Fall*
>   *We sinned all*
> B— *Thy Life to mend*
>   *This book attend*
> C— *The Cat doth play*
>   *And after slay . . .*
> Z— *Zacheus he*
>   *Did climb the tree*
>   *His Lord to see.*[14]

In 1740, Thomas Dilworth published a *New Guide to the English Tongue*, which combined grammar, spelling, and religious instruction. It was followed a few years later by *The School Master's Assistant*, a widely used mathematics text.

Years later Noah Webster, an ardent cultural nationalist, wrote a letter to Henry Barnard (then Connecticut's commissioner of education), in which he described the narrowness of the elementary curriculum and the limited use of textbooks:

> [B]efore the Revolution . . . the books used were chiefly or wholly Dilworth's Spelling Books, the Psalter, Testament, and Bible. No geography was studied before the publication of Dr. Morse's small books on that subject, about the year 1786 or 1787. No history was read, as far as my knowledge extends, for there was no abridged history of the United States. Except the books above mentioned, no book for reading was used before the publication of the Third Part of my Institute, in 1785. . . . The introduction of my Spelling Book, first published in 1783, produced a great change in the department of spelling. . . . No English grammar was generally taught in common schools when I was young, except that in Dilworth, and that to no good purpose.[15]

◼ THE NATIONAL PERIOD: 1776–1850

A new mission for education, which began to emerge during the Revolutionary period, continued throughout the early national period. Many leaders began to link free public schooling with the ideas of popular government and political freedom. President Madison wrote, "A popular government without popular information, or the means of acquiring it, is but a prologue to a farce or a tragedy or perhaps both." Thomas Jefferson expressed a similar belief when he asserted, "If a nation expects to be ignorant and free in a state of civilization, it expects what never was and never will be."

Life, liberty, and equality were emphasized in the era's great documents: the Declaration of Independence, the Bill of Rights, and the land ordinances in the 1780s (which divided the Northwest Territory into townships and reserved the 16th section of "every township for the maintenance of public schools"). The ordinances reaffirmed that "schools and the means of education shall forever be encouraged" by the states. The federal government thus committed to advancing education while ensuring the constitutionally guaranteed autonomy of state and local schools. As a result of these ordinances, the federal government gave 39 states more than 154 million acres of land for schools.[16]

By 1800, secular forces had sufficiently developed to challenge and ultimately reduce religious influence over elementary and secondary schools. These secular forces included the

development of democracy, the development of a strong federal government, emerging cultural nationalism, the idea of religious freedom, and new discoveries in the natural sciences.

Rush: Science, Progress, and Free Education

Dr. Benjamin Rush (1745–1813) represented this new era. In 1791, he wrote that the emphasis on the classics prejudiced the masses against institutions of learning. As long as Latin and Greek dominated the curriculum, universal education beyond the rudiments was wishful thinking. Education should advance democracy and the exploration and development of natural resources. "To spend four or five years in learning two dead languages, is to turn our backs upon a gold mine, in order to amuse ourselves catching butterflies." If the time spent on Latin and Greek was devoted to science, this champion pragmatist continued, "the human condition would be much improved."[17]

Rush outlined a plan of education for Pennsylvania and the new nation: free elementary schools in every township consisting of 100 or more families, a free academy at the county level, and free colleges and universities at the state level for society's future leaders. Tax dollars would pay for the expenses, but the educational system ultimately would reduce taxes because a productive, well-managed workforce and entrepreneur force would result. (Thirty years later, Horace Mann would make the same argument when he spearheaded the common school movement.) Rush's curriculum emphasized reading, writing, and arithmetic at the elementary school level; English, German, the arts, and, especially, the sciences at the secondary and college level; and good manners and moral principles at all levels.

Jefferson: Education for Citizenship

Thomas Jefferson (1743–1826) had faith in agrarian society and distrusted the urban proletariat. A man of wide-ranging interests, which included politics, architecture, agriculture, science, art, and education, Jefferson believed that the state must educate its citizenry to ensure a democratic society. In "A Bill for the More General Diffusion of Knowledge," introduced in the Virginia legislature in 1779, Jefferson advocated a plan that provided educational opportunities for both common people and landed gentry "at the expense of all."[18] To Jefferson, formal education should not be restricted to particular religious or upper-class groups. Public taxes should finance schools. Jefferson's plan divided Virginia's counties into wards, each of which would have a free elementary school for the teaching of reading, writing, arithmetic, and history. The plan also provided for the establishment of 20 secondary-level grammar schools, to which poor but gifted students could receive scholarships. The students in these 20 schools would study Latin, Greek, English, geography, and higher mathematics. On completing grammar school, half the scholarship students would receive positions as elementary or ward school teachers. The 10 scholarship students of highest achievement would attend William and Mary College. Jefferson's plan promoted continuing education for the brightest students as well as equal opportunity for economically disadvantaged students.

Neither Jefferson's proposal for Virginia nor Rush's proposal for Pennsylvania was enacted. Nonetheless, the bills indicate educational theorizing characteristic of the young nation. Coupled with Franklin's academy and its practical curriculum based on business and commercial principles rather than on classical and religious principles, these bills promoted education aimed at good citizenship and social progress. Rush, Jefferson, and, to a lesser extent, Franklin proposed universal education and methods for identifying students of superior ability, who were to receive free secondary and college educations at public expense.

Webster: Schoolmaster and Cultural Nationalist

The United States differed from most new countries struggling for identity in that it lacked a shared cultural identity and national literature. In its struggle against the "older"

cultures and "older" ideas, the new nation went to great lengths to differentiate itself from the Old World and especially England.[19] Noah Webster (1758–1843) urged Americans to "unshackle [their] minds and act like independent beings. You have been children long enough, subject to the control and subservient to the interests of a haughty parent. . . . You have an empire to raise . . . and a national character to establish and extend by your wisdom and judgment."[20]

In 1789, when the Constitution became the law of the land, Webster argued that the United States should have its own system of "language as well as government." Great Britain's language, he argued, "should no longer be our standard; for the taste of her writers is already completed, and her language on the decline."[21] By the act of revolution, the American people had declared their political independence from England. Now they needed to declare their cultural independence as well.

Realizing that a distinctive national language and literature conveyed a sense of national identity, Webster set out to reshape U.S. English. Moreover, the expression "American English" (as opposed to the British dialect) was coined by Webster. He believed that a uniquely U.S. language would (1) eliminate the remains of European usage, (2) create a uniform U.S. speech free of localism and provincialism, and (3) promote U.S. cultural nationalism.[22] A U.S. language would unite citizens. However, such a language would have to be phonetically simple to render it suitable to the common people. As children learned the U.S. language, they also would learn to think and act as Americans. Because the books read by students would shape the curriculum of U.S. schools, Webster spent much of his life writing spelling and reading books. His *Grammatical Institute of the English Language* was published in 1783. The first part of the *Institute* was later printed as *The American Spelling Book*, which was widely used throughout the United States in the first half of the 19th century.[23] Webster's *Spelling Book* went through many editions; it is estimated that 15 million copies had been sold by 1837. In fact, it outsold every book in the 19th century except the Bible. Webster's great work was *The American Dictionary*, which was completed in 1825 after 25 years of laborious research.[24] Often termed the "schoolmaster of the Republic," Webster helped create a sense of U.S. language, identity, and nationality.

McGuffey: The Readers and American Virtues

William Holmes McGuffey (1800–1873), who taught most of his life in Ohio colleges, also entered the debate on U.S. cultural nationalism. His five *Readers* were the most popular textbooks in the United States during his era; an estimated 120 million copies were sold between 1836 and 1920.[25] McGuffey gratefully acknowledged U.S. "obligations to Europe and the descendants of the English stock" in science, art, law, literature, and manners. However, the United States had made its own contributions to humankind; they "were not literary or cultural, but moral and political." The seeds of popular liberty "first germinated from our English ancestors, but it shot up to its fullest heights in our land."[26] The United States had shown Europe that "popular institutions, founded on equality and the principle of representation, are capable of maintaining governments" and that it was practical to elevate the masses "to the great right and great duty of self-government."[27]

McGuffey's *Readers* extolled patriotism, heroism, hard work, diligence, and virtuous living. Their tone was moralistic, religious, capitalistic, and nationalistic. The selections of American literature included orations by George Washington, Patrick Henry, Benjamin Franklin, and Daniel Webster. Through his *Readers,* McGuffey taught several generations of Americans. He also provided the first graded *Readers* for U.S. schools and paved the way for a graded system, which began in 1840. Along with his *Pictorial Primer,* many of his *Readers* are used even today in some rural, conservative, and/or fundamentalist schools (see Curriculum Tips 3.1).

CURRICULUM TIPS 3.1   The Need for Historical Perspective

All professional educators, including curriculum specialists, need an understanding of history to avoid repeating the mistakes of the past and also to better prepare for the future.

1. The development of ideas in education is part of our intellectual and cultural heritage.
2. A truly educated person has a sense of historical context.
3. An understanding of various theories and practices in education requires an understanding of historical foundations.
4. An understanding of historical foundations in education helps us integrate curriculum, instruction, and teaching.
5. History illuminates current pedagogical practices.
6. In developing a common or core curriculum, a historical perspective is essential.
7. With a historical perspective, curriculum specialists can better understand the relationship between content and process in subject areas.
8. References to history, especially case examples, contribute to academic education's moral dimension.
9. The history of education permits practitioners to understand relationships between what students of the past learned and what students now learn.
10. The study of education history is important for the purposes of education theory and research.

■ 19TH CENTURY EUROPEAN EDUCATORS

Although widely criticized, European thought greatly influenced U.S. education. At the college level, German educators influenced the fields of natural science, psychology, and sociology; many of our research-oriented universities were based on the German model. At the K–12 level, progressive ideas from German and Swiss thinkers led to curricular and instructional methods that were psychologically oriented and considered students' needs and interests. English models of schooling also affected U.S. education.

The theme of reform characterized much of the era's educational discourse. The limitations of the "traditional curriculum and typical school of this era were recognized by educational leaders in Europe and America, and many of the features that were now firmly established in [curriculum] theory and practice can be traced to the ideas of the men and women who were ahead of their time."[28] The traditional curriculum, which emphasized Latin, Greek, and the classics, became less popular. New pedagogical practices replaced rote learning, memorization, and corporal punishment.

Pestalozzi: General and Special Methods

Early U.S. education was strongly influenced by Johann Heinrich Pestalozzi (1746–1827), a Swiss educator. According to one educational historian, Pestalozzi "laid the basis for the modern elementary school and helped to reform elementary-school practice."[29] Pestalozzi maintained that education should be based on the child's natural development. His basic pedagogical innovation was his insistence that children learn through the senses. He deplored rote learning and advocated linking the curriculum to children's home experiences.

Pestalozzi proposed a "general" method and a "special" method. The general method called for educators who provided children with emotional security and affection. The special method considered children's auditory and visual senses. Pestalozzi devised the "object" lesson, in which children studied common objects such as plants, rocks, and household objects. Children would determine an object's form, draw the object, and then name it. From these lessons in form, number, and sound came more formal instruction in the three *R*'s.

William McClure and Joseph Neef—and later Horace Mann and Henry Barnard—worked to introduce Pestalozzi's ideas into U.S. schools.[30] Pestalozzi's basic concepts of education

became part of progressive schooling and later appeared in the movement for curriculum relevancy and humanistic curriculum.

Froebel: The Kindergarten Movement

Friedrich Froebel (1782–1852), a German educator, developed what he called "kindergarten" (children's garden). He focused on the 3- and 4-year-old children and believed that their schooling should be organized around play and individual and group interests and activities. Froebel encouraged a child-centered curriculum based (like Pestalozzi's) on love, trust, and freedom. Songs, stories, colorful materials, and games were part of the formal curriculum. The children could manipulate objects (spheres, cubes, and circles), shape and construct materials (clay, sand, cardboard), and engage in playful activities (build castles and mountains, run, and otherwise exercise).[31]

Together, these activities made up the learning environment and provided a secure and pleasant place where children could grow naturally. German immigrants brought the kindergarten concept to the United States. Margaret Schurz established the first U.S. kindergarten in Watertown, Wisconsin, in 1855. William Harris, superintendent of schools in St. Louis, Missouri, and later U.S. commissioner of education, was instrumental in implementing the idea on a broader scale. Kindergarten is now an established part of U.S. education. Many of Froebel's ideas of childhood experiences and methods of play have been incorporated into current theories of early childhood education and progressive schooling.

Herbart: Moral and Intellectual Development

Johann Herbart (1776–1841) was a German philosopher known for his contributions to moral development in education and for his creation of a methodology of instruction designed to establish a highly structured mode of teaching. For Herbart, the chief aim of education was moral development, which he considered to be basic and necessary to all other educational goals or purposes. The chief objective of Herbartian education was to produce a good person who had many interests. Herbart argued that virtue is founded on knowledge and misconduct is the product of inadequate knowledge or of inferior education. Thus, he gave education a vital role in shaping moral character.

In elaborating on his work on moral education, Herbart specified five major kinds of ideas as the foundation of moral character: (1) the idea of *inner freedom,* which referred to action based on one's personal convictions; (2) the idea of *perfection,* which referred to the harmony and integration of behavior; (3) the idea of *benevolence,* by which a person was to be concerned with the social welfare of others; (4) the idea of *justice,* by which a person reconciled his or her individual behavior with that of the social group; and (5) the idea of *retribution,* which indicates that reward or punishment accrues to certain kinds of behavior.

Drawing from his ideas on moral education, Herbart also specified two major bodies of interests that should be included in education: knowledge interests and ethical interests. *Knowledge* interests involved empirical data, factual information, and speculative ideas, and *ethical* interests included sympathy for others, social relationships, and religious sentiments. Herbart's aim was to produce an educated individual who was also of good character and high morals. He believed that if a person's cognitive powers are properly exercised and his or her mind is stocked with proper ideas, then the person will use that knowledge to guide his or her behavior. The person who lives and acts according to knowledge will be a moral person.

In terms of organizing instruction, Herbart developed the concepts of curriculum *correlation.* These were to have a decided impact on education in the United States in the 1940s and 1950s. According to the doctrine of correlation, each subject should be taught in such a way that it refers to and relates to other subjects. Knowledge would then appear to the learner as an integrated system of ideas that form an apperceptive mass—the whole of a person's previous experience—into which new ideas could be related.

Herbart believed that the subjects of history, geography, and literature were ideally suited as core subjects. Herbart also developed four pedagogical principles that were accepted enthusiastically and transformed into five steps by his followers; these became known as the Herbartian method: (1) *preparation,* by which the teacher stimulates the readiness of the learner for the new lesson by referring to materials that were learned earlier; (2) *presentation,* in which the teacher presents the new lesson to the students; (3) *association,* in which the new lesson is deliberately related to the ideas or materials that students studied earlier; (4) *systemization,* which involves the use of examples to illustrate the principles or generalizations to be mastered by the students; and (5) *application,* which involves the testing of new ideas or the materials of the new lesson to determine if students have understood and mastered them.

Speaking of Herbart's contribution to the instruction of teaching, John Dewey said: "Few attempts have been made to formulate a method, resting on general principles, of conducting a recitation. One of these is of great importance and has probably had more influence upon the learning of lessons than all others put together; namely, the analysis by Herbart of a recitation into five successive steps."[32]

Herbart's formal steps of instruction were applied to teacher training as well as adopted by classroom teachers. In theory, the teacher would prepare carefully by thinking of the five steps and asking: What do my students know? What questions should I ask? What events should I relate? What conclusions should be reached? How can students apply what they have learned? To a large extent, these principles still serve as the guidelines for today's classroom lesson plan. His five steps also form the basis of what today's curriculum theorists would refer to as the *instructional* or *implementation* phase of curriculum planning, or what the authors call *curriculum development* (see Chapter 7).

Spencer: Utilitarian and Scientific Education

Herbert Spencer (1820–1903) was an English social scientist who based his ideas of education on Charles Darwin's theory of biological evolution and subsequently introduced the notion of "survival of the fittest." Spencer maintained that simple societies evolve to more complex social systems, characterized by an increased variety of specialized professions and occupations.[33] Because of nature's laws, only intelligent and productive populations adapt to environmental changes. Less intelligent, weak, or lazy people slowly disappear. Spencer's notions of excellence, social-economic progress, and intellectual development based on heredity had immense implications for education and economic outcomes.

Spencer criticized religious doctrines and classical subject matter as unscientific and unrelated to contemporary society. He advocated a scientific and practical curriculum suited to industrialized society. Spencer believed that traditional schools were impractical and ornamental, a luxury for the upper class that failed to meet the needs of the people living in a modern society.

Spencer constructed a curriculum aimed at advancing human survival and progress. His curriculum included knowledge and activities (in order of importance) for sustaining life, earning a living, rearing children properly, maintaining effective citizenship, and enjoying leisure time.[34] These five purposes became the basis of the famous Principles of Secondary Education, published in 1918. The document proved to be a turning point by which progressive thought (focus on the whole child) trumped perennialist philosophy (focus on subject matter) in education.

Spencer maintained that students should be taught *how* to think, not *what* to think. His notion about discovery learning, an offshoot of scientific reasoning, also influenced 20th century curricularists, including Dewey and his 1916 publication of *How We Think* and, later, essentialist disciplinary educators such as Jerome Bruner and Phil Phenix.[35]

In his famous essay "What Knowledge Is of Most Worth?" Spencer argued that science was the most practical subject for the survival of the individual and society, yet it occupied minimal space in the curriculum. Spencer reasoned that a curriculum should be constructed on the basis of what is useful and essential for promoting progress. In effect, he was suggesting an

educational program that would apply scientific knowledge and skills for an industrialized society (such as the one we live in today).

Both John Dewey and Charles Judd were later influenced by Spencer's thinking when they formulated a science of education 25 years later based on the methods of hypothesizing, finding facts, and making generalizations. Edward Thorndike, probably the best-known behavioral psychologist of the early 20th century, was also influenced by Spencer's scientific theories—specifically, those involving Thorndike's principles of learning and organization of experiences.

Although many of Spencer's ideas about religion, evolution, and social progress created a furor (and still do among some religious and political observers), the ideas suited his era, which was characterized by industrial growth and territorial expansion by Europe and the United States.

■■ THE RISE OF UNIVERSAL EDUCATION: 1820–1900

During the early 1800s, the United States expanded westward. Life on the new frontier deepened America's faith in the common person who built the new nation. Equality and rugged individualism were important concepts, expressed in the Declaration of Independence and reaffirmed by westerners, who believed all people of all classes were important. This kind of faith in the working person and in American civilization underscored to the frontier people the necessity of school.[36] In the urban East, the lower classes, particularly immigrants, also valued free schooling and linked it to social mobility and the American dream. The upper-class establishment may not have had faith in the masses, but they reluctantly accepted the argument (of Jefferson, Rush, and now Mann) that mass education was necessary for intelligent participation in a political democracy and for economic growth of the country.

Monitorial Schools

The monitorial school was a European invention based on Joseph Lancaster's model of education. It spread quickly to the U.S. urban centers, where the immigrant population was increasing, and to the frontier, where there was need for a system of schools. It was attractive in the 1820s and the following decades due to its economy and efficiency. Bright student monitors served as instructors. The teacher taught the lesson to the monitors (high-achieving students), who presented the material to their classmates. The instruction was highly structured and based on rote learning and drilling the three *R*'s.

Proponents of monitorial teaching stressed that it was economical and kept all students busy while the teacher was occupied with a few students. The class was divided into smaller groups, with a monitor in charge of each group. The students were kept actively involved in practice and drill activities and moved at their own pace. Teachers were freed from some of their instructional chores. The monitorial system was considered "efficient."[37]

The monitorial system deemphasized classical education and religious theory, stressed the three *R*'s and good citizenship, demonstrated the possibility of systematic instruction, acquainted many people with formal education, and made educational opportunities more widely available. Most important, it promoted mass education and tax-supported elementary schools.[38] At the peak of its popularity, in the 1840s, it was introduced in some high schools and suggested (by educators and state agencies) for colleges.

However, many people considered the monitorial system too mechanical. It also was criticized for using poorly informed students as instructors. By 1850, its popularity had waned.

Common Schools

The common school was established in 1826 in Massachusetts, when the state passed a law requiring every town to choose a school board to be responsible for all local schools. Eleven years

later, the state legislature created the first state board of education, and Massachusetts organized the public common schools under a single authority. Connecticut quickly followed its neighbor's example.[39] The common schools were devoted to elementary education, with an emphasis on the three *R*'s. Horace Mann spearheaded the movement, which was rooted in progressive thought.

As a member of the Massachusetts legislature and later as the state's first commissioner of education, Mann rallied public support for the common school by appealing to various segments of the population. To enlist the business community, he argued that "education has a market value" with a yield similar to "common bullion." Industry's aim and the nation's wealth would be augmented "in proportion to the diffusion of knowledge."[40] Workers would be more diligent and productive. Mann also established a stewardship theory, aimed at the upper class, which stated that the public good would be enhanced by public education. Universal education would create a stable society in which people would obey the laws and increase the nation's political and economic well-being. Mann told workers and farmers that the common school would be a great equalizer and a means of social mobility for their children. To the Protestant community, he argued that the common school would assimilate ethnic and religious groups, promote a common culture, and help immigrant children learn English, U.S. customs, and U.S. laws.[41] Mann was convinced that the common school was crucial to equal opportunity and a national identity.

The pattern for establishing common schools and their quality varied among the states, but the foundation of the U.S. public school was being forged. Schools taught youngsters of all socioeconomic and religious backgrounds, from age 6 to 14 or 15. Because individual teachers taught a variety of subjects to children of all ages, they had to plan as many as 10 to 20 different lessons a day.[42] Teachers also had to try to keep their schoolrooms cool in the summer and warm in the winter (a responsibility shared by the older boys, who cut and fetched wood). Schoolhouses often needed major repairs, and teachers were paid miserably low salaries.

New England state legislatures encouraged the establishment of school districts, elected school boards, and enacted laws to govern the schools. Although the common school had problems and critics, it especially flourished on the frontier, where the local one-room schoolhouse embodied the pioneers' desire to provide free education for their children. The one-room schoolhouse eventually led to one of America's most lasting, sentimentalized pictures—the "Little Red Schoolhouse"—in almost every community. "It was a manifestation of the belief held by most of the frontier leaders that a school was necessary to raise the level of American civilization."[43]

This small school, meager in outlook and thwarted by inadequate funding and insufficient teachers, nevertheless fit with the conditions of the American frontier. It was a "blah" school, according to Abe Lincoln, but it was the kind of school in which the common person's children—even those born in log cabins—could begin their "readin," "writin," and "cipherin."[44] It was a school local citizens could use as a polling place, meeting hall, and site for dances and other community activities; it was here on the frontier that neighborhood schools, local control, and government support of schools took a firm hold.

Elementary Schools

There was no consensus regarding an appropriate elementary school curriculum. Throughout the 1800s, the trend was to add courses to the essential subjects of reading, spelling, grammar, and arithmetic. Religious doctrine changed to "manners" and "moral" instruction by 1825. Textbook content was heavily moralistic, and teachers provided extensive training in character building. By 1875, lessons in morality were replaced by lessons in "conduct," which remained part of the 20th century curriculum. More and more subjects were added to the curriculum: geography and history by 1850; science, visual art, and physical education by 1875; and nature study (biology and zoology), music, homemaking (later called *home economics*), and manual training by 1900. Table 3.1 shows this evolution of the elementary school curriculum.

Table 3.1 | Evolution of the Elementary School Curriculum, 1800–1900

1800	1825	1850	1875	1900
Reading	*Reading*	*Reading*	*Reading*	*Reading*
	Declamation	*Declamation*	Literary selections	*Literature*
Spelling	*Spelling*	*Spelling*	*Spelling*	Spelling
Writing	Writing	*Writing*	*Penmanship*	Writing
Catechism	Good behavior	Conduct	Conduct	Conduct
Bible	Manners and morals	Manners		
Arithmetic	*Arithmetic*	*Mental arithmetic*	*Primary arithmetic*	*Arithmetic*
		Ciphering	*Advanced arithmetic*	
	Bookkeeping	Bookkeeping		
	Grammar	*Grammar*	Grammar	Grammar
		Elementary language	Oral language	*Oral language*
	Geography	Geography	Home geography	Home geography
			Text geography	*Text geography*
		U.S. history	U.S. history	History studies
			Constitution	
		Object lessons	Object lessons	Nature study
			Elementary science	Elemenatary science
			Drawing	Drawing
				Music
			Physical exercises	Physical training
				Play
	Sewing			Sewing
				Cooking
			Manual training	

Note: Italics indicate the most important subjects.
Source: From Ellwood P. Cubberley (1920), *The History of Education* (Boston: Houghton Mifflin, 1920), p. 756.

Secondary Schools

The common school created the basis for tax-supported and locally controlled elementary school education. The U.S. high school was established on this base. By 1900, most children ages 6 to 13 were enrolled in public elementary school, but only 11.5 percent of children ages 14 to 17 were enrolled in public secondary schools (and only 6.5 percent graduated). As shown in Table 3.2, not until 1930 did the secondary school enrollment figure exceed 50 percent. By 1970, 98 percent of elementary-age children attended school, and 94 percent of secondary-age children did (with 77 percent graduating). The great enrollment boom occurred between 1850 and 1900 for elementary schools and between 1900 and 1970 for high schools. From the 1980s to 2010, enrollment percentages leveled off in the mid- to high 1990s.

Academies

In the early 1800s, the academy began to replace the Latin grammar school; by 1850, it dominated the school landscape. The academy offered a wide range of curricula; it was designed to provide a practical program for terminal students as well as a college-preparatory course of study. By 1855, more than 6,000 academies were teaching 263,000 students[45] (more than two-thirds of the period's total secondary school enrollment).

Table 3.2	Percentage of Students Enrolled in Secondary School and College, 1900–2010		
	14- to 17-Year-Olds Enrolled in Secondary School	17-Year-Olds Graduating High School	18- to 21-Year-Olds Enrolled in College
1900	11.5	6.5	3.9
1910	15.4	8.8	5.0
1920	32.3	16.8	7.9
1930	51.4	29.0	11.9
1940	73.3	50.8	14.5
1950	76.8	59.0	26.9
1960	86.1	65.1	31.3
1970	93.4	76.5	45.2
1980	93.7	74.4	46.3
1990	95.8	85.4	48.5
2000	97.9	87.5	53.7
2010	96.5	86.0	60.0

Source: Based on Allan C. Ornstein. *Teaching and Schooling in America* (Boston: Allyn & Bacon, 2003); and *Projections of Education Statistics to 2015* (Washington, DC: U.S. Government Printing Office, 2011).

According to Ellwood Cubberley, the academy taught "useful things, [and] subjects of modern nature," that prepared students for life, not just college.[46] By 1828, the academies of the state of New York offered as many as 50 different subjects. In rank order, the top 15 were Latin, Greek, English grammar, geography, arithmetic, algebra, composition and declamation, natural philosophy, rhetoric, philosophy, U.S. history, French, chemistry, logic, and astronomy. By 1837, the state Board of Regents reported 72 different subjects.[47]

Academies tended to offer a traditional curriculum that prepared students for college. Elmer Brown writes that in the best academies, "the college preparatory course was the backbone of the whole system of instruction." Although practical courses were offered, "it was the admission requirements of the colleges, more than anything else, that determined their standards of scholarship."[48] Paul Monroe concurs: "The core of academy education yet remained the old classical curriculum . . . just as the core of the student body in the more flourishing academies remained the group preparing for college."[49]

The era of the academies extended to the 1870s, when public high schools replaced academies. The academies then served as finishing schools for young ladies, providing courses in classical and modern languages, science, mathematics, art, music, and homemaking. They also offered the "normal" program for prospective school teachers, which combined courses in the arts and science with principles of pedagogy. A few private military and elite academic academies still exist today.

High Schools

Although a few high schools existed in the early half of the 1800s (the first was founded in Boston in 1821), they did not become a major U.S. institution until after 1874, when the Michigan Supreme Court ruled, in the "Kalamazoo Case," that the public could establish and support high schools with tax funds. Thereafter, high schools rapidly spread, and state after state made attendance compulsory.

Students were permitted to attend private schools, but the states had the right to establish minimum standards for all. By 1890, the 2,525 public high schools in the United States had more than 200,000 students, compared to 1,600 private secondary schools, which had fewer than 95,000

CURRICULUM TIPS 3.2 **Process of Historical Research**

The following suggestions provide guidance for conducting historical research:

1. Define a problem or issue with roots in the past, or attempt to recreate a historical event and give it meaning.
2. Use primary-source writings from the time of a historical event that relate to an event and were part of the context in which it occurred.
3. Use secondary sources (literature written after the event occurred) in which historians have interpreted the event.
4. Based on an examination of primary and secondary sources, recreate an event, life, or situation from the past and interpret it so that it has meaning for people today.
5. Use history, especially case examples or case studies, to add a moral dimension to your teaching.
6. Explain and interpret, but do not rewrite, history.

Source: Adapted from Gerald Gutek, unpublished materials, January 1992.

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students. By 1900, the number of high schools had soared to 6,000, whereas the number of academies had declined to 1,200.[50] The public high school system, contiguous with common schools, had evolved. As late as 1900, high schools were attended by only a small percentage of the total youth population. However, the presence of terminal and college-preparatory, rich and poor students under one roof showed that the U.S. public had rejected the European dual system of secondary education. Fifty years later, when the U.S. high school had fully evolved, James Conant argued for comprehensive high schools that served all types of learners and helped eliminate class distinctions. The comprehensive high school provided curriculum options for all students.

High schools stressed the college preparatory program, but they also completed the formal education of terminal students. They offered a more diversified curriculum than the academies. Around 1900, high schools began to offer vocational, industrial, commercial, and clerical courses. Public high schools contributed to social and political reform. They produced a skilled workforce for an expanding industrial economy, and they assimilated and Americanized millions of immigrant children in U.S. cities.

Summing up, then, the curriculum of the Latin grammar school was virtually the same at the beginning and end of the colonial period. Latin, Greek, arithmetic, and the classics were stressed. Academies introduced greater variation (e.g., courses for practical studies) into the curriculum. By 1800, a typical academy offered about 25 different subjects (the table lists the 17 most popular). Between 1850 and 1875, the peak period for academies, some academies offered as many as 150 courses.[51] In rank order, the 15 most popular were (1) algebra, (2) higher arithmetic, (3) English grammar, (4) Latin, (5) geometry, (6) U.S. history, (7) physiology, (8) natural philosophy, (9) physical geography, (10) German, (11) general history, (12) rhetoric, (13) bookkeeping, (14) French, and (15) zoology.[52] These courses had no real philosophy or aim except that most were college preparatory in nature, even though the original aim of the academy was to offer a practical program.

After 1875, the number of high schools rapidly grew, and the number of academies rapidly fell. The curriculum and the variety in course offerings continued to expand, presumably making it easier for students to determine their interests and capabilities.[53] (See Curriculum Tips 3.2.)

THE TRANSITIONAL PERIOD: 1893–1918

From the colonial period until the turn of the 20th century, the traditional curriculum, which emphasized classical studies for college-bound students, dominated at the elementary and secondary levels. The rationale for this emphasis was that the classics were difficult and thus were a good way to develop mental abilities.

While helpful to students, the sheer variety of course offerings were inconsistent across districts. There was a growing need to bring some order and unity to curriculum, especially at the secondary level. According to two educators, the subjects taught, the time allotted to them, and their "grade placements" differed from school to school.[54]

As late as 1900, most children completed their formal education at the elementary level, and those who went on to secondary schools usually ended their formal education upon graduation. As of 1890, only 14.5 percent of high school students were preparing for college, and fewer than 3 percent went on to college.[55] Hence, high schools were catering to approximately 15 percent of the student population.

Reformers began to ask if elementary schools should offer two curriculum tracks, one for children bound for high school and one for children whose formal education would end at the elementary level. They also began to question high schools' focus on preparing students for college, on mental discipline, and on the classics.

Reaffirming the Traditional Curriculum: Three Committees

With these unsettled questions as background, the National Education Association (NEA) organized three major committees between 1893 and 1895: the Committee of Fifteen on Elementary Education, the Committee of Ten on Secondary School Studies, and the Committee on College Entrance Requirements. These committees were to determine and bring order to schools' unwieldy curricula. Their reports "standardized" the curriculum for much of the 20th century. In Cubberley's words, "The committees were dominated by subject-matter specialists, possessed of a profound faith in mental discipline." No concern for student "abilities, social needs, interest, or capabilities . . . found a place in their . . . deliberations."[56]

THE COMMITTEE OF FIFTEEN.   The Committee of Fifteen was heavily influenced by Harvard University president Charles Eliot, who had initiated vigorous discussion on the need for school reform, and by William Harris, then the U.S. commissioner of education, who believed in strict teacher authority and discipline. Both Eliot and Harris wanted the traditional curriculum to remain intact. The committee adopted Eliot's plan to reduce the elementary grades from 10 to 8 and stressed the three *R*'s, English grammar, literature, geography, and history. Hygiene, culture, vocal music, and drawing were each allotted one hour per week. Manual training, sewing cooking, algebra, and Latin were introduced in the seventh and eighth grades.

In general, the committee rejected the idea of newer subjects (see Table 3.1), the pedagogical principles that had characterized the reform movement of the European pioneers since the early 1800s, kindergarten, the idea that children's needs and interests should be considered when planning the curriculum,[57] and the notion of interdisciplinary subjects. They compartmentalized subject matter, and this compartmentalization has remained the norm.

THE COMMITTEE OF TEN.   Chaired by Eliot, the Committee of Ten was the most influential of the three committees. It identified nine academic subjects as central to the high school curriculum: (1) Latin; (2) Greek; (3) English; (4) other modern languages; (5) mathematics (algebra, geometry, trigonometry, and higher, or advanced, algebra); (6) physical sciences (physics, astronomy, and chemistry); (7) natural history or biological sciences (biology, botany, zoology, and physiology); (8) social sciences (history, civil government, and political economy); and (9) geography, geology, and meteorology (see Table 3.3).

The committee recommended four different tracks: (1) classical, (2) Latin scientific, (3) modern languages, and (4) English. The first two required four years of Latin. The first program emphasized classic English literature and math; the second, math and science. The modern-language program required four years of French or German (Spanish was considered too easy and culturally and linguistically less important). The English program permitted four years of Latin, German, or French. The modern language and English programs also included literature,

Table 3.3 | Secondary School Programs and Subjects Proposed by Committee of Ten, 1893

First Year		Second Year		Third Year		Fourth Year	
Latin	5 p.*	Latin	4 p.	Latin	4 p.	Latin	4 p.
English literature	2 p. } 4 p.	Greek	5 p.	Greek	4 p.	Greek	4 p.
English composition	2 p.	English literature	2 p. } 4 p.	English literature	2 p. } 4 p.	English literature	2 p. } 4 p.
German (or French)	5 p.	English composition	2 p.	English composition	1 p.	English composition	1 p.
						Grammar	1 p.
Algebra	4 p.	German (continued)	4 p.	Rhetoric	1 p.		
History of Italy, Spain, and France	3 p.	French (begun)	5 p.	German	4 p.	German	4 p.
Applied geography (European political-continental and oceanic flora and fauna)	4 p.	Algebra	2 p. } 4 p.	French	4 p.	French	4 p.
		Geometry	2 p.	Algebra	2 p. } 4 p.	Trigonometry	
		Botany or zoology	4 p.	Geometry	2 p.	Higher algebra	2 p.
		English history to 1688	3 p.	Physics	4 p.	Chemistry	4 p.
Total	25 p.	Total	33 p.	History, English and U.S.	3 p.	History (intensive) and civil government	3 p.
				Astronomy, 11/2 p. 1st 1/2 yr		Geology or physiography, 2 p. 1st 1/2 yr	
				Meteorology, 11/2 p. 2nd 1/2 yr	3 p.	} 4 p.	
						Anatomy, physiology, and hygiene, 2 p. 2nd 1/2 yr	
				Total	34 p.	Total	33 p.

Note: *p. = periods.
Source: From Committee of Ten, *Report of the Committee of Ten on Secondary School Studies* (Washington, DC: National Educational Association, 1893), p. 4.

composition, and history. The Committee of Ten considered these two programs (which did not require Latin or emphasize literature, science, or mathematics) "in practice distinctly inferior to the other two."[58] In taking this position, the committee indirectly tracked college-bound students into the first two programs and noncollege-bound students into the latter two programs. To some extent, this bias reflected the committee's composition: 8 of the 10 members represented college and private preparatory school interests.

The committee ignored art, music, physical education, and vocational education, maintaining that these subjects contributed little to mental discipline. Two curricularists write, "The choice of these subjects and the omission of others from consideration was enough to set the course for secondary education for many years" and indirectly set the tone at the elementary level as well. The committee suggested that each of the nine subjects except Latin and Greek be taught at the elementary school level.[59]

At the time, few students went to college. Nonetheless, this college preparatory program established a curriculum hierarchy, from elementary school to college, that promoted academics and ignored most students who were not college bound. Today, schools offer vocational, industrial, or technical programs, but the academic program is still considered superior to others.

THE COMMITTEE ON COLLEGE ENTRANCE REQUIREMENTS.   When the Committee on College Entrance Requirements met in 1895, it reaffirmed the dominance of college-preparatory curriculum in high schools, emphasizing college-admission requirements and classical subjects. Consisting mainly of college and university presidents, including Eliot, the committee recommended strengthening the college-preparatory aspect of the high school curriculum and made recommendations regarding the number of credits required in different subjects for college admission. The recommendations were reflected in the Carnegie Unit, a method of evaluating credits for college admission, imposed on high schools in 1909 and still used in most high schools.

Harris and Eliot: Two Conservative Reformers

From 1878 (when the Kalamazoo court decision provided for free public high schools) to 1900, education questions revolved around curriculum: What should be taught in elementary and secondary schools? Should high school be considered an extension of elementary school? Should the curriculum differ at the two school levels, or should it remain unbroken? Should the high schools be considered prepatory for college? If so, at what grade level should the secondary curriculum start college prepatory work? What curriculum provisions should be made for terminal students? If high schools offered two or more separate programs, would the result be a dual-track system? Should the same education be available to all students?

William Harris (1834–1926) and Charles Eliot (1835–1909) dominated the reform movement during this period: Harris, the former St. Louis commissioner of education (1868–1881) and U.S. commissioner of education (1889–1906), was a traditionalist who subscribed to McGuffey's moralism and Mann's faith in free public schools. Harris wrote in 1871, "If the rising generation does not grow up with democratic principles, the fault will lie in the system of popular education."[60] He thought that U.S. common schools should teach morality and citizenship, "lift all classes of people into a participation in civilized life," and instill "social order."[61] Whereas Mann saw the common school as a great equalizer and force for social mobility, Harris saw it as an instrument for preserving society's customs and norms. Mann saw schools as key to a child's growth and development, whereas Harris saw the school as one of many factors (e.g., family, playmates, church, community) in educating and socializing children. Harris saw schools as an extension of society, not as agents of change.

Harris advocated a traditional curriculum: a mix of essentialism (five core academic areas) and perennialism (emphasis on the classics and moral values). Harris's elementary curriculum was composed of mathematics, geography, history, grammar, literature, and art. (Mann also advocated music and art.) At the high school level, Harris emphasized the classics, Greek and

Latin, and mathematics. His curriculum was rigorously academic. Harris resisted the idea of a vocational or practical curriculum, arguing that all children should follow the same curriculum. The ideal was for each student to work with his or her mind, not with his or her hands.

Education historian Lawrence Cremin states that Harris "consolidated the revolution Mann had wrought" but was "patently conservative." Harris's emphasis was "on order rather than freedom, on work rather than play, on effort rather than interest, on prescription rather than election, on regularity [and] silence," and on preserving "the civil order."[62] Harris stressed rules, scheduling, testing, and grading. Harris argued that the curriculum would give poor children the same opportunities as wealthy children. However, his focus on the classics discouraged working-class students from attending high school.

As president of Harvard University, Eliot played a prominent role in the shaping of higher education. He argued that, as late as the 1890s, 80 percent of U.S. colleges and universities had to organize their own preparatory high schools because public high schools were doing an inadequate job. Also, more than 80 percent of eligible youth did not attend high school. Eliot maintained that there was a huge discrepancy in purpose and quality "between the elementary schools and the colleges."[63] Although the elementary schools served a larger segment of the population, their curriculum was characterized by repetitive drill in grammar, spelling, and basic math at the expense of science, foreign languages, and advanced math.

The curriculum had to be revamped, and pedagogical methods had to be changed from lockstep teaching, rote drill, and the memorization of facts to comprehension and problem solving. Eliot believed that elementary children were capable of pursuing subjects such as algebra, physics, and foreign languages. Sixty years later, in *The Process of Education*, Jerome Bruner similarly argued, "Any subject can be taught in some effectively honest form to any child at any stage of development."[64] Unlike most educators of his time, Bruner held that students can comprehend the fundamental principles and concepts of any subject at almost any age if they are taught properly.

Eliot called on pedagogical experts to establish goals and standards for every subject, "even though not all children would study the same subjects or move at the same pace while studying them."[65] To some extent, he allowed for different rates and ways of learning; this is now called *independent learning, continuous progress,* or *learning styles.*

Eliot saw "civilized society" as being composed of four layers: (1) the upper one, "thin" in numbers and consisting of "the managing, leading, guiding class—the intellectual discoverers, the inventors, the organizers, and the managers"; (2) a "much more numerous class, namely, the highly trained hand-workers" who function as "skilled manual labor"; (3) a populous "commercial class" consisting of those who engage in "buying, selling, and distributing"; and (4) a large class engaged in "household work, agriculture, mining, quarrying, and forestry." Schools, Eliot argued, must offer programs to all four classes.[66] The more progressive and democratic reformers saw Eliot's class system as elitist and biased.

Eliot argued for vocational and trade schools separate from high schools. He also maintained that elementary school teachers should sort children into tracks according to their abilities (as European dual-track schools do).[67] Later, Eliot somewhat retreated from that position, but measurement and school efficiency advocates picked up on the idea of "vocational guidance," based partly on testing,[68] and advocated tracking secondary students into academic and nonacademic programs.

Vocational Education

In later years, the NEA would support the concept of vocational education. A 1910 report by the NEA's Committee on the Place of Industries in Public Education advocated "manual activities" at the elementary level and "testing of children's aptitudes as a basis for subsequent choice of specific pursuits either in vocations or in higher schools" and "manual training" for some high school students."[69]

In 1917, the Smith-Hughes Act provided federal aid for vocational education related to agriculture, home economics, and the trades. Federal funds were to match state monies allocated

to school curricula in these three vocations. Business, labor, and farm groups hailed the act as a reform.[70] They did not see the act as shunting lower-class children into second-rate, nonacademic programs. However, Jane Addams—and, to a lesser extent, Dewey and Kilpatrick—would see the promotion of vocational education as hindering the democratic common school movement. Addams was most concerned that immigrant children would be steered into such programs. Seventy-five years later, Michael Apple, Alfie Kohn, and Jeannie Oaks would similarly argue that working-class students were being placed in nonacademic vocational programs due to the class biases of middle-class educators.[71]

Within two years, the enrollment in vocational programs doubled. By 1918, 164,000 students were enrolled in such programs, the vast majority (118,000) in trade and industrial programs. By 1944, the total enrollment was 2.5 million, evenly distributed in agriculture, home economics, and trade and industry. By 1970, some 9 million students (26 percent of secondary students) were enrolled in vocational programs.[72] By 2000, vocational education enrollment had declined to 20 percent,[73] which reflected the growing criticism of tracking as well as the national push for postsecondary education.

Yet vocational education has recently crept back into the national discourse under the term *career and technical education* (CTE), amidst growing college debt, high school disengagement, and demand for "middle-skills" jobs.[74] Occupations like database administrators and medical technician require more than a high school degree, but not necessarily a four-year bachelor's degree, an area CTE would aptly fill. Given the growth of electronic and health-related industries, CTE is seeing promise but requires major revamping.

3.1 What Is Career and Technical Education? Watch this report on career and technical education (CTE). What do you think are some of the advantages and disadvantages of CTE?

https://www.youtube.com/watch?v=3pVDGCuRWsQ

Pressure for a Modern Curriculum

Among other factors, immigration and industrial development led a growing number of educators to question the classical curriculum and its emphasis on mental discipline. The scientific movement in psychology and education in the late 19th and early 20th centuries also played a role—particularly the pragmatic theories of Charles Peirce and William James; the social theories of Darwin, Herbart, and Spencer; and the pedagogical views of Pestalozzi, Froebel, Maria Montessori, and others. This movement rejected the mental-discipline approach and classic curriculum and emphasized vocational, technical, and scientific subjects.

At the turn of the 20th century, education was strongly influenced by the ideas of Dewey and Francis Parker, the Gestalt psychology and child psychology movements, the learning theories of behaviorism and transfer learning, and the progressive movement in schools and society.

Educators increasingly argued that the classics had no greater mental value than other subjects and that mental discipline (which emphasized rote learning, drill, and memorization) was not conducive to the inductive method of science or compatible with contemporary educational theory. Edward Thorndike, the era's most influential learning psychologist, wrote, "The expectation of any large difference in general improvement of the mind from one study rather than another seems doomed to disappointment. The chief reason why good thinkers seem superficially to have been made such by having taken certain school studies is that good thinkers have taken such studies… . Now that good thinkers study Physics and Trigonometry, these seem to make good thinkers. If abler pupils should all study Physical Education and Dramatic Art, these subjects would seem to make good thinkers."[75]

FLEXNER: A MODERN CURRICULUM.   By 1917, Eliot, a former advocate of Latin, was saying that Latin should no longer be compulsory for high school or college students.[76] Abraham Flexner (1866–1959), a former teacher of the classics, contended that Latin had "no purpose" in the curriculum and that the classics were out of step with scientific developments.[77] Flexner now argued that tradition was an inadequate criterion for justifying subject matter; society was changing, and educators also had to make changes in the curriculum.

In his 1916 paper "A Modern School," Flexner rejected the traditional secondary curriculum and proposed a "modern" curriculum consisting of four basic areas: (1) science (the curriculum's major emphasis); (2) industry (occupations and trades of the industrial world); (3) civics (history, economics, and government); and (4) aesthetics (literature, languages, art, and music).[78] Modern languages would replace Latin and Greek. Flexner concluded that a subject had little value in the curriculum unless a utilitarian argument could be made for its inclusion.

Flexner's concept of utility and modern subjects tended to resemble Spencer's views on science and subject matter. The difference is that Flexner was attuned to the social and political climate of his time. Educators were willing to listen to his proposals. In 1917, the Lincoln School of Teachers College, Columbia University (while Dewey was teaching) adopted Flexner's proposed curriculum; the school combined the four core areas of study, with emphasis on scientific inquiry.

DEWEY: PRAGMATIC AND SCIENTIFIC PRINCIPLES OF EDUCATION.   The same year that Flexner published "A Modern School," Dewey published *Democracy and Education*, one of his most influential (and cumbersome) books, which discussed all the elements of his philosophy.[79] In the book, Dewey set forth the relationship between education and democracy as well as the notion that democracy itself was a social process that could be enhanced through the school. Dewey considered schools as neutral institutions that could serve the ends of either freedom or repression and authority; thus, the aims of education went hand in hand with the particular type of society involved.

According to Dewey, subjects cannot be placed in a value hierarchy; study of any subject can promote a child's development. Any study or body of knowledge was capable of expanding the child's experiences and contributing to his or her social and cognitive growth. Traditional subjects such as Greek or Latin were no more valuable than music or art.

At the same time, Dewey prioritized science, which he saw as epitomizing rational inquiry. Science, for Dewey, was another name for knowledge, and it represented the perfect outcome of learning—its consummation, "what is known and settled." Dewey considered scientific inquiry to be the best form of knowledge for a society because it consisted of "special methods which the race worked out in order to conduct reflection under conditions whereby its procedures and results are tested."[80]

Dewey's emphasis on science was based partially in the work of Spencer, who believed science was the key to complete living, and to G. Stanley Hall, who started the child-study movement in the 1880s and 1890s and under whom Dewey studied when he was a doctoral student at Johns Hopkins University. With Hall, the child-study movement was both research based and systematic, whereby findings were supposed to be applied to the classroom. Although knowledge obtained from child-study research was rarely used by teachers, it formed the basis of the child development movement in the 1930s and 1940s that was spearheaded by Robert Thorndike and Arthur Jersild in the United States and Jean Piaget in Europe.

JUDD: SYSTEMATIC STUDIES AND SOCIAL SCIENCES.   Charles Judd (1873–1946) was a colleague of Dewey. He headed the University of Chicago's Department of Education when Dewey directed the lab school. With Dewey and others, Judd constructed a science of education based on finding facts and constructing generalizations and then applying them in decision-making and problem-solving areas. Whereas Peirce and James referred to this method as *pragmatism,* Judd referred to it as *scientism in education.*

Judd was an evolutionist (who believed in Darwin's theories of adaption and Spencer's theories of survival) and believed the laws of nature should be used to educate the young. He used statistical research (which was then in its infancy) to determine the worth of curriculum content—that is, the extent to which particular content enhanced students' ability to promote thinking and solve problems. By preparing students to deal with problems, not acquire or recall endless knowledge, he argued that students would be prepared to deal with the changing world and the problems they would encounter as adults.

In *Introduction to the Scientific Study of Education*, Judd outlined "systematic studies . . . of the curriculum."[81] He emphasized reading, writing, and spelling based on words statistically shown to be used by successful adults. He also emphasized science and math problems applicable to everyday life. Utilitarian and pragmatic in philosophy, Judd urged that elementary students be exposed to "career education" to help prepare them for an occupation. At the secondary level, Judd recommended practical subjects with a vocational or technical orientation, not a "cultural" or elitist curriculum. For slower students, he advocated English, business math, mechanics or stenography, and office management. For average and superior students, he recommended science, mathematics, modern languages, and the social sciences.

Judd influenced the next generation of theorists, who sought to apply scientific methods to curriculum development. This generation (sometimes called *technicians*) began with Franklin Bobbitt and Werrett Charters in the 1920s and reached its height of influence with Ralph Tyler and Hilda Taba in the 1950s.

COMMISSION ON THE REORGANIZATION OF SECONDARY EDUCATION. In 1918, the NEA's Commission on the Reorganization of Secondary Education published the highly progressive *Cardinal Principles of Secondary Education*.[82] Influenced by Herbart's purposes, Flexner's "A Modern School," and Dewey's *Democracy and Education*, the commission stressed the whole child (not only cognitive development); education for all youth (not only college-bound youth); diversified areas of study (not just classical or traditional studies); and common culture, ideas, and principles for a democratic society (not religious, elitist, or mental-discipline learning).

The commission noted the following:

1. Education should promote seven aims: health, command of the fundamentals, "worthy home membership" (e.g., preparation for marriage, raising children), vocation, citizenship, leisure, and ethical character.
2. High school should be a comprehensive institution having the nation's social and economic groups.
3. High school curricula should meet varied student needs—agricultural, business and commercial, vocational, and college preparatory.
4. Current educational psychology, psychological principles, and methods of measurement and evaluation should be applied to secondary curriculum and instruction.
5. U.S. educational institutions should function in conjunction with one another.

High schools were assuming their modern curricular patterns: combining academic programs with several nonacademic programs. English, math, science, social science, and modern languages were being emphasized. Classical languages and literature were losing ground. Aims and subjects were becoming interrelated. Utilitarianism was replacing the idea of mental discipline. Students' needs and interests were being considered. Schools were expected to serve all students, not only college-bound youth. The whole child was being emphasized, not just cognitive learning. Traditional education, which had long dominated U.S. education, was in decline.

■ THE BIRTH OF THE FIELD OF CURRICULUM: 1918–1949

In the early 1900s, scientific methods of research, psychology, the child-study movement, industrial efficiency, and the progressive movement in society all influenced education. Curriculum now was viewed as a science, with principles and methodology, not simply as content or subject matter. The idea of planning a curriculum, rather than simply describing it in terms of subjects and the time allotted to them, appeared in the literature.

Bobbitt and Charters: Behaviorism and Scientific Principles

The idea of efficiency, promoted by business and industry, influenced Franklin Bobbitt (1876–1956) and W. W. Charters (1875–1952). Frederick Taylor analyzed factory efficiency in time

and motion studies and concluded that workers should be paid on the basis of their individual output, and his theories influenced Bobbitt and Charters.[83] Efficient operation of schools became a major goal in the 1920s. Efficiency often entailed eliminating small classes, increasing the student–teacher ratio, reducing teachers' salaries, and so on, and then preparing charts and graphs to show the cost reduction. Raymond Callahan later branded this approach the "cult of efficiency."[84] Curriculum making became more scientific; teaching and learning were reduced to measurable behaviors and outcomes.

Bobbitt's 1918 book *The Curriculum* was possibly the first book devoted solely to curriculum as a science and to all its phases. Bobbitt's principles of curriculum planning reflected an activities approach, "a series of things which children and youth must do and experience by way of developing abilities to do things well and make up the affairs of adult life."[85] To Bobbitt, curriculum should outline the knowledge important for each subject and then develop appropriate activities. Bobbitt set out to organize a course of studies for the elementary grades: "We need principles of curriculum making."[86]

Bobbitt further developed his activities approach in the early 1920s in *How to Make a Curriculum,* in which he outlined more than 800 objectives and related student activities. These activities ranged from personal health and hygiene to spelling and grammar, and "to keeping home appliances in good working condition."[87]

Bobbitt's guidelines for selecting objectives can be applied today: (1) *eliminate* objectives that are impractical or cannot be accomplished through normal living, (2) *emphasize* objectives that are important for success and adult living, (3) *avoid* objectives opposed by the community, (4) *involve* the community in selecting objectives, (5) *differentiate* between objectives for all students and objectives for only some students, and (6) *sequence* objectives by grade level. Taken out of context, Bobbitt's list of hundreds of objectives and activities, along with the machine, or factory, analogy that he advocated, was easy to criticize. Nevertheless, Bobbitt's insistence that curriculum making was a specialty based on scientific methods and procedures was important for elevating curriculum to a field of study, or what he called a *new specialization.*

Charters, too, advocated a behaviorist approach influenced by business notions of efficiency. He termed his approach *scientific*. Charters viewed the curriculum as a series of goals that students must reach. In *Curriculum Construction,* he discussed curriculum in terms of specific operations, such as those involved in running a machine.[88]

Charters argued that curriculum makers must apply clear principles in order to select materials that would lead to the achievement of specific and measurable objectives.[89] He believed the state of knowledge at that time did not permit scientific measurement that would specifically identify the outcome of the objectives, but he set out to develop a method for selecting objectives based on social consensus and for applying analysis and verification to subject matter and student activities. Although he did not use the term evaluation during this period, he was laying the groundwork for curriculum evaluation.

As initiators of the behavioral and scientific movements in curriculum, Bobbitt and Charters had a profound impact on curriculum. They (1) developed principles for curriculum making, involving aims, objectives, needs, and learning experiences (which they called *activities*); (2) highlighted the use of behavioral objectives; (3) introduced the ideas that objectives are derived from the study of needs (later called *needs assessment*) and that objectives and activities are subject to analysis and verification (later called *evaluation*); and (4) emphasized that curriculum making cuts across subject matter, and that a curriculum specialist need not be a specialist in any *subject*, but should be a professional in *method* or *process.*

Bobbitt and Charters taught at the University of Chicago when Ralph Tyler was a graduate student in the department of education (Tyler was a graduate assistant of Charters). Tyler was highly influenced by Bobbitt's and Charters's behaviorist ideas, particularly the ideas that (1) objectives derive from student needs and society, (2) learning experiences relate to objectives, (3) activities organized by the teacher should be integrated into the subject matter, and (4) instructional outcomes should be evaluated. Tyler's emphasis on evaluation as a

component of curriculum derives from Charters, who helped Tyler get appointed head of testing and evaluation at the Ohio State Bureau of Educational Research in 1929. (Charters became the bureau's director in 1928.) Tyler's four major curriculum components (objectives, learning experiences, methods of organization, and evaluation) are rooted in Bobbitt's, and especially Charters's, ideas.

Kilpatrick: The Progressive Influence

The rise of progressive education and universal education led to a backlash against the classical curriculum's rigidity and rote memorization, the emphasis on tough subject matter, and a secondary curriculum standardized for preparation for college. Progressive curricularists emphasized the learner rather than subject matter and social processes rather than cognitive ones. The curriculum was organized around classroom and school social activities, group enterprises, and group projects (see Curriculum Tips 3.3). Student self-expression and freedom were major goals. In the 1920s and 1930s, Dewey warned against teaching that lacks a plan and simply allows students to respond according to their interests.[90]

Kilpatrick, a colleague of Dewey at Teachers College, Columbia University, attempted to merge the behaviorist psychology of the day with Dewey's and Judd's progressive philosophy. The blend became known as the "Project Method"[91] (later called *purposeful activity*). Kilpatrick divided his methodology into four steps: purposing, planning, executing, and judging. His curriculum projects ranged from classroom projects to school and community projects.

Two of Kilpatrick's doctoral students applied his ideas in Missouri schools. One was Junius Merian, who called Kilpatrick's projects "subjects of study" and organized them into four areas: observation, play, stories, and hard work.[92] The second was Ellsworth Collings, who developed a curriculum around children's real-life experiences. He urged teachers and students

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CURRICULUM TIPS 3.3   **Enriching the Curriculum**

The following suggestions combine Kilpatrick's activities curriculum and Rugg's child-centered curriculum. In general, the suggestions integrate elementary schooling with progressivist philosophy, which evolved during the first half of the 20th century. They are especially suited to schools and teachers who stress a student-centered curriculum.

1. Study each child's cumulative record.
2. Compare achievement scores with ability indices.
3. Examine a pupil's creative output for frequently used words, symbols, and topics.
4. Listen to pupils talk about themselves.
5. Provide a choice of activities.
6. If possible, visit each pupil's home.
7. Help individual pupils learn as much as possible about their values, attitudes, purposes, skills, interests, and abilities.
8. Allow pupils to say what they think.
9. Encourage students to reflect on their beliefs and values.
10. Together with pupils, analyze their interpretations of their in-class and out-of-class experiences.
11. Organize class activities around individual or group study of problems important to the individuals involved.
12. Help individual students state their immediate and long-term goals. Share with pupils the information available about their present situation.
13. Clarify a situation's limitations (in time, materials, and resources) with pupils.
14. Ask each pupil to formulate a plan of work.
15. Encourage each pupil to collect and share materials.
16. Arrange for students to collect information in out-of-class situations.
17. Use record keeping to help individual students organize their learning.

Source: Based on Kimball Wiles, *Teaching for Better Schools* (Englewood Cliffs, NJ: Prentice Hall, 1952), p. 286.

to present organized experiences or activities that were related and developmental in nature; one activity should lead to another. "The curriculum was continuously revised 'on the spot' by the joint action of pupils and teachers." He believed that such a joint endeavor "would mean most for the children."[93] His projects resembled Merian's four study areas but included more field trips and community activities.

Kilpatrick's project method, which he presented in his book *Foundations of Method*, was implemented mainly at the elementary level. Kilpatrick advocated giving children considerable input in determining the curriculum. Kilpatrick's project method became part of the activity movement, but he argued that the difference was that his doctrine had "social purpose," whereas the activity-centered curriculum had only "child purpose." When forced to decide who should plan the curriculum, the child or teacher, Kilpatrick opted for the child, arguing that "if you want to educate the boy to think and plan for himself, then let him make his own plan."[94] In this respect, he differed from Dewey, who put greater emphasis on the role of the teacher. In Kilpatrick's view, children had to learn to "search, . . . compare, . . . think why," and make their own decisions.[95] Teachers should guide rather than dispense knowledge. When Kilpatrick's project method was eventually introduced into the high school curriculum, it was blended with social studies and the core curriculum.[96]

Concerned with social issues and part of the radical progressive wing (later to be called *reconstructionism*), Kilpatrick saw traditional education as reactionary. Along with other progressives such as Boyd Bode, Hollis Caswell, George Counts, and Harold Rugg, he criticized the Committee of Ten, which he felt had legitimized traditional systems of education. The Committee of Ten urged a compartmentalized and academic curriculum emphasizing Latin, language, and science. Kilpatrick argued for integrated subject matter and a general education emphasizing values and social issues. Whereas the Committee of Ten saw school as a place where students go primarily to acquire knowledge, Kilpatrick and his progressive colleagues saw school as a "community" in which students practiced "cooperation, self-government . . . and application of intelligence . . . to problems as they may arise."[97]

The traditional practice of education focused on certain subjects, usually the three *R*'s at the elementary level and basic academic subjects at the secondary level. The basic teaching method was rote practice. In contrast, Kilpatrick and his followers saw education's purpose as the child's growth along social lines, not the mastery of content.[98] The curriculum must derive from real-life experiences, not organized bodies of subject matter, and must take the form of purposeful activities. School was preparation for life; it had social purpose.

The Twenty-sixth Yearbook

In 1930, the National Society for the Study of Education (NSSE), an honor society headquartered at the University of Chicago, published its Twenty-sixth Yearbook in two volumes: *Curriculum-Making: Past and Present* and *The Foundations of Curriculum Making*.[99] The committee that developed the two volumes consisted of 12 members, including Rugg (the chairperson) and Bagley, Bobbitt, Charters, Counts, Judd, and Kilpatrick. Most of the period's leaders of curriculum development were scientifically oriented and progressive. Many were affiliated with the University of Chicago, which emphasized this science of education.

The yearbook's first volume harshly criticized traditional education and its emphasis on subject matter, rote learning, drill, and mental discipline. It also offered a synthesis of progressive practices and programs in U.S. public and private schools. The second volume described the state of the art in curriculum making and outlined the ideal curriculum, which should do the following:

1. Focus on affairs of human life.
2. Deal with local, national, and international issues.
3. Enable students to think critically about various forms of government.
4. Foster open-mindedness.

   5. Consider students' interests and needs and provide opportunities for discussion and de-
      bate.
   6. Deal with the issues of modern life and society's cultural and historical aspects.
   7. Consider problem-solving activities and practice in choosing alternatives such as role
      playing, independent learning, and cooperative learning.
   8. Organize problems and exercises in a graded organization.
   9. Deal with humanitarian themes in a purposeful, constructive way.[100]

   Harold Rugg maintained that educational committees or legislative groups should
formulate the curriculum's goals, materials, and instructional methods. Trained curriculum
specialists should plan the curriculum and include "(1) a statement of objectives, (2) a sequence
of experiences [to achieve] the objectives, (3) subject matter found to be . . . the best means
of engaging in the experiences, and (4) statements of immediate outcomes of achievements to
be derived from the experiences."[101] These four planning principles were later to become the
basis of Tyler's four organizing principles, as delineated in *Basic Principles of Curriculum
and Instruction*. Rugg concluded that curriculum needed to adapt scientific methods that were
needed "for specialization and for professional training."[102] Experienced teachers and curriculum
specialists should work together to organize the content and materials within each subject area.
   The NSSE yearbook greatly clarified problems that curriculum workers were encountering
and significantly advanced curriculum making. It had major influence in many school districts
(large and small as well as city, suburban, and rural).

Rugg and Caswell: The Development Period

From the late 1920s through the early 1940s, a number of important books were published on
curriculum principles and processes. Trained as an engineer, Harold Rugg (1886–1960) shared
Bobbitt's and Charters's faith in a "science of curriculum." In 1928, Rugg and Ann Shumaker
coauthored *The Child-Centered School*. In an era that stressed student input in curriculum plan-
ning, the authors stressed the need for curriculum specialists to construct the curriculum.[103] They
also stressed the teacher's role in implementing the curriculum and the need for preplanning.
Rugg did not believe that a curriculum should be based on students' input, needs, or interests.
He believed that a student-directed curriculum would lack direction and logic. Rugg advocated
cooperation among educational professionals, including teachers, administrators, test experts,
and curriculum specialists from various fields.
   In the 1930s and 1940s, Rugg shifted his attention to the integration of history, geography,
civics, and economics (often collectively referred to as *social studies*). Some of his ideas about
labor history, unionism, and collectivism, compounded by his activities with the teachers' union,
resulted in a great deal of criticism from established groups. Like Counts and Dewey, Rugg also
had an FBI file.
   During the period from the mid-1920s to the 1930s, most school districts and state ed-
ucation departments were developing curriculum guides. However, the selection of methods
and activities was left to teachers. Hollis Caswell (1901–1989) wanted to shift emphasis from
formulating a course of study to improving instruction. He envisioned curriculum making as a
means of helping teachers coordinate their instructional activities with subject matter and stu-
dents' needs and interests. Caswell regarded courses of study as guides that teachers should use
in planning their daily lessons, not as plans they should follow in detail.
   Caswell provided a step-by-step procedure for curriculum making. He and his colleagues
presented seven questions that still have relevance:

   1. What is a curriculum?
   2. Why is there need for curriculum revision?
   3. What is the function of subject matter?
   4. How do we determine educational objectives?

5. How do we organize curriculum?
6. How do we select subject matter?
7. How do we measure the outcomes of instruction?[104]

Influenced by Bobbitt's definition of *curriculum* ("that series of things which children and youth must do and experience"), Caswell and Campbell maintained in their book *Curriculum Development* that the curriculum must consider "all elements in the experience of the learner."[105] They thought that the field of curriculum should incorporate philosophy, psychology, and sociology. Caswell saw curriculum as a process involving scientific steps of development, organization, instruction, and evaluation.

Caswell and Campbell believed that the curriculum must address children's interests, social functions, and organized knowledge. It should provide the proper scope and sequence of subject matter at every grade level. *Scope* was to represent broad themes such as conservation of natural resources, "worthy home membership," and democratic living. *Sequence* depended on children's interests and experiences. *Subject matter* should match the social functions and the learner's interests; knowledge obtained should be measured.

Eight-Year Study

Although traditional subject matter and methods dominated most school curricula, the progressive movement was influential in certain parts of the United States, particularly Denver, St. Louis, and Winnetka (Illinois). Most high school teachers and principals were reluctant to implement progressive changes because the curriculum was (as it is today) test driven, textbook dominated, and directed by college-admission requirements.[106]

The Progressive Education Association launched the "Eight-Year Study" (1932–1940) to show that a new curriculum designed to meet students' needs and interests was just as effective as one designed around traditional tests and college-admission requirements. As many as 30 progressive or experimental high schools and 1,475 graduates were compared to schools and students following traditional college preparatory tracks. The experimental/progressive group did as well as or better on cognitive, social, and psychological measures.

The study led to several books—for example, by Wilford Aiken and Harry Giles.[107] Tyler, a colleague of Giles, was a major participant in the project. Many of his ideas, later published in *Basic Principles of Curriculum and Instruction*, stemmed from principles and ideas generated by the study (as well as the NSSE Twenty-sixth Yearbook).

Although the idea of stating objectives in behavioral terms had been introduced 20 years prior to the study, the curriculum specialists behind the study introduced it on a national level. These curricularists grouped objectives into related categories. (Tyler and Taba later grouped objectives into these categories: (1) knowledge acquisition, (2) intellectual skills, (3) attitudes and feelings, and (4) academic skills or study habits.[108] (See Curriculum Tips 3.4.)

Members of the Eight-Year Study understood that evaluation must determine whether a curriculum's objectives had been achieved. The study confirmed the need for comprehensive evaluation, including data on (1) *student achievement,* such as initial levels of mastery, performance on standardized tests, social and psychological skills, and creativity; (2) *social–factors,* such as social class, peer group, community patterns, and motivation; (3) *teaching learning processes,* such as classroom management, homework assignments, and student–teacher interaction; and (4) *instructional methods,* such as discussions, demonstrations, problem solving, and discovery.

Taba and Tyler worked on the study's evaluation team. In the 1940s and 1950s, Taba developed the idea of comprehensive evaluation in her work as chair of the ASCD's Commission on Evaluation. She further developed the idea in her 1962 book, *Curriculum Development: Theory and Practice*. Tyler elaborated his ideas on evaluation in his 1949 book, *Basic Principles of Curriculum and Instruction*.

The ideas on curriculum making that the study developed did not filter down to the schools because teachers were not deeply involved in curriculum. As Dewey had stated 25 years before

CURRICULUM TIPS 3.4 **Classifying Objectives**

Schools can translate their goals into objectives by grouping them into categories, which Tyler and Taba advocated. The following example of elementary social studies objectives, developed during the Eight-Year Study, has been updated from the South Bend school district for the 21st century.

1. *Knowledge:* Children will understand that
   a. people are more interconnected than ever and depend on each other;
   b. our world is dynamic and continually changing;
   c. events, discoveries, and inventions may have the potential to improve society or create problems at faster rates;
   d. people have established communities and governments to meet their needs;
   e. traditions, values, and customs are developed, passed onto, and adapted by new generations;
   f. people are affected by their geography; and
   g. individuals increasingly have the ability to shape their own lives and society.
2. *Skills:* Children need to learn how to
   a. interact with multiple sources of information and evaluate their validity;
   b. organize facts and form generalizations based on facts;
   c. discuss facts, make generalizations, and draw conclusions;
   d. think critically about events, discoveries, and inventions;
   e. plan, carry out plans, and evaluate the work;
   f. take responsibility; and
   g. develop values from which to judge actions as right or wrong.
3. *Attitudes:* Children need to be
   a. willing to accept responsibility and finishing a task;
   b. persistent in their efforts;
   c. willing to help others and cooperate for the sake of the group's goals; and
   d. patient and tolerant of others different from themselves.

Source: Based on the source: *For Our Time: A Handbook for Elementary Social Studies Teachers* (South Bend, IN: School City of South Bend, 1949), pp. 229–230.

the study, teachers often viewed "outside contacts and considerations" as "interferences."[109] Most of the study's curriculum committees failed to include teachers and restricted them to examining classroom textbooks and materials or modifying curriculum guides developed by central district offices. The exclusion of teachers from the clarification of school goals and program objectives, the organization of subject matter and learning activities, and the evaluation process perpetuated traditional top-down curriculum making.

Tyler: Basic Principles

Although Ralph Tyler (1902–1994) published more than 700 articles and 16 books on curriculum, instruction, and evaluation, he is best known for his small 1949 book, *Basic Principles of Curriculum and Instruction*.[110] Originally written as a course syllabus for his students at the University of Chicago, the book has gone through more than 35 printings. In 128 pages, Tyler covers the basic questions that he believes should be answered by anyone involved in planning or writing a curriculum for any subject or grade level:

1. What educational goals should a school seek to accomplish?
2. What educational experiences are likely to lead to these goals?
3. How can these educational experiences be effectively organized?
4. How can we determine whether a school's goals are being accomplished?[111]

Judd's and Dewey's progressive social theories and Thorndike's and Piaget's learning theories strongly influenced Tyler. He also drew from behaviorists such as Bobbitt and Charters, having

studied under the latter as a graduate student. Other contemporaries, such as Counts and Bode, also influenced Tyler's philosophy and principles of curriculum.

We might consider Tyler's curriculum model an elaboration of Rugg's four major curriculum tasks and a condensed version of the NSSE's Twenty-sixth Yearbook. His model represents a rational, logical, and systematic approach to curriculum making. It emphasizes the learner's needs, its principles are applicable in varying situations, and it prioritizes objectives. Tyler's book has been highly influential because of its rational, no-nonsense, sequential approach. In just over 100 pages, he laid out a basic procedure, illustrated with easy-to-understand examples. Tyler provides students a series of concise steps by which to plan curriculum.

Although Tyler does not specify the role of the teacher, supervisor, or principal in curriculum planning or the differences between curriculum and instruction, he shows how any school or school district can formulate goals and organize its means and resources to shape curriculum and instruction in the desired direction. Tyler offers a thoughtful and easy-to-follow method. Although critics have charged that Tyler's model is lockstep, technocratic, and overly simplistic,[112] it still works for many. Because it is easy to grasp, it serves as a starting point for curriculum students.

A number of Tyler's influential colleagues—such as Paul Diederich, Harold Dunkel, Maurice Hartung, Virgil Herrick, and Joseph Schwab—accepted many of his ideas and also influenced curriculum. In addition, many of his graduate students became prominent in the field,[113] including Ned Flanders, David Krathwohl, Louis Rath, and Harold Shane. A number of his other students—Ben Bloom, Lee Cronbach, John Goodlad, and Herbert Thelen—were also his colleagues for many years. With the exception of Elliot Eisner, who is inclined toward qualitative and artistic factors in curriculum making, these colleagues continuously praised Tyler's work in the professional literature. See Table 3.4 for an overview of theorists, including Tyler.

Goodlad: School Reform

John Goodlad (1920–2014) extended Dewey's ideas of democracy and social activism and Tyler's rational model of curriculum making. Like Dewey, Goodlad believed that philosophy is the starting point in curriculum and the basis for determining goals, means, and ends. In contrast, Tyler viewed philosophy solely as a filter for modifying the school's goals and subsequently developing education programs. Whereas Goodlad advocated teacher involvement in modifying education's goals and developing curriculum, Tyler was unclear about the teacher's role. In fact, Goodlad maintained that schools should allow teachers to teach half-time and spend the rest of their time interpreting and modifying state goals and planning curriculum activities. As part of a school-renewal program, Goodlad advocated that researchers and teachers collaborate in developing and testing new ideas related to curriculum and teaching.[114]

In Goodlad's view, schools should help individuals fulfill their potential but should also promote society's goals. He writes, "Developing individuals to their fullest potential often has been argued as the antithesis of educating the individual to serve the state . . . Whatever the schools may be able to accomplish in promoting [individual growth and enlightenment], they are simultaneously required to instill a sense of devotion to the nation-state."[115]

Dewey believed that education should socialize children and instill society's values and norms. In *Democracy and Education* (1916), he stressed schooling for civic and moral responsibility. In *In Praise of Education* (1997), Goodlad argued that education is an inalienable right in a democratic society and that its main purpose is "to develop an individual and collective democratic character." Teachers must inculcate morals and foster "skills dispositions and knowledge necessary for effective participation in a social democracy."[116]

Early in his career, Goodlad launched a study of 260 kindergarten and first-grade classrooms in 100 schools in 13 states. In 1969, he reported his findings: Things were much the same as they had been 20 years before, when Tyler published his classic book on curriculum. "Teaching was predominantly telling and questioning by the teacher with children responding

Table 3.4 | Overview of Curriculum Theorists, 1918–Present

Theorist	Purpose	Principles	Content	Major Book
Franklin Bobbitt (1876–1956)	Curriculum as a science Emphasis on student needs Prepare students for adult life Clarify objectives Cost-effective education	Grouping and sequencing objectives with corresponding activities Clarifying instructional specifications and tasks	Basic three *R*'s in elementary schools Academic subjects in high school Subject matter and related activities planned by teacher	*The Curriculum*, 1918 *How to Make a Curriculum*, 1924
Werrett Charters (1875–1952)	Curriculum as a science Emphasis on student needs (and needs assessment) Bridging theory and practice in curriculum	Curriculum process, described as job analysis Listing of objectives and corresponding activities Verification of objectives through evaluation	Subject matter related to objectives Subject matter and corresponding activities planned by teacher	*Curriculum Construction*, 1923
William Kilpatrick (1871–1965)	School as a social and community experience Curriculum identified as purposeful activities Child-centered curriculum Child development and growth	Project method, a blend of behaviorism and progressivism Teacher and student planning, emphasis on the student Emphasis on pedagogy or instructional activities: creative projects, social relationships, and small-group instruction	Educating a generalist, not a specialist Integrated subject matter Problem solving	*Foundations of Education,* 1926
Harold Rugg (1886–1960)	Education in context with society Child-centered curriculum Whole child Curriculum specialist as an engineer	Statement of objectives, related learning experiences, and outcomes Teacher plans curriculum in advance	Emphasis on social studies	*The Child Centered Curriculum* (with Ann Shumaker), 1928
Hollis Caswell (1901–1989)	Foundations of education (history, philosophy, and culture) influence curriculum development Relationship of three major components: curriculum, instruction, and learning Student needs and interests Curriculum organized around social functions (themes), organized knowledge, and learners' interests	Curriculum as a set of experiences Curriculum guides as a source of teacher planning Teachers coordinate instructional activities to implement curriculum	Subject matter organized in relation to student needs and interests Subject matter developed around social functions and learners' interests	*Curriculum Development* (with Doak Campbell), 1935

Table 3.4 | (Continued)

Theorist	Purpose	Principles	Content	Major Book
Ralph W. Tyler (1902–1994)	Curriculum as a science and extension of school's philosophy Clarify purposes (objectives) by studies of learners and contemporary life, suggestions from subject specialists, and use of philosophy and psychology Student needs and interests Relationship between curriculum and instruction	Curriculum as a rational process Using objectives to select and organize learning experiences Using evaluation to determine outcomes (whether objectives have been achieved) Vertical and horizontal relationship of curriculum	Subject matter organized in terms of knowledge, skills, and values Emphasis on problem solving Educating a generalist, not a specialist	*Basic Principles of Curriculum and Instruction*, 1949
John Goodlad (1920–2014)	Curriculum organized around needs of society and students Wide range of purposes, including cognitive, social, civic, vocational, aesthetic, and moral Realistic reform policies and programs	Reduce student conformity in classroom Constant need for school improvement School reforms frequently come and go and add costs to the system; teacher input is preferred. Standards and high-stakes tests currently drive school reform.	Emphasis on active learning and critical thinking Involvement of students in planning curriculum content and instructional activities Need to align content with standards and high-stakes tests	*A Place Called School*, 1984 *What Are Schools For?* 1989
Paulo Freire (1921–1997)	Education as a means of shaping the person and society through critical reflection and "conscientization"	Teachers use questioning and problem-posing approach to raise students' consciousness; understanding the hidden curriculum to raise awareness of social justice.	Emphasis on questioning, problem posing, and critical thinking Student ownership of social problems	*Pedagogy of the Oppressed,* 1968
William Pinar (1947–)	Broaden the conception of curriculum to enrich the practice Understand the nature of the educational experience	Curriculum as a conversation that involves multiple disciplines	Curriculum should be studied from a historical, political, racial, gendered, phenomenological, postmodern, autobiographical, aesthetic, theological, and international perspective.	*Understanding Curriculum* (with William Reynolds, Patrick Slattery, and Peter Taubman), 1995

one by one or occasionally in chorus." Teacher talk and the textbook dominated classroom activities. "Rarely did we find small groups intensely in pursuit of knowledge; rarely did we find individual pupils at work in self-sustaining and inquiry. . . . We are forced to conclude much of the so-called educational reform movement has been blunted on the classroom door."[117] Goodlad pointed out that the curriculum reform movement of the 1950s and 1960s was led by university scholars with little practical experience in schools and little respect for teachers; researchers tended to ignore the realities of classrooms and schools.[118]

Fifteen years later, in *A Place Called School*, Goodlad and his colleagues reported the results of their studies of more than 17,000 students. They described widespread patterns of passive and rote learning. The findings include the following:

1. The classroom is generally organized as a group that the teacher treats as a whole; individual or small-group instruction is rare.
2. The emphasis is on classroom control and order.
3. Teachers check enthusiasm and excitement; the educational tone is flat and neutral.
4. Students passively listen to teachers, write answers to questions, and take tests; they rarely interact or learn from one another.
5. Little use is made of media, guest speakers, or field trips.
6. Instruction rarely goes beyond knowledge acquisition; little effort is made to motivate students to reflect, solve problems, hypothesize, or think creatively.
7. When teachers prioritize order and students prefer to do as little work as possible, the result is often minimum standards and expectations.
8. Overwhelmingly, secondary school students say that "good looking students" and "athletes" are the most popular students. Only 10 percent of secondary school students say that "smart students are popular."[119]

Goodlad concluded that (1) the curriculum prescribed in most schools is ineffective because it has little relation to real events in society; (2) in most schools, there is a disparity between agreed-on goals and the actual program; and (3) students are treated as "passive recipients" of content, and teachers stress correct answers in their classroom instruction.

At the end of his professional career, Goodlad stated that, over the past 100 years, education has consistently embraced the seven Cardinal Principles of Secondary Education. As for school reform, he saw it reemerge in many national commission reports, such as *A Nation at Risk*, published in 1983, which employed "military language" in trying to link reform to the U.S. decline in the global economy. Goodlad contended that reformers have "tricked" the public by continually suggesting that "all schools are failing," even though most parents rate their local schools relatively highly. Today, school reform has been narrowed to standards, especially issues of testing and accurate assessment of student outcomes. Test scores have become "the bottom line."[120]

3.2 Testing and School Reform
Watch this report on what teachers in Seattle's high schools did to protest standardized tests. What would you do in their situation?

https://www.youtube.com/watch?v=hl8wFzwCsZ0

Pinar: Reconceptualizing Curriculum Theory

William Pinar (1947–), who was part of a wave of "reconceptualists" (made up mostly of university curriculum professors), sought to take back the curriculum field in the 1970s from creeping bureaucratic and corporate influences. The national and neoliberal movement toward college and career readiness led to a narrowly prescribed curriculum that was associated with Ralph Tyler's *Basic Principles of Curriculum and Instruction*. Reconceptualists argued that Tyler's technical rationality lacked diverse voices and perspectives fundamental to curriculum development.

At the same time, the influence of economists, corporatists, and politicians over curriculum matters grew significantly. They focused on student achievement and test scores rather than on critical and independent thinking, and university professors (as the traditional curriculum

makers) felt increasingly powerless to stop them. Reconceptualists sought to counter these changes. Pinar proposed that the field focus less on developing curriculum and more on *under-standing* it,[121] in order to answer the ultimate question, *What knowledge is most worth knowing?* This required integrating more interdisciplinary forms of practice, such as "history, politics, race, gender, phenomenology, postmodernism, autobiography, aesthetics, theology, the institu-tion of schooling, [and] the world."[122] By opening up the field, curriculum becomes a site for ongoing conversation on power, identity, and discourse that involves collaboration and multiple perspectives, rather than a field susceptible to monopolistic forces.

Pinar defined the reconceptualist movement as a "critical exercise, descriptive rather than prescriptive, studying signs of education practice to discover what might have been, what still may be."[123] This exercise becomes increasingly important in the 21st century as curriculum becomes internationalized and the need for a more cosmopolitan conception of curriculum is needed in the United States.[124] Pinar refers to this new conversation as part of the "post-recon-ceptualist" movement.

School practitioners, however, typically do not understand Pinar's need to "understand" the curriculum, and many write him off as a theorist whose ideas do not work in practice. Teach-ers, administrators, and other curriculum workers prefer blueprints that guide curriculum mak-ing. As such, Tyler's pragmatic, rational, and technocratic approach has been widely adopted and continues to serve as the basis for curriculum in schools worldwide.

Freire: From "Banking Concept" of Education to Problem Posing

Paulo Freire (1921–1997) was a Brazilian educator who grew up amid poverty and dedicated his life to the struggles of the poor. His influential 1970 book, *Pedagogy of the Oppressed*, ad-vocated a critical consciousness aimed to empower would-be learners through awareness of the surrounding politics and through constant reexamination. This process liberates the oppressed while avoiding becoming oppressors themselves. Freire was perhaps best known for his attack on what he called the "banking concept" of education, in which teachers "deposit" information into students, who in turn retrieve, or "withdraw," this knowledge when needed. He believed it controlled students' thinking and action and stifled their creativity.

Freire's critique of this dominant model of education led to a more democratic approach, called problem-posing education, where "people develop their power to perceive critically *the way they exist* in the world *with which* and *in which* they find themselves; they come to see the world not as a static reality, but as a reality in process, of transformation."[125] In the end, lead-ers would come from common people who can see and address social problems in enlightened ways. Knowledge is power, and Freire understood that cultivating it was one way to emancipate the oppressed. He confirmed his observations from a global perspective in his later book, *Learn-ing to Question: A Pedagogy of Liberation*, where he discussed the role of education in liberat-ing the oppressed people of the Third World.[126] Capturing the voice of not just Latin Americans, but the billion or so of those oppressed across the world allowed Freire to give victims an "inner strength to begin the arduous process of transcending a colonial existence."[127]

■ CURRENT FOCUS

The Tyler model summed up the best principles of curriculum making for the first half of the 20th century. Many curricularists have used this model. In fact, many practitioners in schools consider Tyler's model the basic way to create curricula. Currently, however, all traditional and technical models are being challenged.

According to nontraditional and nontechnocratic scholars, we cannot reduce curriculum to a particular theory, plan, or definition, much less agree on what is acceptable or valid. Critics claim that "philosophies, theories, [and principles] are not determined only by static knowledge and empirical data. The world of subjectivity and art is considered just as valid as Aristotelian

logic and Newtonian science."[128] Given the postmodern world of relativism, there is considerable controversy regarding what is and is not objective and true. National interest typically governs the curricular emphasis in education as a result.

Some critics of the educational status quo argue that schools need to be "liberated from institutional and capitalistic, [as well as racist and gender] indoctrination. Learners [should] no longer have an obligatory curriculum imposed on them. Schools and society should no longer discriminate and foster a class society based on possession of certificates" and standardized tests. Just as there is "an unequal distribution of economic capital and political power in society," the schools provide "an unequal distribution of cultural/educational capital."[129] Current curricularists such as Michael Apple, Henry Giroux, Ivan Illich, Peter McLaren, and William Pinar hold such views. Others, such as William Doll, Eliot Eisner, Maxine Greene, and Herb Kliebard, are more moderate but still have rejected the scientific/rational model and most forms of traditional/technocratic thinking.

In the age of global competition, the curriculum has seen a renewed emphasis on accountability. High-stakes testing and common standards have focused the curriculum in a way not seen since the age of Sputnik. This is driven by employer demand for certain "21st century skills"; namely the ability to think critically and creatively, to collaborate, and to communicate, among other skills. Such fluid and dynamic skills will likely require a new approach to curriculum based more on inquiry, problem posing, technology, and students' interests, rather than mere content proficiency. Whether school districts adopt such an approach, however, remains to be seen.

On a more pessimistic note, according to Ornstein, knowledge, skills, and schooling have minimal impact in more than half the world.[130] Opportunity is limited, and political instability and corruption run rampant. International report cards, grades, tests—and curriculum theories— are meaningless. Ultimately, power is tied to capital, equipment, and/or property. The dominant group controls one or more of these three economic factors. Without possessing any, a person can only offer labor, which keeps the individual in a subordinate role. It has been that way since recorded history and will continue through the 21st century and global village. There is, after all, little incentive for dominant groups to give up power.

Conclusion

From the colonial period to around World War I, curriculum was a matter of evolving subject matter. Some reform ideas concerned pedagogical principles of the mid- and late 1800s, mainly as a result of European influence and the emerging progressive reform movement of the early 20th century, but these ideas were limited to theoretical discussions and a few isolated, innovative schools. The perennialist curriculum, which emphasized the classics and timeless and absolute values based on religious and then moral doctrines, dominated for the first 150 years of our nation's history.

The idea of curriculum principles and processes began to take shape after 1900, and scientific principles and progressive philosophy were increasingly influential. Curriculum as a field of study—with its own methods, theories, and ways of solving problems—has made real advances since the 1920s. Most of the advances have taken place since Tyler wrote his basic text on curriculum.

Discussion Questions

1. What are some of the differences between the various types of colonial schools?
2. How did U.S. democratic ideas contribute to the rise of public schooling during the national period?
3. How did the 19th century European pioneers of pedagogy influence the U.S. school curriculum?
4. How did education evolve to meet the needs of the masses during the rise of universal education?
5. How did the Committee of Fifteen and the Committee of Ten influence 20th century curriculum?
6. What are some of the "twenty-first century skills" that employers seek? What kind of curriculum can help promote these skills among students?

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4

Psychological Foundations of Curriculum

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Discuss the appeal of behaviorist theories and why they continue to shape curriculum and instruction

2. Identify and describe Piaget's four stages of cognitive development

3. Explain how Gardner's multiple intelligences theory influences the field of curriculum

4. Justify the development of emotional intelligence in a 21st century curriculum

5. Discuss how an educator can use the information about various types of thinking

6. Define humanistic learning in schools

7. Identify the three major theoretical schools of learning—behaviorism, cognitive psychology, and phenomenology and humanistic psychology

8. Discuss how psychological foundations enable curriculum workers to perform their educational responsibilities

Psychology is concerned with the question of how people learn, and curriculum specialists ask how psychology can contribute to the design and delivery of curriculum. Put another way, how can curriculum specialists incorporate psychological knowledge to increase the probability that students will learn? Psychology provides a basis for understanding the teaching and learning process. Both processes are essential to curricularists because the curriculum has worth only when students learn and gain knowledge. Other questions of interest to psychologists and curriculum specialists are the following: Why do learners respond as they do to teachers' efforts? How do cultural experiences affect students' learning? How should curriculum be organized to enhance learning? What impact does the school culture have on students' learning? What is the optimal level of student participation in learning the curriculum's various contents?

No curriculum scholar or practitioner would deny the importance of this psychological foundation. All agree that teaching the curriculum and learning it are interrelated, and psychology cements the relationship. This disciplined field of

inquiry furnishes theories and principles of learning that influence teacher–student behavior within the context of the curriculum. Of course, we are not the first to realize the importance of this foundation. John Dewey knew that psychology was the basis for understanding how the individual learner interacts with objects and persons.

The process continues throughout life, and the quality of interaction determines the amount and type of learning. Ralph Tyler considered psychology a "screen" for helping determine what our objectives are and how our learning takes place.[1] More recently, Jerome Bruner linked psychology with modes of thinking that underlie the methods used in specific disciplines. These methods can be used to formulate concepts, principles, and generalizations that form the structure of the disciplines.[2] In short, psychology is the unifying element of the learning process; it forms the basis for the methods, materials, and activities of learning, and it provides the impetus for many curriculum decisions.

Historically, the major theories of learning have been classified into three groups: (1) behaviorist or association theories, the oldest group, which deals with various aspects of stimulus-response (S-R) and reinforcers; (2) cognitive information-processing theories, which view the learner in relation to the total environment and consider the way the learner applies information; and (3) phenomenological and humanistic theories, which consider the whole child, including their social, psychological, and cognitive development. When behaviorist theories are discussed separately, learning tends to focus on conditioning, modifying, or shaping behavior through reinforcement and rewards. When cognitive information-processing theories are stressed, the learning process focuses on the student's developmental stages and multiple forms of intelligence as well as problem solving, critical thinking, and creativity. The phenomenological aspects of learning deal with the learner's needs, attitudes, and feelings and entail more alternatives in learning.

■ BEHAVIORISM

The behaviorists, who represent traditional psychology, are rooted in philosophical speculation about the nature of learning—the ideas of Aristotle, Descartes, Locke, and Rousseau. They emphasize conditioning behavior and altering the environment to elicit selected responses from the learner. Behaviorism dominated much of 20th century psychology.

Connectionism

Edward Thorndike (1874–1949), one of the first Americans to test the learning process experimentally, is considered the founder of behavioral psychology. At Harvard, Thorndike began his work with animals, a course of experimentation other behaviorists also adopted.[3] Thorndike focused on testing the relationship between a stimulus and a response (classical conditioning). He defined *learning* as habit formation, that is, as connecting more and more habits into a complex structure. Knowledge resulted from the accumulation of these stimulus-response associations within this complex structure. Elementary knowledge is composed of groupings of simple components of a skill or knowledge. As one acquired more complicated units of association, one attained a more sophisticated understanding.[4] Thorndike defined *teaching* as arranging the classroom to enhance desirable connections and associations.

Thorndike developed three major laws of learning: (1) the *Law of Readiness*—when a "conduction" unit is ready to conduct, conduction is satisfying and lack of conduction is annoying; (2) the *Law of Exercise*—a connection is strengthened in proportion to its frequency and its average intensity and duration; and (3) the *Law of Effect*—responses accompanied by satisfaction strengthen the connection; responses accompanied by discomfort weaken the connection.[5]

The Law of Readiness suggests that, when the nervous system is ready to conduct, it leads to a satisfying state of affairs; some educators misinterpret this as referring to educational readiness, such as readiness to read. The Law of Exercise provides justification for drill, repetition, and review and is best illustrated today by behavior modification and basic-skills

instructional approaches. Although teachers used rewards and punishments for centuries prior to Thorndike's formulation of the Law of Effect, his theory made more explicit and justified what was being done. B. F. Skinner's operant model of behavior, direct instruction, and many current ideas based on providing satisfying experiences to the learner, as well as reinforcement in the form of feedback, are rooted in this law.

Thorndike maintained that (1) behavior was influenced by conditions of learning; (2) learners' attitudes and abilities could improve over time through proper stimuli; (3) instructional experiences could be designed and controlled; and (4) it was important to select stimuli and learning experiences that were integrated, consistent, and mutually reinforcing. For Thorndike, no one subject was more likely than another to improve the mind; rather, learning was a matter of relating new learning to previous learning. He attacked the "psychology" of mental discipline, asserting that there was no hierarchy of subject matter.

Thorndike's Influence: Tyler, Taba, and Bruner

Coinciding with Thorndike's theories, Tyler and Hilda Taba maintained that learning had application and thus could be transferred to other situations.[6] This meant that rote learning and memorization were unnecessary. The student could organize and classify information into existing mental schemata or patterns and use it in different situations. Many of Thorndike's theories of learning had an impact on the behaviorist and logical approach outlined by Tyler and Taba. However, Tyler and Taba disagreed with Thorndike's view of connections between specific stimuli and specific responses. They outlined a more generalized view of learning, one that more closely corresponds with a cognitive approach. Whereas Bobbitt and Charters opted for the more precise behavioral approach to learning, along Thorndike's lines, and viewed objectives in context with highly specific habits to be acquired, Tyler and Taba leaned toward Dewey's and Judd's approach: Learning was based on *generalizations* and the teaching of important *principles* (terms used by the latter four educators) to explain concrete phenomena.[7]

Tyler and Taba gave credit to Thorndike in their classic texts. Tyler's recognition of Thorndike was minimal; nevertheless, he spent considerable space discussing connectionism and organizing learning principles along Thorndike's transfer theories. Taba devoted an entire chapter to "the transfer of learning" and the influence that Thorndike and others had on her learning theory. Like Thorndike, Taba argued that practice alone does not necessarily strengthen memory or learning transfer, which served to free the curriculum from the rigid roteness and drill of the past. "Since no program, no matter how thorough, can teach everything, the task of all education is to cause a maximum amount of transfer."[8] The idea was to develop content or methods that led to generalizations and that had wide transfer value. Taba advocated problem-solving and inquiry-discovery techniques.

The notions of "learning how to learn" and "inquiry discovery," although popularized by Bruner, are rooted in Thorndike. Thorndike, and later Bruner, assumed that learning that involves meaningful organization of experiences can be transferred more readily than learning acquired by rote.[9] The more abstract the principles and generalizations, the greater the possibility of transfer. (This view corresponds with Dewey's idea of reflective thinking and the steps that he outlined for problem solving.)

For Bruner, a true discipline contains structure, which provides the basis for the specific transfer of learning. The abilities to learn and recall are directly related to the learner's having a structural pattern by which information can be transferred to new situations. Transfer of learning is much more frequent when learning is basic and general. However, whereas Thorndike found that no one subject was more important than another for meaningful learning, Bruner emphasized science and mathematics as the major disciplines for teaching structure. In this connection, Thorndike was more progressive than Bruner; he gave equal weight and equal importance to various subjects—and he broke from traditional thinking about the hierarchy of subject matter.

According to classical-conditioning theory, learning consists of eliciting a response by means of previously neutral or inadequate stimuli; some neutral stimulus associated with an unconditioned stimulus at the time of response gradually acquires the ability to elicit the

response. In Ivan Pavlov's well-known classical-conditioning experiment, a dog learned to salivate at the sound of a bell. The bell, a biologically neutral, or inadequate, stimulus, was presented simultaneously with food, a biologically nonneutral, or adequate, stimulus. The dog associated the two stimuli so closely that the bell came to be substituted for the food, and the dog reacted to the bell as he originally had to the food.[10]

The implications for human learning were important. Some neutral stimulus (bell) associated with an unconditioned stimulus (food) at the time of the response gradually acquired the association to elicit the response (salivation). This theory has led to a wealth of laboratory investigations about learning and has become a focal point in social and political discussions—for example, Aldous Huxley's novel *Brave New World* and the movies *The Deer Hunter*, *Jacob's Ladder*, and *Silence of the Lambs*.

On the American scene, John B. Watson used Pavlov's research as a foundation for building a new science of psychology based on *behaviorism*. The new science emphasized that learning was based on the science of behaviorism—what was observable or measurable—not on cognitive processes. The laws of behavior were derived from animal and then human studies and were expected to have the objectivity of scientific laws.[11] For Watson, learning *was* conditioning, and conditioning was adequate to explain all manifestations of higher mutual learning processes. All such activity was nothing more that the reactions from simple, unconditional responses joined to form more sophisticated conditional responses.

For Watson and others, the key to learning was to condition the child in the early years of life, based on the method Pavlov had demonstrated for animals. Watson once boasted, "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up and I'll guarantee to take anyone at random and train him to be any type of specialist I might select—a doctor, lawyer, artist . . . and yes, even into beggarman and thief, regardless of his talents, . . . abilities, vocations, and race."[12] That said, Watson bolstered the case for environmental influence in an era when the vast majority of psychologists argued the case for genetics.

Behaviorist Reinforcement Theory

Many contemporary psychologists believe in the basic stimulus-response principles but reject the rigid mechanistic views of Thorndike and Watson. These contemporary associationists are called "neobehaviorists."

According to one neobehaviorist, Clark Hull, the connection between stimulus and response is determined by its relation to drive and reward.[13] A *drive* is a state of tension arising from a person's biological or psychological needs. A *reward* is the satisfaction of the need or reduction of the drive. *Conditioning* takes place by acting upon the individual while he or she is experiencing these drives and the stimuli that lead to certain drive-reduction responses. The idea is to strengthen the stimulus-response connections that reduce the drive. Redirection of drives leads to reward, or *reinforcement*. Reward (reinforcement) of these connections in accordance with reducing drive results in an organization of behavior called *habit.*

It is important for the person to reduce his or her primary drives or else face possible death or destruction. The stimulus or stimuli that help reduce these drives form a stimulus-response connection, so that if, on subsequent occasions, any of these stimuli recur in conjunction with the drive, the reaction tends to be evoked. This is called the Law of Reinforcement (somewhat similar to Thorndike's Law of Effect).

Both laws are consistent with common sense. If you want to condition someone, permit that person to associate something pleasant with the behavior you are trying to evoke. The implication for the classroom is to motivate the child when introducing subject matter. On a lighter note, if you want to increase summer attendance at symphonic orchestras among students, serve free ice cream. The students will become conditioned to the enjoyment of music.

The drive that functions for the survival of the individual takes precedence over all others, and a threat to normal body functioning reduces the level of activity in other drive areas. Teachers should understand, then, that children who are hungry or have not slept become restless

or inattentive and are not concerned with secondary drive areas—such as satisfying curiosity or learning. Furthermore, teachers should space classroom exercises to minimize fatigue and maximize performance. Although Hull's theories have been modified by educators, the idea of establishing appropriate reward and reinforcement activities is, in part, derived from him.

Operant Conditioning

Perhaps more than any other recent behaviorist, B. Frederick Skinner attempted to apply his theories to the classroom. Basing much of his theory on experiments with mice and pigeons, Skinner distinguished between two kinds of responses: *elicited,* a response identified with a definite stimulus, and *emitted,* a response apparently unrelated to an identifiable stimulus. When a response is elicited, the behavior is *respondent.* When it is emitted, the behavior is *operant*—no observable or measurable stimuli explain the response's appearance.[14] In operant conditioning, the role of stimuli is less definite; often, the emitted behavior cannot be connected to a specific stimulus.

Reinforcers can be classified, also, as primary, secondary, or generalized. A *primary* reinforcer applies to any stimulus that helps satisfy a basic drive, such as for food, water, or sex. (This reinforcer is also paramount in classical conditioning.) A *secondary* reinforcer, such as getting approval from friends or teachers, receiving money, or winning school awards, is important for people. Although secondary reinforcers do not satisfy primary drives, they can be converted into primary reinforcers. Because of the choice and range of secondary reinforcers, Skinner refers to them as *generalized* reinforcers. Classroom teachers have a variety of secondary reinforcers at their disposal, ranging from praise or smiles to admonishment or punishment.

Operant behavior discontinues when it is not followed by reinforcement. Skinner classifies reinforcers as positive or negative. A *positive* reinforcer is simply the presentation of a reinforcing stimulus. A student receives positive reinforcement when a test paper is returned with a grade of A or a note that says, "Keep up the good work." A *negative* reinforcement is the removal or withdrawal of a stimulus. When a teacher shouts "Keep quiet!" to the class and the students quiet down, the students' silence reinforces the teacher's shouting. Punishment, however, entails the presentation of unpleasant or harmful stimuli or the withdrawal of a (positive) reinforcer, but it is not always a negative reinforcer.[15] Although Skinner believes in both positive and negative reinforcement, he rejects punishment because he believes it inhibits learning.[16]

Acquiring New Operants

Skinner's approach of selective reinforcement, whereby only desired responses are reinforced, has wide appeal to educators because he demonstrated its application to the instructional and learning processes. An essential principle in the reinforcement interpretation of learning is the variability of human behavior, which makes change possible. Individuals can acquire *new operants;* behavior can be shaped or modified, and complex concepts can be taught. The individual's capacity for the desired response enables the shaping of behavior or the learning. Behavior and learning can be shaped through a series of successive approximations or a sequence of responses that increasingly approximate the desired one. Thus, through a combination of reinforcing and sequencing desired responses, new behavior is shaped; this is what some people today refer to as *behavior modification.*

Although behavior-modification approaches vary according to the student and the behavior being sought, they are widely used in conjunction with individualized instructional techniques, programmed learning, and classroom-management techniques. Student activities are specified, structured, paced, reinforced, rewarded, and frequently assessed in terms of desired learning outcomes or behaviors.

OBSERVATIONAL LEARNING AND MODELING.   Albert Bandura has greatly contributed to our understanding of learning through observation and modeling. In a classic study, he showed how aggressive behavior can be learned from seeing human adults act aggressively in real situations or in films and cartoons. The same children also learned nonaggressive behavior by observing humans of subdued temperaments.[17]

The repeated demonstration that people can learn and have their behavior shaped by observing another person or even film (obviously, the influence of TV is immense) has tremendous implications for modifying tastes and attitudes, how we learn and perform, and whether we want to develop soldiers or artists. For behaviorists, the findings suggest that cognitive factors are unnecessary in explaining learning; through modeling, students can learn to perform at sophisticated levels. Although recognizing the value of reinforcement and reward, the learner must primarily attend and acquire the necessary responses through observation and then model the behavior (see Curriculum Tips 4.1). Coaches in various sports and instructors in the military make use of this type of instruction; teachers who use coaching techniques find the modeling concept and specific tips useful.

HIERARCHICAL LEARNING.   Robert Gagné has presented a hierarchical arrangement of eight types of learning sets, or behaviors, that has become a classic model. The first five may be defined as behavioral operations; the next two, as both behavioral and cognitive; and the last (and highest

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CURRICULUM TIPS 4.1   **Behaviorism in Classroom Learning Situations**

A wide range of behaviors can be used when applying behavioral theories in the classroom. These suggestions have meaning for behaviorist teaching and learning situations.

1. Consider that behavior is the result of particular conditions; alter conditions to achieve desired behaviors.
2. Use reinforcement and rewards to strengthen the behavior you wish to encourage.
3. Consider extinction or forgetting of undesirable behaviors by reducing their frequency.
4. Reduce undesirable behaviors as follows:
    a. Withhold reinforcement or ignore the behavior.
    b. Call attention to rewards that will follow the desired behavior.
    c. Take away a privilege or resort to punishment.
5. When students are learning factual material, provide frequent feedback; for abstract or complex material, provide delayed feedback.
6. Provide practice, drill, and review exercises; monitor learners' progress.
7. Consider workbooks, programmed materials, and computer programs that rely on sequenced approaches.
8. When students struggle with uninteresting material, use special reinforcers and rewards to motivate them:
    a. Select a variety of reinforcers students enjoy (toys, gum, baseball cards).
    b. Establish a contract for work to be performed to earn a particular reward or grade.
    c. Provide frequent, immediate rewards.
9. Make use of observational learning:
    a. Select the most appropriate model.
    b. Model the behavior clearly and accurately.
    c. Insist that learners attend to what is being modeled.
    d. Provide praise when the desired behavior is exhibited.
    e. Have the learner practice the observed behavior.
    f. Provide corrective feedback during practice.
    g. Repeat demonstrations when necessary.
    h. Reinforce desired behaviors.
    i. Model behavior in similar settings in which learners will use the new skills.
10. Assess changes in learning and behavior:
    a. Diagnose learning problems.
    b. Establish levels of competency or mastery.
    c. Provide feedback.
    d. Integrate old tasks or skills with new ones.
    e. Reteach when necessary.

form of thinking), as cognitive. The behaviors are based on prerequisite conditions, resulting in a cumulative process of learning. The eight types of learning and examples of each follow.

1. *Signal learning* (classical conditioning, a response to a given signal). Example: Fear response to a rat.
2. *Stimulus-response* (operant conditioning [S-R], a response to a given stimulus). Example: Student's response to the command, "Please sit."
3. *Motor chains* (linking together two or more S-R connections to form a more complex skill). Example: Dotting the *i* and crossing the *t* to write a word with an *i* and *t*.
4. *Verbal association* (linking two or more words or ideas). Example: Translating a foreign word.
5. *Multiple discriminations* (responding in different ways to different items of a particular set). Example: Discriminating between grass and trees.
6. *Concepts* (reacting to stimuli in an abstract way). Examples: animals, grammar, and so on.
7. *Rules* (chaining two or more stimulus situations or concepts). Examples: Animals have offspring. An adjective modifies a noun.
8. *Problem solving* (combining known rules or principles into new elements to solve a problem). Example: Finding the area of a triangle given the dimensions of two sides.[18]

Gagné's hierarchy of learning represents a transition between behaviorism and cognitive psychology; the first four behaviors are behaviorist, and the last four are mainly cognitive. According to Gagné, learning is composed of a hierarchical sequence of instructional materials and methods, from simple to complex. The idea is that general theories, principles, or concepts (what Jerome Bruner termed a subject's *structure*) encompass specific ideas and knowledge that must be learned before advanced learning. Other learning theorists (including David Ausubel and Robert Marzano) maintain that by understanding general principles and concepts (Ausubel calls them *advance organizers*), people learn more efficiently because it is easier to assimilate new information into prior information. Whereas Gagné and Bruner represent a *bottom-up* theory of learning, Ausubel and Marzano represent a *top-down* theory. Dewey delineated a *middle* position that information is best learned and remembered when it is related to students' experiences and has direct application to their immediate environment. All three approaches to learning are acceptable and used by teachers, depending on the students' abilities (and ages) and the subject content.

Gagné also describes five learning outcomes that can be observed and measured and, for him, encompass all learning domains: (1) *intellectual skills,* "knowing how" to categorize and use verbal and mathematical symbols, forming concepts through rules, and problem solving; (2) *information,* "knowing what," knowledge about facts, names, and dates; (3) *cognitive strategies,* skills needed to process and organize information, today called *learning strategies* or *learning skills;* (4) *motor skills,* the ability to coordinate movements, both simple and complex, which comes with practice and coaching; and (5) *attitudes,* feelings and emotions learned through positive and negative experiences.[19]

The five outcomes overlap with the three domains (cognitive, psychomotor, and affective) of the taxonomy of educational objectives (see Chapter 7). The first three capabilities fall mainly within the cognitive domain, motor skills correspond to the psychomotor domain, and attitudes correspond to the affective domain. The mental operations and conditions involved in each of the five outcomes differ. Gagné writes, "Learning intellectual skills requires a different design of instructional events from those required for learning verbal information or from those required for learning motor skills, and so on."[20]

CONSCIOUSNESS, CHOICE, AND CONDITIONING.   According to the latest theory on conditioning, humans became conditioned by habit and routine and largely lose their individual consciousness. As children develop, their brains develop methods of identifying objects and responding to people, thus predicting how they move and respond to their environment. As stimuli flow from the external world to the brain, humans compare those stimuli to what they already know. If things are familiar or match up, there is little conscious awareness of the surrounding

environment. If there is a surprise or a detour in our daily life experiences, the brain shifts to a new state, and we become more conscious of our behavior.

According to one recent estimate, 90 percent of what people do every day is a habitual response to predictable events, so we usually operate on "automatic." Like other animals, we use our brain circuits to determine what to attend to, what to react to, and what to ignore. We also make decisions about what to learn, what to eat, and other matters. For example, we assess rewards or lack of rewards. Our behavior is conditioned by a set of expectations and reward systems. According to this theory, people learn best when confronted with an unexpected event or reward, which produces a dopamine rush. Fluctuating levels of rewards make people do things outside their conscious awareness.[21]

For most people, money, food, and sex are rewarding. Cookies and candy give pleasure. Anything that people crave can be used to modify behavior. Some people crave winning in sports because of recognition or money and will engage in unethical behavior; others crave power and will steal or kill to maintain it; still others crave martyrdom and will commit suicide for a political or religious cause. Once people's minds are hijacked (conditioned) so that people lose conscious awareness, they become capable of mindless group behavior and easily become absorbed into an *ism,* where they often lose their individual thought and rationality.

Once the brain becomes conditioned to crave a stimulus, a person may become self-destructive or dangerous to others. Some people gamble regularly, even though they know they're likely to lose money. Others smoke, knowing that smoking can be deadly. Still others lose their individual identities and critical faculties and simply conform to prevailing behavior.

Behaviorism and Curriculum

Behaviorism still has a major impact on education. Behaviorist educators in charge of curricula use many behaviorist principles in creating new programs. Curriculum specialists can adopt procedures to increase the likelihood that each student will find learning relevant and enjoyable. When new topics or activities are introduced, connections should be built on students' positive experiences. Things about which each student is likely to have negative feelings should be identified and modified, if possible, to produce positive results.

Like other curricularists, behaviorists believe that the curriculum should be organized so that students can master the subject matter. However, behaviorists are highly prescriptive and diagnostic; they rely on step-by-step, structured learning methods. For students who have difficulty learning, curriculum and instruction can be broken down into small units with appropriate sequencing of tasks and reinforcement of desired behavior.

Behaviorist theories have been criticized as describing learning too simply and mechanically and perhaps as reflecting overreliance on classical animal experimentation. Human learning involves complex thinking processes beyond respondent conditioning (or recall and habit) and operant conditioning (or emitted and reinforced behavior).

Many behaviorists today recognize cognitive processes much more than classical or S-R processes. Current theorists are flexible enough to hold that learning can occur without individuals having to act on the environment or exhibit overt behavior. They acknowledge that cognitive processes partially explain aspects of learning.

In general, combining behaviorism with learning includes careful analysis and sequencing of learners' needs and behaviors. Principles of testing, monitoring, drilling, and feedback are characteristic. The learning conditions needed for successful outcomes are carefully planned through small instructional steps and sequences of responses that increasingly approximate the desired behavior or learning. These basic principles tend to coincide with today's basic-skills training programs in reading and language development (such as DISTAR, SQ3R, and Continuous Progress), as well as methods of individualized instruction, direct instruction, mastery learning, instructional training (design), and competency-based education. The emphasis on these programs and methods involves remediation, skill acquisition, matching instructional materials to learners' abilities, step-by-step activities, repetition, practice, drill, reinforcement, and

review. These steps and sequences are shown in Table 4.1. Although these procedures are predetermined and planned in advance, some observers might claim they have a cognitive flavor, too.

To a large extent, the procedures or steps coincide with the structural strategies developed by Robert Marzano in *Classroom Instruction That Works*: (1) identifying similarities and

Table 4.1 | Instructional Components by Current Authorities: A Behaviorist Approach to Teaching and Learning

Direct Instruction: Rosenshine Model	Mastery Learning: Block and Anderson Model
1. *State learning objectives.* Begin lesson with a short statement of objectives.	1. *Clarify.* Explain to students what they are expected to learn.
2. *Review.* Introduce short review of previous or prerequisite learning.	2. *Inform.* Teach the lesson, relying on whole-group instruction.
3. *Present new materials.* Present new materials in small, sequenced steps.	3. *Pretest.* Give a *formative* quiz on a no-fault basis; students can check their own papers.
4. *Explain.* Give clear and detailed instructions and explanations.	4. *Group.* Based on results, divide the class into mastery and nonmastery groups (80 percent is considered mastery).
5. *Practice.* Provide active practice for all students.	5. *Enrich and correct.* Give enrichment instruction to mastery group; give corrective (practice/drill) to nonmastery group.
6. *Guide.* Guide students during initial practice; provide seatwork activities.	6. *Monitor.* Monitor student progress; vary amount of teacher time and support for each group based on group size and performance.
7. *Check for understanding.* Ask several questions; assess student comprehension.	7. *Posttest.* Give a *summative* quiz to nonmastery group.
8. *Provide feedback.* Provide systematic feedback and corrections.	8. *Assess performance.* At least 75 percent of students should achieve mastery by the summative test.
9. *Assess performance.* Obtain student success rate of 80 percent or more during practice session.	9. *Reteach.* If not, repeat procedures, starting with corrective instruction (small study groups, individual tutoring, alternative instructional materials, extra homework, reading materials practice and drill).
10. *Review and test.* Provide for spaced review and testing.	

Guided Instruction: Hunter Model	Systematic Instruction: Good and Brophy Model
1. *Review.* Focus on previous lesson; ask students to summarize main points.	1. *Review.* Review concepts and skills related to homework; provide review exercises.
2. *Anticipatory set.* Focus students' attention on new lesson; stimulate interest in new materials.	2. *Development.* Promote student understanding; provide examples, explanations, demonstrations.
3. *Objective.* State explicitly what is to be learned; state rationale or how it will be useful.	3. *Assess comprehension.* Ask questions; provide controlled practice.
4. *Input.* Identify needed knowledge and skills for learning new lesson; present material in sequenced steps.	4. *Seatwork.* Provide uninterrupted seatwork; get everyone involved; sustain momentum.
5. *Modeling.* Provide several examples or demonstrations throughout the lesson.	5. *Accountability.* Check the students' work.
6. *Check for understanding.* Monitor students' work before they become involved in lesson activities; check to see they understand directions or tasks.	6. *Homework.* Assign homework regularly; provide review problems.
7. *Guided practice.* Periodically ask students questions and check their answers. Again monitor for understanding.	7. *Special reviews.* Provide weekly reviews to check and enhance learning; provide monthly reviews to further maintain and enhance learning.
8. *Independent practice.* Assign independent work or practice when it is reasonably sure that students can work on their own with understanding and minimal frustration.	

differences, (2) note taking, (3) reinforcing effort, (4) homework and practice, (5) nonlinguistic recommendations, (6) cooperative learning, (7) feedback, (8) testing hypotheses, and (9) cues and advances.[22] The instructional strategies developed by Marzano tend to have a positive effect on student achievement, especially for low- and average-achieving students, but not for all students.

Behaviorists have contributed a great deal to psychology and curriculum during the 20th century, and it is likely that behaviorism will continue to influence the curriculum field. However, most behaviorists know that we cannot adhere to rigid doctrines as we learn more about humans and their learning. Perspectives that allow for investigations of the mind have been incorporated into behaviorism.[23] Cognitive developmental theories are being integrated into some behaviorists' approaches to human learning.

◾■ COGNITIVE PSYCHOLOGY

Whenever we categorize phenomena, we risk misinterpretation. Today, most psychologists classify human growth and development as cognitive, social, psychological, and physical. Although an individual grows and develops along all these fronts, most psychologists agree that learning in school is mainly cognitive.

Most, if not all, psychologists agree that learning results from humans' interactions with the world. However, there is no consensus regarding how to determine the extent to which an individual's characteristics (cognitive, social, psychological, and physical) result from inherited limitations or potential or harmful or favorable environments. Considerable controversy continues about heredity versus environment in determining cognitive outcomes (e.g., IQ and achievement scores) in school. As more educators view academic results as more than achievement scores, these debates are likely to intensify. It is essential that curriculum specialists be aware of these debates because the issue affects education and teaching theories in general.

Cognitive Perspective

Cognitive psychologists are interested in generating theories that give insight into the nature of learning, specifically how individuals generate structures of knowledge and how they create or learn reasoning and problem-solving strategies. How do people organize knowledge? How do they store information? How do they retrieve data and generate conclusions? These are central questions for cognitive psychologists, who also are interested in how individuals use new information and understandings. Cognitive psychologists are interested not only in the amount of knowledge people possess, but also in its type and its influence on further cognitive actions.[24] These psychologists focus on how individuals process information, how they monitor and manage their thinking, and the results of their thinking on their information-processing capabilities.

Cognitive psychologists essentially are interested in the mind's architecture. They believe there are two types of memory: short term and long term. Some educators have divided short-term memory into immediate memory and working memory.[25] Immediate memory operates consciously or subconsciously, holding inputs for approximately 30 seconds, during which a person decides whether perceived data are important. If not, they are discarded. If the data are important, they are placed in working memory, where only conscious processing occurs. The key point with regard to working memory is that the individual is acting on immediately present information or situations. Working memory has a definite focus and can process only a limited amount of information. However, the limits are flexible, influenced by how the information is organized. Individuals can increase the capacity of their working memories by grouping bits of information in chunks that are meaningful to them.[26]

Long-term memory deals with two types of information: semantic ("the way the world is") and procedural ("the way we do things"). This memory stores and retrieves information. In contrast to working memory, long-term memory has infinite capacity. Effective learners transfer information from working memory into long-term memory as quickly as possible.

The Montessori Method

Maria Montessori (1870–1952), a great pedagogist of the early 20th century, directed the Psychiatric Clinic at the University of Rome. There she encountered children with mental and physical disabilities who had been placed in insane asylums. She soon concluded that the root of the problem in many cases was not medical (the prevailing opinion), but educational and psychological.

Montessori's contemporaries were astonished when she taught these "difficult" children to read and write at a normal level. Her public response was that her instructional methods were based on a *rational, scientific* approach that considered children's developmental stages. She became "convinced that similar methods applied to normal children"; instead of being forced to memorize facts and sit quietly in their seats, they could "develop or set free their personality in a marvelous and surprising way."[27]

In 1906, after five years of advanced study in psychology and pedagogy, Montessori was asked to develop a new, progressive school for slum children in Rome. The school, Casa dei Bambini (The Children's House), became the model for the kindergarten at the famous Henry Street Settlement House in New York City. To a lesser extent, some Montessori practices were adopted by William Kilpatrick at the Lincoln Lab School, affiliated with Teachers College, Columbia University. For this reason, and because she was influenced by the child-oriented pedagogy of Rousseau and Pestalozzi (see Chapter 3), the vast majority of education authors place her in the progressive and child-centered movements. However, Montessori was much more concerned with cognitive development and the use of appropriate learning experiences built around a structured classroom environment (not necessarily free play or child centered), where students' interests came first, than around an environment that the teacher planned.

Rejecting the dominant behaviorist theories based on stimulus-response, Montessori emphasized looking and listening, which she viewed as sensory input channels of learning and as the first phases of intellectual development. Whereas "the behaviorists believed that it is the motor side, rather than the sensory side, that is important in learning," she believed that the more things a child listens to and looks at, the better for mental development. "Dewey [also] gave emphasis to the motor side . . . in his belief that the child learns chiefly by doing."[28] Montessori emphasized a rich variety of visual and auditory inputs (often absent in low-income families). Therefore, it can be argued that she was a cognitive developmentalist first and a progressive educator second.

Montessori maintained that children develop at different rates. Some are more coordinated than others and more mature in their thinking and social relationships. Except in extreme cases, such differences are normal. Some children need additional encouragement and support in certain areas of growth; others need it in other areas. (Piaget would later refer to this as *positive environment*.) Montessori also recognized that certain cognitive and social abilities develop before others: Children sit before they walk, grab objects before they manipulate them, and babble before they talk.

Montessori also noted that poor children were unprepared for school and that they increasingly lagged behind middle-class children as they progressed through grade levels. She concluded, "The down-trodden of society are also down-trodden in the school."[29] Her goal was threefold: enrich children's school environment, provide children with success in performing tasks to bolster their self-confidence, and provide structural play to teach basic skills. In short, she compensated for the deficiencies of the children's homes and slum conditions. Thus, the seeds of compensatory education were planted. Sixty years would pass before compensatory education would be fully accepted in the United States, as part of President Johnson's War on Poverty.

Montessori recognized that the homes of poor children lacked intellectual stimulation, such as books, as well as private, quiet places to learn. It was impractical to give lower-class children books to take home to study. Many of these children didn't even have "light by which to read." Montessori observed that her students lived "in the misery of human poverty" and that

some kind of environmental "nourishment" was needed to foster intellectual development.[30] She set the stage for cognitive developmental and environmental theorists to oppose behaviorist and hereditarian theories, which were entrenched at the turn of the 20th century. Most importantly, Montessori had the compassion and understanding to believe that poor children could learn despite their test scores and environmental disadvantages. Her efforts represented the beginning of an ongoing argument over the best ways to educate lower-class children.

Montessori's school environment was antidotal. She provided *sensory* impressions (Piaget and others would later call these *sensory stimuli*) to enhance the children's visual and auditory discrimination. Her approach, rooted in Pestalozzi's pedagogy, was based on sensory experiences with objects of the environment and a belief that learning proceeds mostly in an atmosphere of emotional security. Pestalozzi also worked with poor children and orphans. Montessori's sensory approach originated with Rousseau and Pestalozzi and was adopted in the 1960s by Martin and Cynthia Deutsch, J. McVicker Hunt, and Lev Vygotsky as they developed a "new" theory of experience (visual and auditory), language development, and intelligence.[31] Most social scientists now shifted to an emphasis on environment rather than heredity, and on cognitive development rather than behaviorism. Montessori was a psychological pioneer in cognition.

Jean Piaget's Theories

Swiss psychologist Jean Piaget (1896–1980) presented the most comprehensive theory of cognitive development stages. After 25 years of research in European settings, Piaget's work came to the attention of American educators during the 1950s and 1960s as cognitive developmental psychology, environmentalist theories, and the compensatory education movement increased in influence.

Like many of today's investigators, Piaget described cognitive development in terms of stages from birth to maturity. The stages can be summarized as follows.[32]

1. *Sensorimotor stage* (birth to age 2). The child progresses from reflex operations and undifferentiated surroundings to complex sensorimotor actions in relation to environmental patterns, comes to realize that objects have permanence (they can be found again), and begins to establish simple relations between similar objects.
2. *Preoperational stage* (ages 2 to 7). Objects and events begin to take on symbolic meaning. For example, a chair is for sitting; clothing is for wearing. The child shows an ability to learn more complex concepts from experience, as long as familiar examples of the concepts are provided. (For example, oranges, apples, and bananas are fruit; the child must have the chance to touch and eat them.)
3. *Concrete operations stage* (ages 7 to 11). The child begins to organize data into logical relationships and gains facility in manipulating data in problem-solving situations. However, this learning situation occurs only if concrete objects are available or the child can draw on past experience. The child is able to make judgments in terms of reversibility and reciprocal relations (for example, left and right are relative to spatial relations) and conservation (a long, narrow glass may hold the same amount of water as a short, wide one).
4. *Formal operations stage* (ages 11 and up). The individual can grasp formal and abstract operations, analyze ideas, comprehend spatial and temporal relationships, think logically about abstract data, evaluate data according to acceptable criteria, formulate hypotheses, deduce possible consequences, and construct theories and reach conclusions without direct experience in the subject. At this stage, there are few or no limitations on the content of learning. Learning depends on the individual's intellectual potential and environmental experiences.

Piaget's cognitive stages presuppose a *maturation:* Mental operations are sequential. The stages are hierarchical, the mental operations are increasingly sophisticated and integrated. Although the succession of stages is constant, levels of attainment vary due to heredity and environment.

Like Dewey's learning principles, Piaget's cognitive theories focus on environmental experiences. The educator's role involves "the shaping of actual experience by environing conditions" and knowing "what surroundings are conducive to having experiences that lead to growth."[33] Three basic cognitive processes form the basis of Dewey's and Piaget's environmental and experiential theories.

For Piaget, *assimilation* is the incorporation of new experiences into existing ones. However, handling new situations and problems requires more than assimilation. The child must also develop new cognitive structures. This process is *accommodation;* child's existing cognitive structures are modified and adapted in response to the environment. *Equilibration* is the process of balancing what is already understood with what has yet to be understood, the dual process of assimilating and accommodating of one's environment.[34]

This coincides with Dewey's "conceptions of situation and interaction [which] are inseparable" and which form the basis of continuity.[35] For Dewey, a *situation* represents the environment's effects on the child and is similar to Piaget's assimilation. Similar to Piaget's accommodation, *interaction* entails current interactions between the child and the environment, including the child's capacities to establish meaning. Similar to Piaget's equilibration, *continuity* refers to situations and interactions that follow.

Piaget's Influence: Tyler, Taba, Bruner, and Kohlberg

Piaget's three cognitive processes (and Dewey's educational experiences) also serve as a basis for Tyler's three methods of organizing learning experiences: (1) *continuity*—skills and concepts should be repeated within the curriculum, and there should be "continuing opportunity for these skills to be practiced"; (2) *sequence*—the curriculum should progressively develop understanding, and "each successive experience builds upon the preceding one" and goes "more broadly and deeply into matters involved"; (3) *integration*—the curriculum's elements should be "unified," and subjects "should not be isolated . . . or taught as a single course."[36]

Taba extensively reviews Piaget's four stages of cognitive development and their implications for mental development. She concludes that learning experiences must be "designed to match assessment of age levels at which certain processes of thought can occur." The idea is to transform complex concepts and subject matter into mental operations appropriate to the learner and to develop a curriculum that provides for "increasingly deeper and more formal levels" of thinking. "Building such a curriculum would naturally also involve a better understanding of the hierarchies [Piaget's stages] of concept formation and mental operations [and] a better understanding of the sequences in the development of thought."[37]

Similarly, Taba notes Piaget's cognitive processes—assimilation, accommodation, and equilibration—in her discussion of generalizations and abstract thinking. She is concerned with organizing curricula and teaching new experiences so they are compatible with existing experiences (assimilation), moving from concrete experiences to concepts and principles (accommodation), and classifying and understanding new relationships (equilibration). Taba's "curriculum strategies for productive learning" are rooted in Piaget's synthesis of experiences into more complex forms and levels.

For Bruner, learning how things are related means learning the structure of knowledge. Such learning is based on Piagetian assimilation and accommodation.[38] The student who grasps how bits of information within a subject area are related can continually and independently relate additional information to a field of study. Learning something should not be an end of learning. Instead, as Piaget and Dewey suggest, what is learned should be related to other aspects of the subject and be general enough to apply in other situations. The structure of knowledge provides the basis for this kind of specific transfer of learning.

Piaget's equilibration forms the basis of Bruner's notion of a "spiral curriculum": Previous learning is the basis of subsequent learning, learning should be continuous, and subject matter is built on a foundation (from grade to grade). Bruner is also influenced by Dewey, who uses the

term *continuity* and explains that what a person has already learned "becomes an instrument of understanding and dealing effectively with the situations that follow."[39] Like Dewey and Piaget, Bruner also uses the term *continuity* to describe how subject matter and mental operations can be "continually deepened by using them in a progressively more complex form."[40]

To Bruner, learning consists of three related processes, similar to Piaget's cognitive processes:

1. *Acquisition,* which mainly corresponds to assimilation, is the grasping of new information. Such information may be "new" to one's store of data, may replace previously acquired information, or may merely refine or qualify previous information.
2. *Transformation* is processing new information in a transformative way—for example, through extrapolation, interpolation, or translation into another form. This process mainly overlaps with accommodation.
3. *Evaluation* is determining whether information is appropriate for dealing with a particular task or problem. It closely corresponds to equilibration.

Piaget was also concerned with children's moral development, which Lawrence Kohlberg investigated in some detail. Kohlberg studied the development of children's moral standards and concluded that our thinking about moral issues reflects not only our society, but also our stages of growth or age. Kohlberg outlined six types of moral judgment grouped into three moral levels, or stages, corresponding to Piaget's cognitive stages of development:

1. *Preconventional level.* Children at this level have not yet developed a sense of right or wrong. They do as they are told because they fear punishment or realize that certain actions bring rewards.
2. *Conventional level.* Children at this level are concerned about what other people think of them. Their behavior is largely other directed. These children seek their parents' approval by being "nice" and think in terms of rules.
3. *Postconventional level.* At this level, morality is based on what other people feel or on their precepts of authority. Children at this level view morality in terms of contractual obligations and democratically accepted laws or in terms of individual principles of conscience.

Kohlberg and Piaget hold the cognitive developmental view of morality: Moral judgments entail a considerable amount of reasoning. However, whereas Piaget stresses differences in the way children think about morality at different ages, Kohlberg finds considerable overlap at various ages. Both believe that social arrangements and society play a major role. However, Piaget emphasizes maturation. Kohlberg says, "As opposed to Piaget's view, the data suggest that the 'natural' aspects of moral development are continuous and a reaction to the whole social world rather than a product of a certain stage, a certain concept . . . or a certain type of social regulations."[41]

Teachers (in conjunction with learning psychologists and curriculum specialists) should determine the appropriate emphasis to give each of Piaget's stages of cognitive development. Piaget's stages overlap with Tyler's methods, Taba's strategies, Bruner's processes, and Kohlberg's moral stages. Educators should regard Piaget's stages as suggestive rather than proven facts.

Developmental Theories: Beyond Piaget

Prior to the 1960s, the hereditarian school of thought dominated social science thinking regarding human growth and development, including cognitive development and intelligence. Piaget was not widely accepted in the United States, although every major psychologist since the 1940s and 1950s was aware of his research on the influence of environment and the stages of cognitive and moral development. Gradually, developmental theorists gained a foothold in psychology, but it was Ben Bloom's longitudinal research on human characteristics that shifted majority opinion to accept the importance of early childhood environment; in turn, this formed the rationale

behind the compensatory education movement and Head Start program in the 1960s and infant education today.

Developmental theory basically asserts that inadequate or adequate development in one area affects the other areas of human development. For example, if an individual is unable to develop fully a cognitive characteristic at a particular stage in life, he or she usually cannot fully develop that particular characteristic (or the characteristics that are dependent on the prior one) in later stages of life. The idea is well established in animal and infant behavior.

Although there is danger in extrapolating from animals to humans or from infants to adults, this reasoning has been extended to hypothesize that there is a tendency for deficits in cognitive development to occur if the child is deprived of necessary stimulation during critical periods. The corollary of this hypothesis is that individuals who fail to acquire these skills at appropriate times are forever handicapped in attaining them. The reason is that the deficits become irreversible and cumulative in nature (known as the *cumulative intellectual deficit*), because current and future rates of intellectual growth are always based on or limited by the attained level of development. (New growth, in other words, proceeds from existing growth.) This helps explain the increasing academic gap of slow readers or nonreaders as they proceed through school.

Bloom: Early Environment

Developmental theory also holds that the early years are more important than successive years. Although not all human characteristics reveal the same patterns of development, the most rapid period of development of human characteristics, including cognitive skills, occurs during the preschool years. For example, Benjamin Bloom presents longitudinal data (extending over a period of several years) that strongly suggest that from birth to 4 years of age, an individual develops 50 percent of his or her potential intelligence; from ages 4 to 8, the child develops another 30 percent; and between ages 8 and 17, he or she develops the remaining 20 percent.[42] Supplementary evidence suggests 33 percent of learning potential takes place by the time the child is 6 years old—before he or she enters first grade; another 17 percent takes place between ages 6 and 9. The potential for learning is cumulative. As much as 50 percent is developed by the age of 9, 75 percent by the age of 13, and 100 percent by the age of 17. (This tends to correspond with Piaget's data that by age 15½, a person's formal reasoning ability is fully developed.)

Based on the preceding estimates for intelligence and learning, home environment is crucial, according to Bloom, because of the large amount of cognitive development that has already taken place before the child enters first grade. These estimates also suggest the very rapid cognitive growth in the early years and the great influence of the early environment (largely home environment) on cognitive development and that *all* subsequent learning "is affected and a large part determined by what the child has [previously] learned."[43] Furthermore, what the child learns in the early and most important years is shaped by what the child has experienced at home. (Even the prenatal stages affect the child's intellectual development—that is, the mother's general habits and biochemical changes related to stress, food, and other emotional factors. And, in this regard, substantially more lower-income mothers than the middle- and upper-income mothers and more Black mothers than White mothers suffer from poor physical and mental health as well as from poor diet.)

This does not mean that once a learning deficit occurs, remediation is impossible; however, it does clearly imply that it is more difficult to effect changes for older children and that a more powerful environment is needed to effect these changes. Thus, two-year deficits in reading or math for a ninth-grade student is more difficult to overcome than two-year deficits for a third-grade student. Bloom reports, however, that learning differences can be reduced over time with appropriate environmental and training conditions, thus contradicting the cumulative intellectual deficit theory.[44] In short, our information on the extent to which intellectual deficits of one's maturation period or age can be made up in another is limited and contradictory. We cannot now precisely equate differences in difficulty in reversing deficits at different stages of cognitive

development. However, the older the person, the more powerful the stimuli needed to affect positive changes.

As noted earlier, the theory of development also coincides with the research findings that a child of low-income status often suffers from a deprived environment or limited stimuli, which, in turn, negatively affects the child's opportunities for adequate cognitive development. Conversely, a child of middle or upper socioeconomic status usually has an enriched environment (or a sufficient quantity of high-quality stimuli), which affects positively his or her opportunities for adequate cognitive development. Thus, the child's social class is related to his or her environment experiences, which subsequently influence the child's learning capabilities and academic experiences.

Because the relationships are group patterns, there is room for individual differences among children in both deprived and enriched environments. It cannot be emphasized too strongly, for example, that a lower-class child may have an enriched home environment and his or her middle-class counterpart may have a deprived home environment. Similarly, all children from deprived environments do not necessarily have limited school abilities, whereas all children from enriched environments do not have academic success: rather, social class and home environment handicap or assist children in developing their mental capabilities.

Lev Vygotsky's Theories

Lev Vygotsky developed his theories in the early 20th century. However, the West discovered his work only in the latter part of that century. In 1987, Jerome Bruner stated, "When I remarked a quarter century ago that Vygotsky's view of development was also a theory of education, I did not realize the half of it. In fact, his educational theory is a theory of cultural transmission as well as a theory of development, for education implies for Vygotsky not only the development of the individual's potential, but the historical expression and growth of the human culture from which Man springs."[45] Vygotsky developed not only a cognitive theory, but also a general theory of sociocultural development.

He primarily addressed the social origins and cultural bases of individual development. In his view, children developed their potential via enculturation into society's mores and norms. Whereas Piaget believed that children had to enter certain stages to accomplish particular cognitive tasks, Vygotsky believed that children could begin to gain command of language prior to arriving at a particular stage of development.

According to Vygotsky, child development is a sociogenetic process shaped by the individual's interactions, "dialogue," and "play" with the culture. Individuals exist within environments that the actions of previous generations have transformed. These generations produced artifacts that enable people to interact with their physical and social worlds. Individuals exist within two worlds, one natural and one made by humans. The human-made world, a creation of culture, has fundamentally shaped the structure of human growth and development.

For Vygotsky, cultural and psychological functions must be considered in historical context. People's thoughts, language, and methods of solving problems must be considered within the historical context of the person's lifetime. People's behavior is unique to the institutions of their time. Culture and human action evolve over time. As the mind changes, so does cognitive processing. Such modifications influence people's practical activities and tools, which have an impact on thinking.

Vygotsky argued that culture (and thinking) required skilled tool use. He identified several types of human tools: language, counting systems, works of art, mechanical drawings, and mnemonic techniques. To him, language was a primary tool invented by humans that enabled the organization of thinking.[46] Without language, humans would have no thought as we know it. If we consider language to be the attachment of meaning to symbols, we conclude that language is human culture's main tool. Mathematics employs symbols to which meaning has been subscribed; therefore, it is a language. Visual art employs symbols through various media, so it is a language. Via written and auditory symbols, music carries meaning; it too is a language. Language enables

and elicits thought. When dealing with psychological foundations, we are essentially trying to understand language both within and outside of schools.

Vygotsky was an educator first and a psychologist second. He believed that children's higher mental functions result primarily from enculturation and that the key institution for this enculturation is formal education. He did not discount informal education, but he considered formal education the optimal laboratory for human improvement. Within such an environment, the child, under an educator's guidance, had opportunities to receive and perfect psychological tools that assisted in organizing and reorganizing mental functions.[47]

The emerging focus on developing executive function (defined as cognitive flexibility, working memory, and inhibitory control), particularly among young, at-risk children, has revitalized interest in Vygotsky's approach. Researchers and educators are examining specific tactics, such as make-believe play, private speech, and other mediated activities to help students regulate themselves and their peers as well as cultivate children's social-emotional and cognitive development.[48]

As mentioned earlier, Piaget and others believed that biological maturity had to be experienced before certain types of learning could occur. One had to go through various developmental stages in order to learn certain facts and master certain skills. Vygotsky took exception to this view, arguing that the learning process preceded the developmental process. "Pedagogy creates learning processes that lead [to] development."[49] In other words, children at a particular developmental level could, via instruction, be "pulled" to a higher level. Effective teaching or peer engagement can raise a student's level. This certainly has relevance today to meaningful instruction. Although students interacting with effective teachers may perform or think "better" than before, what about students interacting with less effective teachers? Will students always move beyond their developmental levels when working with more capable peers? What happens to the development of more capable peers when they work with less capable classmates? All these questions have serious implications as educators attempt to implement school reform and improve learning of low-performing students.

4.1 Executive Function: Skills for Life and Learning
Self-regulation skills, like the ability to focus, filter distraction, and switch gears, have been an increasing focus of education researchers. This video sheds light on executive function in the brain and its importance for life and learning. How might teachers in primary grades cultivate these skills?

https://www.youtube.com/watch?v=efCq_vHUMqs

IQ Thinking and Learning

Many, if not most, psychologists are concerned with the cognitive structures that individuals invent and use. These cognitive scientists focus on thought processes—what is happening inside a person's head. The brain is complex, as is the process of thinking.[50] We have developed various ways to classify thinking and the structure of human intellect.

IQ AND BIRTH ORDER. IQ research by Northwestern psychologist Dan McAdams indicates that the eldest children in families tend to develop higher IQs than their siblings—averaging about 3 points higher than second-born children and 4 points higher than third-born children. Similarly, among families in which the firstborn dies in infancy, the IQs of second-born children tend to be 3 points higher than those of third-born children.[51] The reason is not biological or genetic, but a matter of family dynamics: how children are treated. Three or 4 points on a scale of 100± may not sound like much, but it can be the difference between an A or A– average in school; that, in turn, can affect college admission to an Ivy League school or less exclusive college. The study included 241,000 subjects between 18 and 19 years old, born between 1967 and 1976 and controlled by several class, family, educational, and other environmental factors. The explanation for the difference is that firstborn children have their parents' undivided attention as infants (infancy is a critical time for cognitive development), and this adult attention enriches language and reasoning potential.

The firstborn child is often expected to assume a responsible or tutoring role with siblings. Responsibility encourages organization, self-discipline, and other characteristics of high achievers. Younger siblings tend to develop social and artistic skills (e.g., dramatic or musical) as alternative ways of coping with their environment and not directly competing with the older

sibling. Hence, younger siblings develop diverse interests and coping skills that IQ tests do not measure. In general, they also live more adventurous lives than their older siblings and tend to be less conventional and more creative.

Firstborns have won more Nobel Prizes in science and math than younger siblings—but often by advancing current ideas rather than overturning them. According to one psychologist, "It's the difference between every year or every-decade creativity and every-century creativity, between innovation and radical innovation."[52] Most importantly, the idea of birth order and IQ differences is relatively easy to accept because it relates to nurture, not nature; moreover, it does not compare differences among gender, race, or ethnicity.

IQ AND CONTAMINANTS.   Like heritability, environmental factors can also impact development and intelligence. They contribute to more than 25 percent of all diseases worldwide, according to the federal Agency for Toxic Substances and Disease Registry (ATSDR). Even low levels of exposure to contaminants like lead and asbestos are linked to reduced intelligence, attention disorders, cancer, and other health problems. Others, like pesticide and mercury, can also lead to developmental and learning delays or disorder, which explains why areas with heavy mining, construction, or industrial histories, like Philadelphia and Detroit, pose significant risk to their inhabitants. They inhale or absorb these substances without even knowing it.

Children—and fetuses in the womb—remain particularly vulnerable. Pollutants like asbestos penetrate children's still-developing nervous systems more easily and thin the cortex in the brain. In a recent report, scientists listed 12 industrial chemicals—including lead, arsenic, manganese, and fluoride—that have led to neurodevelopmental disabilities like autism, attention deficit/hyperactivity disorder (ADHD), dyslexia, and other cognitive impairments in children.[53] According to another scientist, Americans have lost almost 17 million IQ points due to the exposure to organophosphate pesticides—the most common pesticide used in agriculture.[54] This "silent pandemic" affects poor children even more, who have less access to organic foods and tend to live in areas with higher concentrations of pollutants.

Critics, however, maintain that dosage—not the chemicals themselves—is the real issue. For example, fluoride and certain pesticides do not harm children in small levels, and much of it is highly regulated. Strengthening the chemical safety testing system and developing enforceable chemical safety legislation in the United States is much more important.[55]

IQ AND MALNUTRITION.   Malnutrition develops when the body is deprived of vitamins, minerals, and other nutrients, and it is the largest single contributor to disease in the world, according to the United Nations Standing Committee on Nutrition. The first few years of life, in particular, are particularly vulnerable. Research shows that it can lead to low IQ and later antisocial behavior, such as stealing and drug use.[56] Similarly, prenatal malnutrition— when an expecting mother fails to consume enough nutrients—can also hinder the brain development of the fetus, which leads to lower IQ.

Although relatively low in the United States, malnutrition still affects 15 million children.[57] However, a significant portion of children suffers from malnutrition due to dietary imbalances rather than nutritional deficiencies. This means eating too much, eating the wrong things, or not exercising enough—much of which can lead to obesity and other health problems. Neurological disorders are often associated with early malnutrition, as well as lowered intelligence and cognitive ability.[58]

IQ AND STIMULANTS.   Prescription stimulants, like Adderall and Vyvanse, have been shown to be relatively safe and effective in managing symptoms of ADHD, by helping students focus, control their impulse, and increase academic productivity. However, some research indicates that these stimulants do not improve cognitive performance or IQ. Moreover, growing abuse of such stimulants has been reported among students without ADHD. Media reports claim a trend toward growing use of prescription stimulants by high school and college students to enhance

academic performance.[59] Such drugs allegedly provide students with the energy and focus to study longer and harder. Conversely, they can lead to depression and mood swings, heart irregularities, and acute exhaustion or psychosis during withdrawal. Although little data exists about this misuse, anecdotal evidence by psychiatrists, counselors, and even students suggests that stimulant abuse is rising, particularly in high-pressure high schools.

Do Adderall and other similar stimulants, in fact, improve cognitive abilities? Research results are mixed. While there may be some improvements noted when given a rote-learning task, they may not offer as much help to people with greater intellectual abilities.[60] It is possible that abusers experience a placebo effect, believing they are more focused and therefore performing better. What is apparent is that stimulant abusers gradually move on to other prescription drugs like painkillers and sleep aids.

The recent legalization of recreational marijuana in states like Alaska, Oregon, Colorado, and Washington has brought new concerns about its effects on the developing brain. Although the medical benefits of marijuana are documented, there are reports that prenatal or adolescent exposure can lead to changes in the connections between the neurons (the cells that send instructions to the body through neurotransmitters about what to do).[61] This can undermine mental acuity, higher brain function, and impulse control for young users. Marijuana can also accelerate the emergence of schizophrenia, which is potentially dangerous for the teenager, since early onset makes it more difficult to recover. Those with schizophrenia in their 20s, however, have reached more psychological and social-developmental milestones that can buffer its effects. Lastly, teenagers are more prone to the addictive effects of marijuana, with one in six becoming dependent upon experimentation, compared with approximately 9 percent among the general population.[62]

MULTIPLE INTELLIGENCES.   Howard Gardner postulated multiple intelligences. He contends that there are different mental operations associated with intelligence, and there are many different types of intelligence. Too often our society overemphasizes verbal ability. Gardner outlines nine types of intelligence: (1) verbal/linguistic, (2) logical/mathematic, (3) visual/spatial, (4) bodily/kinesthetic, (5) musical/rhythmic, (6) interpersonal, (7) intrapersonal, (8) naturalistic, and (9) existential.[63]

Gardner's ideas provide a place in the school curriculum not only for cognitive excellence, but also for music, art, dance, sports, and social skills (winning friends and influencing people). Noncognitive types of intelligence have a place in our "other-directed" society (which considers the importance of people working in groups) and fosters success in adulthood, including corporate America. Academic merit is not the only avenue for social and economic mobility. Highly important in a democratic society is fostering excellence in many endeavors and providing multiple chances for people to succeed.

Gardner's ideas encompass different kinds of mastery, from dancing to playing baseball. If encouraged and given a chance, many of our school dropouts' potential would not be wasted. Those in charge of planning and implementing curricula must expand their vision beyond intellectual and academic pursuits, without creating "soft" subjects or a "watered-down curriculum." We must nurture all types of intelligence and all types of excellence that contribute to the worth of the individual and society. We must consider the versatility of children and youth, their multiple abilities and ways of thinking and learning, which are increasingly filtered through technology. Gardner names today's young people the "App Generation."[64]

This perspective is especially relevant in the 21st century. According to Gardner, we need to master "five minds"—the disciplined mind (to master bodies of knowledge and skill), the synthesizing mind (to decide what is most important and frame knowledge in useful ways), the creating mind (to explore and uncover new phenomena), the respectful mind (to appreciate differences between human beings), and the ethical mind (to act in ways that serve the wider society)—all of which require various intelligences.[65] Schools, Gardner believed, need to create experiences that encourage children to confront both belief and reality, which will lead to

genuine understanding.[66] In an age of tolerance, pluralism, and diversity, Gardner's views are welcomed by school people.

GUILFORD'S INFLUENCE ON GARDNER.   What Gardner has to say is not new but is rooted in the work of J. P. Guilford. In the 1950s and 1960s, Guilford formulated a theory of intelligence around a three-dimensional model called the *structure of intellect.* It consisted of six *products* (units, classes, relations, systems, transformations, and implications), five *operations* (knowledge, memory, divergent thinking, convergent thinking, and evaluation), and four *contents* (figured, symbolic, semantic, and behavioral).[67] Therefore, the model was composed of 120 cells of distinct mental abilities. By 1985, Guilford and his doctoral students recognized and separated nearly 100 abilities by factor analysis of standardized achievement and aptitude tests. Guilford concluded that the remaining cells indicated uncovered mental abilities. It is possible that cognitive tests do not measure other mental operations or that such abilities do not exist.

The Guilford model is highly abstract and theoretical and involves administering and grading extra tests. Instead of using the single index of IQ (or aptitude), we are required to recognize and report several scores. Thus, the theoretical issues surrounding intelligence and cognitive operations take on much more complexity than in Gardner's theory of intelligence or in Binet's and Weschler's idea of reporting one IQ score.

As previously noted, the idea of multiple intelligences stems from the work of Guilford, who, in turn, formulated his theory to challenge Charles Spearman's *factor of intelligence*—the idea that intelligence consists of a general factor *g* underlying all mental functions and a multitude of *s* factors, each related to a specific task.[68] According to Spearman, to be smart was to have lots of *g,* an umbrella factor permeating all mental operations. Whereas Gardner feels that the search for empirically grounded components of intelligence may be misleading and delineates fewer components (8 in broad areas of life), Guilford maintains that the criteria for intelligence can be quantified and that intelligence consists of many (120) mental operations, or *cognitive processes.* Rather than a single index of IQ (or of aptitude), the idea of 120 different mental operations confounds teachers and thus remains a theoretical construct. Gardner is more popular with school people because his discussion avoids statistics and is more positive and democratic. Gardner stretches the notion of human growth and development by focusing on more than cognition. He accommodates the progressive ideas of teaching the whole child, developing his or her full potential, opening academic and nonacademic career doors, and encouraging low achievers whom schools might otherwise shunt aside.

Constructivism

Constructivism addresses the nature of *knowledge* and the nature of *learning.* Individuals who fail to distinguish between these two realms leave themselves and others open to confusion.

Concerned with how individuals learn, constructivism treats the individual as actively involved in the process of thinking and learning. The central question for the cognitive psychologist is how individuals engage themselves in the cognitive process. This differs from the behaviorist's driving question: What can an external force (a teacher) do to elicit a response from a student? This focus on the active student is not new; constructivist learning theory harks back to the work of Vygotsky and Piaget. Much of what Dewey discussed in the 20th century also places him within the constructivist camp.[69]

In constructivism, the learner is the key player; learners participate in generating meaning or understanding. The learner cannot passively accept information by mimicking others' wordings or conclusions. Rather, the learner must internalize and reshape or transform the information.[70] The student connects new learning with already-existing knowledge. Learning is optimized when students are aware of the processes that they are structuring, inventing, and employing. Such awareness of our cognitive processes is *metacognition.* Metacognition with regard to constructivist processes means that students are aware of the process whereby they are obtaining and using knowledge.[71]

As learners construct knowledge and understanding, they question themselves and their views and interpret and interact with their world. Students must bring their "world knowledge" into their cognitive processes. In today's terms, this means actively incorporating technology into the classroom beyond what teachers allow.[72] By reflecting on contexts relevant to their learning, they come to understand concepts and ideas.

Brain Research and Learning

The human brain possesses about "100 billion nerve cells wired together with 100 billion interconnections."[73] There are about 1,000 types of *connections,* each with a special subset of instructions that make us individually prone to love or hate, obedience or rebellion, intelligence or lack of intelligence.

Recent controversies explored in brain research include (1) the ages at which *synaptic densities* and *brain connections* peak (ranging from age 3 to puberty); (2) whether early visual and auditory experiences increase synaptic densities during or after puberty; (3) the effects of language use and type of language (formal, informal, oral, written, televised, digital, and so on), training, and education on the efficiency of connections; (4) whether there is a critical period during which synapses influence how the brain will be wired and whether synaptic densities are more susceptible to deterioration after puberty; (5) what kinds of synapses are pruned when pruning begins, at what rate they are pruned, and the extent to which pruning affects behavior and memory; and (6) whether people with greater synaptic densities or connections are more intelligent.[74]

No doubt, we will soon have drugs to enhance cognition, to complement the many psychoactive and mood-changing drugs already on the market. We already have drug treatments for depression, schizophrenia, and hyperactivity. For example, Ritalin makes it easier for teachers and counselors to modify behavior and control students. We are on the verge of treating Alzheimer's disease and enhancing memory. Soon we will be shaping and expanding intelligence, repairing and improving brain networks, and possibly using computers for complete brain overhauls. The availability of all these new chemicals (and computer chips) will pose difficult ethical questions concerning their use.

The wide acceptance of the brain's malleability can be largely traced to Reuven Feuerstein's theory of structural cognitive modifiability during the latter half of the 20th century. His work with immigrants in Europe and those who were culturally deprived (as he called it) led to a focus on the developmental consequences of sociocultural advantage and disadvantage. Feuerstein, who studied under Jean Piaget, developed interventions to change the course of cognitive development. He believed that the adult–child interaction was critical because adults interpreted—or mediated—novel experiences that shape how children think.[75] Feuerstein referred to this concept as mediated learning experience (MLE).

The malleability of the brain and intelligence has since gained acceptance among cognitive and developmental psychologists. Emerging research even revealed that certain cognitive exercises can actually improve working memory and problem solving the same way that training can improve our mental habits and physical exercises can improve our health.[76] Instead of following the movements of a yoga instructor, for instance, one can improve his or her focus and working memory by tracking sequences of constantly changing letters in the alphabet that get progressively harder. Much work in this area is still needed, however.

The Impact of Technology on the Brain and Learning

According to Pew research, 95 percent of teens between the ages of 12 and 17 are online now, with three in four using their cell phones, tablets, and other mobile devices to access the Internet—compared with only 55 percent of adults.[77] Experts believe this proliferating technology is altering our brains and their development in both positive and negative ways.[78] While some cognitive skills (like visual-spatial skills and the ability to scan and evaluate information quickly) are developed, other skills—like the ability to concentrate and persevere in challenging

tasks—are deteriorating. Neuroscience research suggests that the mental calisthenics involved in evaluating hyperlinks, deciding whether to click, and adjusting to different formats, among other processes, disrupts concentration and weakens comprehension.[79]

Growing technology appears to affect developing brains (those of young children and adolescents) even more—particularly those with impaired cognitive control like ADHD. When children are surrounded by diverse stimuli like smartphones, laptops, tablets, video games, and TVs, they become more accustomed to switching tasks as neural circuits devoted to skimming and multitasking are strengthened. Research shows that students are increasingly using other media while doing homework.[80] However, other neural circuits—like those used for deep thinking and linear (traditional) reading—become weaker as they are used less, which may partly explain students' decreasing academic performance, attention span, and ability to persevere, according to studies.[81] This change is particularly alarming for at-risk children, who require more support at home in using technology constructively.[82]

The rise of social media is also changing how children and adolescents develop. Over 70 percent of teens aged 13-17 use more than one social networking site (usually Facebook, Instagram and/or Snapchat), aided by the fact that most (73%) own smartphones.[83] Yet, these instantaneous connections may weaken human and social interaction, according to experts.[84] Children lose the ability to read social cues like facial expression, body language, and physical gestures when they are interacting in superficial ways, which can undermine relationships.[85] For adolescents, it can amplify their burgeoning sense of narcissism, anxiety, and inadequacy and contribute to digital-aged problems like "cyberbullying" and "sexting." For adults, the constant viewing of others' personal lives, including achievements and family and vacation photos, can also trigger strong feelings of envy and sadness—sometimes dubbed "Facebook Depression"—or at the very least a less genuine kind of empathy.[86] Experts agree that parents and educators play a critical role in providing close, significant interactions to counter the digital influence in children's lives.

> **4.2 What the Internet Is Doing to Our Brains**
> Experts believe technology, while in many ways good, can adversely affect how children learn. Watch this video as tech writer Nicholas Carr describes the Internet's effects on children. How might these changes affect the way schools and teachers structure their curriculum and instruction?
>
> https://www.youtube.com/watch?v=cKaWJ72x1rI

Problem Solving and Creative Thinking

Since the Sputnik era, many curriculum theorists have renewed their examination of problem solving and creative thinking. Some curricularists, especially those who talk about the structure of disciplines, feel that problem solving and creative thinking are complementary: Students must be given supportive conditions in which they can develop creativity, but they must be held responsible for confirming or disproving the value or correctness of their assumptions. Problem-solving procedures do not lead to creative discovery, but establish discoveries' validity. In this view, problem solving and creative thinking are considered methods of inquiry conducive to scholarship and science.[87]

An opposing view is that problem solving (previously referred to as *reflective thinking* and today called *critical thinking*) is based on inductive thinking, analytical procedures, and *convergent* processes. Creative thinking, which includes intuition and discovery, is based on deductive thinking, originality, and *divergent* processes. Problem solving, in this second view, is conducive to rational and scientific thinking and is the *method* of arriving at a solution or correct answer, whereas creativity is conducive to artistic and literary thinking and is a *quality* of thought. There is no right solution or answer when creativity is the goal.

Actually, problem solving and creativity may or may not go hand in hand. Some people perform well on problems without being creative, and others can be highly creative but do poorly in problem solving. However, the two thinking processes are not necessarily independent of each other. Research does reveal a correlation between the two.[88]

Complex cognitive tasks should be taught as generic skills and principles, relevant for all subject matter. The idea is to develop metacognitive strategies that students can transfer to many curriculum areas and content materials. We must develop strategies of reflective, critical, creative, intuitive, and discovery thinking that fit a wide variety of course and content situations.

INTUITIVE THINKING. Intuitive thinking is not new, but it was either overlooked because teaching practices have relied on facts and rote learning, or ignored because it was difficult to define and measure. Bruner long ago popularized the idea of intuition in his book *Process of Education*. The good thinker has not only knowledge, but also an intuitive grasp of the subject. Intuitive thinking is part of a discovery process that is similar to the scholar-specialists' engaging in hunches, playing with ideas, and understanding relationships so that they can make discoveries or add to the storehouse of knowledge.

The following explanation by Bruner describes how some people work with intuitive thinking:

> Intuitive thinking characteristically does not advance in careful, well-defined steps. Indeed, it tends to involve maneuvers based seemingly on implicit perception of the total problem. The thinker arrives at an answer, which may be right or wrong, with little, if any, awareness of the process by which he reached it. He rarely can provide an adequate account of how he obtained his answer, and he may be unaware of just what aspects of the problem situation he was responding to. Usually intuitive thinking rests on familiarity with the domain of knowledge involved and with its structure, which makes it possible for the thinker to leap about skipping steps and employing shortcuts in a manner that requires later rechecking of conclusions by more analytical means.[89]

The preceding process has very little to do with a convergent, or step-by-step, approach. It speaks of the revelation of discovery coupled with the ability to use knowledge and find new ways to fit things together. According to this interpretation, problem solving and free discovery come together; knowledge is dynamic, built around the process of discovery, without precise steps or rules to follow.

DISCOVERY LEARNING. Since the Sputnik era, the inquiry-discovery method has been examined in conjunction with the discipline-centered curriculum—as a unifying element related to the knowledge and methodology of a domain of study. Taba, Bruner, Phil Phenix, and Gail Inlow were products of this era.[90] Taba was influenced by Bruner, Phenix was to a lesser extent influenced by both of them, and Inlow was influenced by all three. All four educators were more concerned with *how* we think than with *what* we think or what knowledge we possess.

Although Bruner went to great lengths to fuse the inquiry-discovery methods in the sciences and mathematics, Phenix, Taba, and Inlow claimed that the discovery method was separate from inquiry and that both methods of thinking cut across all subjects (not just science and math). Phenix, for example, proposed that discovery was a form of inquiry that dealt with new knowledge, hypotheses, and hunches. Most of his efforts focused on defining inquiry, which he claimed was the method of deriving, organizing, analyzing, and evaluating knowledge (like problem solving). He believed that inquiry binds all aspects of knowledge into a coherent discipline and considered inquiry more important than discovery.

Taba and Inlow contrasted discovery learning with verbal and concrete learning. Most of traditional learning was described as a process of *transmitting* verbal and concrete information to the learner; it was authority centered, subject centered, highly organized, and flexible and open. Discovery, however, involved extensive exploration of the concrete at the elementary level. For older students, according to Inlow, it involved "problem identification, data organization and application, postulation, . . . evaluation and generalization."[91] For Taba, it meant "abstracting, deducing, comparing, contrasting, inferring, and contemplating."[92] All these discovery processes are rational and logical and thus entail a problem-solving, or convergent, component. Inlow and Taba, however, were quick to point out that discovery also included divergent thinking and intuitiveness. Taba added creativity and limitless learning to help define discovery; the inference here is that discovery means to go beyond existing knowledge to synthesize or make something new.

Bruner, who is well known for elaborating the idea of discovery, defined *discovery* as the learning that occurs when students are not presented with subject matter in its final form, when students rather than teachers organize subject matter. Discovery is the formation of a coding

system whereby students discover relationships among presented data. Successful discovery experiences make the learner more capable of discovering new experiences and more willing to learn.

CRITICAL THINKING.   *Critical thinking* and *thinking skills* are terms used to connote problem solving and related behaviors. Critical thinking is a form of intelligence that can be taught (it is not a fixed entity). The leading proponents of this school are Robert Ennis, Matthew Lipman, and Robert Sternberg.

Ennis identifies 13 attributes of critical thinkers. They tend to (1) be open-minded, (2) take or change a position based on evidence, (3) take the entire situation into account, (4) seek information, (5) seek precision in information, (6) deal in an orderly manner with parts of a complex whole, (7) look for options, (8) search for reasons, (9) seek a clear statement of the issue, (10) keep the original problem in mind, (11) use credible sources, (12) stick to the point, and (13) exhibit sensitivity to others' feelings and knowledge level.[93]

Lipman distinguishes between *ordinary thinking* and *critical thinking.* Ordinary thinking is simple and lacks standards; critical thinking is more complex and is based on standards of objectivity, utility, or consistency. He wants teachers to help students change (1) from guessing to estimating, (2) from preferring to evaluating, (3) from grouping to classifying, (4) from believing to assuming, (5) from inferring to inferring logically, (6) from associating concepts to grasping principles, (7) from noting relationships to noting relationships among relationships, (8) from supposing to hypothesizing, (9) from offering opinions without reasons to offering opinions with reasons, and (10) from making judgments without criteria to making judgments with criteria.[94] (See Curriculum Tips 4.2.)

CURRICULUM TIPS 4.2   Teaching Critical Thinking

Teachers must understand the cognitive processes that constitute critical thinking, be familiar with the tasks, skills, and situations to which these processes can be applied, and employ varied classroom activities that develop these processes. Robert Ennis provides a framework for such instruction. He divides critical thinking into four components, each consisting of several specific skills that can be taught to students.

1. Defining and clarifying
   a. Identifying conclusions
   b. Identifying stated reasons
   c. Identifying assumptions
   d. Seeing similarities and differences
   e. Determining relevant data
2. Asking appropriate questions to clarify or challenge
   a. Why?
   b. What is the main point?
   c. What does this mean?
   d. What is an example?
   e. How does this apply to the case?
   f. What are the facts?
3. Judging the credibility of a source
   a. Expertise
   b. Lack of conflict of interest
   c. Reputation
   d. Use of appropriate methods
4. Solving problems and drawing conclusions
   a. Deducing and judging validity
   b. Inducing and judging conclusions
   c. Predicting probable consequences

Source: Based on Robert H. Ennis, "A Logical Basis for Measuring Critical Thinking," *Educational Leadership* (October 1985), p. 46.

Sternberg seeks to foster many of the same intellectual skills, albeit in a very different way. He points out three mental processes that enhance critical thinking: (1) *meta components*—higher-order mental processes used to plan, monitor, and evaluate action; (2) *performance components*—the actual steps or strategies taken; and (3) *knowledge-acquisition components*—processes used to relate old material to new material and to apply and use new material.[95] Sternberg does not outline "how" as Lipman does; rather, he provides general guidelines for developing or selecting a program.

Some educators, including most phenomenologists and humanistic theorists, contend that teaching a person to think is like teaching someone to swing a golf club; it involves a holistic approach, not a piecemeal effort, as implied by Ennis, Lipman, and Sternberg. According to two critics, "Trying to break thinking skills into discrete units may be helpful for diagnostic proposals, but it does not seem to be the right way to move in the teaching of such skills." Critical thinking is too complex a mental operation to divide into small processes; the approach depends on "a student's total intellectual functioning, not on a set of narrowly defined skills."[96]

The method's own proponent has voiced the major criticism. Sternberg cautions that the kinds of critical-thinking skills we stress in schools and the way we teach them fail to prepare students "for the kinds of problems they will face in everyday life."[97] Furthermore, critical-skills programs that stress "right" answers based on "objectively scorable" test items are removed from real-world relevance. Most problems in real life have social, economic, and psychological implications. They involve interpersonal relations and judgments about people, personal stress and crisis, and dilemmas involving choice, responsibility, and survival. How we deal with illness, aging, or death—or with simple things like starting new jobs or meeting new people—has little to do with the way we think in class or on critical-thinking tests. But they are important matters. By stressing cognitive skills in classrooms and schools, we ignore life's realities.

CREATIVE THINKING. Standardized tests do not always accurately measure creativity; in fact, we have difficulty agreeing on what creativity is. There are many types of creativity—visual, musical, scientific, manual, and so on—yet we tend to talk about creativity as one thing. Creative students often puzzle teachers. They are difficult to characterize; their novel answers frequently seem threatening to teachers, and their behavior often deviates from what is considered normal. Sometimes teachers discourage creativity and punish creative students. Curriculum specialists also tend to ignore them in their curriculum plans (subject matter or course descriptions, subject guides, and subject materials and activities) because they represent only a small proportion (about 2 to 5 percent, depending on the definition of *creativity*) of the student population. Also, curriculum specialists have little money earmarked for special programs and for personnel for creative students. Frequently, educators lump creative children with highly intelligent or gifted children, even though high intelligence and high creativity are not necessarily related, and there are many types of creative children.

There is agreement that creativity represents a quality of mind: It is composed of both a cognitive and a humanistic component in learning; although no one agrees on the exact mix, creativity is probably more cognitive than humanistic. Its essence is its novelty; hence, we have no standard by which to judge it. The individual creates primarily because creating is satisfying and because the behavior or product is self-actualizing. (This is creativity's humanistic side, even though the process and intellect involved in creating are cognitive.) Eric Fromm defines the *creative attitude* as (1) the willingness to be puzzled—to orient oneself to something new without frustration, (2) the ability to concentrate, (3) the ability to experience oneself as a true originator of one's acts, and (4) the willingness to accept conflict and tension caused by the climate of opinion or intolerance of creative ideas.[98]

What are the effects of school and classroom climates on creativity? A number of pioneering studies have been made that have implications for teachers. The best-known cross-cultural study, by E. P. Torrance, investigated the ratings of elementary and secondary teachers using 62 statements to describe their concept of the "ideal" creative personality.[99] From 95 to 375 teachers of each of the following countries were sampled: the United States, Germany, India, Greece, and the Philippines.

Although the data are more than 50 years old, the results are still considered relevant today—with implications for technology, innovation, and globalization. For example, the United States and Germany (technologically developed countries) both encourage independent thinking, industriousness, and curiosity. India lists curiosity and the Philippines list industriousness; otherwise, these traits do not appear important in the less developed countries. Greece and the Philippines reward remembering, which connotes convergent thinking, but for many American researchers, this type of thinking is considered anticreative. All the countries, or at least their teachers, put great stress on being well liked, considerate of others, and obedient. This is especially true of the less developed nations.

Robert Sternberg identifies 6 attributes associated with creativity from a list of 131 mentioned by U.S. laypeople and professors in the arts, science, and business: (1) lack of conventionality, (2) integration of ideas or things, (3) aesthetic taste and imagination, (4) decision-making skills and flexibility, (5) perspicacity (in questioning social norms), and (6) drive for accomplishment and recognition.[100] He also makes important distinctions among creativity, intelligence, and wisdom. Creativity overlaps more with intelligence ($r = 0.55$) than with wisdom ($r = 0.27$); creativity emphasizes imagination and unconventional methods, whereas intelligence deals with logical and analytical absolutes. Wisdom and intelligence are most closely related ($r = 0.68$) but differ in emphasis on mature judgment and use of experience with different situations.

All three types of people—creative, intelligent, and wise—can solve problems, but they do so in different ways. Creative people tend to be divergent thinkers, and teachers must understand that creative students go beyond the ordinary limitations of classrooms and schools and think and act in unconventional and even imaginary ways. Intelligent people rely on logic and have good vocabularies and stores of information. Such students tend to be convergent thinkers and score high on conventional tests. Few students exhibit wisdom because this comes with age and experience. Nonetheless, mature students show good judgment, make expedient use of information, and profit from the advice of others and their own experiences. They "read between the lines" and have a good understanding of peers and adults (including their teachers). They usually exhibit cognitive intelligence, what we might call "traditional intelligence," and social intelligence, what we might call "people skills."

For teachers, the definition of creativity comes down to how new ideas originate. We are dealing with logical, observable processes and with unconscious, unrecognizable processes. The latter processes give teachers trouble in the classroom and sometimes lead to misunderstandings between teachers and creative students. For some students, the methods of Edison and Einstein seem appropriate—theoretical, deductive, and developmental. For others, creativity may correspond more closely to the insights and originality of Kafka, Picasso, or Bob Dylan.

Creative thinking is not a one-dimensional process; instead it is an aspect of the total personality of someone who relishes new ways of observing the world. This type of thinking encourages imagination, which encourages more creative thinking. Imagination, as Maxine Greene notes, stimulates a "wide-awakeness," an awareness of what it means to be present in the world.[101] Such awareness fosters playfulness in which students manipulate objects and thoughts in "fun" ways. This manipulation triggers a curiosity in students as creative thinkers. Having fun with new or differently considered ideas, thoughts, and objectives brings out humor—the ability to be amused by a situation. Being playful with "things" in actual or imagined environments stimulates flexibility of thought and process. Very creative thinkers can shift from reality to fantasy, from the serious to the sublime, from the immediate to the distant, and from fact to metaphor.[102] Others are adept at making large mental leaps that the average person cannot follow or fully fathom.

Innovation and Technology

Neuroscience research demonstrates that technology affects the brain. If so, it leads to the question: Does technology affect creativity and innovation? Perhaps so, but just how much is hard to say. There does appear to be some indirect effect, at the very least. The more time children spend in

front of a screen (whether it is a TV, laptop, tablet, or smartphone), the less they spend on traditional "play," where they actively invent scenarios. Experts agree that play, in general, is fundamental to creative thinking,[103] and that technology may not provide the full sensorial experience. The fear is that children will lose their creativity as they spend more time immersed in digital technology. More research is needed, however, to reveal the direct connection between technology and creativity.

Despite these concerns, many researchers believe technology can improve certain skills. It helps the brain process new ideas quickly to improve their reasoning and decision-making process, which can facilitate innovation. As neuroscientist Gary Small suggested, searching on Google is in fact making us smarter.[104]

In many ways, innovation and technology appear to go hand in hand, especially in certain U.S. urban hubs such as Boulder, San Jose (home of Silicon Valley), San Francisco, Austin, and Boston. These cities house many high-tech start-ups, biotechnology firms, pharmaceuticals, and members of what Richard Florida refer to as the "creative class." He believes these cities and metro areas are key economic and social organizing units of the Creative Age.[105] Companies must build a "people" climate that attracts the diverse human talents to drive true prosperity. Innovation requires diversity, as he wrote, and technology facilitates it. Without it, companies will go outside the United States to save taxes and open new plants in emerging countries as they hunt for new markets. Retaining the U.S. innovative edge requires that it leverages the diversity of its students.

Cognition and Curriculum

Most curriculum specialists, and learning theorists and teachers, are cognitive oriented because (1) the cognitive approach constitutes a logical method for organizing and interpreting learning, (2) the approach is rooted in the tradition of subject matter, and (3) educators have been trained in cognitive approaches and understand them. As previously mentioned, even many contemporary behaviorists incorporate cognitive processes into their theories of learning. Because learning in school involves cognitive processes, and because schools emphasize learning's cognitive domain, it follows that most educators equate learning with cognitive developmental theory.

The teacher who has a structured style of teaching would prefer the problem-solving method, based on reflective thinking or the scientific method. Most curricularists are cognitive oriented in their approach to learning, but we believe that this learning model is incomplete and that something gets lost in its translation to the classroom. For example, we believe that many schools are not pleasant places for all learners and that the "quality of life" in classrooms can be improved. Much of the current teaching-learning process still has teachers predominantly talking and students mostly responding to the teachers. The workbook and textbook continue as the main sources of instruction.

Curriculum specialists must understand that school should be a place where students are not afraid to ask questions, be wrong, take cognitive risks, and play with ideas. With all our cognitive theory, we might expect students to want to learn and know how to learn; but we observe, both in the literature and in schools, that after a few years of school, most students have to be cajoled to learn and have learned how not to learn. So-called successful students become cunning strategists in a game of beating the system and figuring out the teacher. Schools should be places where students can fulfill their potential, "play" with ideas, and not always be right in order to be rewarded by the teacher.

■ PHENOMENOLOGY AND HUMANISTIC PSYCHOLOGY

Traditional psychologists do not recognize phenomenology or humanistic psychology as a school of psychology, much less a wing or form of psychology. They contend that most psychologists are humanistic because they are concerned with people and with bettering society. Moreover, they claim that the label *humanism* should not be used to mask generalizations based

on little knowledge and "soft" research. Nonetheless, some observers have viewed phenomenology, sometimes called *humanistic psychology,* as a "third force" learning theory—after behaviorism and cognitive development. Phenomenology is sometimes considered a cognitive theory because it emphasizes the total person. However, the differences between learning cognitive and affective aspects have led us to separate these domains.

The most obvious contrast with behaviorism's mechanistic, deterministic view is the phenomenological version of learning, illustrated by individual self-awareness of an "I" who has feelings and attitudes, experiences stimuli, and acts on the environment. We possess some sense of control and freedom to produce certain conditions in our environment. When we speak of this awareness of control, we are speaking of the self. The study of immediate experiences as one's reality is called *phenomenology* and is influenced by, and perhaps even based on, an existentialist philosophy. Most phenomenological ideas derive from clinical settings; nevertheless, educators are becoming aware that they have implications for the classroom.

Phenomenologists point out that the way we look at ourselves is basic for understanding our behavior. Our self-concept determines what we do, even to what extent we learn.[106] If people think they are dull or stupid, that self-concept influences their cognitive performance.

Gestalt Theory

Phenomenologist ideas are rooted in early field theories and field-ground ideas, which view the total person in relationship to his or her environment, or "field," and his or her perception of this environment. Learning is explained in terms of the *whole* problem. People do not respond to isolated stimuli, but to a pattern of stimuli.

Field theories derive from Gestalt psychology of the 1930s and 1940s. The German word *Gestalt* means shape, form, and configuration. In the context of Gestalt theory, stimuli are perceived in relation to other stimuli within a field. What people perceive determines the meaning they give to the field; likewise, their solutions to other problems depend on their recognition of the relationship between individual stimuli and the whole.[107] This relationship is considered the *field-ground* relationship, and how the individual perceives this relationship determines behavior. Perception alone is not crucial to learning; rather, the crucial factor is structuring and restructuring field relationships to form evolving patterns.

On this basis, learning is complex and abstract. When confronted with a learning situation, the learner analyzes the problem, discriminates between essential and nonessential data, and perceives relationships. The environment continuously changes, and the learner continuously reorganizes his or her perceptions. In terms of teaching, learning is conceived as a process of selection by the student. Curriculum specialists must understand that learners perceive something in relation to the whole; what they perceive and how they perceive it is related to their previous experiences.

Maslow: Self-Actualizing Individuals

Abraham Maslow, a well-known phenomenologist, set forth a classic theory of human needs. Based on a hierarchy, and in order of importance, the needs are as follows:

1. *Survival needs:* Those necessary to maintain life—needs for food, water, oxygen, and rest
2. *Safety needs:* Those necessary for routine and the avoidance of danger
3. *Love and belonging needs:* Those related to affectionate relations with people in general and to a place in the group
4. *Esteem needs:* Those related to receiving recognition as a worthwhile person
5. *Knowing and understanding needs:* Those more evident in people of high intelligence than those of limited intelligence, a desire to learn and organize intellectual and social relationships
6. *Self-actualization needs:* Those related to becoming the best person one can be, to developing one's fullest potential[108]

These needs have obvious implications for teaching and learning. A child whose basic needs—say, love or esteem—are not filled will not be interested in acquiring knowledge of the world. The child's goal of satisfying the need for love or esteem takes precedence over learning and directs his or her behavior. To some extent, Maslow's ideas with classroom implications are based on Pestalozzi and Froebel, who believed in the importance of human emotions and a methodology based on love and trust.

Maslow coined the term *humanistic psychology,* which stresses three major principles: (1) centering attention on the experiencing person, thus focusing on experience as the primary phenomenon in learning; (2) emphasizing human qualities, such as choice, creativity, values, and self-realization, as opposed to thinking about people in mechanistic (or behavioristic) terms and learning in cognitive terms; and (3) showing ultimate concern for people's dignity and worth and an interest in learners' psychological development and human potential.[109]

The teacher's and curriculum maker's role in this scheme is to view the student as a whole person. The student is to be positive, purposeful, active, and involved in life experiences (not S-R or only cognitive experiences). Learning is to be a lifelong educational process. Learning is experimental, its essence being freedom and its outcome full human potential and reform of society.

For Maslow, the goal of education is to produce a healthy, happy learner who can accomplish, grow, and self-actualize. Learners should strive for, and teachers should stress, student self-actualization and its attendant sense of fulfillment. Self-actualizing people are psychologically healthy and mature. Maslow characterized them as (1) having an efficient perception of reality; (2) being comfortable with themselves and others; (3) not being overwhelmed with guilt, shame, or anxiety; (4) relatively spontaneous and natural; and (5) problem- rather than ego-centered.[110]

Rogers: Nondirective and Therapeutic Learning

Carl Rogers, perhaps the most noted phenomenologist, established counseling procedures and methods for facilitating learning. His ideas are based on those of early field theorists and field-ground theories. According to Rogers, reality is based on what the individual learner perceives: "Man lives by a perceptual 'map' which is not reality itself."[111] This concept of reality should make the teacher aware that children differ in their level and kind of response to a particular experience. Children's perceptions, which are highly individualistic, influence their learning and behavior in class, for example, whether they see meaning or confusion in what is being taught.

Rogers views therapy as a learning method to be used by the curriculum worker and teacher. He believes that positive human relationships enable people to grow; therefore, interpersonal relationships among learners are as important as cognitive scores.[112] The teacher's role in nondirective teaching is that of a facilitator who has close professional relationships with students and guides their growth and development. The teacher helps students explore new ideas about their lives, their schoolwork, their relationships, and their interaction with society. The counseling method assumes that students are willing to be responsible for their own behavior and learning, that they can make intelligent choices, and that they can share ideas with the teacher and communicate honestly as people who are confronted with decisions about themselves and about life in general.

The curriculum is concerned with process, not products; personal needs, not subject matter; psychological meaning, not cognitive scores; and changing environments (in terms of space and time), not predetermined environments. Indeed, there must be freedom to learn, not restrictions or preplanned activities. The environment's psychological and social conditions limit or enhance a person's field or life space. A psychological field or life space is a necessary consideration in the curriculum, and everything that is taking place in relation to a specific learner at a given time gives meaning to the field and eventually to learning (see Table 4.2).

Table 4.2 | Overview of Major Learning Theories and Principles

Psychologist	Major Theory or Principle	Definition or Explanation
Behaviorist		
Thorndike	Law of Effect	When a connection between a situation and a response is made, and it is accompanied by a satisfying state of affairs, that connection is strengthened; when accompanied by an annoying state of affairs, the connection is weakened.
Pavlov, Watson	Classical conditioning	Whenever a response is closely followed by the reduction of a drive, the tendency is for the stimulus to evoke that reaction on subsequent occasions; association strength of the stimulus-response bond depends on the conditioning of the response and the stimulus.
Skinner	Operant conditioning	In contrast to classical conditioning, no specific or identifiable stimulus consistently elicits operant behavior. If an operant response is followed by a reinforcing stimulus, the strength of the response is increased.
Bandura	Observational learning	Behavior is best learned through observing and modeling. Emphasis is placed on vicarious, symbolic, and self-regulatory processes.
Gagné	Hierarchical learning	Eight behaviors or categories are based on prerequisite conditions and cumulative stages of learning.
Cognitive		
Montessori	Structured play	Instructional emphasis of visual and auditory activities; children learn at different rates.
Piaget	Cognitive stages of development	Four cognitive stages form a sequence of progressive mental operations; the stages are hierarchical and increasingly more complex.
	Assimilation, accommodation, and equilibration	The incorporation of new experiences, the method of modifying new experiences to derive meaning, and the process of blending new experiences into a systematic whole.
Vygotsky	Theory of language and cultural transmission	Learning involves human development (and potential) as well as cultural development (or environments shaped by beliefs and behaviors of previous generations).
Bruner, Phenix	Structure of a subject	The knowledge, concepts, and principles of a subject; learning how things are related is learning the structure of a subject; inquiry-discovery methods of learning are essential.
Gardner	Nine multiple intelligences	This is a cross-cultural, expanded concept of what is intelligence—such areas as linguistics, music, logical-mathematical, spatial, body-kinesthetic, and personal.
Guilford	120 potential cognitive processes	This involves a three-dimensional model (6, 5, 4) of intelligence called the *structure of intellect.*
Ennis, Lipman, Sternberg	Critical thinking	This involves teaching students how to think, including forming concepts, generalizations, cause-effect relationships, inferences, consistencies and contradictions, assumptions, analogies, and the like.
Feuerstein	Malleability of intelligence, theory of structural cognitive modifiability, and mediated learning experience	Intelligence can be modified and improved through mediated learning experiences to systematically develop students' cognitive and metacognitive function.
Humanistic		
Maslow	Human needs	Six human needs are related to survival and psychological well-being; the needs are hierarchical and serve to direct behavior.
Rogers	Freedom to learn	Becoming a full person requires freedom to learn; the learner is encouraged to be open, self-trusting, and self-accepting.
Goleman	Social and emotional learning (SEL)	Progress or success depends in large part to awareness and understanding of one's emotions (intrapersonal) as well as those of other people (interpersonal)
Seligman	Positive psychology and well-being	One's well-being relates to his or her ability to cultivate talent, build lasting relationships, feel pleasure, and contribute meaningfully.

Social and Emotional Intelligence

Most people, psychologists included, think of humans as highly rational. For most educators, attention to student learning has centered on the rational mind. When we think of intelligence, we tend to think of intellect, or IQ. However, as Daniel Goleman notes, ignoring humans' social or emotional side is shortsighted.[113]

Educators often urge students to "stick to the facts" and "be logical." However, it is more important to remember that students' feelings color their view of a topic, including their willingness to consider evidence. Emotions strongly influence how we treat information and even construct meaning. Empathy and other interpersonal abilities can significantly determine one's success in his or her professional and personal life.

Goleman notes that the root of the word *emotion* is *motere,* Latin for "to move." Emotions can drive action, as is especially clear in young children. As adults, we tend to prize reason over emotion and think of the latter as negative or dysfunctional. However, as more individuals recognize the impossibility of reason completely divorced from emotion, there is increasing focus on social and emotional intelligence, which has spawned growing support for social and emotional learning (SEL) in schools, particularly those with at-risk student populations who do not receive much of this at home.

In his 1985 book *Frames of Mind*, Gardner suggested that people possess a wide spectrum of intelligence. He noted that people possess a personal-social intelligence and spoke of inter- and intrapersonal intelligence. *Interpersonal intelligence* refers to the ability to understand other people: what makes them tick, how they work, and how we can work with them. *Intrapersonal intelligence* is a correlative ability. Individuals with this ability possess or develop an accurate sense of self and can use that understanding to operate effectively in life.[114]

Yale psychologist Peter Salovey outlined the ways in which individuals can bring intelligence into their emotional realm. Salovey has taken Gardner's personal intelligences and generated five main domains that expand these abilities. The first domain is *self-awareness.* Here the focus is on a person's recognizing an emotional response as it happens and realizing how it affects his or her functioning. The second domain is *managing emotions.* This relates to learning beneficial ways to handle emotions. People skilled in this domain experience less stress and can process life's ups and downs with skill. The third domain is *motivating oneself,* realizing that a person must have the energy and will to act. The fourth domain is *recognizing emotions in others.* Many people act as if they are the only ones with feelings. People need to possess empathy, to be attuned to others' emotions, for effective social relations. The fifth domain, *handling relationships,* relates to those understandings and skills that enable us to respond to and manage emotions in others. Those skilled in this domain possess interpersonal effectiveness.[115]

Certainly, these five domains are not absolute, nor are they really separate from rational abilities. However, we must recognize that people differ in their emotional abilities, which are flexible. We can educate people and people can educate themselves in ways that address their emotional intelligence. Developing this intelligence is essential: The challenges to our society seem to be in social interactions as well as in technology.[116]

Positive Psychology and Mindsets

Martin Seligman has been associated with the "positive psychology" movement in the 1990s that focused on strengths rather than weaknesses. He believed that engagement, relationships, meaning, and accomplishment are important to happiness and that it is not the result of genes or luck.[117] However, happiness comprises only part of a "good life." Improving one's well-being is even more important, since one's happiness may infringe on others' happiness. As such, he found that the ability to cultivate talent, build lasting relationships, feel pleasure, and contribute meaningfully—what he referred collectively as *flourishing*—was critical.[118] In many ways, it starts with an optimistic mindset, which can be cultivated.

Researchers and educators have come to embrace the idea that one can modify or improve his or her character and intelligence. Psychologist Carol Dweck, in particular, found that, regardless of the facts on their malleability, students perform significantly better if they believe character and intelligence are malleable. Furthermore, she has shown that children can change from a "fixed mindset" to a "growth mindset," with the right kinds of intervention.[119] High-performing charter schools like those from the KIPP network have adopted this approach, as well as those of positive psychology, to teach at-risk student populations to succeed.

Phenomenology and Curriculum

Phenomenologists view individuals in relation to the fields in which they operate. In this, phenomenologists have much in common with constructivists. But what determines behavior and learning is mainly psychological. The individual's experiences are accessible to others only through inferences; thus, such data are questionable scientific evidence. But to the phenomenologist, the raw data of personal experiences are vital to understanding learning. Perhaps the data cannot be measured accurately and perhaps they are vague, but they are "out there." The definitions and the processes are also subjective and evaluative rather than precise and substantive. Besides the concept of humanistic psychology, the subject matter of phenomenology can be used synonymously with many other concepts, including existentialist psychology, neoprogressivism, creativity, love, higher consciousness, valuing, transcendentalism, psychological health, ego identity, psychoanalysis—almost anything that suggests maximum self-fulfillment, self-actualization, and self-realization.[120]

Although this umbrella aspect of phenomenology makes it difficult to provide a clear, agreed-on definition of the term, the same broadness makes the concept acceptable to educational reformers of various psychological orientations. The fact that phenomenology means different things to different people is one reason for its easy acceptance, but it is also a basis for criticism. Nonetheless, phenomenologists attempt to rescue learning theory from the narrow and rigid behaviorists and from overstress on cognitive processes.

MOTIVATION AND ACHIEVEMENT.   As previously mentioned, phenomenologists seek to understand what goes on inside us—our desires, feelings, and ways of perceiving and understanding. Although cognitive functions are recognized by theorists, teachers and schools must first commit to dealing with the learners' social and psychological factors. Frustrated or upset students learn very little; they resist, withdraw, or act out their problems. Students' needs must be satisfied. Similarly, self-esteem and self-concept must be recognized as essential factors in learning. Without good feelings about themselves and without curiosity or motivation, there is little chance for continual cognitive (or even psychomotor) learning. Learners must feel confident about performing the skill or task required, be eager to learn, and feel that what they are being asked to perform is psychologically satisfying. This applies to learning the ABCs or to simple or complex problems.

We must reform schools not by changing the length of the school day or year, changing the amount of homework, or beefing up the curriculum, but by making school more satisfying to students and more consistent with their interests so that they gain a sense of power, fulfillment, and importance in the classroom. When we learn to deal with learners' psychological requirements, and when we become sensitive to what makes them want to learn, we can then focus on what they must learn. *Affective needs are more important than cognitive needs.* Similarly, solutions to the problems of discipline and achievement are based primarily on making students feel someone listens to them, thinks about them, cares about them, and feels that they are important.

The humanistic approach to learning involves a certain amount of warmth, genuineness, maturity, and concern for people, in our case children and youth. The focus is not on academic achievement, but on the whole child—on his or her social, psychological, physical, and cognitive needs. Progressive educators are likely to adopt many of the phenomenologists' theories,

without even knowing that they are, because many of these ideas coincide with classic progressive thinking from Pestalozzi and Froebel to Parker and Washburne.

In the final analysis, learning in school occurs in groups with a formalized curriculum (although some might argue that there is also an informal or hidden curriculum). The child is but one learner among as many as 30 students, all needing some attention and following a text that usually promotes passivity, not activity. Everything in and around us competes for our attention. When we pay attention to something, it usually means we are not paying attention to something else. All of us, including our students, must choose how we dispense our attention and time. When attention wanders or when students cannot focus on their tasks, this means that the tasks are too complex or that there is some kind of sociopsychological problem.

The question that arises, then, is how curriculum workers, especially teachers, can motivate students to pay attention to long division problems or Shakespearean sonnets when youngsters are being bombarded by a host of needs, interests, and feelings that compete for their attention and time. How can we better incorporate students' needs, interests, and feelings into the teaching-learning process?

As educators, we must support and nurture various learning opportunities; recognize several different domains of learning (not only cognitive domains); and provide rewards, or at least recognition, for various forms and levels of achievement, including effort, improvement, imagination, intuition, individuality, vitality, enthusiasm, and maturity—all of which have little to do with standard achievement scores but are important for enhancing personal wholeness and society.

THE CONCEPT OF FREEDOM.   Personal freedom is another important issue in phenomenology or humanistic psychology. One of the early humanistic psychologists put it this way: "I think people have a great deal more freedom than they ever use, simply because they operate out of habits, prejudices, and stereotypes. . . . [T]hey have a lot more self-determinism than is reflected in the traditional . . . view of humans as reactive beings. . . . [W]e have more freedom than most of today's psychology admits."[121]

The idea of freedom is at the center of Rogers's learning theory. The more children and youth are aware of their freedom, the more they can discover themselves and develop fully.[122] Freedom permits learners to probe, explore, and deepen their understanding of what they are studying. It permits them latitude to accomplish goals, find the fit between goals and achievements and past learning and new learning, and find the direction for additional learning. Freedom broadens the learners' knowledge of alternative ways of perceiving themselves and the environment.

Freedom was the watchword of the radical school, free school, and alternative school movements of the 1960s and 1970s, and it was part of the educational choice, charter, and private school movements of the 1980s and 1990s. These movements increase possibilities for learning and schooling and for enhancing school environments to match the diversity of learners' needs, feelings, attitudes, and abilities. The free school, alternative school, and radical school movements overlap; they were fueled by child-centered education and humanistic psychology. Even though their proponents protested against established teaching and school practices, they never were able to develop a detailed plan for reform.

Unquestionably, curricularists must enhance students' opportunities and alternatives for learning without lessening teachers' authority. They must strive for the "golden mean": student freedom without license, and teacher authority without control. The idea is to design a curriculum that helps learners realize their full potential in a behavioral, cognitive, and humanistic sphere of learning.

IN SEARCH OF A CURRICULUM.   Because each individual has specific needs and interests related to self-fulfillment and realization, there is no generally prescribed humanistic curriculum. Rather, the learners draw on those experiences, subject matter, and intellectual skills necessary

to attain full potential. The humanities and arts, especially philosophy, psychology, and aesthetics, are appropriate content because they further introspection, reflection, and creativity. A curriculum of affect, one that stresses attitudes and feelings, is also acceptable. Appropriate labels might be *relevant curriculum, humanistic curriculum, value-laden curriculum,* or *existentialist curriculum.*

According to phenomenologists, the student has a right to reject the teacher's interpretation of subject matter. In their view, it is important that the student–teacher relationship be based on trust and honesty so that the student knows when the teacher's ideas of a subject are wise and deserve respect. To phenomenologists, student choice is crucial—the power to decide what to do and how to do it, a sense of control over his or her ideas and work. School routine and rules should be minimal; learners should be left alone to do what they want to do, as long as it does not harm or endanger anyone. Frequent evaluation, criticism, and competition are not conducive to learning. The essence of many recent instructional trends, such as academic time, direct instruction, and mastery learning (which stress prescribed behaviors and tasks, well-defined procedures and outcomes, and constant drill and testing), are rejected as narrow, rigid, and high pressure.

Most reconceptualists accept the phenomenologist-humanistic interpretation of learning because both these curricularists and learning theorists value the uniqueness of human personality. Both groups prefer classrooms characterized by freedom, an existential educational experience, and subjects in the humanities and arts, not the hard sciences. Reconceptualists tend to approve this learning theory because it rejects the rational means-ends approach, the processes that the traditional, or hard, curricularists follow. Instead of presenting empirical data to justify the means, phenomenologists and reconceptualists rely on psychological and philosophical positions for validating proposed ends.

When asked to judge the effectiveness of their curriculum, both phenomenologists and humanists (like reconceptualists) rely on testimonials and subjective assessments by students and teachers. They may also present such materials as students' paintings, poems, interviews, reports, biographies, and projects, or talk about improvement in student behavior and attitudes.[123] However, they present very little empirical evidence or few student-achievement scores to support their stance. Moreover, phenomenologists do not agree about how to teach self-actualization, self-determination, human striving, and so on. Nor do they agree about how to determine what subject matter is worthwhile; how to mesh the paintings, poems, and personal biographies with learning outcomes; and how to test or confirm many of their ideas.

There is great need to examine and construct a relevant, humanistic curriculum and to enhance the self-actualizing, self-determining learning processes. However, until the previously described issues are resolved, we will continue to flounder in the phenomenologist area of learning. Those who trust the behavioral, or cognitive developmental, process in teaching and learning or the traditional, or scientific, spirit in curriculum making will continue to distrust the "third force" in psychology and the "soft" approach to curriculum.

Conclusion

In general, learning can be examined in terms of three major theories: behaviorism, cognitive development, and phenomenology. We believe that change is occurring within the three major camps in psychology. Behaviorism is the oldest theory of learning and is being transformed into several current teaching-learning models, such as individualized learning, direct instruction, and mastery learning. We also explored the difference between classical and operant conditioning: Traditional behavior is related to elicited responses (a well-defined stimulus-response association), and operant behavior is related to emitted response (no well-defined stimulus-response association). Cognitive developmental theory represents the second theory of learning, which has developed rapidly since the 1950s. This corresponds with the increasing influence of Piaget and Vygotsky and the growing explanation of environment (as opposed to heredity) as an explanation of cognitive

growth and development. Cognitive learning theory is conducive to thinking among humans, including critical thinking, creative thinking, and intuitive thinking. Phenomenology, or humanistic, psychology can be considered the third and most recent learning theory. Its emphasis is on attitudes and feelings, self-actualization, motivation, and freedom to learn.

Each theory of learning is incomplete by itself, but all three theories have something to contribute to explain various aspects of behavior and learning in classrooms and schools. Readers should come to their own conclusions about what aspects of each theory they can use for their own teaching and curriculum development. Table 4.2 should help in this activity.

Discussion Questions

1. How did Skinner apply operant conditioning to classrooms? What is behavior modification?
2. Describe Piaget's four stages of cognitive development.
3. Why was Maria Montessori considered a psychological pioneer in cognition?
4. In what ways can addressing emotional intelligence be justified in the curriculum?
5. What are the ways that social class may influence a child's learning capabilities and academic experiences?

6. What is the impact of technology on the brain and on learning? How do you think social media changes the way children and adolescents develop?
7. Why does phenomenology appeal to educational reformers of various psychological orientations? How can phenomenology be applied to the field of curriculum?
8. In what ways do psychological foundations enable curriculum workers (teachers, supervisors, and curriculum developers) to perform their educational responsibilities?

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Social Foundations of Curriculum

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Explain the difference between *education* and *schooling*

2. Define *developmental task* and articulate why it is important for youths to learn these tasks

3. Identify the main content areas essential for moral teaching

4. Explain the difference between moral character and performance character

5. Discuss why the culture of the school often disengages students, especially those who are academically behind

6. Explain the power of peer groups over authority figures during adolescence

7. Discuss how peer, racial, and income groups might affect school achievement and performance

Any discussion of curriculum should consider the social setting, especially the relationship between schools and society and how that relationship influences curriculum decisions. Social astuteness is essential for curriculum planners and developers. Curriculum decisions take place in complex social settings, through demands that society imposes and that filter down to schools. Indeed, curriculum workers must consider and use social foundations to plan and develop curricula.

■ SOCIETY, EDUCATION, AND SCHOOLING

Education can be used for constructive or destructive ends, to promote one type of political institution, or *ism,* or another. The kind of education our young receive determines the extent of freedom and equality within our society. The transmission of culture is the primary task of society's educational system. Society's values, beliefs, and norms are maintained and passed to the next generation not merely by teaching about them, but also by embodying them in the educational system's very operation.

For Dewey, education perpetuates and improves society by properly organizing learners' experiences. It is "a primary responsibility of educators . . . [to] be aware of the general principle of the shaping of actual experiences by environing conditions" and to understand "what surroundings are conducive to having experiences that lead

to growth." For Dewey, experience must be channeled properly, "for it influences the formation of attitudes of desire and purpose."[1] It is up to educators, particularly those in charge of subject matter, to judge which content and activities (what Dewey calls *experiences*) enhance individual personal and social growth and improve society, and which do not (those he calls *miseducative*).

Most of us regard education as synonymous with schooling. Even a society without schools educates its young through the family or special ritual and training. "Schooling plays a major role in education in modern industrial [societies]"; it becomes more important as societies become "more complex and as the frontiers of knowledge expand. In simple, nontechnological societies, almost everyone becomes proficient over the whole range of knowledge necessary for survival." In technological societies, "people acquire different proficiencies and abilities; no individual can range over the entire body of complex knowledge or expect to be proficient in all areas of learning."[2]

In traditional and illiterate societies, education is processed through ceremonies, rituals, stories, observation and emulation of older children and adults, and strictly enforced codes of conduct and behavior. In modern and technological societies, the educational process starts at home, but "school takes on greater importance as the child becomes older." The school is a vital institution "for helping the young acquire systematic knowledge," inculcating them with the proper attitudes and values, and "bonding the gap between generations." In contemporary society, the mass media also play a major role in processing knowledge and "redefining values and ideas."[3]

Schools serve a modern society by educating its children and youth. The curriculum worker who helps determine education's content, activities, and environment plays a major role in shaping and indirectly socializing students.

Society and Modal Personality

When social scientists speak of *modal personality,* they do not mean that all members of a particular society are exactly alike. As Ruth Benedict wrote, "No culture yet observed has been able to eradicate the differences in temperament of the persons who composed it."[4] However, members of a society do have much in common; they are nursed or fed on schedule, toilet trained a certain way, and educated in similar fashion. They marry one or several spouses; live by labor or perform common economic tasks; and believe in one God, many deities, or no deities. These shared experiences temper individual differences so that individuals behave in similar ways. According to Benedict, society's norms govern interpersonal relations and produce a modal personality—the attitudes, feelings, and behavior patterns most members of a society share. In a study of the U.S. modal personality, anthropologist Margaret Mead stressed that the United States offers unlimited opportunity. Whether or not this is true, the belief that anyone can become president, which is reinforced by our notion of equal opportunity, places a heavy burden on most U.S. residents. By implication, those who do not become president (or a doctor, lawyer, engineer, or corporate executive) have shirked their "moral responsibility to succeed."[5] Most other people in the world blame poverty, fate, or the government for personal failure. Most Americans tend to blame themselves.

Whereas European parents usually raise their children to carry on family traditions, first- and second-generation American parents want their children to leave home for better lives. U.S. residents tend to evaluate their self-worth according to how high they have climbed above their parents' status and how they compare with their friends and neighbors. At no point do Americans feel they have truly "arrived"; the climb is endless but within reach, and it is very much a part of the American value system and the nature of our schools and the traditional curriculum.

Social and Developmental Theories

A number of theories focus on global aspects of human growth and development. Because they emphasize the study of behavior as a totality, starting with infancy, they combine Gestalt

psychology with socialization. Developmental theories address the cumulative effects of change that occur as a consequence of learning or failing to learn appropriate tasks during the critical stages of life. Failure to learn a task at a given stage of development tends to have detrimental effects on the developmental sequence that follows.

Development proceeds through a rather fixed sequence of relatively continuous stages, and it is assumed that maturation and appropriate societal experiences are necessary to move the individual from stage to stage. Shifts from one stage to the next are based not only on age but also on variations in the amount and quality of social experiences an individual accumulates over long periods.

Robert Havighurst identified six periods in human development: (1) infancy and early childhood, (2) middle childhood, (3) adolescence, (4) early adulthood, (5) middle age, and (6) late maturity. Developmental tasks are defined as "the tasks the individual must learn" for purposes of "healthy and satisfactory growth in our society." A person must learn them to be reasonably happy and successful. "A developmental task is a task that occurs at a certain stage or period in the life of that individual. Successful achievement . . . leads to happiness and to success with later tasks, while failure leads to unhappiness, disapproval by the society, and difficulty with later tasks."[6]

A youngster's schooling is concerned with the developmental tasks of early childhood and the next two periods of life. The tasks are as follows:

1. Early childhood
   a. Forming concepts and learning language to describe social and physical reality
   b. Getting ready to read
   c. Learning to distinguish right from wrong and beginning to develop a conscience
2. Middle childhood
   a. Learning physical skills necessary for ordinary games
   b. Building wholesome attitudes about self
   c. Learning to get along with peers
   d. Learning appropriate male and female roles
   e. Developing fundamental skills in reading, writing, and mathematics
   f. Developing concepts for everyday living
   g. Developing morality and a set of values
   h. Achieving personal independence
   i. Developing (democratic) attitudes toward social groups and institutions
3. Adolescence
   a. Achieving new and more mature relations with peers of both sexes
   b. Achieving a masculine or feminine social role
   c. Accepting one's physique and using the body effectively
   d. Achieving emotional independence from parents and other adults
   e. Preparing for marriage and family life
   f. Preparing for a career
   g. Acquiring a set of values and an ethical system to guide behavior
   h. Achieving socially responsible behavior[7]

Although the Havighurst model is the best known, other models have been proposed to deal with student or adolescent needs. Havighurst uses the term *human* instead of *adolescent* to connote a wider range of ages and the term *tasks* instead of *needs* to suggest a solution, but the other models are just as comprehensive and balanced as Havighurst's. For example, Harry Giles outlined four "basic needs"—personal, social, civic, and economic—each of which has three to four subdivisions.[8] Florence Stratemeyer and her colleagues categorized 10 "areas of living" into three "life situations."[9] B. Othanel Smith and his colleagues classified 29 "adolescent needs" into six major social-personal classifications,[10] and Henry Harap outlined 30 "life activities" needed for successful human development.[11] The aforementioned authors were major

curriculum theorists of the mid-20th century who recognized the need for a developmental approach to teaching, learning, planning, and implementing the curriculum.

Different as these classification schemes are, they clearly show that many common topics of concern tend to be social in nature and include environmental, moral, civic, psychological, physical, and productive (or economic) dimensions of learning. This degree of agreement may be the best we can aim for in developing a student-needs approach to curriculum and teaching. All the models consider the *whole child,* as opposed to only cognitive learning; tend to stress *achievement* categories, that is, tasks or needs; recognize the concept of *readiness;* and focus on the *individual,* even though they refer to a person's social circumstances. Whereas the Havighurst model professes to be developmental and consists of a hierarchy of human needs called *tasks,* with no one curriculum emphasis, the other models tend to be organized around equally important student or adolescent needs and developed in context with a core curriculum and a social-issues curriculum. This does not mean that these models cannot be used for *all* curricula. All the models can be used as a framework for a needs-assessment plan, discussed in greater detail in Chapter 7.

The *needs-assessment* plan is rooted in the *student-needs* or *adolescent-needs* approach of the 1940s and 1950s. This plan evolved during the mid-1970s, when the federal government required such a plan before providing funding. This requirement has filtered down to state and local guidelines, and many curriculum workers have adopted the idea. Whereas the student-needs approach focuses on the learner, a needs assessment may not. A needs assessment can also include the needs of professional staff, school, parents, and community. The intent is to clarify a school district's aims and goals; the assessment is conducted because school officials believe there is room for improvement.

Changing American Society

David Riesman's *The Lonely Crowd* appeared in 1953; its central thesis coincided with the most important change shaping American culture: moving from a society governed by the imperative of production and savings to a society governed by technology and consumption. The character of the middle class was shifting, and Riesman conceptualized and described its change and new habits—from *inner-directed* people, who, as children, formed behaviors and goals (influenced by adult authority) that would guide them later in life, to *other-directed* people, who became sensitized to expectations and preferences of others (peer and mass media).[12]

The book was expected to sell a few thousand copies in college social science courses but wound up selling more than 1.5 million copies by 1995—making Riesman the best-selling sociologist in U.S. history.[13] For the next 25 years, *inner-directed* and *other-directed* ideas surfaced as popular conversation topics on college campuses and at cocktail parties in the West Villages, Harvard Squares, and Hyde Parks of the country. The ideas helped explain "flower power," Woodstock, and a new generation of middle-aged men and woman like Willy Loman (*Death of a Salesman*), Mrs. Robinson (*The Graduate*), and Beth Jarrid (*Ordinary People*).

Riesman formulated three major classifications of society in terms of how people think and behave: traditional, inner, and other directed. The *traditional-directed* character prevailed in a folk, rural, agrarian society. Primitive tribes, feudal-era Europe, and present-day third-world countries, especially isolated villages in Asia, Africa, and Latin America, are examples— although the Internet is likely to break down their isolation in terms of ideas and issues. Although these societies varied, they were and still are dominated by centuries-old tradition. Little energy was directed toward finding new solutions to age-old problems. Most tasks, occupations, and roles were substantially the same as they had been for countless generations past, and each was so explicit and obvious that it was understood by all. Each person knew his or her station in life (women were generally in second place, or worse, in terms of education and power), and each was obedient to tradition. In most cases, the individual was not encouraged to use initiative beyond the limits and defined position of society. Formal education was minimal, and socialization was reduced to rituals, storytelling, and preservation of old customs, beliefs, and norms.

The Renaissance, the Reformation, the Age of Enlightenment, and the commercial and Industrial revolutions ushered in discovery, innovation, change—and a new dynamism characterized by the landing of the pilgrims and America's Declaration of Independence (and the French Revolution), followed by America's 19th century westward expansion, Darwinist thinking, the Robber Barons, and early 20th century colonial expansion. Conformity to the past no longer dominated intellectual thinking or predetermined the behavior of men and women. Experimentation and progress (including American pragmatism and progressive educational thought) became important patterns of conduct and behavior. Within this shift came an *inner-directed society*, characterized by increased personal mobility, population shifts, growth and expansion, accumulation of wealth, exploration, and colonization. Tradition gave way to individual initiative; the strong survived and even conquered the weaker or more traditional societies.

The prevailing values of an inner-directed society also highlighted Puritan morality, the work ethic, individualism, achievement and merit, savings and future orientation, with the nuclear family and other adults (teachers, police officers, clergy, and so on) knowing best and influencing the behavior of children and youths. On a negative note, however, minorities were "invisible," out of sight and segregated; women were expected to be subservient to men and had few professional opportunities; and society was unaccepting of gays and lesbians.

Finally, *other-directedness* is the emergent character of U.S. society, evolving since the post–World War II period. It is the product of a social and cultural climate that has come to support and encourage teamwork, group integration, gregariousness, organizational behavior, and homogenized suburbs—and to disparage the individualism and independence of inner-directed virtues.

In the other-directed society, parents and other adults have less influence over children than they did in the inner-directed society, and adult knowledge is diminished relative to the child's knowledge. First television, and now the Internet and iPod, provide young people with access to information that was in the past mainly limited to adults; the information barrier between children and adults is increasingly shattered, or at least made porous, and in some cases the children know more about certain subjects than adults. The diminishing influence of adults mirrors the unraveling web of informal and formal supports for children, especially those in poverty. Some scholars are now calling for societies to return to a "village approach" to raising our children.[14]

Postmodern Society

Today, we live in a society where diversity and pluralism dominate discourse and challenge conventional norms and values transmitted by larger society, including the concepts of traditional family, church, and national sentiments. In *postmodern* society, according to David Elkind, language is used to "challenge universal and regular laws that govern the physical and social worlds" with which we are familiar.[15] For the past 400 years, universal principles (such as Newtonian physics) and rational thought (such as Descartes's reasoning) have guided and transformed our scientific and social thinking. Now, all these fundamental concepts are labeled as technological rationality and viewed as machine theory.

In technological and scientific societies, according to critics, schools become distributors of cultural capital; they play a major role in distributing various forms of knowledge, which, in turn, leads to discrimination by one group over others as well as power and control over others.[16] Under the guise of objectivity and generalizable situations, it is argued by postmodernist thinkers that artistry, drama, poetry, and qualitative research have been disparaged. The world is evolving—and uncertainty, irregularity, and even chaos assume new importance for reinterpreting our physical and social worlds.

Postindustrial Society: Bits and Bytes

Postmodern society includes what Daniel Bell called *postindustrial* society, which is produced by information and technology.[17] The singular feature of this new society is the importance of

knowledge (including the transmission, storage, and retrieval of it) as the source of production, innovation, career advancement, and policy information. Knowledge becomes a form of power, and those individuals or nations with more knowledge have more power.

Emerging from the old industrial society, driven by the motor and how much horsepower could be produced, postindustrialism was (and still is) a knowledge-based society, driven by the production of information and the preeminence of professionals and technicians. In a society based on "brain power" rather than "muscle power," meritocracy and mobility tend to be equalized among men and women. (This assumes equal educational opportunities and minimal job bias.) The stratification structure of this new society produces a highly trained research elite, supported by a large scientific, technical, and computer-proficient staff—all retrieving, manipulating, and producing knowledge. Given the computer and the Internet, brain power can be marketed on a global basis, and people in China or India can compete for knowledge-based jobs in the United States without ever having to step on U.S. soil. In short, the world is "flat," a term recently used by the *New York Times* writer Thomas Friedman, inferring that knowledge-based jobs have become globalized and the playing field has been leveled by the Internet.

Although Daniel Bell gets much of the credit for developing the original concept of the postindustrial society, his ideas are rooted in articles that appeared in the 1948 *Bell System Technical Journal* and in the 1952 *Scientific American* magazine, in which Claude Shannon (certainly not a household name) described his mathematical theory of communication.[18] Shannon proposed the term *bits* to represent *binary digits*. A bit was a choice: on or off, yes or no, stop or continue, one or zero. Whereas some information was continuous and based on sound waves (such as phonograph records, radio, and television), other information was not continuous but discrete (such as smoke signals, telegraph, and teletype). On or off and yes or no suggested that circuits could transmit bits of information based on logic. Eventually, bits led to bytes for storage capacity and, subsequently, to kilobytes, megabytes, and gigabytes.[19]

Postnuclear Family

The 2010 census showed that the nuclear family (mom and dad and the children living under one roof) now makes up fewer than 25 percent of the households in the United States.

Divorce rates continue to hover at more than 50 percent, but most former spouses remarry for a second or even third time. Within these new blended families, we have a growth of stepsisters and stepbrothers, and former spouses and family members who 20 years ago would have had nothing to do with the other are now finding it practical to stay connected, especially during holidays.

Today, cohabitation—living with a partner without marrying—is increasingly common in the United States. Three out of four women have lived with a partner without being married by the age of 30.[20] Changing views of marriage partly fuel this trend. Young adults believe that marriage is either risky or reserved for those who have money. Many see cohabitation as the better way to "test-drive" a relationship. In part, this trend reflects America's dual, yet contradictory cultural ideals of marriage—a commitment between two people—and individualism.[21] The result is a nontraditional partnership where childbearing and marriage are two distinct entities. A single, modern woman does not need the latter to have children, and that new perspective continues to shape the postnuclear family.

New Family Types

Historically, U.S. society and schools have drawn support from the nuclear family (two parents living with the family), which grew to prominence in Western society throughout the 19th and 20th centuries. The nuclear family has been described as highly child centered, devoting its resources to preparing children for success in school and a better life in adulthood than that of the parents. But the recession of 2008–2010 has lead many middle-class baby boomers to question whether their children or grandchildren will have a better life, that is, be as mobile as they were

when growing up in the last half of the 20th century, when America was at its economic zenith and power.

Today, the notion of family is very different. Given the popularity of diversity, pluralism, and irregularity, the nuclear family is an anomaly. Overall, about half the youth under age 18 have been in a single-parent family for some part of their childhood.[22] The nuclear family has been replaced by many different family forms.

Given today's alternative communicative and cultural contexts, the claim is that the traditional nuclear family is far from ideal, often loveless and dysfunctional, whereas the modern, postnuclear family provides love and support for children. The fact is, however, that less than half (46 percent) of U.S. children under 18 years of age are living in a traditional family (i.e., with two married heterosexual parents in their first marriage) in 2013 compared with 70 percent in 1960.[23] Cohabiting, unmarried couples have risen dramatically (jumping 170 percent from 2.9 million in 1996 to 7.8 million in 2012), along with working women with children (74.8 percent in 2013 compared to only 18 percent in 1950).[24]

■ MORAL/CHARACTER EDUCATION

It is possible to give instruction in *moral knowledge* and ethics. We can discuss philosophers such as Socrates, Plato, and Aristotle, who examined the good society and good person; the more controversial philosophers Immanuel Kant and Jean-Paul Sartre; religious leaders such as Moses, Jesus, and Confucius; and political leaders such as Abraham Lincoln, Mohandas Gandhi, and Martin Luther King Jr. By studying the writings and principles of these moral people, students can learn about moral knowledge. The idea is to encourage good reading at an early age, reading that teaches self-respect, tolerance, and social good.

The teaching of morality can start with folktales such as "Aesop's Fables," "Jack and the Beanstalk," "Guinea Fowl and Rabbit Get Justice," and the stories and fables of the Grimm Brothers, Robert Louis Stevenson, and Langston Hughes. For older children, there are *Sadako and the Thousand Paper Cranes, Up from Slavery*, and *Anne Frank: Diary of a Young Girl*. And for adolescents, there are *Of Mice and Men, A Man for All Seasons, Lord of the Flies, Death of a Salesman*, and *The Adventures of Huckleberry Finn*. By the eighth grade, assuming average or above-average reading ability, students should be able to read the books listed in Table 5.1. This list of 25 recommended titles exemplifies literature rich in social and moral messages.

As students move up the grade levels and their reading improves, a greater range of authors is available to them. No doubt, community mores will influence book selection. Virtues such as hard work, honesty, integrity, civility, and caring are widespread. Educators must find such common values.

Moral Conduct and Controversy

Is Mark Twain's *The Adventures of Huckleberry Finn* a racist book that should be banned, or a masterpiece that should be read, discussed, and analyzed? Huck is a backwoods kid, not too bright, the precursor of the modern juvenile delinquent, and a rebel who finds a moral cause without giving up his pranks or surrendering his identity. Jim is a runaway slave and a clown and companion, living in a White-dominated world in a servile role. Because of his place in society and his cleverness, he neither says all that he means nor means all that he says. Acting the clown with poetic imagination and humor, he can get along in his troubled world. The reader learns to respect his wit, jokes, and other compensatory devices.

Schools should be sensitive to students of all racial, ethnic, and religious groups. Similarly, people's genders, sexual preferences, or disabilities should not elicit discrimination. At the same time, sensitivity should not be at the expense of truth. Sadly, schools can select a biology textbook that doesn't mention evolution or a history book that excludes the Holocaust. They also can electronically alter literary classics (e.g., Homer's *Odyssey*, Shakespeare's *Merchant*

Table 5.1	Twenty-Five Recommended Works to Be Read by Eighth Grade

1. Maya Angelou, *The Graduation*
2. Pearl Buck, *The Good Earth*
3. Truman Capote, *Miriam*
4. James Fenimore Cooper, *The Last of the Mohicans*
5. Charles Dickens, *Great Expectations*
6. William Faulkner, *Brer Tiger and the Big Wind*
7. Anne Frank, *The Diary of a Young Girl*
8. William Golding, *Lord of the Flies*
9. John Kennedy, *Profiles in Courage*
10. Martin Luther King Jr., *Why We Can't Wait*
11. Rudyard Kipling, *Letting in the Jungle*
12. Harper Lee, *To Kill a Mockingbird*
13. Jack London, *The Call of the Wild*
14. Herman Melville, *Billy Budd*
15. George Orwell, *Animal Farm*
16. Tomas Rivera, *Zoo Island*
17. William Saroyan, *The Summer of the Beautiful White Horse*
18. John Steinbeck, *Of Mice and Men*
19. Robert Louis Stevenson, *Dr. Jekyll and Mr. Hyde*
20. William Still, *The Underground Railroad*
21. Ivan Turgenev, *The Watch*
22. Mark Twain, *The Adventures of Huckleberry Finn*
23. John Updike, *The Alligators*
24. H. G. Wells, *The Time Machine*
25. Elie Wiesel, *Night*

of Venice, Chekhov's *Rothschild's Fiddle*), removing passages that some people might find offensive. Rather than expecting students to question and analyze such texts, schools too often use revisionary and doctored versions. Do we really create a purer school environment or purer society by such omission?

Instead of asking moral questions and requiring students to grapple with them, schools teach prescribed content and skills. As John Goodlad has commented, across the curriculum at all grade levels, students are expected to memorize information, answer mundane questions in workbooks and textbooks, and pass multiple-choice and true-false tests.[25] The point is, Huck and Jim need to be heard and then analyzed and discussed, along with Homer, Shakespeare, and Chekhov.

According to Philip Phenix, the most important sources of moral knowledge are society's laws and customs, which can be taught in courses dealing with law, ethics, and sociology. However, *moral conduct* cannot be taught; rather, it is learned by "participating in everyday life of society according to recognized standards of society" (such as the Ten Commandments or the Golden Rule).[26] Although laws and customs are not always morally right, accepted standards do provide guidance for behavior. In the final analysis, individuals' behavior reflects their view of right and wrong. Existentialist educators such as Maxine Greene and Van Cleve Morris view morality as beyond cognitive processes, akin to social-psychological processes such as personal sensitivity, feelings, openness to others, and aesthetic awareness.[27] One is free, but *freedom* is essentially an inner matter involving *responsibility* and *choice*. Freedom, responsibility, and choice involve moral judgments and are related to social standards and personal beliefs.

Curriculum specialists, who must view moral development in conjunction with cognitive development, probably feel more comfortable with Piaget's perspective (see Chapter 3) or Dewey's position. Dewey points out that the social and moral worth of subject matter should be integrated "under conditions where their social significance is realized, [and] they feed moral interests and develop moral insight."[28] However, according to Dewey, the actual decisions and behaviors related to morality involve social growth and social experiences, which schools can help shape. He uses such descriptors as *character, conditions,* and *environment* to describe morality and the organization of subject matter.[29]

Moral Teaching

The works suggested in Table 5.1 can be read in traditional history and English courses or in an integrated course such as Junior Great Books,[30] World Studies, or American Studies. Harry Broudy refers to this type of content as a *broad fields approach* to curriculum; he organizes the high school curriculum into five social and moral issues.[31] Florence Stratemeyer and her coauthors developed a curriculum based on 10 "life situations," made up of the ability to deal with social, political, and economic forces.[32] Mortimer Adler divided the curriculum into organized knowledge, intellectual skills, and ideas and values. The last deals with discussion of *good books* (his term), not textbooks, and the Socratic method of questioning.[33] Ted Sizer has organized the high school curriculum into four broad areas, including "History and Philosophy" and "Literature and the Arts."[34]

According to Philip Phenix, the content of moral knowledge covers five main areas: (1) *human rights,* involving conditions of life that ought to prevail; (2) *ethics,* concerning family relations and sex; (3) *social relationships,* dealing with class, racial, ethnic, and religious groups; (4) *economic life,* involving wealth and poverty; and (5) *political life,* involving justice, equity, and power.[35] The way we translate moral content into moral conduct defines the kind of people we are. It is not our moral knowledge that counts, but our moral behavior in everyday affairs. This distinction between knowledge and behavior should be taught to all students as a basis for envisioning the kind of people and society we are now and wish to become.

The aforementioned different moral approaches and courses of study represent a way of organizing and combining history and English into an interdisciplinary area. Great books can be added to this approach. In general, the courses' content deals with moral and social issues; ideas regarding how to live; elegant, witty, and weighty thoughts; and dilemmas that help us understand ourselves, our society, our universe, and our realities. By engaging in purposeful discussion, agreeing and disagreeing with the ideas expressed, synthesizing and building on ideas through conversation and consensus, questioning and testing arguments, and using evidence to bolster opinions, students can gain insight into making personal choices. The readings and discussions should also help students accept responsibility for their behavior and appreciate the religious and political freedom and economic opportunities that exist in the United States. Ultimately, the idea is to respect and promote human rights and social justice among all people and nations, as well as to attain a global perspective and appreciation of different people, cultures, and nations.

As teachers, we must involve all students in great ideas and books. However, we should not overemphasize the written word because there are other methods for transmitting our culture— the values and virtues we wish to teach. If we rely only on good literature, we lose more than half our students—those who are disadvantaged, learning disabled, semiliterate, non–English speaking, or limited in English speaking. Unintentionally, schools have increased the divide between concrete and abstract thinkers by tracking students and because so many students are unable to read and understand good literature.

We can make the same kind of lists as in Table 5.1 for great works of poetry (e.g., by Robert Frost, Carl Sandburg, Emily Dickinson); songs (by Irving Berlin, George Gershwin, Bob Dylan); art (by Rivera, Picasso, Goya); drama (*Les Miserables, A Doll's House, An Enemy of the*

People); and film (*Gallipoli, The Grapes of Wrath, A Man for All Seasons*). The vast majority of "nonreaders" and "slow" learners can learn through audio and visual materials. Film is probably the most powerful medium for these learners, and there are great films, just as there are great books. Often, teachers believe that films use up precious class time. They fail to recognize that even the poorest households have electronic devices such as computers, tablets, and smartphones. Just as schools distribute textbooks to students, teachers should provide video links for home use or should show selected movies at the school after 3:00 p.m. or on Saturdays—movies that deal with larger social/moral ideas and issues.

Public television offers another option for nonreaders and readers. In particular, the Public Broadcasting Service (PBS) produces a host of interesting video stories. There are more than 1,000 topics to choose from, including 350 award-winning documentaries (ranging from 90 minutes to 17 hours). In addition, there is an online directory of some 40,000 video segments, cross-referenced and linked to national and state standards.[36]

Moral Character

A person can have moral knowledge and obey secular and religious laws but still lack moral character. *Moral character* is difficult to teach because it involves attitudes and behavior that result from stages of growth, distinctive qualities of personality, and experiences. It involves a coherent philosophy. Moral character entails helping people; accepting their weaknesses without exploiting them; seeing the best in people and building on their strengths; acting civilly and courteously toward classmates, friends, or colleagues; and acting as a responsible individual even if doing so means being different from the crowd.

Perhaps the real tests of moral character are to cope with crisis or setbacks, to deal with adversity, and to be willing to take risks (e.g., possible job loss) because of our convictions. Courage, conviction, and compassion are characters' ingredients. What kind of person do we want to emerge as a result of our efforts as teachers or principals? We can engage in moral education and teach moral knowledge, but can we teach moral character? In general, the morally mature person understands moral principles and applies these principles in real life.

The world is full of people who understand the notions of morality but take the expedient way out or follow the crowd. Who among us possesses moral character? Moral character cannot be taught by one teacher; rather, it involves the leadership of the principal and takes a concerted effort by the entire school, cooperation among a critical mass of supervisors and teachers within the school, and the nurturing of children and youths over many years. Ted and Nancy Sizer ask teachers to confront students with moral questions and moral issues about their own actions or inactions in ways that may be unsettling or difficult; teachers must address things that threaten students' self-concept and self-esteem. We must deal with issues of inequity and social injustice while promoting cooperative behaviors and intergroup relations among children and youths.[37]

The Sizers want teachers to "grapple" with ideas; "dig deep"; ask why things are so, what evidence there is, what thoughts and actions mean. They hope that teachers will stop "bluffing," that is, taking shortcuts in their preparation, homework, testing, or other evaluation practices. They hope that schools will reduce the "sorting" practice in ways that sometimes correspond with social (class or caste) groupings. Although some sorting of students is necessary, it should be flexible enough to respect students' and parents' wishes and to avoid stereotyping. In the end, the Sizers argue, students should not experience hypocrisy in classrooms and schools that claim all students are equal or free to be themselves while discriminating against students on the basis of class or low ability.

The authors believe that school leaders and teachers should adopt moral character as a matter of priority or policy. By themselves, one or two teachers cannot have real, long-term impact. It takes the principal's leadership, as well as a school community, to implement a program cultivating moral character, a program in which students are taught responsibility for their actions and the worth of values such as honesty, respect, tolerance, compassion, and justice.

As education leaders, we have an obligation to promote character development while still recognizing that there is a broad range of opinion on what this means or whether it is even possible. Amy Gutman represents one extreme in her belief that moral issues are inappropriate in public schools because of students' diverse backgrounds and biases. At the other extreme is Nel Noddings's notion that caring for strangers is more important than shaping students' minds and attitudes.[38]

Despite the controversy, school leaders must not be afraid to take moral positions. Much human behavior is horrific. Students who laugh at pictures of the rape of Nanking, the Holocaust, the Killing Fields, or the incineration of the World Trade Center should not be excused because of their ignorance or their religious, racial, or ethnic backgrounds. Nor should they be encouraged to spew racist, sexist, or otherwise hate-centered views. Schools are not being asked to impose Western or Christian values on the nation's students. Rather, they can help teach fundamental principles such as fairness, compassion, tolerance, and justice.

Performance Character

Over the past decade, there has been an emerging focus on character—particularly in public charter schools—that has little to do with morality, ethics, or values. It has more to do with the internal traits of habit and mind that drive oneself to perform well, rather than attitudes and behaviors toward others. Charter school educators in the Knowledge Is Power Program (KIPP) network, for instance, found that while their support helped low-income students achieve academically throughout middle and high school, these same students had difficulty thriving on their own in college. Many dropped out. The ones who persisted, however, were not necessarily the highest achievers; rather, they appeared to have exceptional character strengths—like optimism, persistence, effort, and self-regulation.[39]

Many schools are now seeking to cultivate such "performance character" that will help students deal with setbacks and obstacles better, believing that these traits are equally, if not more, important than academics. Students are taught to recognize volatile situations and use techniques like "self-talk," where they put an immediate crisis in perspective by reminding themselves of the larger context.[40] These skills and traits would help at-risk students in particular, since they tend to garner less support in school and at home.

> **5.1 Cultivating Performance Character**
> More schools are beginning to see the importance of cultivating certain character, like grit, perseverance, and resilience, which leads to improved academic performance. Watch how some teachers emphasize these qualities in their students. What might you do as an educator to foster them in your classroom?
>
> https://www.youtube.com/watch?v=F0qrtsYg6kl

Binary Bits and Reading Habits

Who invented the computer? (a) John Atanasoff, (b) Daniel Bell, (c) Thomas Edison, (d) Steve Jobs, or (e) James Zogby? Hint, it's the guy from Iowa State University, the physicist who in the 1930s was frustrated with the time-consuming task of calculating differential equations and was looking for an easier way to solve the answers.[41] For the answer, check endnote 41. The information seems especially suited to surprise most readers. Indeed, the majority of techies from Silicon Valley and East Coast elites give IBM's John Watson credit for inventing the computer. But that thinking reflects part of the "fly-over" mentality of people living on the U.S. coasts as well as the ignorance of the heartland and the unfounded "intellectual" belief that most worthwhile epic tales unfold on the two U.S. coasts.

And now that you know this "bit" of information about Professor Atanasoff, you may better appreciate *Los Angeles Times* book editor David Ulin's *The Lost Art of Reading*. In an overly connected digital world, reading books has become a chore for most of us, especially for children and youths. It is much easier, and more fashionable, to blog, tweet, or text—free from contemplation, analysis, or logic.[42] Has the ability to read lengthy prose, to think and integrate ideas, or even to read for pleasure been lost by the new generation that is wired, networked, and distracted by the Internet?

The habit of reading and simply sitting down and engaging a good book may become a lost art. In a world where we instantly click a link while searching for a name or place or even an item to purchase, it is difficult to picture people seriously reading a collection of poems or a

novel. In an age of immediate gratification and instant connection, reading a book can be considered a burden. For many children and youths, reading is considered an "uncool act" committed by "uncool kids" who are nonsocial or fat and flabby. The result is that an endless number of good books go unread because the habit of reading is in decline. The long-term effect on the knowledge base and thinking process of American high school and college students is serious, although somewhat difficult to measure and agree upon. It is partially reflected by the fact that only 38 percent of the 12th graders tested by the National Education Assessment Program (NEAP) were considered "proficient" readers in 2013.

A significant part of the achievement problems in reading can be attributed to the strength of literacy and communication between parent and child in the early stages of life. In their seminal 2003 study, researchers Betty Hart and Todd Risley reported that young children in upper-income households were exposed to 30 million more words than those on welfare by age 3.[43] Wealthier parents talk to their babies, toddlers, or young children more and use significantly more words of encouragement than of discouragement. The level and quality of words spoken in various socioeconomic status (SES) households persisted in children's language skills and accomplishment through at least the age of 9. Recent research continues to focus on the *quality* of words used in American households, given the rise of mobile technology. "It's not just about shoving words in," according to one psychologist. "It's about having these fluid conversations around shared rituals and objects, like pretending to have morning coffee together or using the banana as a phone. That is the stuff from which language is made."[44]

Achievement problems in reading can also be contributed to what researchers call *summer setback*. During those 10 weeks, middle-class children usually read, prompted by their parents and school, and low-class children usually do not. Gains made in the school year slip away over the summer.[45] Not only do low-income (and single-parent families) get less adult attention, but there is also a discrepancy in the number of books in the home between poor and middle-class families. Poor parents also speak fewer words, shorter sentences, and a restricted language in communicating to their children. Hence, there is a need to require summer school for *all* low-achieving students, starting in the first grade, and/or to make books available at the end of the school year for lower-income children to select, borrow, and read during the summer.[46] The purpose is to close the reading gap between proficient and nonproficient readers, because the ability to read is tied to academic success.

CURRICULUM TIPS 5.1   **Principles for Improving Schools**

A number of important principles result in school effectiveness and excellence. Based on recent efforts to improve schools and reform education, school leaders and teachers can adapt many of the following principles for improving their own schools and the education of students.

1. The school has a clearly stated mission or set of goals.
2. School achievement is closely monitored.
3. Provisions are made for *all* students, including tutoring for low achievers and enrichment programs for the gifted.
4. Teachers and administrators agree on what is good teaching and learning; a general and agreed-upon psychology of learning prevails.
5. Emphasis on cognition is balanced with concerns for students' personal, social, and moral growth; students are taught to be responsible for their behavior.
6. Teachers and administrators expect students to learn, and they convey these expectations to students and parents.
7. The school day and school year are increased approximately 10 percent (or about 35 to 40 minutes per day and 15 to 20 days per year). This amounts to 1½ to 1¾ additional years of schooling over a 12-year period.
8. Additional remedial reading and math classes, with reduced teacher–student ratios, are provided for all students in the lowest 50th percentile on state or national tests. These additional classes

replace physical education, study hall, foreign language, and elective courses—or, if extra money is provided, they are part of an after-school program or weekend program.

9. Teachers are expected to make significant school improvement; they are paid extra for staying after school and planning curriculum.

10. Administrators provide ample support and information, time for teacher enrichment, and time for teachers to work together. Individual lunch breaks and preparation periods are discouraged; the focus is on socialization and collegial planning.

11. A sense of teamwork prevails; there is interdisciplinary and interdepartmental communication. The emphasis is on group activities, group cooperation, and group morale.

12. Incentives, recognition, and rewards are conveyed to teachers and administrators for their efforts on behalf of the team effort and school mission.

13. The interests and needs of the individual staff members are matched with the expectations and norms of the institution (school/school district).

14. The staff has the opportunity to be challenged and creative; there is a sense of professional enrichment and renewal.

15. Staff development is planned by teachers and administrators to provide opportunities for continuous professional growth.

16. The school environment is safe and healthy; there is a sense of order (and safety) in classrooms and hallways.

17. There is an agreement that standards are needed, but they are not imposed by outside "authorities" or "experts"; rather, they are implemented (or at least modified) by teachers and administrators at the local level.

18. Teachers are treated with respect and as professionals. They are trusted to make important decisions that deal with standards and involve teacher evaluation and accountability.

19. Parents and community members are supportive of the school and are involved in school activities.

20. The school is a learning center for the larger community; it reflects the norms and values of the community; and the community sees the school as an extension of the community.

THE CULTURE OF THE SCHOOL

Although each school in the United States reflects the culture of the larger society (namely, middle-class values, beliefs, and norms), it also has its own culture—its own ethos or way of thinking and behaving that it reinforces and rewards. Some schools emphasize highly traditional goals and "essential" subjects, and other schools may be more progressive, emphasize student participation, and encourage music and art. In many rural and suburban schools, sports dominate student activities and, in part, define pride and spirit of the community; the Friday night basketball game or Sunday afternoon football game attracts a large portion of local residents. In another school, however, the emphasis may be on community service and intramural sports; fine arts may have a definite place on the curriculum. In creative and innovative areas of the country, the school may be organized around the Internet or Wi-Fi usage. "Geeks," "dorks," and "nerds" may be considered part of the "in" crowd and even have comparable status to the jocks and students involved in student government and school newspaper.

Education in school, compared with that in the family or peer group, is carried on in relatively formal ways. Groupings are formed not by voluntary choice, but in terms of age, aptitudes, and sometimes gender and ethnicity (graphically illustrated by voluntary seating arrangements in the student cafeteria). Students are evaluated and often labeled—and sometimes mislabeled. Indeed, one-third of a teacher's professional time in school (not counting time outside of school) is devoted to preparing and administering tests, grading papers, and evaluating students.[47] Interestingly, teachers rarely, if ever, enroll in a course on testing and evaluation.

Conformity in Class

Students are told when and where to sit, when to stand, how to walk through hallways, when they can have lunch in the cafeteria, and when and how to line up and exit the school at the end

of the day. The emphasis is on the teacher controlling the behavior of students. It is the teacher who decides in class who speaks and when, who goes to the front of the line and the back of the line, and who receives what grade. To be sure, grades can be used as an instrument for controlling behavior in class—at least for students who are grade oriented.

Getting through school for many students, then, means subordinating their own interests and needs to those of the teachers. In a classic text on sociology of teaching, originally published in 1932, Willard Waller described it as a contest between adult and youth cultures in which the teacher, in order to protect his or her own authority, had to win.[48] Charles Silberman, in a best-selling book 30 years later, described it as a useful learning experience for students—"a necessary aspect of learning to live in society." But he warned that teachers and schools sometimes translate this "virtue into a fault by . . . excluding the child's interest altogether."[49] One way students cope is they live in two worlds—one with peers, and the other with adults. In this connection, Dewey observed, "Children acquire great dexterity in exhibiting conventional and expected ways the *form* of attention to school work . . . while reserving the inner play of their own thoughts, images, and emotions for subjects that are more important to them, but quite irrelevant" to adults.[50]

Just as teachers learn to cope with and control their students, students learn similar strategies for dealing with their teachers. By adolescence, children are very adept at observing and manipulating adults, and they do an excellent job in classrooms, sometimes without their teacher's knowledge. Don't ever think that the 25 or 30 students in your classroom are not sizing you up and judging your weaknesses and strengths—assessing what they can get away with and how much they can outwit you. It's a classroom game involving the one who is not only smarter, but who is also in control. In many inner-city schools, students are in control and teachers experience frustration and even symptoms of battle fatigue, one reason for the large turnover of beginning teachers in these types of schools (about 40 percent in the first five years).[51]

Coping and Caring

Some students, however, survive in classrooms and schools by turning off or withdrawing into apathy. One way for students to avoid the pain of failure or the lower expectations of teachers is to persuade themselves that they don't care. Thus, threatening some students with lower grades has no effect. Sadly, most students who claim they don't care initially did care. The point is, repeated failure coupled with receiving unfavorable remarks and grades in a public arena (say, the classroom) takes its toll on all people. The effects are worse for young children because they have fewer defense mechanisms against adults and less ability to ward off learned low expectations for themselves.

Unquestionably, negative stimuli have a much greater impact than positive stimuli on all people. You can turn a person into a vegetable in a few days, but it takes many years to make a doctor, lawyer, or CEO. Ineffective or hostile teachers can change a child's behavior in a matter of weeks through comments, gestures, and other body language, turning a young, motivated student into an unmotivated and self-doubting student who exhibits frustration, bites his or her nails, has temper tantrums at home, and no longer likes going to school. The younger the child, the easier it is for a teacher's negativism to influence his or her behavior.

A few progressive schools have eliminated all elementary school grades in order to reduce labeling of students and academic expectations of themselves. Grades basically create "winners" and "losers"—usually the same winners and losers. Over time, students get the message; it's called *dropping out*. Robert Slavin puts it in a slightly different, more moderate way: "In the usual, competitive reward structure, the probability of one student receiving a reward (good grade) is negatively related to the probability of another student receiving a reward."[52]

For this reason, one educator urges a school progress or mastery report card without grades, on which a list of descriptors or categories are given and the teacher describes what the student can do or how he or she is performing by writing a narrative describing the student's progress

and problems.[53] Imagine, no grades, no labels; every school year, no one always plays right field or bats last every time and no one finishes last or next to last in every school-yard race until he or she gets the message and says "I don't like this game. I don't want to play anymore"—and drops out. This nongrading approach could continue until students enter junior high school, until seventh or eighth grade.[54] Then, grades, percentages, and rankings must be used to pre-pare students for high school; likewise, high schools want to have knowledge of the students' abilities so they can track them and devise programs relative to their needs.

Another solution focuses on re-engaging students to counter growing apathy over schoolwork and learning, a problem that increases as students get older.[55] Schools are not doing a good job developing students' motivation or giving them autonomy to direct their own learning. Reformers are more focused on the *what* of learning (e.g., stan-dards and content), rather than the *why*, according to motivation expert Daniel Pink. He argued for schools to bring that sense of purpose to learning and create conditions in which students can tap into their own motivation.[56] Other scholars believe that stu-dent engagement is the missing—and little-talked-about—piece to school reform and curriculum.[57]

■ CULTURE OF THE CLASSROOM

In his study of the elementary schools, Philip Jackson found a diversity of specific subjects but few different types of classroom activities. The terms *seatwork, group discussion, teacher demonstration,* and *question-and-answer period* described most of what happened in the class-room. Further, these activities were performed according to well-defined rules, such as "No loud talking during seatwork" and "Raise your hand if you have a question." The teacher served as a "combination traffic cop, judge, supply sergeant, and time-keeper." In this cultural system, the classroom often becomes a place where things happen, not because students want them to, but because it is "time for them to occur."[58] Life in classrooms, according to Jackson, is dull. It is a place "in which yawns are stifled and initials scratched on desktops, where milk money is collected and recess lines are formed."[59]

Similarly, in John Goodlad's study of schools, he and his colleagues describe the following widespread patterns: The classroom is generally organized as a group that the teacher treats as a whole. The teacher is the dominant figure in the classroom and makes virtually all the decisions regarding instructional activities. "Enthusiasm and joy and anger are kept under control." As a result, the general emotional tone is "flat" or "neutral." Most student work involves "listening to teachers, answering the teacher, or writing answers to questions and taking tests and quizzes." Students rarely learn from one another. Instruction seldom goes beyond "mere possession of in-formation." Little effort is made to arouse students' curiosity or to emphasize problem solving.[60]

Such systematic emphasis on passive learning by rote is in opposition to most contempo-rary ideas of what education should accomplish. You might ask: Why, then, do so many class-rooms often function in this way? Think about it in terms of your own teacher preparation, student preference for passive learning, and the bargains and compromises between students and teachers—in short, taking the easy way out. Passive learning requires no extra teacher time for planning creative classroom activities. Often, there is a tacit conspiracy to avoid active learning and rigorous standards because this involves extra work by teachers and potential conflict with students. All teachers make compromises, take shortcuts, or avoid certain tasks that we know should be performed, simply because there are not enough hours in the day, as Ted Sizer notes in his appropriately titled book, *Horace's Compromise*.[61]

Thus, classroom patterns suggest boring and repetitive interactions between the teacher and students—instructional activities divorced of human feelings and emotions. It suggests a place where students must restrict their feelings and emotions, learn what behavior pleases the teacher, and learn what strategies and methods to use to get through the day, often with the least amount of work. In this connection, John Holt talks about how students adopt strategies of fear

and failure. For most students, it means pleasing the teacher; for others, it means outwitting the teacher; for still others, it means doing the work as quickly as possible, like taking medicine and getting it over with.[62]

Given all these negative attributes of how classrooms operate, it is little wonder that many teachers often lose their students' interest after 10 or 15 minutes of instruction: "Students doze off, stare out of the window, or just stare past the teacher, while others doodle, pass notes, or throw 'spitballs'—or just pass time in classrooms."[63] What remedy or behavior do you as a student exhibit in class when you are bored? What percentage of your classmates in college open up their laptops under the guise of taking notes—and are actually shopping at J. Crew or text-messaging their friends? As a teacher, do you expect your students to be different? Can you look squarely in the looking glass and ask: What changes am I going to make to improve my instruction? How am I going to motivate my class?

Because much of this section has focused on negative aspects of school culture, we should emphasize that many positive statements can be made about schools in the United States. Most schools provide an orderly learning environment, and most students learn to read and compute at a level required to function in society. Relationships among teachers, students, and parents are generally positive. Almost all students become better persons and productive members of society as a result of schooling, despite all the criticism. The vast majority of students receive a high school diploma, and most proceed to some form of postsecondary education (see Curriculum Tips 5.1).

The Peer Group

Whereas family relationships constitute a child's first experience of social life, peer-group interactions soon begin to make their powerful socializing effects felt. From play group to teenage clique, the peer group affords young people many important learning experiences: how to interact with others and how to achieve status in a circle of friends. Peers are equals in a way that parents and their children (or teachers and their students) are not. A parent or teacher can pressure and sometimes force young children to conform to rules they neither understand nor like, but peers do not have formal authority to do this; thus, the true meaning of fairness, cooperation, and equality can be learned more easily in a peer setting.

A major tenet of cooperative learning is based on peers learning together, communicating and helping each other, and working as a group to achieve specific (in this case, academic) goals. David Johnson and Roger Johnson, the major authorities on the subject, envision cooperative learning as a means of increasing cooperation and socialization and reducing competition and individualization.[64] Actually, the idea is rooted in John Dewey's notion of education and democracy. Peer groups increase in importance as the child grows up and reaches maximum influence in adolescence, by which time they sometimes dictate much of a young person's behavior both in and out of school. Some researchers believe that peer groups are more important now than in earlier periods, partly because many children have little close contact with their parents and other adults and few strong linkages with the larger society.[65]

Other researchers note the influence of the peer group as early as first grade and the need to introduce rules and behavioral expectations early in the primary grade levels that create "a respectful, caring, learning community." The idea is for the children in a class to feel safe, valued, and respected by building a sense of peer respect, responsible behavior, and self-control within the classroom and school.[66] This is an issue involving not only socialization, but also moral character—attitudes and behaviors that must be introduced and modeled as early as possible by the teacher and infused through the school. Teachers should not underestimate the power of the young mind and heart to understand social and moral choices.

To foster peer relationships that support rather than impede learning, teachers must conduct activities that encourage students to learn cooperatively. In addition, teachers should promote children's interaction with peers, teach interpersonal and small-group skills, assign

children responsibility for the welfare of their peers, and encourage older children to interact with and assist younger children. They must encourage their students to care for each other, to expect helping others learn, and to do what is right, rather than rely on rewards or punishment—in short, to build a sense of community in the classroom and school. Such steps promote character development and may even help counteract peer pressure for antisocial behavior.

Teachers must introduce age-appropriate and nonlitigious solutions to limit bullying and sexual-harassment practices (which were once ignored or considered "cute" by some educators). Teachers must also respond to the growing religious and ethnic diversity in classrooms and schools. In the 2014–2015 school semester, minority students surpassed the number of non-Hispanic White students in U.S. public schools for the first time, constituting approximately 50.3 percent.[67] Teachers must be prepared to meet the unique needs of growing and diverse student populations. Even teachers of single-culture classrooms must help their students understand, appreciate, and interact with other cultures, unless they expect these children to live in cocoons for their entire lives.

Peer Culture and the School

Regardless of the type of school or grade level, the classroom is an "accidental group" as far as its participants are concerned. Students are brought together by an accident of birth, residence, and academic (or reading) ability, rather than by choice. The students of different classrooms are participants in a miniature society because they happen to have been born about the same time, live in the same area, and are assigned by the school to a particular room. The teacher may not be in this particular classroom entirely by choice; however, he or she had the opportunity to choose his or her profession and school district. The students have no choice in their assigned classroom or whether they participate; they are compelled to attend school. Student dorks and nerds have to interface with jocks and good-looking, personable boys and girls; immature kids have to mingle with mature kids; and various ethnicities must learn to respect and get along with one another. The classroom lacks the characteristics of a voluntary group—far different from the school yard or cafeteria, which is more than likely to exhibit certain cliques or groups held together by free choice of association and mutual interests, goals, or even ethnicity.

Of course, it is a nightmare for most students to sit alone in the cafeteria, have no one to eat with, or be ignored and left out in school activities. As Philip Cusick points out, "The single most important thing in school is to have friends," to be part of a group. Not to have friends, or to be repeatedly shunned by the peer group, results in many students disliking school; students who were interviewed by Cusick referred to "hating school."[68] One can see the task of the teacher in a better perspective by remembering the accidental and mandatory nature of the classroom and the power of the peer group.

The classroom is the place where children and youths must learn to get along with peers and learn the rudiments of socialization and democracy. A student learns his or her own needs are not the only needs that must be met, and his or her own views are one of many. Compromise, tolerance toward others, and positive peer relationships are conducive to learning, and future social living must be introduced and modeled by the teacher. The influence of peer consensus and teacher (adult) approval are subtle but constantly in the background. Over time, these influences shape the students' attitudes and behaviors toward—and how they respect and work with—one another.

Willard Waller discussed the authority given to the teacher by both law and custom. However, because of the shift from an inner-directed to an other-directed society—most notably, a decline in all forms of adult authority—a teacher's word is less authoritative and respected today. In describing the teacher's role, Waller maintained that "conflict is in the role, for the wishes of the teacher and the student are necessarily divergent, and will conflict because the teacher must protect himself from the possible destruction of his authority that might arise from his divergence of motives." Waller analyzed the teacher–student relationship as a "special form of

dominance and subordination," an unstable relationship that was "supported by sanction and the arm of the authority."[69] The teacher was forced into this role to limit the students' impulses and to preserve order in the classroom. This is a harsh analysis of what teaching is about, and Waller's thoughts must be put into perspective; he wrote during an era of growing child psychology and progressive thought, which he opposed. Today, a good teacher affirms the child's identity, nurtures the child's needs, and gives students a say in shaping their environment, but Waller thought that if the children in the classroom weren't controlled by the teacher, they would consort against him or her. He maintained that the teacher "not adapt to the demands of the childish group . . . but must force the group to adapt to him."[70]

Of course, as we all know, "The times are a-changing." When Cusick, Jackson, and Waller described classroom and social dynamics, students were categorized as the jocks, student government, newspaper groups, or academic achievers. The geeks and dorks are now the first generation of students growing up with computer gadgets. Now we have a growing digital world, where students are wired for distraction and instant gratification.[71] While sitting in the seats of the classroom, in doing homework, or even when they are supposed to be sleeping, there are children and youths texting or clicking onto to YouTube or Facebook.

"You get the entire story on YouTube in 5 minutes, whereas reading a book takes forever," "I prefer to text message than to talk on the phone," "I need instant gratification," "I have hundreds of texts to reply to," and "I forget to do my homework" are typical remarks of today's high school students. Young minds are becoming distracted in schools and at home, conducting multiple digital tasks and seeking immediate gratification but not focusing on homework or integrating what they read for school. Students engage YouTube or Facebook, listen to music, play video games, or text message, switching their brains from one task to another, sometimes not leaving their chairs at home for hours.

Across the nation, schools are connecting to the Internet and using mobile devices so they can teach students in this electronic world. But in this new age, teachers must fight to keep students on task in class and not to text message or surf the Internet. Young students perceive this new computerized world in terms of socialization and entertainment, not for academic work. Unchecked use of tech devices has resulted in students becoming addicted in the digital world—and lost in it. The use of new technology by students sorts them into three loosely defined groups based on their personalities: *social butterflies,* that is, heavy texters (250+ a day), or those addicted to Facebook; *gamers,* or less social students who escape into video games (characterized by violence or sex), and *potatoheads,* or procrastinators who surf the Web or escape into YouTube or iPods.

Peer and Racial Groups

Demographics are changing quickly, and White populations are expected to drop—from 16 percent in 2010 to 9 percent in 2050—so here is a need to understand, respect, and get along with people of color.[72] The fertility rate in North Africa and Southeast Asia is more than 5.5 children per female, whereas the average fertility rate of Whites is 1.7 children per female. A declining White population is most pronounced in Europe, which had a White population of 727 million in 2000 and is projected ("medium rate") by 2050 to have 603 million.

White populations in Western and industrialized countries continue to shrink, and populations of color in poor countries continue to accelerate (the fastest growing is in Africa). For example, the Congo will increase from 49.1 million in 1998 to 160.3 million in 2050 (226 percent change); Ethiopia, from 59.7 million to 169.5 million (184 percent change); Ghana, from 19.1 million to 51.8 million (170 percent change); and Uganda, from 20.6 million to 64.9 million (216 percent change).[73] All the old legacies of "separate" and "unequal" in the United States and "colonization" and "White supremacy" abroad are viewed as self-destructive in nature. Although the health and vitality of America depend on technology and efficiency, they also assume a good political and economic relationship with Africa, Asia, and Latin America—the non-Western, people of color of the world—as well as people of all races and ethnic groups getting along in our own country.

Although the United States is the only Western country (along with Australia) expected to grow in population in the next several decades, by 2050 the majority (White) populace in the United States will be in the minority, and the minority population (Blacks, Hispanic Americans, and Asian Americans) will be in the majority.[74] Put in different terms, about 65 percent of the U.S. population growth in the next 40 years will be "minority," particularly Hispanic and Asian, because of immigration trends and fertility rates. In fact, from 2000 to 2010, the Hispanic population increased three times as fast as the Black population because of the Hispanic immigration trends (whereas Blacks have no comparable immigration pool). Thus, by 2010 there were more Hispanic students than Black students in U.S. schools.[75] The Asian immigrant group has even outpaced Hispanics, growing 46 percent since 2000. They also account for 36 percent of *new* immigrants—those coming between 2007 and 2010, compared with 31 percent who were Hispanic.[76] Both groups, however, illustrate a seismic demographic shift.

In fact, the Hispanic population represented 16 percent (48 million) of the U.S. population, and by 2050 they are projected to be 130 million strong and make up 20 percent of the U.S. population.[77] Most of this population growth has taken place in 10 states (with the main shift in California, Texas, Florida, and the New York–New Jersey metropolitan area).

The dominant norm and behaviors of the peer group put pressure on others to reject White behavior and act Black—even if it is self-destructive. This preference, or attitude, is referred to as *cultural inversion*—a tendency for minorities who feel at odds with the larger society to regard certain attitudes, norms, and events as inappropriate for them because these are representative of the dominant culture of White Americans.[78] Thus, what is appropriate or rational behavior for the in-group (Black) members in a particular community may be defined in opposition to out-group (White) members' practices.

Social Class and Academic Achievement

Despite all the attention on the racial and ethnic school achievement gap, Blacks and Hispanics have made more significant academic progress than White students in their scores since the 1970s, according to NAEP data.[79] Researchers contend the bigger issue is actually the growing gap between the affluent and the rest. Poor students, for one, typically lack exposure to early literacy skills and rich experiences in the home and in their community, undermining their ability to develop what some scholars referred to as "information capital."[80] Coupled with the limited resources and support found in low-income school districts, it is no wonder these students have difficulty performing alongside their higher-income peers. Perhaps equally as alarming, middle-income students are also falling behind. The eighth-grade math and reading achievement gap between the upper-income and middle-income classes, for instance, has grown even larger than that between the middle- and lower-income classes in 2013.[81] The Great Recession has merely highlighted the increasing differences along socioeconomic lines.

Can schools overcome these socioeconomic divisions? Scholars are divided. On the one hand, some scholars believe that income inequality is difficult to overcome, and that in fact much of the gap happens in the home and family environment and that schools itself actually reproduce social classes through their demographic makeup and through institutional practices like tracking (i.e., Honors and AP classes).[82] Other scholars—and political pundits—believe that early access to quality prekindergarten can compensate, and many have called for universal access to pre-K programs. As a result, funding for pre-K has increased substantially in three-quarters of the 40 states that provide state-supported programs.[83] Advocates see pre-K as an economic investment that can prevent, or at the very least reduce, a host of social maladies such as incarceration, dropping out, and reliance on social services.

While the debate over whether schools can overcome socioeconomic disadvantage remains far from settled, there appears to be some consensus that the growing income gap must be addressed—whether through policy or school reform. Researchers believe the key is to focus on enhancing *opportunities* rather than merely closing achievement gaps. This means improving the

quality and consistency of instruction and other learning experiences provided to students, based on sound research evidence. Noteworthy initiatives focus on quality programs and instruction that include student engagement, smaller classroom size, smaller high schools, and teacher collaboration.[84]

Global Achievement

Over the 21st century, the United States faces increasing global competition, particularly as it relates to innovation and the economy. Only through education will the nation develop a technologically savvy and innovative workforce, leaders believe. Yet, if international achievement tests are to be believed, the United States is falling behind. Collectively, it ranks 36th across math, reading, and science in the Program for International Student Assessment (PISA), a widely known benchmark test. Education systems in the Organisation for Economic Co-operation and Development (OECD)—like Shanghai, Singapore, Finland, and South Korea—are performing at the top, according to the latest 2012 assessments.

The inability to read and write proficiently is one of the major problems, as reflected by the mediocre adult literacy rate in the United States. Fifty-two percent of Americans age 16–65 are not able to understand, evaluate, use, and engage with written text proficiently, according to another OECD test of adult competencies.[85] These scores fall below the international average—below countries like Estonia and the Slovak Republic. While the reasons are complex, it is likely that the high populations of immigrants from diverse, particularly non–Western European, regions (e.g., Central America, South America, and Asia) play a major role. Nations like Japan (widely cited as having a 99 percent literacy rate) and Finland, for instance, have much more homogeneity.

Another area of concern is America's deficiency in so-called 21st century skills. Assessments of adults' problem-solving abilities in "technology rich" environments demonstrate that Americans are simply not up to par, with only 6 percent demonstrating high proficiency and 60 percent showing poor proficiency.[86] It implies that U.S. workers don't have the cognitive and workplace skills necessary to participate in 21st century society and the global economy. Fifteen-year-olds in Singapore, Japan, and Taiwan are also outpacing their American peers in solving nonroutine, real-life problems in PISA's Creative Problem Solving Test, like finding the most convenient route on a map for friends who want to meet up, troubleshooting a technology device, or choosing the cheapest train ticket for a particular destination.[87] The result is somewhat puzzling, given the U.S. reputation of creativity, innovation, and individuality.

School reformers believe the problem can be traced to the poor academic foundation in STEM subjects like math, which acts as a gateway to technological literacy, higher education, and a scientifically and technologically sophisticated workforce. PISA and TIMSS (the Third International Math and Science Study) confirm that American students lag behind Asian education systems, as well as those in Russia. See Table 5.2 for selected comparisons.

Table 5.2 | Selected Comparisons of International Test Scores, Based on Rank

	Singapore	Korea	Hong Kong	Finland	USA
PISA Math (15-year-olds), 2012	2nd	5th	3rd	12th	30th
PISA Literacy (15-year-olds), 2012	3rd	5th	2nd	6th	20th
TIMSS Math (8th Grade), 2011	2nd	1st	4th	8th	12th
TIMSS Science (8th Grade), 2011	1st	3rd	8th	5th	13th
PISA Creative Problem Solving (15-year-olds), 2012	1st	2nd	5th	10th	18th

Source: Based on OECD, *PISA 2012 Results in Focus: What Every 15-Year-Olds Know and What They Can Do with What They Know* (OECD Publishing, 2014); National Center for Education Statistics, *Highlights from TIMSS 2011: Mathematics and Science Achievement of U.S. Fourth-and Eighth-Grade Students in an International Context, NCES 2013-009 Revised* (Washington, DC: U.S. Department of Education, December 2012); and OECD, *PISA 2012 Results: Creative Problem Solving: Students' Skills in Tackling Real-Life Problems (Volume V)*. (OECD Publishing, 2014).

While achievement scores paint a dire picture for a 21st century American work-force, other scholars believe this picture is overblown, or at the very least simplistic. They argue, for instance, the United States has a significantly higher percentage of children liv-ing in poverty—about 20 percent, compared with those in Japan (14.9 percent), Canada (13.3 percent), and Finland (5.3 percent),[88] all of which, they believe, contribute to lower rankings. When scores from similar SES are compared, however, the United States compares adequately.

Other achievement tests are more positive. For example, U.S. fourth graders ranked within the top 13 nations in terms of overall literacy when measured by the Progress in International Reading Literacy Study (PIRLS).[89] Trends show significant gains in mathematics and science achievement since 1995 among eighth graders, according to TIMSS 2011, with only a dozen or so nations ranked higher.[90]

Finally, scores also may not even reflect what actually happens in the workplace. China's economy, for instance, remains driven by manual labor, low-cost manufacturing, and civil ser-vice positions, none of which leverages their students' creative problem-solving potential.[91] As such, predictions of future gloom may be exaggerated. Education, in fact, may play a limited role in national wealth and productivity. According to one economist, test scores predict no more than 6 percent of workforce productivity.[92] Other scholars believe broader forces, like trade pol-icy, public investment, and tax and monetary policy, matter more.[93]

Conclusion

Understanding social foundations of curriculum is essential because such foundations have always had major influences on schools and curriculum decisions. Comprehending those forces in society at large and locally enables educators to determine what aspects of society to transmit to current and future students and what dimensions of society require reinvention. Curric-ularists must be social historians, current social analysts, and social futurists. Current and future consideration of society, education, and schooling are challenging in light of the diversity of our local, state, national, and in-ternational societies.

Educators involved with the creation, implemen-tation, evaluation, and management of curricula must possess competence regarding our various societies and our national personality. Curriculum specialists, teach-ers, and administrators must keep up to date on social and developmental theories, understand both the modern and the postmodern family, and process the challenges of moral and character education.

Analyzing the social foundations of curricu-lum allows educators to determine the myriad roles schools and educators play. Dealing with these foun-dations directs educators in processing questions as to how or even if schools make a difference in knowledge and procedures learned, and whether schools and their curricula affect society and its challenges.

Now consider these summary points: (1) The pur-poses of education are influenced by changing social forces, but there tends to be a balancing act between developing the potential of the individual and improv-ing society. (2) Another balancing act or duality is the need to stress intellectual and moral matters. Most schools, however, emphasize learning in the cognitive domain and deemphasize the moral domain. (3) Since the early 1960s, American society has changed from an inner-directed society to an other-directed society and now to a postmodern society. (4) The American fam-ily is changing from households headed by two adults to households headed by one adult. In an age of diver-sity and pluralism, the nuclear family is being replaced by many different family forms. (5) The peer group becomes increasingly important as children proceed through adolescence; it has an important influence on social behavior and academic achievement. (6) The culture of the classroom and school tends to stress pas-sive and conforming behaviors; students adapt to the environment by exhibiting various strategies, ranging from manipulative and pleasing to withdrawing and hostility.

Discussion Questions

1. What is the difference between *education* and *schooling*?
2. How does society shape a modal personality? What are the characteristics of a modal personality in your country?
3. What content is essential for moral teaching? What should be the teacher's role in promoting moral education?
4. Describe the relationship between children's reading habits and their family's economic status.
5. What do the studies by Jackson and by Goodlad suggest about the culture of classrooms?
6. What is cooperative learning? How can teachers ensure that peer relationships support learning rather than impede it?
7. Do you think schools can overcome socioeconomic divisions based on income inequalities?

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6 Curriculum Design

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Discuss the complexities behind curriculum design
2. Describe the components of curriculum design
3. Explain the curriculum design dimension considerations
4. Discuss various curriculum designs in both the modern and postmodern frameworks

Anyone charged with developing and delivering curriculum has a conception or conceptions of curriculum and its components. This statement of "fact" seems simple enough. But a person's conception(s) of curriculum and its/their components is/are not static constructs. As Wolff-Michael Roth asserts, life is dynamic, mobile. It is in constant motion; it is unfinalized. Therefore, our creations, our schema, our perceptions must be fluid. What we believe appropriate at a specific time period has to be reconsidered as we process new data and interpret new phenomena.[1] We cannot freeze a specific time interval. Intervals have flow, have duration.

■ COMPLEXITIES OF CURRICULUM DESIGN

Thinking of curriculum design is challenging, for we are attempting to select and organize curricular components in ways that will address the brain, the most mysterious organ of the human body, so that learning, however we define it, will occur. In curriculum design, we put ourselves under the illusion that we can stop time, stifle the interactions of humans to obtain learning outcomes, and delude ourselves into believing that specific results can be obtained and described with precision. Think of engaging in curriculum design as a drawing, a map, a blueprint, a draft. The complexity of the blueprint rests upon what one wishes to construct. For an architect, the task is rather easy, for the product that will result from humans following the blueprint will be something static: a building, a bridge, a house. But for the educator, the draft is a design that is a composition or "layout" that hopefully results in impacting the brain in ways that enable learning at multiple levels. Learning, and more importantly, understanding are never completely attained. Each day, we commence and enrich our educational journeys.

To be sure, there is much activity investigating this marvelous organ. Before this century is out, we may have uncovered the secrets of the brain. As Michio Kaku notes, brain research seems to reveal a biological structure that seems thrown together rather chaotically. Some brain researchers think that those who are trying to map the brain are engaging in foolishness.[2]

It is not surprising that there is a variety of opinions regarding how to design curriculum. Likewise, there is a plethora of viewpoints as to the educational purposes of various curricular schemes. The challenge of the curriculum designer and developer is to deal with what we know, and what we think we know. We have to be creative in our behaviors to address partial truths, and various myths that people believe about education and educators and the general public's embrace of curriculum's proper aims.[3] David Orr's four myths are still relevant.

The first myth is that education—the right curriculum and curriculum design—can eliminate ignorance. The second myth is that education and well-designed curricula can supply all the knowledge needed to manage society and the earth. The third myth is that educational curricula are increasing human goodness: well-designed curricula instill wisdom. The fourth myth is that education's primary purpose is to enable students to be upwardly mobile and economically successful.[4] This myth is evident in much discussion about standards.

In response to Orr's discussion of myths, some people might argue that education can *reduce* ignorance, *help* people manage society and the earth, *increase* wisdom, and *foster* upward mobility. Implicit in these myths is a key question: What is education for? Can we actually agree upon its purpose? You would think that after all the discussion on reforming education, creating curricula to make us competitive in the world, solving our and the world's social, economic, and health problems, we would be close to an answer.

In 2002, Ron Ritchhart informed us that we educate, create, and teach curricula to create intelligence.[5] But does intelligence guarantee eliminating ignorance? Does it foster human goodness? Is teaching for intelligence making students smarter? And what does *smart* mean? Ritchhart noted, and these authors concur, that schools, even with all the discussions about reforms and revised curricula, still teach to fill students with knowledge and skills rather than making them competent thinkers. One reason is that it is easier to measure attainment of knowledge and skills and much more challenging to assess heightened intelligence.[6]

Eric Schwarz laments that what schools were teaching in 2014 did not address what today's students need to be taught: scientific thinking and creativity. He argues that we in the 21st century need to shift from a nation of consumers to a nation of makers.[7] While we would not dispute that we need to stress scientific thinking and creativity, we would disagree that the prime reason for such emphasis is to make students more employable. Those who design curricula are educators, not trainers. Also, with the fast pace of change in this century, many of the occupations for students will have not yet been created.

Kieran Egan asks, why are educational considerations so challenging and contentious?[8] Can we make them less so? Egan notes that the difficulty lies in the fact that "our minds are both a part of the world while also being our means of viewing the world." Ideas and concepts focus what we see and do not see. We assume the validity of these "idea-lenses" and accept that we "observe reality directly."[9] Egan postulates that most individuals think about education and its purposes drawing upon three main ideas, consciously considered or not. One reason for people, and educators in particular, to reflect on curriculum design in general and on selecting or employing a curriculum design is to become cognizant of the base ideas of socialization, Plato's academic idea, and Rousseau's developmental idea. These three ideas orchestrate "all players" in selecting curricular design and bringing it into reality through curriculum development. Attending to these three ideas makes a case for knowing something about curriculum foundations in the philosophical, historical, social, and psychological realms.

These three big ideas do not work in synergistic fashion. Rather, they tend to interact at cross-purposes, seeming to create different "educational realities."[10] Most accept that education serves to socialize students to be functioning members of society, or good citizens. However, to *socialize* means to foster conformity. Socialization stressed too much leads to indoctrination. To

varying degrees, we all educate/indoctrinate our students so they have allegiance to complex sets of beliefs and particular patterns of behavior, the validity of which will never be challenged.[11]

When thinking of socialization, are we too tied to a current static situation or to an anticipated and future created social situation? Do we create or select a design that addresses current needs and behaviors, or design templates that allow for imagined possible and quickly forming futures?

The second big idea, Plato's academic idea, centrally deals with what knowledge is of most worth. The curriculum design we select influences how we select and organize knowledge and content in curriculum development. The major challenge is this: Out of all "collected" and stored knowledge, what should be selected to foster students becoming literate and thinking individuals? Some suggest a banquet of knowledge so that all stakeholders are pleased and represented.

Egan notes that there is no knowledge stored in literacy in libraries and computer databases. What is stored are symbols that trigger awareness of knowledge. Therefore, in contemplating curriculum design, we need careful reflection of how our selected design and related educational materials facilitate symbol processes in knowledge developed. Currently, some schools are "playing" with the symbols they are putting in schools via textbooks. Mastering codes is not synonymous with knowledge.[12]

The third base idea, Rousseau's development idea, brings into consideration the basic maturing of the individual, specifically the growth of mind. Egan notes that Plato correctly asserted that academic knowledge was important to education, but to complete a total read on knowledge, Plato needed to recognize the various stages at which individuals—young, mature, and senior—are at optimal stages for learning or experiencing diverse realms of knowledge. Also central to consideration is the variety of ways in which individuals process knowledge to gain literacy.[13] Thus it is essential, when considering curriculum design, to include learner development in the curriculum algorithm.

These three base ideas have been woven into our educational fabric and have influenced our perceptions as to the nature and purpose of education. They certainly have shaped the basic curriculum designs to be discussed later. These three base ideas all have contributions to give, and all have significant flaws that must be recognized. However, the strengths of each idea can offset the flaws of each idea. Thus, we can aim for socialization, but we must avoid stressing indoctrination. We also undercut indoctrination by emphasizing the uniqueness of each individual and his or her right to unique knowledge. And while we incorporate the base idea of academics, we put in place stops to intellectual elitism by celebrating the innate equality of all individuals. We accentuate "being your own person, developing your individuality," while also emphasizing the need to participate in a society of equals.[14]

Connecting Conceptions

The previous discussion reveals that how we contemplate education, curriculum, and curriculum design is influenced by myriad realms of knowing and feeling. Individuals draw from their experiences, their lived histories, their values, their belief systems, their social interactions, and their imaginations. How do we choose from among diverse views? How do we process the three base questions? How do we deal with the central question of what is the purpose of education, and thus the curriculum? There is no simple answer. Educational thinkers of all stripes and educational doers must ponder multiplicity.[15]

Wolff-Michael Roth critiques many modern and postmodern curriculum theorists and practitioners who are pondering multiplicity as failing to grasp what a "curriculum that is living" really contains. He notes that curricularists who define themselves as constructivists tend to contemplate a curriculum, especially a living curriculum, employing inert categories. The objectives, the contents, the instruction, and the evaluation of the curriculum are perceived as static. The curricular components can be considered, recorded, arranged, taught, and evaluated

as if written on tablets. The curriculum is a play already written. It only needs to be either read or acted, nothing more. But, in Roth's thinking, the play is not to be just read or viewed; it must be "participatively experienced and lived through."[16]

Roth's perspective is postconstructivist. It adds to the complex multiplicity of the realms and "postures" that need to be considered in curriculum design.

■ COMPONENTS OF DESIGN

To design a curriculum, we must consider how its parts interrelate. Thinking about a curriculum plan's "shape," or "gestalt," and the arrangement of its parts addresses the essence of curriculum design. A curriculum's parts should promote the whole.

In designing a curriculum, we should consider philosophical and learning theories to determine if our design decisions are in consonance with our basic beliefs concerning people, what and how they should learn, and how they should use their acquired knowledge. In designing curriculum, we should give serious attention to the three base ideas discussed by Egan.[17]

In addition to Egan's three base ideas, curriculum design consideration also must be guided by essential questions that are political, economic, social, and cultural. Some educators might also recommend posing questions addressing the spiritual realm. Answers, however partial, to these questions will actually influence the various steps and actions taken in curriculum design. Rick Ayers and William Ayers list some essential questions that both teachers and students need to revisit in designing and implementing curricula: "Who are you in the world?" "How did you (and I) get here?" "What can we know?" "What do we have the right to imagine and expect?" "Where are we going?" "Who makes the decisions?" "Who's left out?" "Who decides?" "Who benefits?" "Who suffers?" "What are the alternatives?"[18]

While curriculum design is concerned with the nature and arrangement of four basic parts (objectives, content, learning experiences, and evaluation), the combination of these parts is never neutral. Whoever the players are, they are influenced by their dispositions, their philosophies, their political orientations, even their cultures and class. We educators, as all other human beings, are multifaceted individuals. And as Ayers and Ayers posit, in our "dynamic, propulsive, forward-changing, expanding, and perspectival world, neutrality and objectivity are always up for grabs."[19] Education exists within this chaos. Curriculum design is enacted within this tumult.

Despite the complexities of this new century, we educators are all charged with making curricular decisions starting with curriculum design. Teachers in the classroom engage in curriculum design and implementation when making lesson plans and instructional units. And all need to address the following questions: What should be done? What subject matter should be included? What instructional strategies, resources, and activities should be employed? What methods and instruments should be used to appraise the results of curriculum? These basic questions need to be raised within the universe of the other questions mentioned above, which is no simple task.

Some people argue that objectives suggest an undesirable willingness to control individuals and unwarranted certainty regarding outcomes. However, all curriculum makers must reflect on the curriculum's content.

Much current talk centers on engaging students in the construction, deconstruction, and reconstruction of knowledge. This refers to the components of method and organization. The component of evaluation also is widely discussed. Even if we argue that final measurement is impossible, we engage in some sort of assessment.[20]

Sources of Curriculum Design

Curriculum designers must clarify their philosophical, social, and political views of society and the individual learner—views commonly called *curriculum's sources.* Educational action (in this case, curricular design) begins with recognizing one's beliefs and values, which influence

what one considers worth knowing and teaching. If we neglect philosophical, social, and political questions, we design curriculum with limited or confused rationales.

Ronald Doll describes four foundations of curriculum design: science, society, eternal truths, and divine will.[21] These sources partially overlap with curriculum sources identified by Dewey and Bode and popularized by Tyler: knowledge, society, and the learner.[22]

SCIENCE AS A SOURCE. Some curriculum workers rely on the scientific method when designing curriculum. Their design contains only observable and quantifiable elements. Problem solving is prioritized. The design emphasizes learning how to learn.

Much discussion of thinking processes is based on cognitive psychology. Advocated problem-solving procedures reflect our understanding of science and organization of knowledge. Some educators think the curriculum should prioritize the teaching of thinking strategies. With knowledge increasing so rapidly, the only constant seems to be the procedures by which we process knowledge.

SOCIETY AS A SOURCE. Curriculum designers who stress society as a curriculum source believe that school is an agent of society and should draw its curriculum ideas from analysis of the social situation. Individuals with this orientation believe heavily in the socialization function of schooling.

Schools must realize that they are part of and are designed to serve to some extent the interests of their local communities and larger society. But, as indicated earlier, school members must be mindful of the other two base ideas: academics and development. Further, curriculum designers must consider current and future society at the local, national, and global levels.

In considering society as a source, educators must realize that schools function not only with social communities, but with political ones as well. Political pressure on schools continues at the local, state, and national levels. No Child Left Behind is still on the books and is being revised. Race to the Top, offering federal incentive money, aims at stimulating innovative programs in local schools. These federal governmental programs aim at all three ideas identified by Egan.[23]

But the political realm of society is contentious. We have political drama with conservative, liberal, and radical players.[24] And no one considers that schools and their curricula are measuring up; students, so it appears and assessments seem to confirm, are not succeeding in their learning. In general, conservatives believe that the basics are being ignored and that schools are failing to instill traditional U.S. virtues and values. Here we see demands that schools socialize in particular ways that could touch on indoctrination. We also see the academic big idea being narrowly interpreted: a curriculum focusing on significant Western and American history, basic mathematics, specific Americans who have contributed to the United States, and basic language skills. In May 2010, the Texas State Board of Education voted to have a revised K–12 social studies curriculum that would contribute to the education of Texas students for a 10-year period. Those in favor of this decision believed that the revised social studies curriculum would put balance back in that curriculum. Opponents feared that the decision would result in social studies content losing its validity and actually leading to indoctrination.[25] In 2014, a school board in Colorado passed a motion favoring a textbook and curricula in high school American history that would celebrate the accomplishments of Americans, praise the United States' glorious past, and discourage criticism of American actions and policies. The high school students revolted, striking to protest the decision. Their actions made national news. The school board reversed its decision.

Adding to the political drama are critiques of schools and their curricula voiced by liberal and radical players. Liberals have criticized schools for failing to make students effective professionals or workers. Students in the United States must be more competitive in the world. Education should give students the means for upward mobility and success.[26] Here we see a reference to the fourth myth of education offered by Orr.[27]

Radical education players are dissatisfied with schools and school curricula because they center on the privileged members of our population and dismiss or deny the interests and cultural knowledge of underrepresented groups, such as indigenous people, people of color, women, and homosexuals. They often critique the curriculum from a Marxist or feminist perspective. They tend to think in terms of oppressors and oppressed, empowered and victimized, privileged and disadvantaged. Radical educators want U.S. schools to provide the educational and social opportunities necessary for all students to succeed.

It does seem that all three groups—conservative, liberal, and radical—value the individual. They call for balancing our uniqueness as individuals with our responsibilities as community members. Here we see the big idea of socialization attempting to avoid the danger of indoctrination.

Effective curriculum designers realize the need for collaboration among diverse individuals and groups. People from disparate backgrounds and cultures are demanding a voice regarding how education is organized and experienced. Society currently is a powerful influence on curriculum design. As Arthur Ellis notes, no curriculum or curriculum design can be considered or created apart from the people who make up our evolving society.[28]

MORAL DOCTRINE AS A SOURCE. Some curriculum designers look to the past for guidance regarding appropriate content. These persons emphasize what they view as lasting truths advanced by the great thinkers of the past. Their designs stress content and rank some subjects as more important than others.

Some people believe that curriculum design should be guided by the Bible or other religious texts. Although this view was common in the schools of colonial America, it has had little influence in public schools for more than a century, primarily because of the mandated separation of church and state. However, many private and parochial schools still subscribe to this now, including a growing number of Islamic schools. In this century, public schools are increasingly considering the relationship between knowledge and people's spirituality. Many people are criticizing Western society's emphases on science, rationality, and material wealth.

Dwayne Huebner argued that education can address spirituality without bringing in religion. For him, to have spirit is to be in touch with life's forces, or energies.[29] Being in touch with spirit allows us to see the essences of reality and to generate new ways of viewing knowledge, new relationships among people, and new ways of perceiving our existence. According to James Moffett, spirituality fosters mindfulness, attentiveness, awareness of the outside world, and self-awareness.[30] Spiritual individuals develop empathy and insight. Curriculum designers who draw on spirituality reach a fuller understanding than those who rely only on science. Spiritual individuals develop empathy and compassion. They consider and promote the welfare of others. They welcome differing viewpoints.[31] Spiritual curriculum designers ask questions about the nature of the world, the purpose of life, and what it means to be human and knowledgeable.

We would argue that even if we eschew the moral or spiritual as a source of curriculum, we essentially cannot avoid some influence of this source. Indeed, if we strive to educate and encourage the emergence of a fully autonomous individual who can connect with fellow humans in the world community, we must create educational experiences that foster not just the intellectual and emotional selves, but also the spiritual and empathic selves. This is not having religion as a source, as Heuber notes. In 2014, persons working with Doctors Without Borders who volunteered to fight the Ebola outbreak certainly have mastered intellectual realms, but more importantly, the spirit of humanity in action. They exhibited a moral responsibility to help their fellow humans. Some might state these individuals were living the humanistic ideal.[32]

KNOWLEDGE AS A SOURCE. Knowledge, according to some, is the primary source of curriculum. This view dates back to Plato, who communicated that when the most prized and useful knowledge is coded in writing, it can then be taught to students. Teaching such valued knowledge stimulates and develops the minds of learners. The result of such learning enables students

to apprehend the world closer to the real reality.[33] This view celebrates Plato's academic idea. Herbert Spencer placed knowledge within the framework of curriculum when he asked, "What knowledge is of most worth?"

Those who place knowledge at the center of curriculum design realize that knowledge may be a discipline, having a particular structure and a particular method or methods by which scholars extend its boundaries. Undisciplined knowledge does not have unique content; instead, its content is shaped according to an investigation's focus. For example, physics as a discipline has a unique conceptual structure and entails a unique process. In contrast, environmental education is undisciplined in that its content is drawn from various disciplines and adapted to a special focus.

Nel Noddings indicates that the majority of school curricula worldwide draw from knowledge organized as traditional disciplines.[34] We would suggest that many of the new curricula such as computer science and engineering are undisciplined knowledge. Their content certainly is drawn from disciplined knowledge such as physics and mathematics, but these curricular organizations, as previously noted, are not unique. As Noddings asserts, these sources of the curricular and organizations are not likely to change greatly. Universities are established upon a discipline foundation. She notes that even if elementary and secondary schools attempted to be too innovative in organizing curricular contents, the universities and colleges would scuttle the efforts.[35] But secondary schools and the public do not seem too willing to seek a totally new source for designing curricula. Schools with Advanced Placement and the International Baccalaureate programs reinforce the allegiance of knowledge as a source.[36] But, it does seem likely in this new century that we will see new and novel melds of knowledge structures. It does appear that the best chances for other sources of curricular design to gain significance will be in increased formalized prekindergarten, kindergarten, and elementary schools. Waldorf schools have curricula designed with the learner and society as sources.

The challenge to those who accept knowledge as the primary source of curricular design is that knowledge is exploding exponentially. But the time for engaging students with curriculum is not increasing. Most schools still require 180-school-day sessions. Spencer's question is now even more daunting. Not only must we rethink "What knowledge is of most worth?" but we must also posit the following inquiries: For whom is this knowledge of value? Is there any knowledge that must be possessed by the majority? What intellectual skills must be taught to enable common and uncommon knowledge to be utilized for individual and social good?

THE LEARNER AS A SOURCE.   Some believe that the curriculum should derive from our knowledge of students: how they learn, form attitudes, generate interests, and develop values. For progressive curricularists, humanistic educators, and many curricularists engaged in postmodern dialogue, the learner should be the primary source of curriculum design. Here we have the third big idea: Rousseau's theory of development.

Such curricularists tend to draw heavily on psychological foundations, especially how minds create meaning. Much cognitive research has provided curriculum designers with ways to develop educational activities that facilitate perceiving, thinking, and learning. Since the final years of the 20th century, microbiological research on the brain has had much significance for educators. We are learning that the educational environment can influence the anatomy of a child's brain. Quantity and quality of experiences physically affect brain development.[37] Much of this new knowledge about the brain has resulted from neuroimaging technologies that have been perfected since the early 1980s. It is now possible to map areas where the brain is active during various cognitive functions by measuring specific changes in cerebral blood supply.[38]

Instead of surmising what a person's brain is doing when he or she is engaged in specific types of thinking, as was done in most—if not all—cognitive research for the first seven decades of the last century, we now can view the human brain when it thinks.[39] We can photograph such brain activity; we can observe brain networks changing before our eyes and observe brain networks altering themselves to learning information and skills. In essence, we are gaining the ability to map more precisely the parts of the human brain involved in learning language, developing

perceptions, and even reading and learning arithmetic.[40] As Michael Posner and Mary Rothbart note, new brain research findings will allow the general public and educators unparalleled access to new levels of understanding human brain development. This design source has the greatest possibility of being the most powerful new fount of data for reconceptualizing curriculum design.[41]

We are actually "seeing" individuals construct and change brain neural pathways rather than simply acquiring knowledge, and they do so in unique ways with specific conclusions. They may use the same words to answer a question, but research indicates that their deep comprehension of the material is quite distinct.[42] Although technology is giving us a clearer vision of what is occurring in the anatomy of particular sections of the brain, we still have questions to answer and new avenues of inquiry to pursue. Indeed, neuroimaging of the brain still has not settled questions regarding whether the brain comes to school already preprogrammed (selectionism), or whether the brain attends school in a most malleable state ready to develop new skills and learnings (constructivism).[43]

Since 2005, new "science-fiction" devices have been invented to further explore the brain. The aim is to enable neuroscientists to unlock the mind. One such machine is the transcranial electromagnetic scanner (TES), another is the near-infrared spectroscopy (NIRS), and a third is the magnetoencephalography (MEG).[44] The TES employs a large electrical pulse that causes a surge of magnetic energy. The scanner is positioned next to the brain, causing the magnetic surge to penetrate the skull, thus generating an electrical pulse within the brain. This action results in lessening an activity of selected areas in the brain.[45] The MEGs are employed to record the magnetic fields produced by the altering electric fields in the brain.[46] While these devices are primarily used in the health sciences, educators may eventually map the brain and unlock its mysteries so as to create curricula that actually meld with the brain's natural physics.

Even with all the new advances in brain research, educators must realize that this source of curriculum design overlaps with approaches that focus on knowledge or science in that the science-based approach emphasizes strategies for processing knowledge, and the knowledge-based approach emphasizes how individuals process information. We counsel readers to realize the value of melding these primary sources of curriculum design.

Conceptual Framework: Horizontal and Vertical Organization

Curriculum design, the organization of curriculum's components, exists along two basic organizational dimensions: horizontal and vertical.

Horizontal organization blends curriculum elements—for example, by combining history, anthropology, and sociology content to create a contemporary studies course or by combining math and science content. *Vertical* organization refers to the sequencing of curriculum elements. Placing "the family" in first-grade social studies and "the community" in second-grade social studies is an example of vertical organization. Frequently, curricula are organized so that the same topics are addressed in different grades, but in increasing detail and at increasingly higher levels of difficulty. For instance, the mathematical concept of *set* is introduced in first grade and revisited each succeeding year in the elementary curriculum. (See Curriculum Tips 6.1 for ways to create a broad curriculum design.)

Although design decisions are essential, in most school districts overall, curricular designs receive little attention. The primary reason for this is that in most schools the district curriculum or textbook committee selects "the curriculum." In Texas, the State Board of Education determines the textbook or textbook series that may be considered for school district adoption. Even district curriculum/textbook committees do not give in-depth consideration to curriculum design. Most attention at district or state levels seems to go to design dimensions of scope, sequence, continuity, integration, articulation, and balance, which are discussed in the next section.

However, curricularists at the state and district levels and teachers at the classroom level should do more than just recommend content that reflects their philosophical and political views, which are frequently not carefully formulated. When considering how to design a curriculum beyond that suggested by the sequence of textbook chapters, we must contemplate carefully the

CURRICULUM TIPS 6.1	Points to Consider When Contemplating Curriculum Design

Curriculum design reflects the curriculum's architecture. Here are some useful points to consider in building an effective curriculum design:

1. Reflect on your philosophical, educational, and curriculum assumptions with regard to the goals of the school (or school district).
2. Consider your students' needs and aspirations.
3. Consider the various design components and their organization.
4. Sketch out the various design components to be implemented.
5. Cross-check your selected design components (objectives, content, learning experiences, and evaluation approaches) against the school's mission.
6. Share your curriculum design with a colleague.

socioeconomic, political, and cultural factors that influence our choices about horizontal and vertical organization.[47] Curricular designs should reflect diverse voices, meanings, and points of view.[48]

■ DESIGN DIMENSION CONSIDERATIONS

Curriculum design addresses relationships among curriculum's components. It should achieve scope, sequence, continuity, integration, articulation, and balance.

Scope

Curriculum designers must consider a curriculum's breadth and depth of content—that is, its *scope*. In *Basic Principles of Curriculum Instruction*, Ralph Tyler referred to scope as consisting of all the content, topics, learning experiences, and organizing threads comprising the educational plan.[49] John Goodlad and Zhixin Su reiterated this definition, pointing out that it refers to the curriculum's horizontal organization.[50] Scope includes all the types of educational experiences created to engage students in learning. It includes both cognitive and affective learning (and, some might add, spiritual learning).[51] Sometimes a curriculum's scope is limited to a simple listing of key topics and activities.

A curriculum's full scope can extend over a year or more. A curriculum whose scope covers only months or weeks is usually organized in units. Units are divided into lesson plans, which usually organize the information and activities into periods of hours or minutes.[52]

When teachers and other educators are deciding on curriculum content and its degree of detail, they are considering the curriculum's scope. In many ways, the current knowledge explosion has made dealing with scope almost overwhelming. Also, student diversity places increasing demands on teachers regarding which content and activities to include. Some teachers respond to content overload by ignoring certain content areas or excluding new content topics. Others attempt to interrelate certain topics to create curriculum themes.

When considering scope, we must consider learning's cognitive, affective, and psychomotor domains. (We might add the moral or spiritual domain.) We must determine what will be covered and in what detail within each domain. We must decide also which domain should be the most emphasized. Traditionally, the cognitive domain, drawing on the realm of knowledge, has been most emphasized. At the secondary level of schooling, we frequently draw on disciplines of knowledge and their main concepts to determine the curriculum's scope. However, the affective domain (dealing with values and attitudes) and the psychomotor domain (dealing with motor skills and coordination) are receiving growing attention.

Sequence

When considering sequence, curricularists seek a curriculum that fosters cumulative and continuous learning. Specifically, curricularists must decide how content and experiences can build on what came before.[53]

There is a long-standing controversy over whether the sequence of content and experiences should be based on the logic of the subject matter or the way individuals process knowledge. Those arguing for sequence based on psychological principles draw on research on human growth, development, and learning—essentially the third big idea: Rousseau's developmental theory. Piaget's research provided a framework for sequencing content and experiences (or activities) and for relating expectations to students' cognitive levels.[54] Most school districts consider students' stages of thinking in formulating curriculum objectives, content, and experiences by grade levels. The curriculum is thus sequenced according to Piaget's theory of cognitive development.

Curriculum designers are also influenced by current research on brain development. With increasing work in neuroscience, specifically developmental neurobiology, scientists are gaining understanding leading to ways to create educational agendas to enable educators to create educational environments that contain experiences that will greatly affect the individual's brain. Ideally, curricular experiences should maximize brain development.[55]

Neuroscientists know that in the first year of life, cells that have only sparsely populated the upper layers of the cortex migrate to these layers. This migration allows for increased mental activity. An infant's brain has more synaptic connections, or links between neurons, than an adult's brain. From ages 2 to 12, these connections strengthen. They were thought to decrease in number at puberty, but recent research seems to indicate that the opportunity for creating new brain circuits continues into adulthood. During this period, the brain appears to be creating and maintaining only the hardiest dendrites (the parts of the nerve cell that accept messages) to be incorporated into the adult brain.[56] With current brain research, educators must give careful thought to the contents and experiences sequenced in the educational program.

Curricularists faced with sequencing content have drawn on some fairly well-accepted learning principles. In 1957, B. Othanel Smith, William Stanley, and Harlan Shores introduced four such principles: simple-to-complex learning, prerequisite learning, whole-to-part learning, and chronological learning. These principles still have worth.

1. *Simple-to-complex learning* indicates that content is optimally organized in a sequence proceeding from simple subordinate components to complex components, highlighting interrelationships among components. Optimal learning results when individuals are presented with easy (often concrete) content and then with more difficult (often abstract) content.
2. *Prerequisite learning* is similar to part-to-whole learning. It works on the assumption that bits of information must be grasped before other bits can be comprehended.
3. *Whole-to-part learning* receives support from cognitive psychologists. They have urged that the curriculum be arranged so that the content or experience is first presented in an overview that provides students with a general idea of the information or situation.
4. *Chronological learning* refers to content whose sequence reflects the times of real-world occurrences.[57] History, political science, and world events frequently are organized chronologically.

In 1976, Gerald Posner and Kenneth Strike furnished the field of curriculum with four other types of sequencing: concept related, inquiry related, learning related, and utilization related.[58] The *concept-related* method draws heavily on the structure of knowledge. It focuses on concepts' interrelationships rather than on knowledge of the concrete. In the *inquiry-related* sequence, topics are sequenced to reflect the steps of scholarly investigation.

Instructional designers have incorporated the inquiry-related sequence into what they call *case-based reasoning,* which was developed to maximize computers' capabilities. The computer

applies previous learning to new situations. Similarly, people advance their knowledge by processing and organizing new experiences for later use. According to the inquiry-related model, if people fail to use acquired information, they must recognize a failure in reasoning or a deficiency in knowledge. In essence, this is how scholars advance inquiries. In the *learner-related* sequence, individuals learn through experiencing content and activities. *Utilization-related* learning focuses on how people who use knowledge or engage in a particular activity in the world actually proceed through the activity.

Continuity

Continuity is vertical repetition of curriculum components. For example, if reading skills are an important objective, then, in Tyler's words, "it is necessary to see that there is recurring and continuing opportunity for these skills to be practiced and developed. This means that over time the same kinds of skills will be brought into continuing operation."[59]

Ideas and skills that educators believe students should develop over time reappear over the length of the curriculum. This continuity ensures that students revisit crucial concepts and skills. For instance, becoming a skilled reader requires numerous encounters over time with various types of reading materials. Similarly, we do not learn how to conduct experiments unless we engage in such activities at various points in the curriculum; each subsequent experiment provides the opportunity to become more sophisticated in the processes. We learn to think deeply by having myriad experiences in which thinking and questioning are enriched.

It appears that the design dimension of continuity is being supported by recent brain research to supplement research in cognitive psychology. Brain research suggests that the amount of brain employed in performing a process may explain somewhat how well an individual performs particular tasks. The research has been done with both animals and humans.[60] Tyler, as pointed out earlier, stated that if reading skills are important, then they must be experienced repeatedly to be further developed. Studies by Elbert et al., as reported in Posner and Rothbart, of long practice playing the violin seem to nurture an increase in brain tissue related to such playing.[61] This research appears to support Herbert Simon's argument that we all can become masters of something if we devote sufficient time and effort, an example of a constructivist approach to learning.

Continuity is most evident in Jerome Bruner's notion of the *spiral curriculum*. Bruner noted that the curriculum should be organized according to the interrelationships among the basic ideas and structures of each major discipline. For students to grasp these ideas and structures, "they should be developed and redeveloped in a spiral fashion," in increasing depth and breadth as pupils advance through the school program.[62]

Integration

Integration refers to linking all types of knowledge and experiences contained within the curriculum plan. Essentially, it links all the curriculum's pieces so that students comprehend knowledge as unified rather than atomized.[63] Integration emphasizes horizontal relationships among topics and themes from all knowledge domains.

Curriculum theorists and practitioners tend to disproportionately emphasize integration, advocating an interdisciplinary curriculum, which is essentially a curriculum that would not be characterized as standard curriculum content. In some ways, curriculum integration is not simply a design dimension, but also a way of thinking about schools' purposes, curriculum's sources, and the nature and uses of knowledge.[64]

Advocates of curriculum integration do not advocate a multidisciplinary curriculum. In their view, such a curriculum still artificially compartmentalizes knowledge.[65] These advocates argue for organizing the curriculum around world themes derived from real-life concerns; lines between the subject content of different disciplines should be erased. Noddings submits that a

possible integration would involve great social problems. A new integration organizer, some argue, would stress attitudes, values, and social skills.[66]

Postmodernism, constructionism, and poststructuralism nurture continued discussion of curriculum integration, as does continued brain research. These movements advance the idea that knowledge cannot be separated from its reality, people cannot disconnect themselves from their inquiries, and the curriculum cannot exist as separate bits.

Articulation

Articulation refers to the vertical and horizontal interrelatedness of various aspects of the curriculum, that is, to the ways in which curriculum components occurring later in a program's sequence relate to those occurring earlier. For instance, a teacher might design an algebra course so that it relates algebra concepts to key concepts presented in a geometry course. *Vertical articulation* usually refers to the sequencing of content from one grade level to another. Such articulation ensures that students receive necessary preparation for coursework. *Horizontal articulation* (sometimes called *correlation*) refers to the association among simultaneous elements, as when curriculum designers develop relationships between eighth-grade social studies and eighth-grade English.

When they engage in horizontal articulation, curriculum makers seek to blend contents in one part of the educational program with contents similar in logic or subject matter. For example, curricularists might link mathematical and scientific thinking. Much of the current emphasis on integrating the curriculum is an effort at horizontal articulation.

Articulation is difficult to achieve, and few school districts have developed procedures by which the interrelationships among subjects are clearly defined. Also, within school districts, it is sometimes difficult to achieve articulation from one school to another. Similarly, there is a need for greater articulation among school districts. Often, students new to a school district are retaught material they learned in their former school at a lower grade level, or they miss a particular concept or topic because it was addressed in a lower grade at their new school.

Balance

When designing a curriculum, educators strive to give appropriate weight to each aspect of the design. In a balanced curriculum, students can acquire and use knowledge in ways that advance their personal, social, and intellectual goals. Keeping the curriculum balanced requires continuous fine-tuning as well as balance in our philosophy and psychology of learning (see Curriculum Tips 6.2).

CURRICULUM TIPS 6.2   **Guidelines for Curriculum Design**

The following statements identify some steps one can take in designing a curriculum. These statements, drawn from observations of school practice, are applicable to whatever design is selected.

1. Create a curriculum design committee composed of teachers, parents, community members, administrators, and if appropriate, students.
2. Create a schedule for meetings to make curriculum-design decisions.
3. Gather data about educational issues and suggested solutions.
4. Process data on available curriculum designs, and compare designs with regard to advantages and disadvantages such as cost, scheduling, class size, student population characteristics, students' academic strengths, adequacy of learning environments, and match with existing curricula. Also, assess whether the community is likely to accept the design.
5. Schedule time for reflection on the design.
6. Schedule time for revision of the design.
7. Explain the design to educational colleagues, community members, and if appropriate, students.

■ REPRESENTATIVE CURRICULUM DESIGNS

Curriculum components can be organized in numerous ways. However, despite all the discussion about postmodern views of knowledge and creating curricula for social awareness and emancipation, most curriculum designs are modifications or interpretations of three basic designs: (1) subject-centered designs, (2) learner-centered designs, and (3) problem-centered designs. Each of these designs attend in different degrees of emphasis to the three central ideas noted by Egan: "socialization, Plato's academic idea, and Rousseau's developmental idea."[67] Each category is composed of several examples. Subject-centered designs include subject designs, discipline designs, broad field designs, correlation designs, and process designs. Learner-centered designs are those identified as child-centered designs, experience-centered designs, romantic/radical designs, and humanistic designs. Problem-centered designs consider life situations, core designs, or social problem/reconstructionist designs.

Subject-Centered Designs

Subject-centered designs are by far the most popular and widely used. Knowledge and content are well accepted as integral parts of the curriculum. This design draws heavily on Plato's academic idea. Schools have a strong history of academic rationalism; also, the materials available for school use reflect content organization.

Among designs, subject-centered designs have the most classifications. Concepts central to a culture are more highly elaborated than peripheral ones. In our culture, content is central to schooling; therefore, we have many concepts to interpret our diverse organizations.

SUBJECT DESIGN.   The subject design is both the oldest and the best-known school design to both teachers and laypeople. Teachers and laypersons usually are educated or trained in schools employing it. The subject design corresponds to textbook treatment and teachers' training as subject specialists. It is also emphasized because of the continued stress on school standards and accountability.

An early spokesperson for the subject curriculum was Henry Morrison, who was New Hampshire's superintendent of public instruction before he joined the University of Chicago. Morrison argued that the subject matter curriculum contributed most to literacy, which should be the focus of the elementary curriculum. He also believed that such a design allowed secondary students to develop interests and competencies in particular subject areas. However, he believed that a variety of courses should be offered to meet students' diverse needs.[68]

William Harris, superintendent of the St. Louis schools in the 1870s, also fostered subject-based curriculum design. Under his guidance, St. Louis schools established a subject-oriented curriculum. One educator notes that most Americans would recognize this curriculum design (which he classifies as the conservative liberal arts design) as the type they experienced in school. In the mid-1930s, Robert Hutchins indicated which subjects made up a curriculum design: (1) language and its uses (reading, writing, grammar, literature), (2) mathematics, (3) sciences, (4) history, and (5) foreign languages.[69]

In subject-matter design, the curriculum is organized according to how essential knowledge has developed in various subject areas. With the explosion of knowledge and the resulting specializations in various knowledge fields, subject divisions have increased in number and sophistication. For instance, history is now divided into cultural, economic, and geographic history. English can be divided into literature, writing, speech, reading, linguistics, and grammar.

Such subject design rests on the assumption that subjects are best outlined in textbooks and e-books, and even in developed computer information programs. In most schools, the curriculum selected is in reality a textbook or e-book series. However, packaged computer curriculum programs are making inroads. You may be employing an e-book version of this curriculum textbook.

For these reasons, some educators say that teachers do not need to know much about curriculum design or curriculum development. However, we would counter that just because many

"curricula" selected in schools are primarily influenced by textbooks, e-books, and computer programs, educators at all levels must know about curriculum design in order to make informed selections regarding organizing content, no matter how packaged. Teachers still have to assume an active role in direct instruction, recitation, and large-group discussion. Teachers have to determine avenues by which discussion proceeds from simple to complex ideas. In-depth knowledge of curriculum design and curriculum is required if teachers are to encourage and guide students in intellectual exploration.[70]

Advocates of this design defend the emphasis on verbal activities, arguing that knowledge and ideas are best communicated and stored in verbal form. They also note that the subject design introduces students to essential knowledge of society. This essential knowledge of society addresses the big idea of socialization. Also, this design is easy to deliver because complementary textbooks and support materials are commercially available.

Critics, however, contend that the subject design prevents program individualization and deemphasizes the learner. Some argue that this design disempowers students by not allowing them to choose the content most meaningful to them.[71] Curricular content is presented without consideration of context. Other critics contend that stressing subject matter fails to foster social, psychological, and physical development and, to some extent, promotes a scholarly elite. Another drawback of the subject design is that learning tends to be compartmentalized and mnemonic skills tend to be stressed. The subject design stresses content and neglects students' needs, interests, and experiences. Also, in delivering such a curriculum, teachers tend to foster student passivity.

Dewey was concerned about divorcing knowledge from the learner's experiences and essentially transmitting secondhand knowledge and others' ideas.[72] For Dewey, the curriculum should emphasize both subject matter and the learner.

DISCIPLINE DESIGN.   The discipline design, which appeared after World War II, evolved from the separate-subject design. This new design gained popularity during the 1950s and reached its zenith during the mid-1960s. As is the case with the separate-subject design, the discipline design is based on content's inherent organization. However, whereas the subject design does not make clear the foundational basis on which it is organized or established, the discipline design's orientation does specify its focus on the academic disciplines.

Arthur King and John Brownell, proponents of the discipline design, long ago indicated that a *discipline* is specific knowledge that has the following essential characteristics: a community of persons, an expression of human imagination, a domain, a tradition, a mode of inquiry, a conceptual structure, a specialized language, a heritage of literature, a network of communications, a valuative and affective stance, and an instructive community.[73] This stress on disciplined knowledge emphasizes science, mathematics, English, history, and certain other disciplines. Advocates view the school as a microcosm of the world of intellect, reflected by such disciplines. The methods by which scholars study the content of their fields suggest the ways in which students learn that content. In other words, students approach history as a historian would, and students investigate biological topics by following procedures used by biologists.

Proponents of the discipline design stress understanding the conceptual structures and processes of the disciplines. This is perhaps the essential difference between the discipline design and the subject-matter design. With the discipline design, students experience the disciplines so that they can comprehend and conceptualize; with the subject-matter design, students are considered to have learned if they simply acquire information. Sometimes it is difficult to determine whether a classroom has a subject-matter or discipline design. The key distinguishing characteristic seems to be whether students actually use some of the discipline's methods to process information. Stated differently, the subject matter design emphasizes "filling" students with knowledge, whereas the discipline design aims to foster student thinkers who can utilize information to generate knowledge and understandings. Discipline design fosters teachers teaching for intelligence.[74]

Bruner notes, "Getting to know something is an adventure in how to account for a great many things that you encounter in as simple and elegant a way as possible."[75] This "getting to know" relies on students engaging with a discipline's content and methods. So engaged, students analyze the components of the disciplined content and draw conclusions (albeit incomplete ones). Bruner's comment that "getting to know something is an adventure" needs our reflection. Indeed, in the discipline design, students are offered opportunities to take a "voyage to the unknown."[76] They have or should have opportunities to, as Doll states, engage with information and ideas, and process them in ways that encourage play, precision/definiteness, and generate generalizations/abstraction.[77] Doll submits that this process is not a precise sequence, but rather a spirited integration of stages of process. But, in being so engaged, educators are addressing what Whitehead noted: "the human being . . . craves to explore, to discover, to know—to investigate curious thoughts, to shape questions, to seek for answers."[78]

The discipline design encourages students to see each discipline's basic logic or structure—the key relationships, concepts, and principles, what Joseph Schwab called the "substantive structure."[79] Considering structure or meaning allows a deep understanding of the content and a knowledge of how it can be applied. Harry Broudy called such knowledge (e.g., problem-solving procedures) "applicative knowledge."[80]

Students who become fluent in a discipline's modes of inquiry master the content area and are able to continue their learning independently in the field. Such students do not need the teacher to continually present information. Supporters of this design want students to function as little scholars in the school curriculum's respective fields. When learning mathematics, students are neophyte mathematicians. When studying history, they use the methods of historiography.

The emphasis on disciplines and structure led to Bruner's classic book *Process of Education*. The very title suggests that learning should emphasize process or procedural knowledge. Bruner states that a subject's curriculum "should be determined by … the underlying principles that give structure to that subject."[81] Organizing the curriculum according to the discipline's structure elucidates relationships, indicates how elementary knowledge relates to advanced knowledge, allows individuals to reconstruct meaning within the content area, and furnishes the means for advancing through the content area.

Bruner believed that "any subject can be taught in some effectively honest form to any child at any stage of development."[82] He argued that students can comprehend any subject's fundamental principles at almost any age. Bruner's view has been criticized as romantic. Developmentalists disagree with his thesis that "intellectual activity anywhere is the same."[83] They point out that the thinking processes of young children differ in kind and degree from those of adolescents and adults. Young boys and girls also differ in how they process information.

Many individuals both within and outside the educational community believe that the discipline design is appropriate for all students, college bound or not. The discipline design gives students opportunities to learn knowledge essential for effective living. An academic course of study meets all students' needs. Our society requires literate individuals with the skills necessary to function in an information age. The curriculum should educate students, not train them for a job (as vocational education does).

Many have criticized the discipline design for assuming that students must adapt to the curriculum rather than the other way around. Some also argue that the view that curriculum knowledge should mirror disciplined knowledge sustains the biases and assumptions of those who wish to maintain the status quo.[84] The discipline design is also criticized for its underlying assumption that all students have a common or a similar learning style. Perhaps this design's greatest shortcoming is that it causes schools to ignore the vast amount of information that cannot be classified as disciplined knowledge. Such knowledge—dealing with aesthetics, humanism, personal–social living, and vocational education—is difficult to categorize as a discipline.

BROAD-FIELDS DESIGN. The broad-fields design (often called the *interdisciplinary design*) is another variation of the subject-centered design. It appeared as an effort to correct what many

educators considered the fragmentation and compartmentalization caused by the subject design. Broad-fields designers strove to give students a sweeping understanding of all content areas.[85] They attempted to integrate content that fit together logically. Geography, economics, political science, anthropology, sociology, and history were fused into social studies. Linguistics, grammar, literature, composition, and spelling were collapsed into language arts. Biology, chemistry, and physics were integrated into general science.

The idea for the broad-fields design was both bold and simple. Essentially, educators could simply meld two or more related subjects, already well known in the schools, into a single broader field of study. However, this design was a change from traditional subject patterns. Although it first appeared at the college level in the 1910s, it became most popular at the elementary and secondary levels. This continues to be the case. Today the broad-fields design is seen at the college level only in introductory courses, but it is widespread within the K–12 curriculum.

Harry Broudy and colleagues offered a unique broad-fields design during the Sputnik era. They suggested that the entire curriculum be organized into these categories: (1) symbolics of information (English, foreign languages, and mathematics); (2) basic sciences (general science, biology, physics, and chemistry); (3) developmental studies (evolution of the cosmos, of social institutions, and of human culture); (4) exemplars (modes of aesthetic experience, including art, music, drama, and literature); and (5) "molar problems," which address typical social problems.[86] This last category entails an annual variety of courses, depending on current social problems.

The broad-fields design still brings together well-accepted content fields. Some curricularists prefer that broad fields consist of related conceptual clusters rather than subjects or disciplines combined in interdisciplinary organization. These clusters can be connected by themes. Some educators are calling for the organization of curriculum as integrated thematic units. Others are using the term *holistic curriculum.*[87]

The broad-fields design can be interpreted as saying that the separate subject is dead. Rather, we should have a design that draws on emergent clusters of problems and questions that engages students in constructing and reconstructing information.[88]

Much of broad-fields design focuses on *curriculum webs,* connections among related themes or concepts. Many years ago, Taba discussed the concept of webs when urging teachers to create cognitive maps in constructing curriculum.[89] The broad-fields design may be the most active in the future, allowing for hybrid forms of content and knowledge in the curriculum and for student participation in constructing knowledge.

Like other designs, this design has its problems. One is breadth at the expense of depth. A year of social studies teaches students a greater range of social science concepts than a year of history. But is the resulting knowledge of social sciences superficial? Certainly, a year of history builds more historical knowledge than a year of social studies. Is it necessary to have great depth at the elementary level? Is it not the purpose of the curriculum to acquaint students with the complete field of social science?

The issue of depth is even more central when we expand the broad-fields design to an integrated curriculum design. Just how much depth will students get following or constructing webs of related concepts? How much depth can one attain in science by following the theme of dinosaurs or machines? In whole language, will students attain a sufficiently deep appreciation of reading, writing, and listening? The philosophies of schools and educators influence their responses.

CORRELATION DESIGN.   Correlation designers do not wish to create a broad-fields design but realize there are times when separate subjects require linkage to avoid fragmentation of curricular content. Midway between separate subjects and total content integration, the correlation design attempts to identify ways in which subjects can be related, yet maintain their separate identities.

Perhaps the most frequently correlated subjects are English literature and history at the secondary level and language arts and social studies at the elementary level.

6.2 Humans in the Natural World—An Integrated Curriculum
More schools, like the Putney School in Vermont, are taking on an interdisciplinary, or integrated, approach to their curriculum. Watch this video describing a ninth-grade course called "Humans in the Natural World," which combines English, science, and history. What do you think are some of the benefits of this approach compared with the traditional, subject-centered curriculum? Are there any downsides?

https://www.youtube.com/watch?v=XpnRx243Wy8

While studying a historical period, students read novels related to the same period in their English class. Science and mathematics courses are also frequently correlated. Students in a chemistry course may have a unit in math that deals with the mathematics required to conduct an experiment. However, the content areas remain distinct, and the teachers of these courses retain their subject-matter specialties.

In the 1950s and 1960s, many found the notion of correlation design attractive. Harold and Elsie Alberty discussed correlated curriculum at the secondary level. They presented a correlation design with an "overarching theme." This thematic organizer retained subjects' basic content, but it was selected and organized with reference to broad themes, problems, or units.[90] It required that classes be scheduled within a block of time. Teachers of the various content areas to be correlated could then work together and have students work on assignments drawing from the correlated content areas. Subjects can be combined in innovative ways. For example, it is possible to relate literature and art that depict similar content. Science can be taught through literature. Courses in computer science might be correlated with courses in art, music, or economics.

Currently, few teachers use correlation design, possibly because it requires that they plan their lessons cooperatively. This is somewhat difficult to accomplish because teachers have self-contained classes at the elementary level and often do not have time for such collaboration. At the secondary level, teachers are organized into separate departments that tend to encourage isolation. Teachers must also meet time schedules dictated by specific classes and so may have little time to work with other teachers on team teaching. Also, most class schedules do not allow a block of time sufficient for students to meaningfully study correlated subjects. Modular scheduling and flexible scheduling, which allow for this, have not been widely accepted.

PROCESS DESIGNS.   As previously discussed, attention is often given to the procedures and processes by which individuals obtain knowledge. Students studying biology learn methods for dealing with biological knowledge, students in history classes learn the ways of historiography, and students investigating anthropology learn ethnographic procedures appropriate for studying culture and society. Although advocates of the disciplines design urge students to learn process, other educators are suggesting curricular designs that stress the learning of general procedures applicable to all disciplines. Curricula for teaching critical thinking exemplify this procedural design.

Educators have always suggested that students be taught to think. Curricular designs must address how learners learn and the application of process to subject matter. "The good thinker, possessing attributes enabling him or her to create and use meaning . . . possesses a spirit of inquiry, a desire to pose questions central to the world. The good thinker ponders the world, actual and desired, querying things valued and desired."[91] Process designs focus on the student as meaning maker.

Process designs focus on teaching for intelligence and on the development of intellectual character. Ron Ritchhart borrowed this term from Tishman[92] to cluster particular dispositions requisite for effective and productive thinking. Intellectual character goes beyond a listing of abilities and the speed of enactment of those abilities, or the retrieval of detailed information. In Ritchhart's thinking, *intellectual character* "recognizes the role of attitude and affect in everyday cognition and the importance of developed patterns of behavior."[93] Intellectual character encompasses sets of dispositions that actually shape and activate intellectual behavior.

Process designs emphasize those procedures that enable students to analyze reality and create frameworks by which to arrange derived knowledge. Often the organizational frameworks differ from the way the world appears to the casual observer.[94] There is much dialogue about involving students in their learning and empowering them to be the central players in the classroom. However, there is much debate regarding the nature of the process to be stressed. Some postmodernists criticize process designs that privilege the scientific method and imply the existence of a fully objective reality. Students must realize that methods of inquiry result in a world that, to some extent, they construct.[95]

In process designs that reflect a modern orientation, students learn the process of knowledge acquisition in order to reach some degree of consensus. However, people such as Jean-François Lyotard argue that we engage in process not to reach consensus, but to search for instabilities.[96] In the modern orientation, intellectual and physical processes exist in an irreversible linear arrow. Time and action always move forward. One cannot repeat the past. One cannot undo what has been accomplished.

However, in the postmodern orientation, process exists in a duration of time, and this duration of time upon completion still is embedded in the present, which is also a duration. Individuals—students and teachers—exist in a series of durations, a constant flow of "nows." These nows are shaped by past durations recognized and future durations anticipated.[97] We all are in a process or processes of becoming. "Human consciousness can never be static. Interpretation should, according to post-modern thought, emphasize possibility and becoming."[98] Postmodern process design stresses statements and ideas that are open to challenge; designs are organized so that students can continually revise their understandings.[99]

Bruner and others call this continual revision *hermeneutic composition*. The challenge of a process curriculum is to analyze the validity of our conclusions and to determine the "rightness" of our interpretation of a text or content realm by reference not to observed reality, but to other interpretations by scholars.[100] We believe that we could engage in hermeneutic analysis and determine the rightness of conclusions based on the observation of actual phenomena.

A postmodern process-design curriculum has students do more than simply analyze their conclusions. It encourages them to unravel the processes by which they investigate and reach conclusions. Students are to study their information-processing methods in order to gain insights into how knowledge is generated.[101] Postmodern process design emphasizes the role of language in constructing as well as representing reality. Process designs may be the most dynamic in the future. It is quite likely that they will increasingly meld with designs identified as learner centered.

Learner-Centered Designs

All curricularists wish to create curricula valuable to students. In response to educational planners who valued subject matter, educators in the early 1900s asserted that students were the program's focus. Progressives advocated what have come to be called *learner-centered designs*. These designs appear more frequently at the elementary and preschool levels than at the secondary school level. In preschools, kindergartens, and elementary schools, teachers tend to stress the whole child. Teachers create opportunities for children to develop personal interests. Play is an important vehicle of learning. Students, under the guidance of teachers, are free to get absorbed in an activity, as William Doll denotes, to actually craft their own experience. In the learner-centered designs, a theme emerges that students are the designers, the makers of what they are experiencing. Teachers cannot create experiences; teachers can provide opportunities for potential experiences, but the actual experiences only occur and develop when teachers enable and allow students to, as Doll notes, "plunge into subject matter, to see, feel, experience its aesthetic qualities—to explore the spirit of the subject."[102]

At the secondary level, the emphasis is more on subject matter designs, largely because of the influence of textbooks and the colleges and universities at which the discipline is a major organizer for the curriculum. Learner-centered designs essentially stress two of the three big ideas regarding thinking about education: socialization and Rousseau's developmental ideas. Your authors assert that secondary and higher education might benefit if more attention were given to learner-centered designs. There are some instances where this is happening.

CHILD-CENTERED DESIGN. Advocates of child- or student-centered design believe that students must be active in their learning environments and that learning should not be separated from students' lives, as is often the case with subject-centered designs. Instead, the design should

be based on students' lives, needs, and interests. Attending to students' needs and interests requires careful observation of students and faith that they can articulate those needs and interests. Also, young students' interests must have educational value.[103]

People with this view consider knowledge as an outgrowth of personal experience. People use knowledge to advance their goals and construct it from their interactions with their world. Learners actively construct their own understandings. Learning is not the passive reception of information from an authority. Students must have classroom opportunities to explore, firsthand, physical, social, emotional, and logical knowledge. This view has a long history. John Locke noted that individuals construct bodies of knowledge from a foundation of simple ideas derived from their experiences. Immanuel Kant postulated that aspects of our knowledge result from our cognitive actions; we construct our universe to have certain properties.[104] The shift in emphasis from subject matter to children's needs and interests was part of Rousseau's educational philosophy, as expressed in his 1762 book *Emile*. Rousseau believed that children should be taught within the context of their natural environment, not in an artificial one like a classroom.[105] Teaching must suit a child's developmental level.

Proponents of child-centered design draw on the thinking of some other pedagogical giants. Heinrich Pestalozzi and Friedrich Froebel argued that children attain self-realization through social participation; they voiced the principle of learning by doing. Their social approach to education furnished a foundation for much of Francis Parker's work.

Child-centered design, often attributed to Dewey, was actually conceived by Parker, who laid its foundations. Parker had studied pedagogy in Germany, and he knew the work of Pestalozzi and Froebel. Like Rousseau, Parker believed that effective education did not require strict discipline. Rather, the instructional approach should be somewhat free, drawing on the child's innate tendency to become engaged in interesting things. Teachers who involved children in conversations would find that they could effectively participate in their own learning. Parker put his views of teaching into practice in developing science and geography curricula. He urged geography teachers to have children experience the content as a geographer out in the field would, by making observations, recording them in sketchbooks, and analyzing them. Parker was superintendent of schools in Quincy, Massachusetts, and his approach to curriculum was called the Quincy system.[106]

Dewey's early thinking entailed similar notions. In 1896, he put some of his ideas into action in his laboratory school at the University of Chicago. The curriculum was organized around human impulses—the impulses to socialize, construct, inquire, question, experiment, and express or create artistically.[107]

The emphasis on the child displaced the emphasis on subject matter. Also, when subject matter was presented, it no longer was separated into narrow divisions but was integrated around units of experience or social problems. The idea that solving a problem required methods and materials from several subject fields was inherent in the child-centered, experience-centered curriculum.

Child-centered curriculum design flourished in the 1920s and 1930s, primarily though the work of the progressives such as Ellsworth Collings (who introduced the child-centered curriculum into the public schools of McDonald County, Missouri) and William Kilpatrick (who created the *project method,* which engaged children in their learning at the Lincoln School in New York City).[108] Although the project method was extensively discussed in the literature, it gained only limited acceptance. However, at some schools, the project method is being rediscovered and even researched. As of this writing, the University of Washington's College of Education had a government grant to analyze the introduction of what is basically Kilpatrick's project method. High school students studying the social sciences are responsible for designing in groups various projects that put the students in the designer's seat. The students are determining their own expectations for their projects.

The University of Washington's School of Architecture has used the project method for many decades. College students, either alone or in teams, plan architectural projects in which the professor counsels and guides rather than presents his expectations.

Today some schools employ child-centered designs. However, as John Goodlad and Zhixin Su point out, such designs often contradict a view of curriculum as primarily content driven.[109] Some curricularists have attempted to have more educators accept child-centered design by way of negotiated curriculum, which involves student–teacher negotiations regarding which content addresses what interests. Teachers and students participate in planning the unit, its purposes, the content focuses, the activities, and even the materials to be used.[110]

Having students negotiate the curriculum empowers them. It gives them opportunities to construct their own curricula and learning.[111]

EXPERIENCE-CENTERED DESIGN. Experience-centered curriculum designs closely resemble child-centered designs in that children's concerns are the basis for organizing children's school world. However, they differ from child-centered designs in that children's needs and interests cannot be anticipated; therefore, a curriculum framework cannot be planned for all children.

The notion that a curriculum cannot be preplanned, that everything must be done "on the spot" as a teacher reacts to each child, makes experienced-centered design almost impossible to implement. It also ignores the vast amount of information available about children's growth and development—cognitive, affective, emotional, and social.

Those favoring a child- or experience-centered curriculum heavily emphasize the learners' interests, creativity, and self-direction. The teacher's task is to create a stimulating learning environment in which students can explore, come into direct contact with knowledge, and observe others' learning and actions. Learning is a social activity. Students essentially design their own learning; they construct and revise their knowledge through direct participation and active observation.[112]

In an experience-centered curriculum, the emphasis of the design is not on teaching or on learning, but on the activity. As Doll posits, Dewey viewed learning as natural to human activity. One did not need to formally teach learning. Put children in a place that interests them, and they commence learning. They become nascent inquirers, investigators. They organize their environment; they reflect. "Production, knowledge, learning are but by-products of the active process of inquiry." Learning comes naturally.[113]

At the beginning of the 1900s, Dewey noted that children's spontaneous power—their demand for self-expression—cannot be suppressed. For Dewey, interest was purposeful. In *Experience and Education*, he noted that education should commence with the experience learners already possessed when they entered school. Experience was essentially the starting point for all further learning.[114] Dewey further noted that children exist in a personal world of experiences. Their interests are personal concerns rather than bodies of knowledge and their attendant facts, concepts, generalizations, and theories.

Even so, Dewey never advocated making children's interests the curriculum or placing children in the role of curriculum makers. He commented, "The easy thing is to seize upon something in the nature of the child, or upon something in the developed consciousness of the adult, and insist upon that as the key to the whole problem."[115]

Dewey wanted educators to analyze children's experiences and to see how these experiences shaped children's knowledge. One searched for starting points, places where the child's natural interests could be linked to formalized knowledge. Dewey wanted educators to think of the child's experience as fluid and dynamic. Thus, the curriculum would continually change to address students' needs.[116] Dewey contended that the subjects studied in the curriculum are formalized learnings derived from children's experiences. The content is systematically organized as a result of careful reflection.

Those who subscribe to experience-centered curriculum design have faith in each student's uniqueness and ability. They believe that an open and free school environment stimulates all students to excel. Students in optimal school environments are self-motivated; the educator's role is to provide opportunities, not to mandate certain actions. Thomas Armstrong speaks of creating a genial classroom environment, one that exudes a festive atmosphere and capitalizes

on students' natural disposition to learn. Such an environment celebrates students' freedom to choose. It does not demand that they think and study in particular ways in order to succeed. This does not mean that students are left to drift in their academic efforts. The teacher who has designed an experience-centered curriculum has designed potential experiences for students to consider. Students are empowered to shape their own learning within the context furnished by the teacher.[117]

ROMANTIC (RADICAL) DESIGN.   More recently, reformers who advocate radical school modification have stressed learner-centered design. These individuals essentially adhere to Rousseau's posture on the value of attending to the nature of individuals and Pestalozzi's thinking that individuals can find their true selves by looking to their own nature. Although their thinking appears progressive, they draw primarily on the views of more recent philosophers: Jurgen Habermas, a German philosopher, and Paulo Freire, a radical Brazilian educator.

Individuals in the radical camp believe that schools have organized themselves, their curriculum, and their students in stratifications that are not benign. The ways schools are, the curricular designs selected or stressed, and the content selected and organized result from people's careful planning and intent. The intent is to continue the dominant social segments of the nation so that advantages these segments enjoy will continue without challenge from those people deemed subordinate.[118] School curricular designs, school curricula, and the administration of schools' programs are planned and manipulated to reflect and address the desires of those in power. Educators in the radical camp work to alter this dividing of students into haves and have-nots.

Radicals consider that presently schools are using their curricula to control students and indoctrinate rather than educate and emancipate. Students in "have" societies are manipulated to believe that what they have and will learn is good and just, whereas students in the "have-not" societies are shaped to gladly accept their subordinate positions. Curricula are organized to foster in students a belief in and desire for a common culture that does not actually exist and to promote intolerance of difference.[119]

Freire's *Pedagogy of the Oppressed* influenced the thinking of some present-day radicals. Freire believed that education should enlighten the masses about their oppression, prompt them to feel dissatisfied with their condition, and give them the competencies necessary for correcting the identified inequities.[120]

Many radicals draw on the theory of Habermas, who emphasizes that education's goal is emancipation of the awarenesses, competencies, and attitudes that people need to take control of their lives. In this view, educated people do not follow social conventions without reflection. In writing about Habermas and his critical theory of education, Robert Young notes that the theme of emancipation dates back to Roman times and was also expressed by many Enlightenment philosophers. Students must accept responsibility for educating themselves and demand freedom.[121]

Radical curricularists believe that individuals must learn to critique knowledge. Learning is reflective; it is not externally imposed by someone in power. William Ayers posits that students should be invited by the teacher not to just "learn" the curricula, but to travel and to experience the curricula as coadventurers and, perhaps at times, coconspirators. More recently, William Ayers, along with coauthor Rick Ayers writes, "Our students must become the subjects of communication, actors in their own dramas and writers of their own scripts, even as we ourselves resist being transformed into objects by the mechanisms of surveillance that so profoundly define the modern educational institution."[122] To Ayers, "curriculum is an ongoing engagement with the problem of determining what knowledge and experiences are the most worthwhile."[123] Teachers function as "awareness makers." They are present within the curricular arena to "expose, offer, encourage, stimulate,"[124] and, we would add, to challenge, create awe and wonder, and nurture inquisitiveness.

Curricula in the radical camp are characterized by teachers' and students' actions that break barriers, challenge and unpack preconceptions, critically analyze theories, and discover new ways to process significant questions. And curricula are perceived essentially as all the

materials offered and implied and all the experiences planned and unplanned that happen both inside and outside the school.[125]

Curricula are not just endpoints or waypoints on a predetermined school journey. Curricula are a universe of possibilities and of limitless avenues of inquiry, a plethora of experiences that engage the minds, the bodies, and the spirits of teachers and students. Such curricula are exploding galaxies of intended and unintended consequences.

Although we do not characterize ourselves as radical curricularists, we do believe that many, if not most, of the features of the radical curricular design should be incorporated into more traditional designs. Students should be challenged in their learning; students should have adventures in total learning in cognitive, physical, emotional, and spiritual realms. Education is an adventure!

Perhaps the biggest difference between mainstream educators and radicals is that radicals view society as deeply flawed and believe that education indoctrinates students to serve controlling groups. Many radicals view the Western intellectual tradition, and its standard curricula, as imperialistic and oppressive. Curricula with a radical design address social and economic inequality and injustice. Radical educators are overtly political.

HUMANISTIC DESIGN.   Humanistic designs gained prominence in the 1960s and 1970s, partly in response to the excessive emphasis on the disciplines during the 1950s and early 1960s. Humanistic education appeared in the 1920s and 1930s as part of progressive philosophy and the whole-child movement in psychology. After World War II, humanistic designs connected to existentialism in educational philosophy.

Humanistic psychology developed in the 1950s in opposition to the then-dominant psychological school of behaviorism. This new psychological orientation emphasized that human action was much more than a response to a stimulus, that meaning was more important than methods, that the focus of attention should be on the subjective rather than objective nature of human existence, and that there is a relationship between learning and feeling.

Within this context, the ASCD published its 1962 yearbook, *Perceiving, Behaving, Becoming*.[126] This book represented a new focus for education—an approach to curricular design and instructional delivery that would allow individuals to become fully functioning persons. Arthur Combs, the yearbook's chairperson, posed some key questions: What kind of person achieves self-realization? What goes into making such a person?[127] The emphasis was on empowering individuals by actively involving them in their own growth. The ASCD's 1977 yearbook, *Feeling, Valuing, and the Art of Growing*, also stressed the affective dimensions of humanistic educational designs and emphasized human potential. It suggested that educators must permit students to feel, value, and grow.[128]

Abraham Maslow's concept of self-actualization heavily influenced humanistic design. Maslow listed the characteristics of a self-actualized person: (1) accepting of self, others, and nature; (2) spontaneous, simple, and natural; (3) problem oriented; (4) open to experiences beyond the ordinary; (5) empathetic and sympathetic toward the less fortunate; (6) sophisticated in interpersonal relations; (7) favoring democratic decision-making; and (8) possessing a philosophical sense of humor.[129] Maslow emphasized that people do not self-actualize until they are 40 or older, but the process begins when they are students. Some educators miss this point and think that their humanistic designs will have students attain self-actualization as an end product.

Carl Rogers's work has been another major humanistic force. Rogers advocates self-directed learning, in which students draw on their own resources to improve self-understanding and guide their own behavior. Educators should provide an environment that encourages genuineness, empathy, and respect for self and others.[130] Students in such an environment naturally develop into what Rogers called fully functioning people. Individuals able to initiate action and take responsibility are capable of intelligent choice and self-direction. Rogers stressed knowledge relevant to problem solving. Classroom questions foster learning and deep thinking. The quest is collaborative and the inquiries are multidisciplinary. There is no need to "stay within

discipline lines." Mistakes are accepted as part of the learning process. Conclusions are re-garded as temporary. Students approach problems with flexibility and intelligence; they work cooperatively but do not need others' approval.[131]

In the 1970s, humanistic education absorbed the notion of *confluence.* Confluence education blends the affective domain (feelings, attitudes, values) with the cognitive domain (intellectual knowledge and problem-solving abilities). It adds the affective component to the conventional subject-matter curriculum.[132]

Confluent education stresses participation; it emphasizes power sharing, negotiation, and joint responsibility. It also stresses the whole person and the integration of thinking, feeling, and acting. It centers on subject matter's relevance to students' needs and lives. Humanistic educa-tors realize that the cognitive, affective, and psychomotor domains are interconnected and that curricula should address these dimensions. Some humanistic educators would add the social and spiritual domains as well.[133]

Some humanistic designs stress intuition, creative thinking, and a holistic perception of reality. They produce curricula that prioritize the uniqueness of the human personality but also transcendence of individuality. As Phenix notes, such a curriculum presents reality as a "single interconnected whole, such that a complete description of any entity would require the com-prehension of every other entity."[134] James Moffett suggests that a curriculum that emphasizes spirituality enables students to enter "on a personal spiritual path unique to each that neverthe-less entails joining increasingly expansive memberships of humanity and nature."[135] He cautions that society must foster morality and spirituality, not just knowledge and power. Transcendent education is hope, creativity, awareness, doubt and faith, wonder, awe, and reverence.[136] (See Curriculum Tips 6.3.)

For humanists, education should address pleasure and desire such as aesthetic pleasure. Emphasizing natural and human-created beauty, humanistic curriculum designs allow students to experience learning with emotion, imagination, and wonder. Curricular content should elicit emotion as well as thought. It should address not only the conceptual structures of knowledge, but also its implications. The curriculum design should allow students to formulate a perceived individual and social good, and encourage them to participate in a community.[137]

CURRICULUM TIPS 6.3   **The Curriculum Matrix**

In designing a curriculum, keep in mind the various levels at which we can consider the curriculum's con-tent components. The following list of curriculum dimensions should assist in considering content in depth.

1. Consider the content's intellectual dimension. This is perhaps curriculum's most commonly thought-of dimension. The content selected should stimulate students' intellectual development.
2. Consider the content's emotional dimension. We know much less about this dimension, but we are obtaining a better understanding of it as the affective domain of knowledge.
3. Consider the content's social dimension. The content selected should contribute to students' social development and stress human relations.
4. Consider the content's physical dimension, commonly referred to as the *psychomotor domain of knowledge.* Content should be selected to develop physical skills and allow students to become more physically self-aware.
5. Consider the content's aesthetic dimension. People have an aesthetic dimension, yet we currently have little knowledge of aesthetics' place in education.
6. Consider the content's transcendent or spiritual dimension, which most public schools almost totally exclude from consideration. We tend to confuse this dimension with formal religion. This content dimension does not directly relate to the rational. However, we must have content that causes stu-dents to reflect on the nature of their humanness and helps them transcend their current levels of knowledge and action.

Source: Adapted from Arthur W. Foshay, "The Curriculum Matrix: Transcendence and Mathematics," *Curriculum* (Autumn 1990), pp. 36–46.

Although humanistic curricular designs have great potential, they have many of the same weaknesses as learner-centered designs. They require that teachers have great skill and competence in dealing with individuals. For many teachers, they also require almost a complete change of mindset because they value the social, emotional, and spiritual realms above the intellectual realm. Also, available educational materials often are not appropriate.

One criticism of humanistic design is that it fails to adequately consider the consequences for learners. Another criticism is that its emphasis on human uniqueness conflicts with its emphasis on activities that all students experience. Yet another criticism is that humanistic design overemphasizes the individual, ignoring society's needs. Finally, some critics charge that humanistic design does not incorporate insight from behaviorism and cognitive developmental theory.

Problem-Centered Designs

The third major type of curriculum design, problem-centered design, focuses on real-life problems of individuals and society. Problem-centered curriculum designs are intended to reinforce cultural traditions and address unmet needs of the community and society. They are based on social issues.[138]

Problem-centered designs place the individual within a social setting, but they differ from learner-centered designs in that they are planned before the students' arrival (although they can then be adjusted to students' concerns and situations). With problem-centered design, a curricular organization depends in large part on the nature of the problems to be studied. The content often extends beyond subject boundaries. It must also address students' needs, concerns, and abilities. This dual emphasis on both content and learners' development distinguishes problem-centered design from the other major types of curriculum design.

Some problem-centered designs focus on persistent life situations. Others center on contemporary social problems. Still others address areas of living. Some are even concerned with reconstructing society. The various types of problem-centered design differ in the degrees to which they emphasize social needs, as opposed to individual needs.[139]

> **6.3 International Baccalaureate Schools** Created in Switzerland in 1968 for students in international schools, International Baccalaureate (IB) schools aim to broaden students' learning and have caught interest around the world. Watch this example of an IB school in this video. What curriculum design does it resemble? Cite some features from the video to support your thinking.
>
> https://www.youtube.com/watch?v=YOG6Z7O8W10

LIFE-SITUATIONS DESIGN.   Life-situations curriculum design can be traced back to the 19th century and Herbert Spencer's writings on a curriculum for complete living. Spencer's curriculum emphasized activities that (1) sustain life; (2) enhance life; (3) aid in rearing children; (4) maintain the individual's social and political relations; and (5) enhance leisure, tasks, and feelings.[140] The Commission on the Reorganization of Secondary Education, sponsored by the National Education Association, recommended this design in 1918. The commission outlined a curriculum that would deal with health, command of fundamentals, "worthy home membership," vocation, citizenship, leisure, and ethical character.

Three assumptions are fundamental to life-situations design: (1) dealing with persistent life situations is crucial to a society's successful functioning, and it makes educational sense to organize a curriculum around them; (2) students see the relevance of content if it is organized around aspects of community life; and (3) having students study social or life situations will directly involve them in improving society.

One strength of life-situations design is its focus on problem-solving procedures. Process and content are effectively integrated into curricular experience. Some critics contend that the students do not learn much subject matter. However, proponents counter that life-situations design draws heavily from traditional content. What makes the design unique is that the content is organized in ways that allow students to clearly view problem areas.

Another strong feature of life-situations design is that it uses learners' past and present experiences to get them to analyze the basic aspects of living. In this respect, the design significantly differs from experience-centered design, in which the felt needs and interests of learners are the sole basis for content and experience selection. The life-situations design takes students' existing concerns, as well as society's pressing problems, as a starting point.

Life-situations design integrates subject matter, cutting across separate subjects and centering on related categories of social life. It encourages students to learn and apply problem-solving procedures. Linking subject matter to real situations increases the curriculum's relevance.

However, it is challenging to determine the scope and sequence of living's essential aspects. Will major activities of today be essential activities in the future? Some critics believe that life-situations design does not adequately expose students to their cultural heritage; moreover, it tends to indoctrinate youth to accept existing conditions and thus perpetuates the social status quo. However, if students are educated to be critical of their social situations, they will intelligently assess, rather than blindly adhere to, the status quo. Some critics also contend that teachers lack adequate preparation to mount life-situations curriculum. Others argue that textbooks and other teaching materials inhibit the implementation of such a curriculum. Further, many teachers are uncomfortable with life-situations design because it departs too much from their training. Finally, life-situations organization departs from the traditional curriculum promoted by secondary schools, colleges, and universities.

RECONSTRUCTIONIST DESIGN.   Educators who favor reconstructionist design believe that the curriculum should foster social action aimed at reconstructing society; it should promote society's social, political, and economic development. These educators want curricula to advance social justice.

Aspects of reconstructionism first appeared in the 1920s and 1930s. George Counts believed that society must be completely reorganized to promote the common good. The times demanded a new social order, and schools should play a major role in such redesign. Counts presented some of his thinking in a speech titled, "Dare Progressive Education Be Progressive?"[141] He challenged the Progressive Education Association to broaden its thinking beyond the current social structure and accused its members of advocating only curricula that perpetuated middle-class dominance and privilege. Counts expanded on his call for a reconstructed society in *Dare the Schools Build a New Social Order?* He argued that curricula should involve students in creating a more equitable society.[142]

Harold Rugg also believed that schools should engage children in critical analysis of society in order to improve it. Rugg criticized child-centered schools, contending that their laissez-faire approach to curriculum development produced a chaos of disjointed curriculum and rarely involved a careful review of a child's educational program.[143] In the 1940s, he observed that the Progressive Education Association still overemphasized the child. The association's seven stated purposes all referred to the child; not one took "crucial social conditions and problems" into consideration.[144]

Theodore Brameld, who advocated reconstructionism well into the 1950s, argued that reconstructionists were committed to facilitating the emergence of a new culture. The times demanded a new social order; existing society displayed decay, poverty, crime, racial conflict, unemployment, political oppression, and the destruction of the environment.[145] Such an argument certainly remains relevant. Brameld believed that schools should help students develop into social beings dedicated to the common good.

The primary purpose of the social reconstructionist curriculum is to engage students in critical analysis of the local, national, and international community in order to address humanity's problems. Attention is given to the political practices of business and government groups and their impact on the workforce. The curriculum encourages industrial and political changes.

Today, educators who believe that curricula should address social inequality and injustice tend to call themselves reconceptualists rather than reconstructionists. However, like reconstructionists, they believe that the curriculum should provide students with the learning requisite for altering social, economic, and political realities. We could classify reconceptualists as a variation of curricular radicals, the difference being that reconceptualists may not deem as given that the

Western intellectual tradition and its standard curricula are imperialistic and oppressive. Rather, reconceptualists accept that the world is dynamic and ever changing, requiring that curricula must present myriad possibilities of learning and reacting.

Curriculum Design Theoretical Frameworks

MODERN INFLUENCED DESIGNS (CONSTRUCTIONIST PERSPECTIVE). We live in modern times. Most of us approach and interact with our times with a modernistic mindset. How we approach curriculum design and curriculum overall is influenced by this intellectual stance. Most of the curriculum designs presented in this chapter have modernistic underpinning and assumptions.[146]

Modernism has been with Western society since the mid-16th and early 17th centuries. The scientific method developed by Francis Bacon (1561–1626) and expanded by Isaac Newton (1642–1727) planted this approach to analyzing the mysteries of reality. The belief of cause and effect gained acceptance not only among intellectuals, but also among the workers and industrial leaders of the 18th and 19th centuries. Frederick Taylor carried the scientific banner into the early 20th century. The world could be managed, manipulated, even controlled. Scientific management could bring about specific results with the least amount of effort.[147]

Contrary to what critics of modernity state, we still, in the majority of cases of curriculum design and development, accept the assumptions of the modern theoretical stance and act accordingly. We still view curricula as containing various parts: objectives, contents, experiences, and evaluations. These parts can be identified and manipulated so as to generate designed effects that can be measured. We can educate with a good degree of certainty. But we in this camp must recognize that a competing theoretical framework appeared in the latter part of the 20th century: postmodernism.

POSTMODERNISM-INFLUENCED DESIGNS (POSTCONSTRUCTIVIST PERSPECTIVE). Certainty, or the striving for certainty believing that it can be obtained, is a hallmark of modernism. Doll denotes what separates postmodernism from modernism is how individuals employ doubt and the processes of inquiry.[148] One of the authors of this book wrote a paper that doubt and suspicion are really the goals of the curriculum.[149]

In modernism, one can, conceptually at least, make phenomena static, eliminate motion, stop time. In reality, nothing is static, unchanging. In a physics textbook, one can observe a diagram of an atom. Its components appear stationary on the page. That is illusion. In reality, the parts are in motion, constantly changing location. In postmodernism or postconstructivism, "there is nothing like an event, curriculum, subject, object, cause, or effect as thing or phenomenon in itself. This perspective leads us to the pure mobility of life generally and the unfinalized and living curriculum."[150]

Mobility, ambiguity, uncertainty, chaos, complexity are all aspects of the postmodern, postconstructive perspective. While we can plan for certain contents and experiences to be presented to students, we cannot be certain that the results achieved will be exactly as stated in a curriculum guide or lesson plan. Engaging students with curricula produces multilayered learnings in intellectual, emotional, and even spiritual realms. And the learnings do not cease at the end of the lesson or school day. Learnings when combined with creativity and imagination flourish in myriad ways, some anticipated, most unforeseen.[151]

Postmodernism does not just refer to the realm of curriculum. As Doll denotes, postmodernism subsumes chaos theory, complexity theory, and the concept of nonlinearity in the sciences, mathematics, and medicine.[152] Curriculum designs that might exist or rather evolve and morph under postmodernism would generate both stability and flexibility.[153] Or, as Wolff-Michael Roth has noted, such designs would enable curricula in the making.[154] To add clarity to this discussion, think of curricula in a postmodern world as improvisational theater. What the actors do, students and teachers, depends upon what actions and statements the thespians do and utter. Masters

of improvisation find thrills in dealing with disequilibrium. As Slattery asserts, "Postmodern (dis)equilibrium is the acceptance of permanent psychic discomfort as the best understanding of consciousness."[155] In improvisation, there is a playfulness. In postmodern play, energy is focused on serious business: intelligent learning.[156]

The Shadows within Curricula

Most people, educators included, think of the curriculum as a plan with identified materials, contents, and experiences. As Ayers indicates, this plan deals with two questions: Are the materials, contents, and experiences of educational worth? By what means can educators get students to optimize their utilization of the materials, content, and experiences so that a more complete understanding is attained rather than a mere knowing?[157]

However, the planned and visible curriculum, including contents, materials, and planned experiences, is also accompanied by "shadow curricula." Such shadow curricula are briefly discussed in Chapter 1: the operational curriculum, the hidden curriculum, the implicit curriculum, and the null curriculum. All curricula, regardless of design, have these shadow curricula.

The operational curriculum is the curriculum that actually gets taught or that emerges as a result of the teachers selecting particular aspects of the planned curriculum. Teachers decide what aspects of the content to stress, what materials to use, what experiences to provide students, and what motivational prompts to employ. The teacher's decisions are influenced by his or her "read" of the community's and the school's political, social, and philosophical views and beliefs. Also impacting the teacher's instructional choices are his or her own educational, political, social, and even economic histories. A teacher's curricular choices also are influenced by experiences brought into the classroom and the teacher's personality.

The hidden curriculum, as previously indicated, arises from the interactions among students and between students and teachers. Essentially, the hidden curriculum presents content and understandings that are implicit in the operational curriculum. The hidden curriculum can be influenced by the sequencing and emphases of the operational curriculum content and engaged experiences.[158] Even teachers' instructional strategies, and particularly their questions, influence the hidden curriculum either positively or negatively. A skillful or devious teacher can use the hidden curriculum for propaganda or indoctrination purposes. We might not think teachers of this stripe exist in schools, but many teachers who are fearful about their job security do, in fact, engage in such action, partly in response to community political dispositions and mores. Intangible aspects of community life do have an impact on the formal, the operational, and the hidden curriculum, as well as the null curriculum, discussed next.

The *null curriculum,* as discussed by Eisner, refers to curriculum content, values, and experiences that are omitted by the teacher but recognized as being ignored by students, the community, or both. They often are controversial topics.[159] Also, the null curriculum can relate to ways of learning. Some schools, even though they might deny it, do not want students taught to challenge authority, or, as Ayers notes, be coconspirators in modifying the curriculum.[160]

Shadow curricula exist because curricula are the products of humans. Educators make decisions about what content to teach and what experiences contribute to a student's total development. Teachers make some decisions without comprehending all the consequences of those decisions. Students make decisions also: whether to accept or reject content presented or experiences provided. Students are influenced in myriad ways by their home environment, their family's culture, and their prior educational experiences. A multitude of factors influences the actions of all the players in the educational drama. For students of curriculum, it is important to study the "shadows" of curriculum within the focus of curriculum design. A tree exists on a hillside, and it casts its shadow. We must study the tree, but perhaps more can be learned if we focus on the shadow. What impact does the shadow have on the plants within it? How might we learn about the effectiveness of a particular design by looking at its shadow?

Conclusion

Curriculum design, especially currently, is a complex activity both conceptually and in its implementation. Designing a curriculum requires a vision of education's meaning and purpose. But the complexity of curriculum designs is fueled largely by myriad educational visions. These visions play into the dynamics of educational dialogue, increasingly challenging and often contentious. Not surprisingly, as we reflect more deeply on why we educate, and as we gain new insights from research, especially brain research, we often become overwhelmed regarding just how to structure a curriculum so as to optimize student learning and satisfy a cacophony of community voices, from local to national. Despite this expanding universe of voices regarding the purpose or purposes of schools, we cannot avoid our responsibilities as educators. Curriculum design, more than ever, must be carefully considered so that the curriculum imparts essential understandings, attitudes, and skills.

Having said that, educators must realize that in our dynamic times, there will be increasing challenges to actually deciding what is indispensible for students to know and do in the 21st century. The times are not static; they are dynamic. Knowledge is exploding, the world is changing. No one curriculum design can exist in stone. We in the world are experiencing an increasingly rapid series of "nows." The universe is expanding. Knowledge is exploding. Chaos exists.

The curriculum designs presented in this chapter certainly can guide our actions when considering curricula. But we must be aware of all the factors that influence our thinking; we must reflect deeply on our rationales for what we do and select, and for what we omit. We must be open to hybrid and entirely new designs that meld new technologies. Remember that while diversity is present and chaos exists, we still will have the basic components of curricular design. Table 6.1 presents an overview of the major designs currently in use.

Table 6.1 | Overview of Major Curriculum Designs

Design	Curricular Emphasis	Underlying Philosophy	Source	Spokespeople
Subject Centered				
Subject design	Separate subjects	Essentialism, perennialism	Science, knowledge	Harris, Hutchins
Discipline design	Scholarly disciplines (mathematics, biology, psychology, etc.)	Essentialism, perennialism	Knowledge, science	Bruner, Phenix, Schwab, Taba
Broad-fields design	Interdisciplinary subjects and scholarly disciplines	Essentialism, progressivism	Knowledge, society	Broudy, Dewey
Correlation design	Separate subjects, disciplines linked but their separate identities maintained	Progressivism, essentialism	Knowledge	Alberty, Alberty
Process design	Procedural knowledge of various disciplines; generic ways of information processing, thinking	Progressivism	Psychology, knowledge	Adams, Dewey, Papert
Learner Centered				
Child-centered design	Child's interests and needs	Progressivism	Child	Dewey, Kilpatrick, Parker
Experience-centered design	Child's experiences and interests	Progressivism	Child	Dewey, Rugg, Shumaker
Radical design	Child's experiences and interests	Reconstructionism	Child, society	Freire, Habermas, Holt, Illich

(Continued)

Table 6.1 | (Continued)

Design	Curricular Emphasis	Underlying Philosophy	Source	Spokespeople
Humanistic design	Experiences, interests, needs of person and group	Reconstructionism, existentialism	Psychology, child, society	Combs, Fantini, Maslow, Rogers
Problem Centered				
Life-situations design	Life (social) problems	Reconstructionism	Society	Spencer
Reconstructionist design	Focus on society and its problems	Reconstructionism	Society, eternal truths	Apple, Brameld, Counts, Rugg
Postmodern design (Postconstructivist)	Lived experiences	Chaos theory	Science	Prigogine
Relationship between order and chaos	Deconstruction of texts	Complexity theory	Knowledge, quantum physics	Doll
Transformatory (or becoming) change	Child, focus on society and the world, all realms of culture	Open systems	Postmodernism	Slattery
Postconstructivist design	Child and teacher, the world		Postconstructivism	Roth
Open systems view				

Discussion Questions

1. Describe the foundations of curriculum design as established by Doll, Dewey, and Bode.
2. What are the differences between subject-centered designs, learner-centered designs, and problem-centered designs?
3. Which design dimensions are the most important to create a viable curriculum? Make your case for your response.
4. What are the benefits of being knowledgeable of the various designs in modern and postmodern frameworks, even if you do not subscribe to some of them?

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7 Curriculum Development

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Explain the various procedures of curriculum development in the technical-scientific approach and apply the specific steps to create a general curriculum plan

2. Describe the various nontechnical-nonscientific approaches to curriculum development

3. Explain how one might enact a curriculum development process

4. Identify and explain the various participants who should be involved in the curriculum development process or processes

Education and schooling have a troubled relationship, making it necessary for educators, teachers especially, to reflect on just what each concept represents. Hidden within these concepts are knowing and understanding. Also, there is this question: Does school contribute to or hinder students' education? This question has a long history. Ever since compulsory public school began in the 19th century, groups have queried whether schools possessed the capacity to educate.[1] We are not going to answer this question definitively. However, we do believe that the school's function is to educate, not to mold students who just regurgitate information or perform mindless skills.

As Ken Osborne asserts, in a democracy, students must realize that dialogue is central to democratic participation. Students need deep knowledge to debate myriad viewpoints; students must relish interacting with individuals with opposing views; students must attain capacities to process opinion into action.[2] But to be skilled in meaningful dialogue, students must develop critical thinking within acute issues facing them in the 21st century. As Nodding asserts, we still tend to believe that critical thinking can be taught as an intellectual skill apart from particular topics and issues.[3] Or, as Doll posits, many educators believe that a teacher can "give" students the steps of critical thinking, which they can then apply. But as Doll further states, thinking is different from learning. One can learn, be given, the steps involved in thinking, a formula that they can just apply as need arises. But that is just applying a "given," an approach that is accepted by the students, not owned or internalized.[4]

Education in the 21st century exists in a sea of unique complexity. Education and/or training appropriate in the 20th century is/are no longer adequate for the 21st. While education in the last century fostered a rugged individualism and perpetuated the myth that people could succeed on their own, this new century requires a need for skills in collaboration and recognizing and appreciating interdependence at myriad levels of human engagement.[5]

Education, in contrast to schooling, enables students to become individuals with intellectual character. As Ron Ritchhart queries, "Why would we be teaching a curriculum if not for intelligence?"[6] Schooling tends to indoctrinate. Education strives to liberate. Schooling tends to stress efficiency and standardization. Education endeavors to be messy and spontaneous. Schooling attempts to fill students with knowledge. Education tries to make students utilize knowledge in thinking and to become intelligent utilizers of information. Education fosters intellectual character in students.[7] Doll notes that in our striving to make students thinking individuals, we sometimes give students too much regarding thinking processes. We make students receivers of process, passive learners, rather than actors in their own learning, active learners. Doll stresses that learning is not repeating verbatim what is read or heard. Rather, learning results from students actively engaged in rethinking details read or presented and rearranging such data so as to develop insights to which they can claim ownership.[8] Curriculum development needs to be designed such that students have ample opportunities for discovery play. Students need to have presented many ports from which they can initiate voyages to the unknown.[9]

To educate so that students are the main actors in their learning requires educators to engage in serious curriculum development. A curriculum, especially in this technological century, is more than a school board–approved textbook series. As noted by Michael C. McKenna, we are well into a "brave new world of technology."[10] This new world with ever-expanding information technologies has added complexities to what it means to be literate, to manage one's education. He notes that the speed of new technologies demands that those planning curriculum consider the inclusion of new student skills and strategies.[11] In this 21st century, we educators and curriculum developers are also challenged to be active students of education and learning.

We do not suggest that teachers disregard textbooks and other educational materials. However, textbooks and related materials provide only a suggested curriculum. Teachers must still make informed decisions about the purposes of learning certain information, what content to stress, what materials to emphasize, and how to sequence such materials. Further, teachers must decide what instructional strategies to use and what student activities are essential and appropriate for diverse class members. Also, teachers must select various assessment instruments and processes to support their teaching and students' learnings.

Curriculum development is not static. It draws on emerging views of modernism and postmodernism, new understandings of cognitive theories, new understandings of the anatomy and physiology of the brain, and new formulations of instructional design and systems theory. The melding of thought regarding the various world and educational philosophies is also having an impact on curriculum development.

There are various ways to define curriculum development. Also, different curriculum designs take subject matter, students, and society into account to differing degrees. Curriculum development consists of various processes (technical, humanistic, and artistic) that allow schools and schoolpeople to realize certain educational goals. Ideally, everyone affected by a curriculum is involved in its development.

A useful way to reflect on curriculum development is to think of it as a variety of games with myriad rules. Allan Garrett makes a case for the ecology of games metaphor when he states that it "provides an elegant and useful framework for the consideration of the various parties that seek to influence American public education."[12] Garrett notes that Norton E. Long first introduced studying local communities as ecologies of games.[13]

Looking at curriculum development as a series of games engaged in by various educators, teachers, curricularists, administrators, and even, at times, groups from the general public assists us in realizing that people have varied goals for playing the game or games. Employing the game

mentality, there are winners and losers, although we should strive for the curriculum game as a win-win.

In the curriculum-development game, there are players who collaborate for diverse and particular ends. Many teachers may share particular ends—that is, to have students "win" the game of really learning the curriculum developed and implemented—whereas some teachers, especially in districts advocating merit pay for "successful" teaching, might aim at advancing themselves on the pay scale. Administrators might play the game to have their schools attain state and national standards. School board members might strive to get reelected. Legislators might engage in the curriculum game to define themselves as "educational" leaders. We can analyze not only how the "many" play the game, but deduce their rationales for playing and the criteria they use for success. And some players might be participating in related and parallel games. Individuals might use others for their own benefits. Garrett posits that legislators might argue for better schools and curricula solely to win public support for their particular agendas.

Some players are engaged in Race to the Top to gain funding for novel ideas regarding education in general and curriculum in particular. Some play for pride, for praise, or for attainment; but all play for a purpose. They play for success! Currently, *success* has a plethora of meanings: attaining standards, liberating minds, indoctrinating, opening intellectual horizons, scoring high on tests, knowing the mores of particular cultures, and so on. Although many players are multitasking in their games, most center their play on a particular game—in our discussion, on playing curriculum development. And most curriculum players play the game from a technical, nontechnical, or holistic model.

Many social and educational critics believe that society has been moving from modernism (which stresses the technical, precise, and certain) to postmodernism (which stresses the nontechnical, emergent, and uncertain). Modernism has also been labeled constructivism; postmodernism has been described as postconstructivist. While modernism is still dominant in most educators and the public's view, postmodernism emerged in the latter part of the 20th century. Because postmodernism is relatively new, we have more technical than nontechnical curriculum models on which to draw. People who believe in a curriculum design that stresses subject matter usually favor technical approaches to curriculum development. People who focus on the learner often prefer a nontechnical approach. People who consider the curriculum a vehicle for addressing social problems can favor either approach. Certainly, as Doll asserts, adjusting one's thinking and conceptions from modern to postmodern cannot be done in just a few decades. Humans accommodate change to new processes of thinking and meaning-making slowly. Systems breaks such as postmodern approaches frequently are resisted in the early stages. But we believe, along with Doll, that these new ways of viewing and reasoning eventually will meld into our cognitive approaches to evolving realities.[14] We suggest that you the reader try to view what you read about curriculum development as if wearing glasses that allow you to experience both modern and postmodern postures. Read with certainty; reflect with uncertainty and doubt. Reflect with awe about the dynamics of reality. Life does not stand still; individuals live and act in evolving "nows." Learning results in myriad layers of understandings and doubts. The following sections dealing with approaches to curriculum development should be considered as algorithms, not precise formulas for creating curricula. These are procedures that embrace educational visions "built on doubt not certainty."[15]

■ TECHNICAL-SCIENTIFIC APPROACH (MODERNIST PERSPECTIVE)

The technical-scientific approach to education and curriculum stresses students learning specific subject matter with specific outputs. Curriculum development is a plan for structuring the learning environment and coordinating personnel, materials, and equipment. The approach applies scientific principles and involves detailed monitoring of the components of curriculum design.[16] Curriculum is viewed as a complex unity of parts organized to foster learning.

Educators who use a technical-scientific approach attempt to systematically outline those procedures that facilitate curriculum development. The various models use a means-end paradigm that suggests that the more rigorous the means, the more likely the desired ends will be attained. Followers of this approach indicate that such a systematically designed program can be evaluated. However, others question just how precise the evaluation can be.

The various technical-scientific models exhibit what James Macdonald called a "technological" rationality, as opposed to an "aesthetic rationality."[17] People who favor technical-scientific models prioritize knowledge acquisition and an educational system that is maximally efficient.

Technical-scientific curriculum development began around 1900, when educators sought to apply empirical methods (surveys and analysis of human conduct) to the question of curriculum content. The push for a science of curriculum making accompanied the rise of biology, physics, and chemistry as well as the use of the "machine theory" evolving in business and industry.

The Models of Bobbitt and Charters

Franklin Bobbitt compared creating a curriculum to constructing a railroad: Once the general route is planned, the builder engages in surveying and then the laying of track. Developing a curriculum is like planning a person's route to growth, culture, and that individual's special abilities.[18] Like a railroad engineer, an educator must "take a broad over-view of the entire field [and see] the major factors in perspective and in relation." A general plan for the educational program can then be formulated, followed by "determining content and experiences necessary for the [learner]."[19] Even today, many educators believe that curriculum development must include some means of monitoring and managing learning; that is, students' interactions with specific contents. Such monitoring enables an effective structure of curriculum and instruction.[20]

For Bobbitt, the first task of curriculum development is to "discover the activities which ought to make up the lives of students and along with these, the abilities and personal qualities necessary for proper performance."[21] Bobbitt believed that education in the new 20th century had to strive to develop a type of wisdom that could result only by participating in actual life situations. Such situations would nurture in students' specific judgments and thought.[22] Education's purpose was to prepare students effectively to be competent participants in life, particularly to engage in specific activities that would contribute to society, the economy, and family life. He argued in his writings that prior to the 20th century, creating curricula, creating educational opportunities, was not carefully thought through. To create a meaningful educational experience, we needed a scientific technique to determine curricula requisite for educating students in specific activities necessary for a productive life that contributed to the overall society.[23] All human experiences needed to be considered when contemplating developing curricula. What Bobbitt advocated still has value today. This approach continues in various types of task analysis.[24] It shares features of what some educators call *backward design*.[25]

Bobbitt's contemporary Werrett Charters also believed in activity analysis. However, Charters noted that "changes in the curriculum are always preceded by modifications in our conception of the aim of education."[26] Our aims (ideals) influence the selection of school content and experiences. Charters wanted educators to connect aims with activities that individuals performed. He advocated four steps of curriculum construction: "(1) selecting objectives, (2) dividing them into ideals and activities, (3) analyzing them to the limits of working units, and (4) collecting methods of achievement."[27]

For Charters, philosophy supplied the ideals that were to serve as objectives and standards. He noted that the curriculum could contain both primary and derived subjects. *Primary subjects* were those directly required by a particular occupation. For example, a meteorologist must fill out various types of reports. Therefore, report writing is a primary subject for all students to experience in English classes. Meteorology requires a knowledge of physics and mathematics, which are *derived subjects,* "service subjects which are important not because they are directly

useful in the performance of activities, but because they are derived from material which has practical service value."[28]

Bobbitt and Charters firmly established scientific curriculum making. They saw effective curriculum development as a process that results in a meaningful program. Bobbitt and Charters initiated a concern for the relationships among goals, objectives, and activities. They regarded goal selection as a normative process and the selection of objectives and activities as empirical and scientific. Bobbitt and Charters indicated that curricular activity can be planned and systematically studied and evaluated.

The field of curriculum achieved independent status with the 1932 establishment of the Society for Curriculum Study. In 1938, Teachers College at Columbia University established a department of curriculum and teaching. For the next 20 years, Teachers College dominated the field of curriculum; its influence even surpassed the earlier influence of the University of Chicago.

The Tyler Model: Four Basic Principles

Ralph Tyler's technical-scientific model is one of the best known. In 1949, Tyler published *Basic Principles of Curriculum and Instruction*, in which he outlined an approach to curriculum and instruction.[29] Those involved in curriculum inquiry must try to (1) determine the school's purposes, (2) identify educational experiences related to those purposes, (3) ascertain how the experiences are organized, and (4) evaluate the purposes.

By *purposes,* Tyler meant general objectives. He indicated that curriculum planners should identify these objectives by gathering data from the subject matter, the learners, and the society. After identifying numerous general objectives, the curriculum planners were to refine them by filtering them through the school's philosophy and the psychology of learning. Specific instructional objectives would result.

Tyler discussed how to select educational experiences that allow the attainment of objectives. Learning experiences had to take into account learners' perceptions and previous experience. Also, they were to be selected in light of knowledge about learning and human development. Tyler addressed the organization and sequencing of these experiences. He believed that the sequencing had to be somewhat systematic to produce a maximum cumulative effect. He thought that ideas, concepts, values, and skills should be woven into the curriculum fabric. These key elements could link different subjects and learning experiences. Tyler's last principle deals with evaluating plans and actions. Tyler believed that evaluation was important in determining whether a program was effective.

Although Tyler did not display his model of curriculum development graphically, several other people have. Our diagram of this model appears in Figure 7.1.
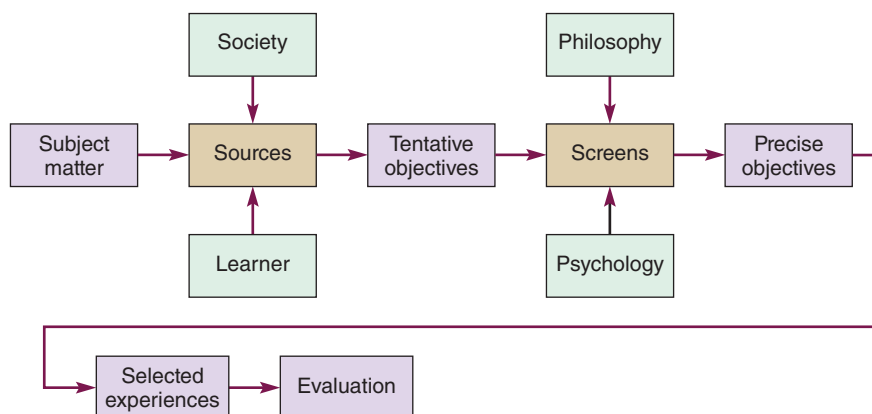
FIGURE 7.1   Tyler's Curriculum Development Model

Some people have criticized Tyler's approach as too linear, too reliant on objectivity, and somewhat based on assumptions about cause and effect; it allows all educational experiences to be justified by the objectives that they address. Nevertheless, Tyler's approach to curriculum development remains popular with school district personnel and still influences universities. Its reasonableness and workability appeal to many people. Tyler's approach works regardless of context or one's philosophical orientation.[30]

The Taba Model: Grassroots Rationale

Hilda Taba was an influential colleague of Tyler's. In *Curriculum Development: Theory and Practice* (1962), she argued that there was a definite order to creating a thoughtful, dynamic curriculum.[31] Unlike Tyler, Taba believed that teachers should participate in developing curricula. She advocated what has been called the *grassroots approach*,[32] a model whose steps resemble Tyler's. Although Tyler did not advocate that his model be used only by people in the central office, educators during the early days of curriculum making thought that the central authorities had the knowledge to create curricula. They subscribed to a top-down (administrative) model. Frequently, administrators gave teachers ideas from curriculum experts and then supervised the teachers to ensure that the ideas were implemented. In contrast, Taba believed that a curriculum should be designed by its users. Teachers should begin by creating specific teaching-learning units for their students and then build to a general design. Taba advocated an inductive approach rather than the more traditional deductive approach of starting with a general design and working toward specifics.

Taba's grassroots model entails seven major steps:

1. *Diagnosis of needs.* The teacher (curriculum designer) identifies the needs of the students for whom the curriculum is being planned (see Curriculum Tips 7.1).
2. *Formulation of objectives.* The teacher specifies objectives.
3. *Selection of content.* The objectives suggest the curriculum's content. The objectives and content should match. The content's validity and significance also are determined.
4. *Organization of content.* The teacher organizes the content into a sequence, taking into consideration learners' maturity, academic achievement, and interests.
5. *Selection of learning experiences.* The teacher selects instructional methods that engage the students with the content.
6. *Organization of learning activities.* The teacher organizes the learning activities into a sequence, often determined by the content. The teacher must bear in mind the particular students who will be taught.
7. *Evaluation and means of evaluation.* The curriculum planner determines which objectives have been accomplished. Students and teachers must consider evaluation procedures.

CURRICULUM TIPS 7.1   Conducting a Needs Analysis

1. Set aside time and designate people who will conduct the needs analysis.
2. Create or obtain data gathering instruments and schedule time to gather data (for example, through surveys, town meetings, questionnaires, tests, and interviews).
3. List the curriculum's aims and goals.
4. Match the aims and goals.
5. Identify gaps between desired and actual results.
6. Decide which gaps require immediate curricular attention.
7. Suggest ways to address the identified gaps.

Source: Adapted from Abbie Brown and Timothy D. Green, *The Essentials of Instructional Design* (Upper Saddle River, NJ: Pearson, 2006), p. 97.

Taba was far ahead of her time. Most of today's curriculum designers still follow steps 1, 2, 5, 6, and 7. They first examine the extant situation, analyzing the learners and their needs (Taba's step 1). They then develop instructional goals and objectives (Taba's step 2). Third, they organize instruction and create learning environments (Taba's steps 5 and 6), selecting learning experiences and organizing learning activities. Finally, they evaluate the learners and the instructional program's overall success (Taba's step 7).

The Backward-Design Model

Another popular model of curriculum development is the "backward design" advocated by Grant Wiggins and Jay McTighe.[33] Essentially, this model is a variation of task analysis. Its roots can be traced back to Bobbitt and Charters. It also draws from the fields of architecture and engineering.

Backward design (we prefer to call it *backward development*) begins with a statement of desired results. Just what do you want to accomplish? What should students know and be able to do? What values and attitudes should they have? What skills should they possess and be able to demonstrate? Essentially, this first stage involves identifying the school program's goals.

Wiggins and McTighe specify three levels of decision making in this first stage. At the first and most general level, an educator considers goals and checks on national, state, and local content standards. At the second level of decision making, curriculum developers (including classroom teachers) select content—valuable information and skills that might lead students to the desired results. What basic understandings and skills do students need in light of stated standards, community expectations, and research results? What generalizations, concepts, and facts must students master in order to achieve? What procedures, methods of analysis, and thinking strategies must students experience to become self-learners?

The final level of decision making in this first general stage involves narrowing the content possibilities. What specific courses will be taught, and what particular content (both declarative and procedural)? Wiggins and McTighe refer to this final level of decision making as identifying enduring understanding that anchors the unit or course. "The term enduring refers to the big ideas, the important understandings, that we want students to 'get inside of' and retain after they've forgotten many of the details."[34]

Stage 2 of the backward-design model involves determining how the curriculum will be evaluated once it is in place. How will we know whether students have met the set standards? What evidence will be collected to assess the curriculum's effectiveness? According to Wiggins and McTighe, the backward-design model gets teachers thinking like assessors before they develop curriculum units and lessons. Wiggins and McTighe suggest various assessment methods that can be considered at this stage, including informal checks, observations of students, dialogue with students, quizzes and tests, and performance tasks and projects.[35]

When educators have clearly identified the curriculum's goals and determined how to assess the extent to which those goals have been reached, they are ready to plan instructional activities. Wiggins and McTighe list several key questions that curriculum developers and teachers must raise at this stage:

What knowledge and skills do students need to succeed in the course?

What activities enable students to master the requisite knowledge and skills?

What should be taught, and how should it be taught, for students to become knowledgeable and skillful in the identified content realm?

What materials foster student success in the curriculum?

Does the overall design of the course or unit fulfill the principles of curriculum development?

Figure 7.2 shows a variation of Wiggins and McTighe's backward-design model.

Identify expected endpoints ➔ Determine evidence ➔ Plan learning experiences

- Consider possible contents
- Narrow choices to important contents
- Select the final enduring contents

FIGURE 7.2   Backward-Design Model

The Task-Analysis Model

Task-analysis models differ widely. However, they all share a focus on identifying essential content and skills, which are determined by analyzing the tasks necessary for school learning or some real-world task.[36] Basically, there are two types of task analysis: subject-matter analysis and learning analysis.

SUBJECT-MATTER ANALYSIS.   *Subject matter,* or *content,* is the starting point in subject-matter analysis. The key question is, What knowledge is most important for students? We usually ask this question of subject-matter experts. Ideally, these experts are the educators responsible for creating and teaching the curriculum. However, we can draw on the expertise of scholars in various disciplines. When the curriculum is intended to prepare people for certain professions, then the question is, What subject matter enables students to perform the tasks of particular jobs within those professions?[37]

Subject matter must be broken into parts. Consider the subject of government. Students must understand the general concepts *government* and *citizen,* but also the narrower concepts of *representative government* and *citizen responsibility*. They must also know certain facts, such as the number of branches of government and the dates when amendments to the U.S. Constitution were passed. Breaking down knowledge of government requires giving that knowledge realm some structure. One way to do this is to use a master design chart.

A master design chart uses information gained from experts in the subject matter. This information covers important facts, concepts, rules, laws, generalizations, theories, and so on. Essentially, the master design chart contains the topics and related information to be learned in a certain course or a total curriculum. One way to design the chart is to create a row for each crucial topic and a column for the degrees of emphasis that topics will receive. One also could indicate the various learning behaviors that students must exhibit regarding each topic: concepts, generalizations, and so on. Figure 7.3 provides a sample master design chart.

Someone reading about a master design chart might think that it is the same as a curriculum map. There are similarities. However, curriculum maps deal with content topics to be covered, but not how they are to be experienced. Also, curriculum maps are generated primarily by teachers scheduled to teach the curriculum.[38]

Once the chart has been completed, it is necessary to identify the relationships among the content topics, concepts, generalizations, and so on. In determining the relationships, we reflect on how to construct the curriculum unit so that the content has a meaningful organization. The content can be organized chronologically, according to the specific content's knowledge structure, in the order in which it might be used, or according to the manner in which psychologists indicate students might best learn it.

LEARNING ANALYSIS.   Ideally, learning analysis begins when content is being organized. It encompasses activity analysis and addresses which learning processes are required for students to learn the selected content. What activities might students engage in to learn the content and

Content		KNOW			ANALYZE		APPLY	EVALUATE	
		State Facts	Explain Concepts	Present Generalizations	Deconstruct Concepts	Determine Relationships	Do Fieldwork to Gather Data	Determine Accuracy of Field Data	Judge Validity of Conclusion
Land Forms	Mountains	3	2	2	2	2	0	0	0
	Hills	3	2	2	2	2	1	1	1
	Plateaus	3	2	2	2	1	0	0	0
	Plains	3	2	2	2	1	1	1	1
Water Bodies	Oceans	3	2	2	2	2	1	0	0
	Lakes	3	1	1	0	0	0	0	0
	Rivers	3	2	2	2	1	0	0	0
	Seas	3	1	1	0	0	0	0	0
Numbers show level of emphasis given to content and activities. 3 = Heavy emphasis 2 = Major emphasis 1 = Minor emphasis 0 = Mention but no emphasis — = No mention									

FIGURE 7.3   Master Design Chart (for Geography)

master some problem-solving process? It is helpful to consult experts in instructional design and psychology, especially cognitive psychology and brain research.

Learning analysis addresses the sequence of the learning activities. Is there an optimal time line for learning certain content and skills? What should the learner do to gain competence in the skill or content? At this stage, the learning analyst selects instructional approaches that move students toward the curriculum's goals.

Until recently, curricularists had to rely on the research results of cognitive psychology to accomplish learning analysis. The brain was essentially a "black box," about which we inferred how the brain developed and processed learning. Now, with recent brain research, learning analysis can be more precise. Recent discoveries about brain functioning and networking enable us to determine with greater precision those curricular contents and experiences that foster learning.[39]

In the next stage of learning analysis, the curriculum developer creates a master curriculum plan that synthesizes the information obtained and organized through the selection of subject content and learning approaches. Those who have been involved in the task analysis determine the plan's format.

The curriculum team studies the selected content and determines specific objectives with regard to that content. The objectives deal with the cognitive, affective, and (sometimes) psychomotor domains. The sequence of the objectives is linked to the sequence of the selected content and learning activities. The master plan also can indicate educational materials and evaluation methods. Figure 7.4 illustrates the format for a master plan.

In the actual employ of task analysis, subject-matter analysis and learning analysis are often melded. Frequently, the procedural steps are not clear cut. One hybrid type of task analysis might be called gap analysis.[40] Here the focus is to identify gaps in subject matter or in the learning of subject matter. What content are we neglecting? And if we are not neglecting any significant content, do our students have deficiencies in the learning of such content? The deficiencies are not just limited to learnings. Attention can be directed to thinking processes, work habits, skills, even educational experiences. Mary Moss Brown and Alisa Berger even suggest that we may wish as educators to analyze if students in school have gaps or differences with family beliefs and goals.[41]

OBJECTIVES	CONTENT/SUBJECT MATTER	LEARNING/ACTIVITY/ INSTRUCTIONAL APPROACH	MATERIALS/ EVALUATION METHODS

FIGURE 7.4 Master Plan Format

Somewhat related to task analysis is investigating other educational institutions' approaches to program design and curriculum development. We educators can learn much from talking with colleagues, sharing ideas and ways of addressing similar educational and social challenges. Focus on schools that confront problems similar to yours. What procedural steps are they utilizing? How successful have they been in their actions?[42]

We are sure that other technical-scientific models exist or will be generated. Most likely, their creators will be in the traditional philosophical and technological camps. However, people attached to any design orientation can use these models when developing a curriculum.

■ NONTECHNICAL-NONSCIENTIFIC APPROACH (POSTMODERNIST, POSTCONSTRUCTIVIST PERSPECTIVE)

The technical-scientific approach to curriculum development suggests that the process of curriculum development is highly objective, universal, and logical. It rests on an assumption that reality can be defined and represented in symbolic form. Knowledge can exist as a matter of fact, unaffected by the process of creating and learning it. The aims of education can be specified and addressed in linear fashion. The technical-scientific approach to curriculum development is modernist; it rests on a belief in rationality, objectivity, and certainty. This certainty applies to its foundational assumptions and its methods. The modernist approach eschews doubt or questioning.[43]

In contrast, nontechnical curriculum developers, also known as postmodern or postconstructivist, stress the subjective, personal, aesthetic, heuristic, spiritual, social, and transactional. Curriculum specialists and generalists in this camp draw their basic assumptions regarding the totality of their actions as being complex and turbulent, as having an "orderly disorder."[44] Doll identifies some orderly disorder examples: "avalanches, economic systems, evolutionary development, human bodily and social systems, and population dynamics."[45] We would include in this list educational systems, which include curriculum development.

Few would argue that we do not live in a complex world. Indeed, scientists in quantum physics report that we on Earth are a minute system within an ever-expanding complex universe. Even individuals well established in the modern camp do not deny the complexities of our time. But, as Doll notes, modernists strive to circumscribe complexities so as to increase probabilities of managing them.[46] Postmodern, nontechnical curricularists celebrate the complexities, recognizing that within the educational organization, there is a "dynamical self-organizing process within which we are embedded, embodied, emboldened."[47] Players in the postmodern theater are in perpetual motions of reorganizing and changing. Doll notes that there is a fluidity to their thinking and actions.[48]

Postmodern educators and curricularists also have an expansiveness to their conjectures and endeavors. Curricular topics and pedagogical strategies represent expanding universes of educational discourses. Content concerns are not narrow and traditional. Rather the educational

universe has expanded to "understanding . . . cultural, historical, political, ecological, aesthetic, theological and autobiographical impacts of the curriculum on the human condition, social structures, and the exosphere."[49]

In this approach to curriculum development, the learner is the central focus, not the learner's output of inert information. Students are always evolving. They are active participants in the learning process, not passive recipients of knowledge. Resulting curricula relate to various contexts. Contents are not value-neutral.[50] Those favoring a nontechnical-nonscientific approach note that not all educational goals can be known. Even when the goals appear to be obtained, there are many layers of knowing still hidden in the reporting of success. Key to this approach is accepting the evolutionary nature of curriculum development. Precise procedures are an illusion.

Nontechnical curriculum developers prioritize learners over subject matter. Tentatively selected subject matter has importance only to the degree that students find it meaningful. It should provide opportunities for reflection and critique and should engage students in the creation of meaning.[51] To nontechnical curriculum developers, learning is holistic; it cannot be broken into discrete parts or steps. Instead of developing curricula prior to students' arrival in school, teachers are students' colearners. Teachers and students engage in an educational conversation about topics of mutual interest and concern. In many nontechnical models, the curriculum evolves from teacher–pupil interaction.

Nontechnical-nonscientific curriculum developers are likely to favor child-centered and, to a lesser extent, problem-centered designs. However, they can still take a somewhat systematic approach.

The Deliberation Model

In the deliberation model of nontechnical curriculum development, educators communicate their views to their colleagues and sometimes to students regarding education's goals and what should be taught. However, curriculum development is nonlinear. A blend of modernism and postmodernism, the deliberation approach draws on systems thinking and on feedback and adjustments but also takes into account that reality is somewhat subjective.

Dillon notes that deliberation essentially proceeds from problem to proposals to solution.[52] This process occurs within a recognized socially constructed context. People are aware of the participants in the process and of their views, ideas, and agendas.

Curriculum development through deliberation occurs within cultural contexts. Currently, this is one of the challenges confronting curriculum creators. How can one generate solid curricula while taking diverse cultures, customs, and values into account?

The deliberation model has six stages, as suggested by Noye: (1) public sharing, (2) highlighting agreement and disagreement, (3) explaining positions, (4) highlighting changes in position, (5) negotiating points of agreement, and (6) adopting a decision.[53]

In the first stage, public sharing, people come together to share ideas related to curriculum development. The participants advocate various agendas, which may be in conflict. They express their views regarding the curriculum's nature and purpose, make suggestions and demands, propose particular contents and pedagogies, and identify information that they consider relevant to creating curricula. People discuss their visions of students' roles, optimal learning environments, and teachers' proper functions. At the conclusion of this stage, to which the group can return at any time, the group should record a summary of its thoughts expressed throughout this stage on the common places of content, student, teacher, and school and the challenges confronting the group. The group is now ready for stage 2, highlighting agreements and disagreements.

In stage 2, the group identifies agreements and disagreements regarding educational goals, curriculum content, and instructional approach. All views should be respectfully considered.

In stage 3, group members explain their positions. Why do I think this is a problem? What data support my view? Is a particular group of students failing? What is the curricular solution? To arrive at a consensus, group members must appreciate one another as professionals and not

consider their colleagues to be adversaries.[54] The group leader must have considerable skill in guiding groups.

Stage 4 of deliberation evolves from the activity of explaining positions. Group members change their opinions in response to presented data and arguments. When people change their minds, they inform other group members.

In stage 5 of the deliberative process, participants work toward agreement regarding curriculum content, instructional approaches, and educational goals. In other words, they negotiate and persuade (or become persuaded). Roger Soder argues that persuasion is a critical function of leadership. It relies on appeals to reason and emotion.[55] In stage 5, the group seeks to identify possible curricular solutions to educational needs.

In stage 6, the group achieves consensus regarding the curriculum's nature and purpose. It specifies curricular topics, pedagogy, educational material, school environment, methods of implementation, and assessment methods. The agreed-on curriculum reflects the group's social, political, and philosophical composition. Of course, some uncertainty remains.

We include the postmodernist, postconstructivist perspectives under the nontechnical-non-scientific approach division. The reader should not interpret the placement of this approach or cluster of approaches to curriculum development as being without form. What distinguishes these curricular creation stances is that doubt and constant questioning accompany one's specific behaviors.[56] Persons in this camp do not deny that there can be certainty, but they note that certainty is fleeting, influenced by the situations within which one finds himself or herself.[57] Or as Wolff-Michael Roth posits, "We live within the streaming, mutual life of the universe."[58] Everything in our world and our universe is in motion, and this motion is unidirectional. We cannot stop time; we cannot reverse time. And we can only comprehend time and events after we have experienced them.[59]

Postmodern curriculum developers do not begin curriculum creation with precise directions or endpoints as destinations; rather, goals denote directions. While this seems novel and new, Alfred Whitehead, as noted in Doll,[60] early in the 20th century encouraged educators to realize this fact. Also, he noted that in following various directions, ideas presented in the classroom should be investigated, questioned, from myriad frames of reference. What is tentatively planned leaves "space" for the novel to appear. What is hidden within the tentative curricular plan are temptations that will encourage "creativity, inquiry, innovation, and social responsibility."[61] Such curricular plans are enticements for improvisational theater. A situation is sketched roughly, but the dialogue occurs only when the "actors," students and teacher, experience the suggested encounter or encounters. On another day, that same situation might elicit an entirely different "play" triggering an entirely divergent richness of multiple inquiries and tentative understandings. These tentative events represent what Bakhtin notes as "once-occurrent" that can "only be participatively experienced and lived through."[62]

One might consider this approach to curriculum development as suggesting opportunities for thrill seeking, allowing students to take leaps of faith, to take actions despite their fears and insecurities. Embedded in this approach to curriculum development is a fostering of a playfulness with educational theater. Students and their teachers are urged to become explorers of various intellectual regions. Learning is not solitary; it is a communal cluster of engagements. Students develop relationships with fellow scholars. They have an environment rich in possibilities for developing insights, challenging tentative conclusions. They have time to savor the joy of discovery, realizing that discovery is fleeting; "scholarly talk" must be continuous.

Certainly, educators who develop postmodern, postconstructivist curricula do write down comments, suggestions, and, we would argue, some intuitive sense of what minimal student learnings will result from experiencing said curriculum. But, all layers, permutations of learnings, will not be possible to list, and need not be. And, as time flows, various learnings will be enhanced, modified, and even diminished and lost. But, the precise steps so prominent in the modernist camp are absent in the postmodernist, postconstructivist camp. Rather, curricularists in this "camp" seem to present dispositions to actions that may result in diverse and emergent learnings.

Slattery's Approach to Curriculum Development

Patrick Slattery in his book *Curriculum Development in the Postmodern Era* really avoids precise steps to follow in creating curricula. But he does present some guiding principles for what he states is "an integrated global and local vision for curriculum development in the postmodern era."[63]

Slattery's first guiding principle states that educators need to accept that education is capable of reconceptualizing that very concept of schooling globally and locally. Further, educators must respect the uniqueness of each individual student and recognize the myriad relationships of the totality of each student's experiences. Essentially, educators must be aware of complexity theory and chaos theory.

His second guiding principle is not a suggestion of a process, but an admonition that followers of postmodern curriculum development must reject all modernist stances regarding curriculum and schooling. Such rejection is necessary in order to nurture "an appropriate postmodern educational experience."[64]

Third, to be in the postmodern camp, one must accept that postmodernism offers "an important emerging approach to understanding curriculum."[65] Furthermore, educators must accept the challenge that the curriculum generates opportunities for students to deal with social and educational plights on a global basis.

Fourth, the curriculum must be studied essentially as "currere" so that educators can arrive at generalizations regarding schooling and its curricula. As Slattery points out, *currere* is a Latin word meaning "to run the racecourse."[66] The word curriculum also has its roots in currere. Currere, as presented by William Pinar, is a procedure by which individuals, educators, can engage in self-study: analyzing their present state, reflecting on their past experiences, and forecasting probable future intellectual stances and actions. It is a procedure by which individuals can better understand themselves so as to become more effective educators. Essentially, the procedure engages an individual in self-analysis and introspection, allowing one to be inner directed in his or her thinking and actions. Slattery stresses that when thinking about currere, we should remember that curriculum development is a process even after it is created. It is not a static phenomenon.

Fifth, curricularists need to realize they need to be not just curriculum developers, but also scholars of curriculum. They must realize that their scholarship requires delving in hermeneutics. In layman's language, hermeneutics refers to the science of interpretation. It is not unique to education. All fields of scholarship have members who study documents interpretatively within their fields and disciplines of study.[67]

Doll's Model of Curriculum Development

William Doll certainly can be grouped with the postmodernist camp. To combat the influence of Tyler's rationale and schema for creating curricula, he suggested "The Four *R*'s" as an alternative of Tyler's guidance. From our curricular stance, which is always in a fluid state, Doll has really not presented an alternative to Tyler's rationale, but rather a cluster of criteria for judging curricula designed to mesh with postmodernism. We purport that these criteria can serve both modern and postmodern approaches to curriculum development. Doll's suggested four *R*'s are "Richness, Recursion, Relations, and Rigor."[68]

Richness is defined as the depth of curricular content and experiences. A curriculum possessing richness presents complex strata of meaning. It offers students opportunities to contemplate varied interpretations to content processed and experiences engaged. Doll notes that a rich curriculum must contain the "'right amount' of indeterminacy, anomaly, inefficiency, chaos, disequilibrium, dissipation, lived experience."[69] Stated another way, richness brings the "flavor" of reality to the curricular experience. As Robert Lake notes, life is not invariable; it is in constant social, political, and environmental flux. Richness in curricula demands of students intellectual investigating, communal discovery. As Lake comments, curricula possessing richness stimulates imagination and requires students to engage in resourceful contemplation and action. No curriculum possessing richness is ever completed. Learning cannot be turned into stone. Richness of

the educational experience stimulates a continuous learning process under the internal control of students.[70]

Recursion is Doll's second *R*. He indicates the concept refers to happening again, which is usually considered with the mathematical process of iteration.[71] However, we refer to, and Doll does indicate agreement with, what Jerome Bruner addressed as the spiral curriculum in his book, *The Process of Education*.[72] Bruner notes that students add richness to their understandings of information and concepts through a process of continuously revisiting or looping back at various thoughts and insights. Each revisit, each re-encounter with the material, allows the learner to add depth and richness to his or her understanding. There is a creative dynamic extant in each iteration with the contents and experiences.

Relations, Doll's third *R*, is essential to a postmodern curriculum in two ways: pedagogical and cultural.[73] Relations deals with the connections, the structural links that shape the curriculum, both its contents and its pedagogical experiences. Relations are actions, not changeless stances. In postmodern thought, the curriculum and its associated actions are always in a state of development, an evolution ongoing. Later, we discuss the structures of disciplines. Modernists present these structures as rigid, with discipline scholars accepting content architecture as agreed upon. But, postmodernists counter that these structures are in dynamic and even chaotic relations of which curricularists should be aware.

Cultural relations, Doll asserts, must be considered when engaged in curricular activities. Educators create educational programs within cultural contexts. Educators must recognize the contextual inherent character of the world theater in which they are creating curricular opportunities. Educators need to realize they must engage others in the conversations requisite for creating meaningful educational programs.[74] Doll urges educators and all peoples "to honor the localness of our perceptions and . . . to realize that our local perspectives integrate into a larger cultural, ecological, cosmic matrix."[75]

Doll's last *R* is *rigor*. Rigor is perhaps the most important of the four *R*'s. Doll here indicates that these four *R*'s are criteria to apply to the process of curriculum development rather than actual steps in creating postmodern curricula. We made this point early in this section. Doll denotes that in the modernist stance, rigor possesses the elements of "scholastic logic, scientific observation, and mathematical precision."[76] The postmodern stance necessitates reconceptualizing the concept of rigor. Instead of rigor being a criterion of precision based on logic, observation, and mathematical precision, it encompasses the features of "interpretation and indeterminacy." It draws on the "uncertainty principle" of chaos theory.[77] Nothing said or discovered can be stated with absolute certainty, not even some discovery stated at the 99th percentile of probability.[78]

Accepting this postmodern posture, applying rigor means that even when we create and develop curricula, we are always mindful that there are alternatives to what content and experiences are planned. And additionally, there are myriad relations and arrangements of the contents and experiences. How one conceives of the "tentative" formatted curricular plan will be influenced by the assumptions one brings to the process of curriculum development. Doll reports that these assumptions are often hidden from us, and only revealed upon reflection.[79]

As Howard Gardner asserts, every period of history has its own foremost statements or principals of explanation.[80] The challenge for educators today is to realize that we exist in an evolving and conflicting historical era: modern and postmodern. The modern has been with us since the Enlightenment, which commenced circa the 1700s. The term postmodern can be dated to have begun, not with certainty, in the late 1970s. A French scholar, Jean-François Lyotard, in his book *The Postmodern Condition: A Report on Knowledge* (1984), asserted that the Western world was entering a new era, the postmodern. However, later in the 1980s, he noted that this new era was less a break with the modern than the modern era proceeding to "re-write itself."[81] Today in the 21st century, we are morphing, not discarding modernism, but rewriting it to function in a time of complexity and chaos. Many educators accept the uncertainty principle of quantum mechanics. Many educators, us included, realize that while "objectives" and specific

Table 7.1 | Overview of Curriculum Development Approaches

Approach	Major Assumptions	View of Curriculum	Major Models
Technical-Scientific	Major steps can be identified and managed.	Curriculum is viewed as knowable components selected and organized.	Bobbitt, Charters, Tyler: Procedure
Modernist Perspective	Certainty principle	Curriculum is viewed as a compendium of parts.	Taba: Grassroots rationale
	Curriculum development has a high degree of objectivity, logic.	Curriculum is viewed as engaging students in distinct and meaningful tasks.	Wiggins, McTighe: Backward design
	Curriculum development involves task analysis and draws on separating key points of curriculum from major endpoint to starting point.		Jonassen, Tessmer, Hannum: Task-analysis approach
	Curriculum can be broken into distinct parts or tasks.		
Nontechnical-nonscientific Postmodernist, Postconstructivist Perspective	Curriculum development is subjective, personal, aesthetic, transactional.	Curriculum is viewed as conversation.	The deliberation model
	Curriculum development stresses the heuristic, spiritual, social.	Curriculum is viewed as evolutionary.	Slattery approach
	Curriculum development accepts "orderly disorder."	Curriculum is viewed as a dynamic and uncertain system.	Doll's four *R*'s approach

learnings can be listed on a curriculum plan, there are layers of learnings, both cognitive and affective, that accompany the "attainments" of the learners. We know that, as Lake denotes, "the planned curriculum never trumps the enacted curriculum when imagination is at work."[82] As denoted by Lake, "A curriculum of imagination is not just designated to the confines of school, but embraces the entire life of the learner."[83] A curriculum that incorporates both modern and postmodern stances triggers lifelong learning.

Table 7.1 provides an overview of the technical, modernist, nontechnical, and postmodern approaches to curriculum development.

■ ENACTING CURRICULUM DEVELOPMENT

Curriculum development essentially draws on two realms of knowledge: curriculum design and instructional design. Especially at the K–12 level, most educators know more about the former than the latter. As Richard Elmore notes, schools continually modify their curricula, but instructional practice seems to change little.[84]

Researchers at Pennsylvania State University's Applied Research Laboratory defined instructional design as "the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction."[85] Programs must give more than cursory attention to how new content will be taught and how classroom and school environments

will be organized. In many cases, those charged with curriculum development must draw on the expertise of instructional design specialists.

Establishing Curriculum Teams

The highest-level curriculum teams are those at the federal or state level. These committee members generate programs, policies, and laws, such as No Child Left Behind and Race to the Top. This chapter primarily addresses curriculum teams at the local level, the level at which the curricular specifics are mapped out and aligned with state or federal mandates and standards.

Most curricular team members are teachers. This makes sense, because teachers implement the curriculum and can draw on their classroom experiences when developing curricula. They are likely to be familiar with effective subject content and instructional strategies. In some school districts, teachers are more involved in adapting textbook series to classroom lesson plans than in creating new curricula writ large. However, creating lesson plans is curriculum development. In such districts, textbooks and related materials are selected by curriculum boards. In Texas, as previously mentioned, various textbook series are selected by the Texas State Board of Education. The schools then select the series they prefer from a list of acceptable materials.

Although the ideal is for teachers to be the key players on curriculum teams, there are teachers who resist involvement. "There is not just time for me to collaborate with fellow teachers. I already have too many demands on me," is a frequent response. We realize that schools often are organized so that teachers exist as if in solitary confinement in their classrooms. However, such "teacher separation" need not be the norm. Indeed, it has been found that schools with effective and innovative curricula have high teacher commitment to both the latest educational thinking and to collaborative engagement with colleagues.[86]

Successful curriculum development requires the involvement of school principals. In previous editions, we noted that the principal should be supportive but not dominate the process.[87] With such advice, the principal, as Fullan notes, was often sidelined in reform efforts, and especially in curricular change efforts. More recent research supports the idea that school principals should be key players in directing change initiatives.[88] Although this research is centered mostly on administrative and policy issues and changing school cultures, we argue that it also applies to curriculum development.

Effective principals, we are finding, foster the creation of teacher communities, which often result in a "critical mass of distributive leadership" essential for continued educational renewal.[89] Effective principals, and we include vice principals as well, are characterized by being *relationship centered*.[90] These principals have faith in powerful professionals who participate in collegial relationships. Thus, there is a symbolic relationship among all players: administrators, teachers, and support staff. All participate in curriculum teams as well as teams focused on other educational matters.[91] Sometimes schools hire outside curriculum experts to be members of the development team. Often, these individuals can provide background information on development procedures, share details about curriculum design, and illuminate the complexities of instruction design.

In general, an elementary teacher teaches most subjects. Therefore, at the elementary level, it is especially important that teachers from various grades be involved in curriculum development. That way the created curricula fit into the overall program. In middle and high schools, there is more emphasis on particular subject areas, so the amount of teacher involvement partly depends on whether a new curriculum is being created for a particular subject or an entirely new program of studies. In general, at least some individuals who will be teaching the new or revised curriculum should be on the development team.

Generating Aims, Goals, and Objectives

Curriculum development begins with a realization of the major challenges involved. People agree that school curricula should enable students to attain knowledge, skills, and attitudes.

However, many people also want curricula to reproduce the culture within which the school exists and to further that society's economic, political, social, and cultural interests.[92]

Some people favor curricula that cultivate a global perspective; others think that local concerns should be prioritized. Our focus influences our response to questions such as these: What does it mean to know at a particular level? Whose knowledge is of value? Whose history? Whose literature? Orr laments that the globalization of knowledge is resulting in a neglect of local knowledge.[93] In most cases, a school's curricular aims and goals come from local citizens, state organizations, national groups, or the federal government. Schools have much greater input with regard to objectives.

Educators' first step in curriculum development should be analysis of needs and tasks. Educators must determine what students must learn for success in school, on the job, and in life. During this phase, curriculum developers gather data that inform their decisions regarding what content is necessary, appropriate sequencing of the content, appropriate instructional strategies, and how the various curricular components should be tailored to students.[94] Analysis of needs and tasks often includes school and classroom observations. Focus groups may also define the rationales for such observations. Those charged with these initial analyses may also talk to principals, teachers, and students.[95]

By analyzing needs and tasks, educators determine what the curriculum should include. Data analysis can reveal gaps in students' learning, thereby indicating needed objectives and content. Educators start to sense what content, student activities, means of implementation, and means of evaluation the curriculum should include.

GENERATING AIMS. Noddings denotes that discussion of aims is essential to education; indeed, essential to the health of democracy.[96] Aims provide answers as to why we adhere to particular beliefs and actions. Aims provide direction and reflect our value judgments. Ralph Tyler summarized the aims of U.S. schooling as (1) developing self-realization, (2) making individuals literate, (3) encouraging social mobility, (4) providing the skills and understanding necessary for productive employment, (5) furnishing tools requisite for making effective choices regarding material and nonmaterial things and services, and (6) furnishing the tools necessary for continued learning.[97] These aims are still relevant today. However, Noddings opines that today in education, we really do not frequently query ourselves as to why we are doing what we are doing. Why are we striving for certain things?[98] Frequently, in this 21st century, educators do not raise the whys at all; rather, politicians and the corporate community provide the whys. And the answers to the whys provided are self-serving: make our children have the best test scores in the international community, to be the most powerful and economically successful country in the world. Must we always be number one? Is education designed to give us bragging rights about the test scores of our students compared to other nations?

Certainly, educators wish to create programs that will address intellectual aims, social-personal aims, physical aims, aesthetic aims, moral aims, and even spiritual aims. But, as Noddings notes, education should possess aims that will enable our student citizens to strive for world peace and prosperity.[99]

In 1918, the National Education Association's Commission on the Reorganization of Secondary Education listed education's general aims as follows: (1) health, (2) command of fundamental processes, (3) worthy home membership, (4) vocational education, (5) civic education, (6) worthy use of leisure, and (7) ethical character.[100] Noddings reports that while many praised the commission's report, some felt that it demanded too much of the schools. Other critics considered it strayed too far from the academic purposes of education, bordering on being anti-intellectual in tone.[101] However, Noddings suggests that the Cardinal Principles are actually most relevant for "aims-talk" in the current century.[102] Education in today's world is not to just educate or "train" students to be cogs in the industrial machine. We wish to create educational programs that enable students to be "fully functioning" individuals in myriad 21st century "universes": social, civic, personal, artistic, vocational-professional, ethical-moral, and spiritual.

Of course, aims will not be totally attained. Indeed, thoughtful educators do not wish attainment or achievement of aims, but rather a journey of progress toward attainment. We wish students to gain the necessary skills and understandings for a meaningful odyssey of learning and actions.

Educators must be sensitive to the times in which they are living. The dynamics of living will confront educators and citizens in general with issues that require adjusting particular educational aims. Issues of race and gender equality still suggest that education address these issues. Issues of global warming should generate various aims for the school. World health is a challenge that requires attention in the schools. Educators should develop educational aims that speak to the social, cultural, and economic relations of the global community. Aims should deal with the general process of education, such as building world-mindedness.

GENERATING GOALS.   The next step in curriculum development is creating goals. According to Evelyn Sowell, goals answer the question: "What destination do you have in mind for learners as far as a particular curriculum or subject is concerned?"[103] Goals might include the following: Students think critically, students are diverse people, and students assume responsibility for their own learning.

Goals and standards seem to have melded together in educational dialogue. In 1995, Diane Ravitch posited that a *standard* is a goal as to what should be accomplished and also a measure of progress in attaining that goal. It is both part of curriculum development and also curriculum evaluation. One could also include discussion of goals and standards with consideration of instructional strategies, specifically how a method of instruction might attain, or motivates students to attain, a particular standard or group of standards in a particular curricular area.[104]

We take exception to equating a standard to a goal. A goal does indicate what could or should be learned, but it is much more general than a standard. *Standards,* as Ravitch and others define the term, are more akin to educational objectives that define in quite specific terms what students are to learn and what behavior or behaviors they are to demonstrate. What students are to learn, Ravitch defines as *content standards*. What behaviors students are to master, she defines as *performance standards*. Explicit in these two types of standards are the content teachers are to teach and what behaviors their students are to demonstrate. Also, performance standards regulate what teaching strategies teachers are to use.

To make our point, consider the first goal that the Phi Delta Kappa honor society has listed for students: Learn how to be a good citizen. This is a general endpoint of educational experiences. However, one would not state that learning how to be a good citizen is or has a standard. We must create various educational objectives using a variety of standards in order to determine what content must be learned and what performances must be mastered for us to state with some precision that students have attained the knowledge, skills, and attitudes indicative of being a good citizen. The same can be argued for the remaining goals suggested by Phi Delta Kappa.

By analyzing a school's goals, we can determine the scope of its educational program. Unlike aims, goals are more specific. Curriculum developers can use them as guidelines to achieve particular purposes. Aims become goals when they become more specific and refer to a particular school, school system, or subject area. Phi Delta Kappa has listed these goals for students:

1. Learn how to be a good citizen.
2. Learn how to respect and get along with people who think, dress, and act differently.
3. Learn about, and try to understand, the changes that take place in the world.
4. Develop skills in reading, writing, speaking, and listening.
5. Understand and practice democratic values.
6. Learn how to examine and use information.
7. Develop skills needed to enter a specific field of work.
8. Develop a desire to learn now and in the future.
9. Understand and practice health and safety.
10. Appreciate culture and beauty.[105]

In 1990, President George H. W. Bush and U.S. governors generated a list of six goals for U.S. schools to reach by 2000, and the National Goals Panel was established to determine the nation's progress in meeting these goals.

1. All U.S. children will start school ready to learn.
2. The high school graduation rate will increase to at least 90 percent.
3. U.S. students will leave grades 4, 8, and 12 having demonstrated competency in challenging subject matter (English, mathematics, science, history, and geography).
4. U.S. students will rank first in the world in science and mathematics achievement.
5. Every adult American will be literate and possess the knowledge and skills necessary to compete in a global economy and to exercise citizenship's rights and responsibilities.
6. Every U.S. school will be free of drugs and violence and will offer a disciplined environment conducive to learning.[106]

Like aims, goals should address the current times but also be relevant for the future. Creating educational goals is an ongoing activity. The needs of students, society, and a particular community give rise to initial statements of curriculum goals.

The goals are sometimes rank-ordered in terms of importance, feasibility, or both. However, sometimes goals deemed desirable and feasible by noneducators are as Nodding described "ridiculous," not even remotely possible to be obtained.[107] Take, for instance, the Goals 2000: goal 1, all children will start school ready to learn; goal 2, the high school graduation rate will increase to at least 90 percent; goal 3, U.S. students will leave grades 4, 8, and 12 having demonstrated competency in challenging subject matter (English, mathematics, science, history, and geography); goal 4, U.S. students will rank first in the world in science and mathematics achievement; goal 5, every adult American will be literate, etc.; and goal 6, every U.S. school will be free of drugs and violence. All of these goals were unattainable and still in this century have not been achieved. What explanation would we give to defend goal 4, that all U.S. students will rank first in science and mathematics? What are the grounds for such a goal, other than bragging rights and to nurture feelings of superiority? And are these explanations appropriate with the aim of creating world citizens who can connect with all of humanity? No Child Left Behind demanded that all children by 2014 attain mastery in mathematics. All children? Children with learning disabilities? This "demand" has not been achieved. And it cannot realistically be attained. Yet, schools in the state of Washington have been penalized for failing to meet the goal.[108]

Goals should be defined by educators knowledgeable about schooling, curriculum theory, curriculum development, and curriculum evaluation. Certainly, educators can seek advice from community members, and even students, as to the appropriateness of identified goals. If agreement is reached, then goals are accepted by those who are creating and delivering the curriculum (see Curriculum Tips 7.2).

CURRICULUM TIPS 7.2 Developing Goals at the School District or School Level

When creating curriculum goals, individuals need to know the following:

1. Federal and state mandates regarding education
2. The specific students who are to receive the planned curriculum
3. The expected competencies and understandings expected of the learners
4. Educational environments and situations that will enable the goals to be attained
5. The standards of performance and comprehension that are expected from students who have experienced the newly created curriculum

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Source: Adapted from Abbie Brown and Timothy D. Green, *The Essentials of Instructional Design* (Upper Saddle River, NJ: Pearson, 2006), pp. 146–147.

GENERATING OBJECTIVES.   Within the context of educational aims and goals, it is necessary to formulate more specific objectives. Whereas aims and goals are long term, objectives are short term. For a particular science program or project, curriculum developers may state a goal such as "improving students' skill in information processing when dealing with science material." This goal may then be approached through a series of objectives.

Guidelines for Formulating Objectives.   When creating objectives, educators should consider how well they match the stated goals and aims. For example, an objective stating that students understand certain science concepts does not match a goal that students be able to use particular information-processing approaches to scientific understanding. A standard must relate more specifically to an objective; to fine-tune this objective, educators must identify the content standard—that is, define the procedural knowledge that must be demonstrated and then indicate the performance or skill level or levels that must be attained.

Objectives must also have worth and be nontrivial. For example, the objective "The student knows that the Mississippi River empties into the Gulf of Mexico" is overly narrow. An objective should have value to the student in both the present and the future. In other words, the content and performance standards must have worth for the students. It makes little sense to say that a certain content must be learned to a high level and a certain performance must be demonstrated at a high level if the content really has no value or relevance in the general society. To know what a slide rule is and how it functions and to be able to use it skillfully most likely has little value in the 21st century.

The guideline that objectives have worth and be nontrivial is challenging if you consider that what has worth to one student may, in fact, be worthless to another. That is a major challenge in employing standards in curricular decision-making. As Taubman notes, most discussions of standards seem to have them exist with a false sense of precision and without a consideration of context. Standards are presented as independent of circumstance. We have a dilemma. Standards, to be standards, Taubman informs us, must serve as "'immutable mobiles,' which can move across contexts and cross local, state, and national borders, can move from one community of practice to another, transforming as they go, but not being transformed in the process."[109]

Standards, and particularly national standards, assume that all students, all communities, all teachers, and all school districts are alike and that they face the same challenges, possess the same values, and have students of the same intellectual abilities, the same intellectual interests, the same behavioral dispositions, and the same cultural and ethnic backgrounds. Standards imply that all school districts define the worth of a particular objective with the same metric. This is not reality. However, many voices advocating standards declare that all schools should strive for the same or at least similar interpretations of worth. Standards imply the standardization of curriculum, instruction, educational experiences, and learning. "Same" standards are requisite for us to compare educational successes among our schools.

Another guideline is that objectives should be clearly expressed—easy to understand and agree on. Likewise, the standards within the objective should be clearly expressed and agreed on. Lisa Carter criticized some published state standards as vague. So written, teachers must translate them in their classrooms. Thus, there would be no "standardization" of teaching, curriculum, or learning, and no ways to measure attainment of valuable content and skills.[110]

Although making objectives and the explicit and implicit standards comprehensible may be easily accomplished, getting everyone to agree to the objectives, even goals, and certainly standards is a daunting task. The next guideline for generating objectives is even more problematic. To determine appropriateness, educators must consider students' needs and the content to be covered. Some objectives might be inappropriate because they demand behavior that students are incapable of attaining or because they do not consider students' interests. Some objectives might be better suited to students in a particular subject who have unique aspirations than to students with other motivations.

However, as Taubman discusses, although teachers may realize that students arrive with various abilities, capabilities, interests, cultural and ethnic backgrounds, different life experiences, and myriad dreams about their presents and futures, teachers are commanded not to apply different standards to each student, lest we lose what "standard" means.[111] The curricula cannot vary in objective or standard and cannot digress in intent; all variables must be kept constant in emphasis and support. The curriculum must be standardized.

This is not the reality of schooling and not the reality of the community, of the regions, or of the state, the nation, or the world community. Yet, standards still hold center stage in educational and, specifically, curricular and instructional conversations. We certainly are not advocating eliminating standards. We need standards, but not for generating standard, one-size-fits-all curriculum. We should not concede to other authorities, often outside of education, the task of determining the standards for our objectives, our curricula, our instruction, or our educational materials. Certainly, selecting educational objectives and selecting standards for content and procedures are not the sole domain of educators. However, it seems that today, much activity within the standards theater has left out educators. National political boards determine standards for children in New Hampshire and in Arizona. They set the bars for success for students in Washington State and Georgia. They inform educators how far to jump, suggesting that their salaries will be calibrated as to whether they fall at or over the bar. Who are these people, these power groups, active in determining educational objectives and standards? We have mentioned national groups, some governmental and some professional. No Child Left Behind was generated at the national level. The Race to the Top contest is a national effort. The Gates Foundation, giving millions to various schools, is influencing objectives and standards. Certainly, state boards of education are key players.

A fourth guideline for formulating objectives is that they should be grouped logically so as to make sense when units of instruction and evaluations are being determined. Even standards should be grouped logically, which may mean that the standards implicit in objectives must be personalized to the diversities of particular students. Objectives frequently lack coherence. For example, objectives at different levels of specificity are grouped together, as when understanding how to process information is grouped with knowing how to write complete sentences. The standard implicit in understanding how to engage procedural knowledge has greater complexity than the standard implicit in knowing how to write a complete sentence.

The fifth guideline is that objectives require periodic revision. Students change, society changes, knowledge changes, instructional strategies change, and competencies required for functioning in particular aspects of society change. This guideline suggests that, contrary to popular thinking, standards must change. If standards are targets, as some suggest, we must realize that they are moving targets, propelled by time.[112] Educators must occasionally analyze their objectives and reconsider particular standards to determine if they still possess value.

The sixth guideline is that useful objectives enable students to proceed to the next part of a unit plan or lesson plan. Useful standards address those contents and skills requisite to continuing the educational journey. Useful objectives and enabling standards assist students in participating in the world outside of school.

The last factor to consider is an objective's legality. Regarding legality, there is—there must be—a standardization of the standard so that there is compliance with federal and state mandates. Some mandates require that all students be taught certain material, such as state history or basic mathematics. Here, we have little difficulty in accepting standards. However, we must still make a case that with standards, we are talking minimal levels of content knowledge and skills attainment. Of course, some mandates prohibit certain content. Still other mandates address the needs of particular student populations, such as those in special education.[113]

Types of Objectives.   Educational objectives range from objectives for specific curriculum areas (often subjects or courses) at particular grade levels to specific outcomes of classroom instruction. Abbie Brown and Timothy Green note that an instructional objective should clearly

indicate some observable or quantifiable student behavior. In other words, these instructional objectives must be explicit about standards.[114] Outcome-based education is popular in most states. Washington State established a commission to develop a list of learning outcomes essential for all students. Such outcomes are *standards*.

Behavioral Objectives. Most educators (and the general public) believe that educational objectives should be couched in terms of observable or measurable achievement. That is, the objective is behavioral. Students can demonstrate that they have acquired particular skills or knowledge—that is, attained standards.

Mager contends that an educational objective must describe (1) the *behavior* that indicates a learner has achieved the objective, (2) the *condition* or situation imposed on the learner when he or she demonstrates achievement, and (3) the minimum standard *proficiency* level acceptable.[115] A behavioral objective in science that satisfies Mager's criteria might read as follows:

> After studying the unit on energy, the student must complete a 100-question, 1-hour, multiple-choice test on the subject. The student must answer 75 questions correctly.

A behavioral objective for mathematics might read:

> Given a multiplication worksheet, the pupil will be able to multiply 10 sets of 3-digit numbers at the rate of one problem per minute, with 80 percent accuracy.

Some educators subscribe to behavioral objectives but do not believe that these objectives must address the condition or situation in which the behavior is performed or its proficiency. Also, unlike Mager, they consider it essential that behavioral objectives state what the student will do (e.g., write a paragraph, compare data) in terms of subject content. Such objectives might state, "The student will write a paragraph in English composition dealing with late 20th century literature," or "The student in an economics class will compare a chart's data on gross national product for two different years."

It is not always necessary to include level of achievement and conditions of performance. However, it is necessary to include level of achievement (how well, how much, or how accurate) when dealing with minimum requirements—that is, standards—for some aspect of a course. Conditions of performance are necessary when it is important to know where and how the knowledge was demonstrated or the skill was performed. What was the nature of the environment? Did the conditions of performance resemble real-life conditions? The following objective includes both essential and optional parts: "The student in a geography field-study exercise will arrange field notes so that they meet the guidelines in the manual on geography field study." "In a geography field-study exercise" refers to the condition; "will arrange" refers to the required student action, and "in a way that meets the suggested guidelines" refers to the level, or standard, of achievement.[116]

Nonbehavioral General Objectives. Advocates of nonbehavioral objectives use words such as *appreciate, know,* and *understand*. They believe stating objectives too specifically restricts learning to measurable achievements. Objectives that address higher-order learning (e.g., analytical thinking, appreciation of literature) are likely to be neglected. Postmodern educators reject behavioral objectives as too narrow and rigid. Some believe educators have no right to stipulate what students must know, how they must behave, or what skills they must possess.[117] Learning is not about performance level, but about inquiry.

When making curricular decisions, especially when generating objectives, educators ideally consider all domains of learning: cognitive, affective, and psychomotor. Depending on which domain they address, objectives focus on different skills, competencies, and understandings. Within each domain, objectives are listed in an order that reflects increasing complexity.

Cognitive Objectives. In 1956, Benjamin Bloom introduced us to the Taxonomy of Educational Objectives, Cognitive Domain. In his taxonomy, he divided cognitive learning into (1) knowledge, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (6) evaluation.[118] For many years, teachers used this classification as a guide for creating cognitive

objectives. In 2001, a revision of Bloom's taxonomy was published. The revision created a grid for generating objectives that addressed the knowledge and cognitive process dimensions. The knowledge dimension subsumed factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge. The cognitive process dimension addressed remember, understand, apply, analyze, evaluate, and create.[119] Attending to these two dimensions, knowledge and process, allows educators to formulate objectives that consider not only the type of content to be taught, but also the cognitive strategies intended.

Factual knowledge objectives address knowledge of specifics, such as facts and terminology. These objectives identify those basic elements that students must grasp to indicate they know a discipline or content area.

Conceptual knowledge objectives indicate that students comprehend how basic bits and clusters of facts relate to each other and to the discipline writ large. Stress is on knowledge of classifications and categories; principles and generalizations; and theories, models, and organizational structures.

Procedural knowledge objectives address those processes and methods that enable students to "work" with factual and conceptual knowledge. These objectives also include the knowledge of criteria in order to determine what procedures are most productive in processing information.

Metacognitive knowledge objectives address what has been a neglected aspect of school learning: knowledge of cognition in general, knowledge of how the brain functions in general, and knowledge of an individual's own specific cognition. Awareness of strategic knowledge and how to utilize heuristics and algorithms to engage students in the learning process receive attention with these objectives. Metacognitive knowledge objectives direct students to focus on the development of their intelligence.

The Cognitive Processes.   Although the knowledge dimension focuses on the content to be learned, the noun of the objective, we must provide the verb of the objective, the action. What is the student to do; what actions are to be demonstrated?

There are six cognitive processes that the four types of knowledge objectives can incorporate: remember, understand, apply, analyze, evaluate, and create. The cognitive processes advance in complexity and intellectual value. The first process, remember, is the least complex. Remember is essentially recognizing and recalling information. It is the knowing of something, whereas the next cognitive process, understanding, refers to making sense of what is recalled and can be utilized in other cognitive processes. In the revision of the taxonomy, understanding subsumes the cognitive activities of interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.[120] Students require more than understanding: They must utilize that which they understand. Students must activate their procedural knowledge and apply it to both familiar and unfamiliar tasks and situations.

The fourth cognitive process dimension is analyze. At this juncture, students must break a whole into parts and distinguish elements, relationships, and organizational principles. Students must uncover the structures inherent in subject matter. They must deconstruct and reconstruct what they remember and understand.

The fifth cognitive process of cognitive objectives is most crucial to the intelligent use of knowledge, the evaluative cognitive process. Here students and teacher must judge conclusions based on criteria and standards. Here emphasis is on making judgments, engaging in critiques, and utilizing internal evidence or logical consistency and external evidence or consistency with data produced elsewhere.

The sixth, and last, cognitive process dimension is generating methods of creating. At this stage, the synthesis stage in Bloom's first taxonomy, students generate hypotheses, design future strategies for learning, and construct products or environments that indicate students' creative competence regarding content.[121]

The Multipurpose Objective.   Certainly, we can have cognitive objectives of various degrees of complexity. We could simply have an objective that focused on remembering, the

cognitive process of factual knowledge. Such an objective might read: "The student will name the highest mountain range in Asia." However, most teachers would like cognitive objectives to address high knowledge dimensions and engage students in more sophisticated cognitive processes. For instance, a teacher might create the following objective for a unit on global warming: "Students will utilize weather data to make forecasts about likely future weather consequences on various geographic areas." This objective addresses three knowledge dimensions: factual, conceptual, and procedural knowledge. The objective requires students to learn specific geography and meteorology facts. Students also must know reliable sources of information. Students must comprehend conceptual knowledge such as weather patterns, trend analyses, and knowledge of various weather models and structures. They must also possess knowledge of specific forecasting procedures and even algorithms related to weather analysis.

This particular objective also requires that students engage in various cognitive processes, the "verb" of the objective. Certainly, for students to utilize weather data to generate forecasts about the consequences of global warming, they must remember and apprehend a quantity of data to interpret map data and global imaging. They must implement a procedure of analysis. To do this, students must engage in analysis of gathered data and determine what data contribute to a position on global warming. Students must judge, or critique, their forecast or conclusion. Upon attainment of this objective, students might be asked to produce their own forecast.

It is evident from this example that what at first appeared as a straightforward objective really possessed many dimensions of knowledge and cognitive processes. The revised taxonomy is a most useful tool in reflecting upon and creating cognitive objectives.

Affective Objectives. David Krathwohl and others have broken affective objectives into five levels of achievement. Each level depends on attainment of the previous level. For example, to express a value preference, a student must be able to receive information and respond to situations.[122]

1. *Receiving* objectives refer to the learner's sensitivity to stimuli. This sensitivity includes (1) awareness, (2) willingness to receive, and (3) selected attention. Example: "From studying various Eastern cultures, the student develops an awareness of aesthetic factors in Eastern dress, furnishings, and architecture."
2. *Responding* objectives refer to the learner's active attention to stimuli such as (1) acquiescence, (2) willing responses, and (3) feelings of satisfaction. Example: "The student displays an interest in the topic of conversation by actively participating in a research project."
3. *Valuing* objectives refer to the learner's beliefs and attitudes of worth, which manifest as (1) acceptance, (2) preference, and (3) commitment. Example: "The student takes a stance regarding the advantages or disadvantages of nuclear power."
4. *Organization* objectives refer to internalization of values and beliefs, which involves (1) conceptualization of values and (2) organization of a value system. Example: "The student forms judgments about his or her responsibilities for conserving natural resources."
5. *Characterization*. This is the highest level of internalization. Objectives at this level relate to behavior that reflects (1) a generalized set of values and (2) philosophy of life. Example: "The student regulates his or her personal and civic life in accordance with ethical principles."

Considering affective objectives requires a realization that we are pushing boundaries of the knowledge dimension, the cognitive process dimension, and the emotional dimension. Here we have a messy fusion. If, as Anderson and Krathwohl suggest, the dimension of metacognitive knowledge includes knowledge about our own cognition, we must then realize that it relates to students' affect and to students' emotional awareness and intellectual awareness. The affective domain dominates metacognitive self-knowledge.

Flavell articulated many years ago that self-knowledge is a crucial component of metacognition.[123] Reflecting on self-knowledge, students record their strengths and weakness as

they relate to their educational adventures. Students, possessing self-awareness of the depth and breadth of their own learning, have valuable information to guide future learning.[124]

Self-knowledge also relates to individuals' apprehension of their temperament. Research has shown that temperament is biologically based, with an additional impact by genes, environment, and experience. Individuals have no "voice" regarding their genes, but they do have voice regarding their environment and, certainly, their experience. Realizing this, students have more control over self-regulation of intensity and duration of interest and emotion in response to particular situations.[125] Teachers must schedule time for students to engage in metacognitive thought and build self-knowledge. Attention to affective objectives addresses more than the brain; it nurtures the emotional self, the knowledgeable self, and the intellectual self.

Psychomotor Objectives. The psychomotor domain has received much less emphasis than the cognitive and affective domains. Anita Harrow divided objectives into six levels. As with cognitive and affective levels, psychomotor levels require attainment of previous levels. For example, to meet perceptual objectives, a child must have mastered fundamental movements.[126]

1. *Reflex movements.* Objectives at this level include (1) segmental reflexes (involving one spinal segment) and (2) intersegmental reflexes (involving more than one spinal segment). Example: "After engaging in this activity, the student will respond automatically to a physical stimulus."
2. *Fundamental movements.* Objectives at this level address behaviors related to (1) walking, (2) running, (3) jumping, (4) pushing, (5) pulling, and (6) manipulating. Example: "The student will jump over a 2-foot hurdle."
3. *Perceptual abilities.* Objectives at this level address (1) kinesthetic, (2) visual, (3) auditory, (4) tactile, and (5) coordination abilities. Example: "The student will categorize building blocks by shape."
4. *Physical abilities.* Objectives at this level relate to (1) endurance, (2) strength, (3) flexibility, (4) agility, (5) reaction time, and (6) dexterity. Example: "By the end of the year, the student will be able to do at least five more pushups."
5. *Skilled movements.* Objectives at this level are concerned with (1) games, (2) sports, (3) dances, and (4) the arts. Example: "The student can perform a series of somersaults."
6. *Nondiscursive communication.* Objectives at this level relate to expressive movement through (1) posture, (2) gestures, (3) facial expressions, and (4) creative movements. Example: "The student will create a movement sequence and perform it to music."

Although these taxonomies are useful in developing and grouping objectives and curricular emphases, there is overlap among the taxonomies and within the taxonomic levels. This is true because in reality, knowledge, skills, emotions, and attitudes (and even ethics, morals, and spiritual dimensions) make up the complexity of human learning and action.

An overview of the aims, goals, and objectives can be seen in Table 7.2.

Selecting Curriculum Content

Curricularists must determine what knowledge students need in order to succeed. This is the same question that Spencer raised; "What knowledge is of most worth?" However, today, the question must be rephrased to, what knowledge is of most worth in the global and digital world?[127] A related question is, to what degree should students "master" the determined, selected knowledge? This query brings the issue of standards. Those who believe that the knowledge selected for the curriculum should have standards and that the curriculum should be standardized are ignoring two obvious truths; useful knowledge is both culturally and historically specific,[128] and the skill level for using selected knowledge varies with individuals' interests and needs.

As societies change, what is useful and essential to know changes as well. As Yong Zhao posits, the knowledge considered valuable and necessary in one society may be of little value or totally valueless in another.[129] Information essential in an agricultural society has little value

Table 7.2 | Overview of Aims, Goals, and Objectives

Educational Statement	Features	Source	Samples	Curriculum Implications
Aims	General statements provide direction or intent to educational action.	From national commissions, task forces, and panels	*Cardinal Principles of Secondary Education; The Purpose of Education in American Democracy; A Nation at Risk*	Identifies the curriculum's overall direction
Goals	Statements of purpose given, which are more specific than aims	From professional associations, government agencies, state departments of education, and school districts	ASCD, Measuring and Maintaining the Goals of Education; PDK, Phase III of the Educational Planning Model; National Goals for Education	Identifies specific content areas of the curriculum
Objectives	Specific statements indicate either general or specific outcomes; behavioral objectives indicate the specific behavior the student is to demonstrate to indicate learning. Nonbehavioral objectives use more general words to denote the learning desired, such as to *know* or *understand.*	From school districts, schools, and individual writers	Bloom's, Krathwohl's, and Harrow's Taxonomies of Educational Objectives; Posner, Gronlund, Mager	Behavioral objectives tend to make curriculum more sequenced, precise, and compartmentalized. Nonbehavioral objectives allow for a more open-ended curriculum and integration of subject matter.

in an urban global society. And certainly, knowledge of agriculture to a city dweller requires a different mindset and skill set than for someone in agribusiness.

What is so challenging to curricularists in determining and selecting curricular content, both declarative and procedural, is that schools are responsible for creating programs of study not just for a local community, not just for a state or national society, but for a global, world society, or specifically, world *societies*. And all these societies are in flux. Educators are selecting content for anticipated, imagined, emerging, expanding, and contracting societies. Adding to the challenges of content selection is that we have to select content from two worlds: real and virtual. As Yong Zhao notes, educators and other professionals must apprehend that the virtual world is different from the physical world. He states that the virtual world is fundamentally different, thus requiring different knowledge and skills. Curricularists and communities might ask why we have to consider the virtual world. We must, because many of our current students live in both.

Zhao describes a 3-D virtual world called Second Life, created and run by Linden Lab, a software company in San Francisco. Although existing for only a few years, it currently involves many players worldwide who are very active as "residents" in a virtual world. In this cyber world, the residents engage in activities similar to the physical world: building houses, constructing buildings, purchasing cars, buying food, and engaging in business activities in which they actually make real, physical world money.

Second Life is more than a game played just for enjoyment. It can serve as a vehicle for formal education. If a student is interested in art, he or she can travel to virtual representations of particular art museums. If travel is an interest, the student can, via his or her online persona, travel to many European cities.[130]

Several years ago, Christine Sleeter noted that schools tend to stress content that benefited the dominant culture and excluded content central to groups that have been historically

marginalized, such as Blacks, Hispanics, and Native Americans. The knowledge and learning styles of the dominant culture were deemed most important.[131] Although this view still has relevance, curricularists must recognize that in our global world view, there are many dominant cultures that are constantly interacting. Numerous learning styles and knowledge realms are being morphed as technology has made distance irrelevant in many cases. In the global and digital world, U.S. schools must select content that serves students well as both U.S. and world citizens.

Not only must educators select content that serves all students well, but content selected must be "alive." Back in the 1920s, Alfred North Whitehead wrote an essay entitled "The Aims of Education." In this essay, he chastised educators for selecting content and presenting it in ways that made it "dead," "inert," "lifeless," and "barren." Curriculum content was essentially "dead knowledge," disconnected from reality. Content did not relate to the demands of daily life; it ignored students' interests; it was divorced from the field of scholarship from which it was drawn.[132] Whitehead even said that his education at Oxford only acquainted him with "dead," "inert" knowledge. A challenge for us in this century is to keep knowledge alive. When it is only useful for passing a test, it is lifeless. As Brown and Berger suggest, when selecting curriculum content, what and how students learn should be our primary considerations. They state that typically students' desires and learning strategies are secondary to what adults claim is important to learn and know, whether they be educators, politicians, or the general community.[133]

CONCEPTIONS OF CONTENT.   Groups charged with curriculum planning must select content and experiences that enable students to learn the most—whatever curriculum design or development model they implement. But as noted previously, we seem to put adult interests in primary position and students' needs and wants in secondary conditions. While we know that a curriculum must supply information that relates to students' concerns, we "bow down" to federal, state, and local adult demands. No Child Left Behind was created by adults who really knew little about education, either curriculum or instruction. We know that contents should be organized so that students find the information useful and meaningful. We know that when selecting contents, we must reflect upon and apply what we know as to how well the content addresses students' cognitive, social, and psychological dimensions. Yet, we have drill and practice sessions on "inert," "dead" knowledge that will get students through a particular test hurdle.

Content (subject matter) is a compendium of facts, concepts, generalizations, principles, and theories. It also incorporates methods, strategies, for processing information. Curriculum content provides, or should provide, students with opportunities for discovering knowledge and relating it to the real world. As Lake denotes, the content selected should be "boundless and multidimensional, yet holistic and personal."[134] He suggests—encourages—educators to allow their imaginations and their students' imaginations to be the only limits to the scopes of contents.[135] All contents are selected from the various knowledge domains. And in this century, the domains are expanding, morphing in this "brave new world of technology."[136] (See Figure 7.5.)

ORGANIZATION OF CONTENT.   Different knowledge domains have unique types of concepts in specialized relationships. For instance, mathematics has the concepts of number, integer, and matrix. Physics has the concepts of matter and energy. Within any knowledge domain, concepts are organized into specialized networks. Different types of tests and processes are tailored to different knowledge domains.

Program planners can organize content in philosophical/logical, psychological, political, or practical terms. Curriculum makers who use logical orientation organize content according to

KNOWLEDGE ⟶	Content ⟶	Knowledge
(information formally organized)	(knowledge selected for educational purposes)	(school content at levels sufficient for use)
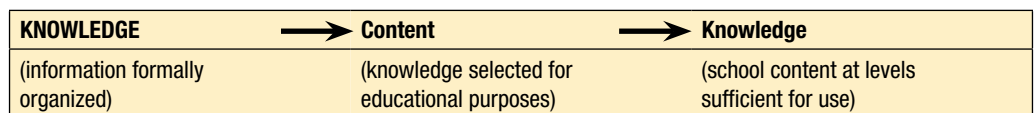
FIGURE 7.5 World Knowledge to School Knowledge

certain rules and concepts. In economics, for example, the concepts of supply and demand are major organizers, without which the ideas of capital, labor, and marketplace cannot be understood. Arranging economics content in this manner makes sense, but it really does not denote the way an individual might actually learn economics.

Curricularists who use a psychological organization focus on how students learn or process information. Behaviorists think that content should be selected and organized so that correct responses are reinforced. Cognitivists think that content should prompt students to analyze, hypothesize, investigate, identify patterns, critique, and draw conclusions.[137] Most educators believe that content should be organized so that students move from the concrete to the abstract. This is a key principle of sequencing content.

Political organization is increasingly popular. According to those who favor this approach, content should be sequenced so that adequate emphasis is given to topics and people important to various pressure groups. Often politically driven content selection results from political or legal action.[138] For example, history curricula must now include the views and deeds of Blacks, Native Americans, Hispanics, and women. The goal is to include "concepts, paradigms, themes, and explanations that challenge mainstream academic knowledge and that expand the historical and literary canon."[139]

The last content organizer is practicality, which deals with "do-ability" and cost-effectiveness, such as the expense of structuring or delivering the content in a particular way. Practicality includes questions such as: Which organization (or organizations) of curriculum content optimizes learning? Can one find textbooks and other educational materials that support this content organization? And in this digital age, what computer programs can be integrated to complement the curriculum content? What e-books are available dealing with selected curriculum content? How can online learning be utilized? Can our school develop distance learning with other schools and even colleges? Perhaps when considering practicality, we need to ponder what the costs are of not including some content or teaching strategies, of not using e-books or computer programs, or of not accessing distance learning. These are important queries. Will teachers, students, parents, and the general public really accept a particular curriculum organization or approach? Will all the players, students included, accept the fact that technology is now indispensable to engaging students actively with the curriculum content?[140]

CRITERIA FOR SELECTING CONTENT.   Regardless of their curriculum design preferences or their philosophical orientations, curriculum planners must apply criteria in choosing curriculum content. Although the criteria are common to most curricular orientations, educators in the various philosophical camps might place greater emphasis on particular criteria.

Self-Sufficiency.   Israel Scheffler argues that the prime guiding principle for content selection is helping the learners to attain maximum self-sufficiency in the most economical manner. He elaborates three types of economy: economy of teaching effort and educational resources, economy of students' efforts, and economy of subject matter's extent of generalizability.[141] This criterion—helping learners to attain maximum self-sufficiency—is also supported by many humanists, radicals, reconceptualists, postmodernists, and postconstructivists as a means by which learners can actualize their potential and crystallize their identities. The criterion of self-sufficiency must be considered in ample depth. It does not mean just learning knowledge and skills that allow one to function independently in society. It means furnishing content and educational experiences that enable learners to connect their intellectual, emotional, and spiritual selves. It means content and experiences that nurture connections of intellectual and emotional selves to the selves of others. Content chosen for self-sufficiency should be experienced by learners as boundless and multidimensional. Subject matter should engage pupils such that contents have multiple meanings, the scope of which is limited only by the learners' imaginations.[142] The content should address self-sufficiency so that individual learners commence transforming themselves into more complete and complex social beings, moving toward being in a state of communion with others.[143]

Significance.   Content to be learned is significant only to the degree to which it contributes to the basic ideas, concepts, principles, generalizations, and so on, of the overall aims of the curriculum. Content should also consider the development of particular learning abilities, skills, processes, and attitude formation. In this 21st century, there is a need for students shifting their scholarship from content emphasis to mastering strategies and skills in processing knowledge. Larissa Pahomov asserts that in the expanding digital age, information—content—is easily obtained. One can pull up vast amounts of data from computer programs such as Wikipedia, Google, and YouTube. Students need to be skilled in analyzing information so gained to judge its utility, its applicability, and most importantly, its accuracy. Is the information accessed opinion, or statement of fact? Is it accurate but advocating a particular viewpoint, economic or political? Perhaps a most important skill of self-sufficiency is not a skill at all, but a disposition. Students in this century must develop dispositions so they can live productively in situations that are uncertain. They must realize that all study and learning have the companion of "doubt." Self-sufficiency does not imply mastery, but "an enduring process of becoming."[144]

Validity.   *Validity* is the authenticity of the content selected. In this time of information explosion and the rapid technological means of delivering information such as Facebook, YouTube, and Wikipedia, knowledge selected for school content can quickly become obsolete and even incorrect. It seems that anyone can post information and not identify its source. It appears that an assumption or conclusion can travel digitally around the world several times before anyone even bothers to check its accuracy. As new knowledge is discovered, content assumed valid may become misleading or even false. Validity must be verified at the initial selection of curriculum content, but it must also be checked at regular intervals through the duration of the curricular program to determine if content originally valid continues to be so.

Validity seems to be a rather straightforward criterion. Something is either accurate or inaccurate; something either happened or it did not. Nevertheless, the ideological stance and attendant metaphors that any individual brings to a situation vastly influence what he or she perceives as valid. Metaphors influence how we think about different situations and different phenomena. For instance, labeling a society patriarchal or oppressive is valid only if one uses a metaphor of gender hierarchy or a dynamic of competing physical forces. Because of the use of metaphors, some can state that certain information in school content is valid or truthful, whereas others can consider the same information invalid. Revisionists, radical school critics, reconstructionists, and postmodernists state that much of the curriculum offered to students is invalid.[145]

Interest.   Another criterion is *interest*. To those who favor the learner-centered design, this is a key criterion. These persons note that knowledge exists in the learner when it is meaningful to his or her life. When it fails to be meaningful, it dehumanizes education. The interest criterion has been with us since the times of the child-centered school in the 1920s. Advocates of this movement urged that the child should be the source of the curriculum; in other words, the children's interest should determine the curriculum.

Those currently advocating a learner-centered curriculum point out that the content of the curriculum must be selected with students' interests in mind; however, the school experience should create and broaden interests as well as address them. A key question is, are students' current interests of long-lasting educational value for both the students and society? Dealing with this question is difficult because it assumes educators possess some degree of perception regarding future society and students' places in that future.

The criterion of students' interests should be weighted and adjusted to allow for students' maturity, their prior experiences, the educational and social value of their interests, and how they are expected to interact within society. Attending to this criterion of interest means that, in selecting content or arranging for content to be experienced or constructed, the educator must be sure that the content does engage the individual. The content must contribute to the welfare of the student.

Utility.   *Utility* concerns the usefulness of the content. Again, how a person defines usefulness is influenced by his or her philosophical view and favored curriculum design. Usefulness to those favoring the subject-centered design is often judged in terms of how the content learned enables students to use that knowledge in job situations and other adult activities. Usefulness to those in the learner-centered camp is related to how the content enables the individual to gain an accurate perception of his or her self-identity and to attain meaning in his or her life. Is the content useful for the learner developing his or her human potential? Proponents of the problem-centered mode think of content as having utility if it has direct application to ongoing life and to social and political issues.

A challenge in dealing with the criterion of utility is that educational decision-makers must consider two kinds of utility: current utility and future utility. There are certain contents and processes that students must learn for immediate application to be successful in their current lives. Some of these contents and processes have utility for all students, regardless of the students' desires or life ambitions. However, some contents have immediate utility only for students who have very specialized needs, desires, or ambitions. Thus, utility must be considered with the student audience in mind. In addition to content that has current utility or immediate application, there are contents that have current utility for preparing students to deal with the future, not the immediate present. These contents have utility in getting students to think in particular ways that will be useful in the future. These contents have utility in getting students to be futurists themselves, to engage in futures planning, to forecast events, and to assess future consequences of current and emerging trends.

In the global and digital world, educators must rethink the criterion of utility. Some content might have limited utility and perhaps even be useless, in particular students' immediate environment. However, those charged with selecting content must recognize that in today's shrinking world, what might be of little value in the immediate community may have great worth in a distant community. Some might argue this point by asserting that their students are unlikely to travel to distant places. However, a student might indeed be able to market his or her knowledge or skills in a distant place without actually leaving his or her home office. We do not need to travel to India to work there.[146]

Zhao presents an interesting idea: "Nothing is too strange to be useful." Phrased differently, nothing is too strange to have utility. No content, no knowledge, if presented on a world scale, lacks utility to some audience, however small. Companies like Amazon and Netflix function with this concept. They focus on what may appeal to only a small number of individuals, but they announce to the world community that they have this "narrow-focus" material. Because they announce this fact worldwide, they always have enough people interested in the material, this bit of knowledge. Small numbers of people interested in strange and unusual materials generate major sales. Millions of small orders spell success for companies using this business model. If educators "toy" with the idea of putting specific curricula online—that might have only limited local interest but, globally, might entice profitable numbers—they might be motivated to create such a curriculum. Zhao indicates that with Second Life, Michigan State University's Confucius Center has created for Second Life a virtual Chinese Island designed so players can learn Mandarin Chinese. The Chinese Island allows players to visit a Chinese museum, markets, and even restaurants. Zhao notes that other universities are exploring courses to be offered in this cyber universe.[147] School districts, especially those offering the international baccalaureate degree, might create curricula that have utility for students from around the world as well as from their home district. There is no knowledge, no content, that does not have utility to someone.

Learnability.   Could anyone select content without considering this obvious criterion? Some critics of the schools say yes. Certain contents are selected that are out of the range of experiences of particular students and are thus difficult, if not impossible, to learn. Furthermore, selected contents are sometimes arranged and presented in ways that make their learning difficult

for some students. Critics often say that content selected reflects a middle-class bias and that it is organized to favor those who have convergent (and right-answer) learning styles. The learnability criterion relates to the optimal placement and appropriate organization and sequencing of content. Furthermore, it addresses the issue of appropriateness for the intended student audience.

Feasibility. *Feasibility,* the last criterion, forces curriculum planners to consider content in light of the time allowed, the resources available, the expertise of current staff, the nature of the political climate, the existing legislation, and the amount of public monies available. Although educators may think that they have an entire world of content from which to choose, they do have limitations on their actions. Even the number of days in the school calendar, for example, limits what can be taught. So do the size of the classroom and the personnel of the school. Content selection must be considered within the context of the existing reality, which usually boils down to economics and politics.

Selecting Curriculum Experiences

Curriculum developers must consider not only content, but also how students experience that content. They must consider instructional strategies and educational activities. Possible instructional strategies include inquiry strategies, lecture, discussion, and demonstration. Educational activities include viewing films or videos, conducting experiments, interacting with computer programs, taking field trips, and listening to speakers.

Curricularists select and sequence pedagogical approaches and manipulate experiences and materials in the hope not only of imparting knowledge, but also of enhancing students' values and attitudes, abilities to think critically and creatively, and desire to learn individually and collaboratively. Curriculum experiences should nurture the enhancement of intellectual activities in both hemispheres of the brain. The focus in the 20th century tended to be on left-brain-directed thinking skills. Such skills stressed the "sequential, literal, functional, textual, and analytic."[148] The 21st century requires more right-hemisphere thinking skills. These skills are simultaneous, metaphorical, aesthetic, contextual, and synthetic.[149]

Curriculum experiences that stimulate student excitement in adapting to and managing complexity, celebrating uncertainty, and rewarding intellectual risk taking will serve students of this century well. Also, educational experiences that foster in students a playfulness in their learning and a joyfulness in interacting with ideas, materials, technology, and people of various cultural, ethnic, and knowledge views will be valuable. Francesco Michaelides Weiss reflects on play, its meaning, and the messages it holds for educators. We suggest that we celebrate play, its varied powers, and bring more play into educational experiences. Weiss shares her worries that children today are deprived of sufficient play time. In many schools, recess has been eliminated; physical education is absent from many curricula. She argues that "the more time children have to play in their own ways, the better able they are to work out relationships and human problems that arise when interacting independently with their peers."[150] Classrooms should be "playgrounds" where ideas and situations can be "gamed." With experiences that encourage play, learners connect more completely with fellow students.[151] Playful curricular experiences facilitate children developing "creativity, inventiveness, and engagement with others and their ideas."[152] Weiss points out that corporations such as American Express and Starbucks have their employees engage in playful activities at leadership forums. Amazon has created playful environments in which people work and interact.

Curriculum experiences of this century should go from didactic teacher presentation to teacher–student, student–student, and student–outside expert interactions. And these interactions need not be just interactions with local community members. Remember, technology has eliminated distance. Students might collaborate on a project with a student or knowledge expert in another country. Field studies can roam the world seeking answers to particular questions. Interaction strategies alter the educational metric from answers and certainty to questions and uncertainty. Puzzlement is rewarded in new 21st century pedagogies. This does not mean that

educators ignore strategies that stimulate the left-brain hemisphere. Rather, it means that we are attempting to maximize the total brain—both hemispheres, the serious logical and the playful inventive.[153] With such balancing, educational experiences mirror ways in which knowledge and skills are actually applied in out-of-school situations. With such balancing, students attain a greater understanding of themselves as individual students and persons as well as members of groups, both local and worldwide.

Of course, various pedagogies and educational activities must be feasible in terms of time, staff expertise, facilities available within and outside of the school, and community expectations. However, as pointed out previously, technology has and continues to introduce the world community to students. We no longer need a yellow school bus for field trips to a farm or museum. Students can visit art museums in London by being "residents" in the metaverse of Second Life.[154]

We realize that many who read the preceding paragraphs may take exception to the points advanced. Certainly, with the stress on meeting standards, to suggest that schoolwork should be reclassified as school play will raise eyebrows. What is the standard for playfulness? How is it measured? How would one measure whether a standard was attained in a school project conducted with various players engaged in Second Life? Where are teachers going to get all the time for such actions? And what about teacher expertise?

However, teachers are professionals, and most community members think that the school their child attends is really quite good. The sorry state of public schools applies only to schools in other communities. In the Seattle area, four high schools in one school district were ranked in the top 25 nationally. However, we recognize that all schools are not equal regarding curriculum, teachers, funding, and student preparedness for academic study. Even so, we should strive for "best" practice in selecting curriculum experiences. Educators striving for best practice and attempting to attain high standards must realize that in reality, content and experiences are inseparable. Students reading a book or playing Second Life are combining content (what they are reading) with experience (the act of reading or the actual processing of what is learned in the cyber game).

> **7.2 Creating 21st Century Curriculum Experiences**
> According to many employers, schools need to focus beyond the three *R*s and emphasize certain global skills such as creativity, critical thinking, and collaboration. Watch this animated video about two children working together to create something extraordinary. What kind of curriculum experiences can educators create to cultivate such 21st century skills in their students?
>
> https://www.youtube.com/watch?v=zTbuFN8_D_s

Selecting Educational Environments

Just as we cannot separate content from experiences in the actual delivery of a curriculum, we cannot divorce the experiencing of content, the learning of content, and the attainment of knowledge from the space or spaces within which experience occurs. At least, this has been the case until recently. Neither, until recently, could we divorce the experiencing of the curriculum from the realm of time. The space and time in which individuals place themselves or are placed affects their inner experiences, their learnings, their knowledge, and their understandings. As William Ayers notes, "The learning environment is a complex, living reflection of a teacher's values."[155] We add that the learning or educational environment is more than a reflection of a teacher's values. An educational environment is a representation of values from communities of persons, seen and unseen.

Most educators give scant attention to the spaces within which curricular content and instructional strategies occur. But we argue that in today's fast-paced century, we need to think of space somewhat like an architect of education. Educational spaces are, as just noted, essential aspects with which students will engage their learnings. As David M. Callejo Pérez, Donna Adair Breault, and William L. White denote, viewing spaces as a crucial dimension of curriculum will enrich our ruminating about the purposes of developed curriculum, its potential to trigger associated learnings, and the innate significance of such learnings. We must realize that dynamic spaces can impact the physical, psychological, ethical, and even moral conditions that are embraced by our various communities.[156]

Most schools still are designed to be functional and efficient. But our designs reveal that which we consider important. Dewey in 1934 denoted that structures that lacked character—that

is, "packing box architecture"—were due to a lack of character or certain values of the architects who designed them.[157] In the Northwest, most housing developments reveal the dominance of the car and a disconnect with people. Most new houses have a two- or three-car garage and just a front door. People live over their garages. There are no front porches. People live in the back of their "houses" disconnected from their neighbors. There is no sense of community. The reasons driving the architects and builders are primarily economic. This thinking seems to extend to the schools built for these subdivisions.[158]

An educational environment should represent a milieu in which teachers and students engage in mutual communication about content and jointly participate with educational materials and technological programs to attain meaningful educational experiences.[159] Pérez, Breault, and White, drawing on a lecture by Foucault to architects, state that the curriculum should exist in a "heterotopia." Utopias are not realities. They present ideas, shadows on walls. In contrast, heterotopias meld the ideal with the real. They serve multiple purposes and varied functions. They frequently present conflicts, tensions, and incompatible ideas and actions for students to process. Such environments introduce contradictions to students, nurture doubt and uncertainty, and motivate inquiry.[160]

Children who experience a creative environment within a heterotopia are much more likely to be stimulated, to realize their potential, and to be much more aware of their learning processes and their command of understanding. Students in such an environment are most likely to be excited about learning and, more importantly, to be more daring in executing learning strategies and more audacious in considering information from myriad angles.

Educational environments often are ignored by curricularists and teachers. One tends to just accept the classroom to which one is assigned. Certainly, one has to function in the given classroom space, but teachers have an obligation to question the educational, the curricular, and the instructional attributes of the classroom space. What is obvious about the classroom space? Will it allow for teacher–student and student–student interactions? What are the hidden curriculum messages? What are the obvious messages? Will the environment make students feel comfortable and appreciated? Will I as the teacher feel at home in this environment?[161] Educators must consider a classroom as a biosphere—as an ecosystem. Is the space and what grows within it healthful regarding nurturing curiosities, intellectual risk-taking, dispositions to explore and experiment, and concern and empathy for fellow students? Will it foster intellectual character and technological competencies?[162]

Certainly, educational environments should be planned so that purposeful student activity is stimulated. However, today's environments must also allow for nonpurposeful student activities—just playing around with information to see what happens when one mixes ideas and actions. Computer games can foster such nonpurposeful actions. Having playfulness as part of the hidden curriculum can arouse in students a wish to engage in serendipitous learnings and to take pleasure in the excitement of uncertainty. The hidden curriculum should also shout out that all students' learnings and results of learning are valued and encouraged. Another hidden curriculum message is that students have responsibilities for selecting contents they wish to learn. This hidden message might be nothing more than scheduling time for students to suggest ideas for lessons.

Only purposeful learnings exist. What we classify as nonpurposeful are activities or contents that we do not find of use to us. However, these contents and activities have utility, even if not articulated, to someone. As Ayers posits, and we tend to agree, individuals learn what they deem important without much outside intervention. After all, babies learn to speak a language without direct instruction. They learn to walk, to play ball, and to dress themselves. They develop a number sense prior to experiencing a structured school curriculum. Young individuals learn these things on their own because we structure, or create, environments in which they can practice actions and learnings. We try to make the environment appealing in order to tempt the individual to try some learning and some action. We offer encouragement at any sign of success. We make the environment safe. Individuals, starting with babies, can read the hidden curriculum

messages that cheer "try this, hold on to that, take this step, throw the ball." An effective educational environment encourages learning, cheers human effort, celebrates social interaction, and encourages forming a learning community.[163]

As mentioned previously, the educational environment is an ecosystem, or biosphere. Further consideration is whether the ecosystem is completely natural; if so, we are called to manage the flora and fauna in ways that keep them vibrant. Our first reaction to educational environments is that they are human-made. However, the curriculum in today's school does not just take place in human constructions.

According to Ursula M. Franklin, education is not just happening in natural and human biospheres, it is happening in numerous bitspheres.[164] Bitspheres exist within the *space,* the inner environments of the various technologies that we are placing in our schools' educational environments and the technologies we utilize in our out-of-school lives. Our technologies are enabling us to expand *school space,* or educational environments, to limits known and unknown. Franklin asserts that our house—in our case, our schoolhouse—is being expanded and remodeled. And with the remodel, more and more of human life is being lived in the bitspheres. Building within bitspheres is altering how people interact with others and with nature.[165]

Much of the transformation of our lives by our increasing use of technologies is occurring without our awareness. Students, we know, spend a particular amount of time in the educational spaces in schools. We, as educators, have some control over what occurs within the space and time zones. However, increasing numbers of students are engaged with technologies in bitsphere worlds over which we have little or no control. In these bitspheres, there are no time or space constraints. Students can text a message on their iPhone, no matter the hour of the day. There is no day or no night, just "now." And messages can be texts or tweets sent to people whom we have never met in a place where we have never visited. The new technologies are contributing, Franklin asserts, to the destruction or a major alteration of time, space, human community, and the relationship of actual community. Facebook has altered how many interact with others. Students with thousands of "friends" are not going to interact to standard educational school environments. They may be less willing to engage in face-to-face interactions, preferring instead to dialogue in cyberspace.

And students given a science assignment may feel more comfortable going on their own time frame to visit various libraries on the Internet. They may read the great books on their e-readers. They may document their research reports with electronic articles and reports. They even may be able to interview, in cyberspace, various authorities from around the world. And this drifting to unpatterned structures from patterned social and community structures is occurring while many are arguing that we need smaller and more personalized schools.

John Goodlad suggested attention to this dynamic shift several years ago when he argued that schools must develop an ecocentric ethic.[166] An *ecocentric ethic* defines a school's particular culture—the relationships among all the people within the school and outside the school. In an ecocentric school, students interact with institutions and social practices. However, Goodlad could not have known, as we did not, that technologies would allow students to expand their interactions from the various biospheres to the bitspheres, that students would be interacting in cyberspace with individuals not really known and never met, or that students would, in some cases, be engaging with avatars.

Franklin offers a caution. With our technologies, students can quickly access massive amounts of information from anywhere in the world. However, she notes, delivering and experiencing curriculum is not just to supply information. Education, writ large, enables students to attain knowledge and understanding. The educational environment, the specifically human sphere, should be considered and developed so that students acquire knowledge and understanding at deep conceptual levels. But in acquiring knowledge and understanding are two levels of learning: explicit and implicit learning. We can perhaps gain explicit learning with ever-increasing engagement with the bitsphere, but implicit learning is diminished or even stifled with such bitsphere emersion.[167]

Students engage in explicit learning in gaining knowledge of historical events, learning the construction of correct sentences, and learning algorithms to solve problems. Such learning is essential in knowledge acquisition. However, for students to be complete, they must address the affective and psychomotor domains as well as the cognitive. Implicit learning results from individuals interacting together and engaging in social dynamics, whether in school or in the community. Educators must design educational environments that foster in students connections not only with other humans but with all the earth, living and nonliving. Educators must consciously create social situations so that students implicitly develop empathy, tolerance, patience, trust, humility, self-confidence, love, reverence, wonder, and awe. Further learnings should foster respect, concern, inquisitiveness, joy, responsibility, and spirituality. Franklin states that often educators assume that such implicit learnings accompany explicit learnings. Such double learnings cannot be taken for granted. She also asserts that some explicit learnings may become less useful in rapidly evolving futures, whereas the implicit learnings may become truly central to our future welfare.[168]

Decisions about the educational environment may be even more crucial and complex than decisions about selecting content and instructional strategies. We can select a particular science concept and an instructional strategy, but if we are not careful in designing the educational environment, the science concept experienced may actually "blow up" in the teacher's and students' faces. As Ron Ritchhart articulates, "when the implicit message contradicts the explicit message, the implicit message is likely to win out."[169] Emotion usually trumps reason. When considering educational environments, we must look at the implicit messages hidden within the educational arrangement of space as well as the explicit locations of furniture and educational materials. What educators think important is placed in a power position so that students will notice it more or have more opportunities to employ it in their learning. If students do not pick up on our placements, we often explicitly point them to correct encounters.

Attention to selecting educational environments, while certainly not a major focus of educators when contemplating curricular design and development, has not been totally ignored. In 1987, Brian Castaldi suggested that curriculum planners must consider educational environments in which curricula are experienced. He suggested four criteria that educators should employ when designing educational environments: adequacy, suitability, efficiency, and economy.[170] *Adequacy* refers to the planned spaces, the actual classroom space. Are classrooms large enough, well lit, and sufficiently temperature controlled? Today, the adequacy criterion must also be engaged when thinking of cyberspace. Can the cyberspace allow for a few or many participants? Is the visual space of the real classroom large enough to engage all students? With regard to virtual books, there is no need to raise the question about the condition of educational materials. Materials on e-readers never wear out, but of course, they can become irrelevant.

Suitability relates to planned activities. This criterion may be even more crucial to consider in that the virtual worlds opened by technologies can present an ocean of materials and activities that may or may not be appropriate for students. In dealing with suitability, teachers must consider both the chronological and developmental ages of their students. Educators must think about the cultural backgrounds of their students. Concepts such as cultural views of personal space must be incorporated into decision making.

Efficiency refers to operational and instructional effectiveness. Does the environment maximize learning while minimizing the efforts required of teachers and students? With technology becoming a central part of the educational environment, the efficiency criterion has taken on new meaning. Students assigned a research activity can engage in conducting virtual experiments or interviewing experts in another country without leaving the classroom. Students can skim through documents provided by the Internet in a matter of minutes instead of hours. Students can instantly develop personal connections with multiple learning communities.[171]

Efficiency addresses more than the operational and instructional effectiveness in the explicit realm. This criterion also must guide the effectiveness of the educational environment in stimulating implicit and emotional learnings and dispositions. What is placed in the educational

environment must engage, challenge, mystify, excite, and encourage students to book their educational travels. And the environment must allow for such travels, such mind trips, such emotional adventures. It should foster students raising questions that have answers to be known but, perhaps more importantly, questions that are unanswerable such as "What is my mind?" "How do emotions work?" "Who am I?" "What is space?" "Are there parallel universes?" "From whence did time come?" "What was here before the big bang?"[172]

The final criterion, *economy,* refers to cost-effectiveness. As Castaldi first presented it, economy dealt with the specific cost of teaching some part of the curriculum in the environment provided. Just how much money is required for the purchase of textbooks and materials? How much do we need to supply computers to some or all students? How much do we need for salaries for teachers competent in the particular curriculum in this particular educational environment? What do computer programs cost? What expenses are necessary to connect to the Internet?

As Castaldi developed this criterion, it appears that the economy criterion was influenced by "Time is money." However, economy is not simply related to the cost of doing something or of teaching some subject. Today, we believe that the economy criterion must also consider the cost of not teaching something, or not designing an educational environment that encourages interactions with real persons as well as individuals visited through technologies. Contemplating this criterion, educators must realize that what is done quickly and at the lowest monetary cost today may in future realities be the most ineffective and costly of programs. This concept of what it costs not to do something now in terms of future consequences adds complexity to this final criterion. Although we cannot be certain about future costs of nonaction—not teaching some subject, or not allowing students to access certain technologies—we at least must be vigilant in constantly revisiting our educational environments as well as our curricula and instructional methods performed in these environments to make sure that everything educational is still adequate, suitable, efficient, and economical.

The Final Synthesis

The stages of curriculum development should result in a document that addresses content, educational experiences, and educational environments in keeping with the school's aims, goals, and objectives. Whether educators are creating master curriculum designs, curriculum guides for particular courses of study, or lesson plans for a particular day, they essentially engage in all the stages discussed in this chapter.

■ PARTICIPANTS IN CURRICULUM DEVELOPMENT

Developing a curriculum involves many people from both the school and the community. It also involves planning at the classroom, school, district, state, and national levels. Sometimes curriculum planners are at odds with one another. This is especially likely when different political interest groups are competing for resources and influence. Macdonald long ago advocated that all parties affected by the curriculum should be involved in deciding its nature and purpose. The key players should be scholar-experts, professional educators (consultants, administrators, supervisors, and so on), teachers, and students. Parents and community members (including businesspeople and politicians) should play lesser roles.[173]

Teachers

Teachers occupy the central position in curriculum decision making. But as Mary Moss Brown and Alisa Berger contend, the roles of teachers in this new century are changing, confronting teachers with expanded challenges. No longer are they just responsible for developing lesson plans and serving on curriculum committees. With the digital age exploding contents, computer programs, and virtual worlds, teachers are going to have to interact with content experts from the

field. Many learning modules will have content that many teachers will not have the expertise to teach or evaluate. Specialists from the field will have to collaborate in the planning of lessons and the evaluation of learning. Schools will need to reorganize not only spaces, but schedules that will facilitate such collaboration. Internships of students, especially at the secondary school level, will require a meld of educators and field experts to manage and assess.[174]

In the 21st century school, Brown and Berger assert that in some cases, teachers will be responsible for creating courses they will not teach and teach courses they did not plan. Much of this depends on the specific contents of the curriculum. In other situations, teachers will collectively develop curricula. And in some cases, teachers will collaborate with technology coordinators in preparing computer presentations. And with distance learning, many teachers will have their classes taught by teachers and field experts not even in the community.[175]

If teachers and experts from the community are going to have a successful curriculum association, they will require an adjustment or adjustments to their teaching schedules. As Decker F. Walker and Jonas F. Soltis contend, teachers cannot teach a full schedule of class daily and have time for curriculum development and working with experts in various subjects and fields from the community. Even the economic and industrial segments of the community may have to make their own schedule adjustments to accommodate such joint planning of curricular experiences.[176]

But, we assert, teachers will have to continue to be involved in every phase of curriculum development. And as Michael Fullan and his colleagues remarked, teachers should continue to function not only as codesigners of expert curricular and instructional systems, but also as coresearchers into the effectiveness of implemented curricula.[177] Again, to participate as coresearchers will require adjustment of teacher schedules.

Students

Students should have a voice in curriculum development. It is surprising that until recently, teachers, although they think in terms of what students will learn, have largely ignored them as individuals who could collaborate in creating or modifying curricula. Jeroen Bron and Wiel Veugelers have presented a cogent argument for involving students in curriculum design and curriculum development. They point out that educators in the first decade-plus of this new century have come to see the power of student voice and have become advocates of involving students as active participants in curriculum development.[178]

Bron and Veugelers present five rationales for allowing students' voices to be heard in matters of curriculum design and development. The first argument is the normative argument. Students need to be considered as being active citizens, not just "citizens-in-waiting." As such, they have the right to participate in decision making that impacts their education. Children do have rights as citizens—citizens of the country, their community, and their schools. Their voices cannot be ignored.[179] Lake points out that the learner is not constructed for the curriculum; rather, the curriculum is created and implemented for the learner. Often students' investigations both inside and outside of school inform our youth as to what a meaningful curricular experience might be.[180]

Bron and Veugelers's second argument is the developmental argument. They indicate that today's youth are developmentally ready to participate in providing suggested curricular input. Often, their activities outside school provide more opportunities to assume responsibility and autonomy in their lives than the school community does. With regard to technology, many students, even at the elementary level, are more expert than their teachers.

The third argument for involving students in curriculum development is the political argument. The point has been made that students are citizens who need to have their voices heard. But students speak with myriad voices. Our students, especially in this century, are heterogeneous to the extremes. This diversity of our student body means that a "one-size-fits-all" curriculum will misfire. As Bron and Veugelers posit, "there can be general aims . . . on the national level, but these need to be elaborated into more detailed objectives in such a way that takes into account the cultural context and the local, temporal, and individual differences."[181]

The educational argument is the fourth argument. Being involved in curriculum design and development provides students with opportunities to engage in collaborative decision making and inquiry. In some ways, this educational argument supports allowing students' curricular decisions to be a real intern-learning event—students allowed to engage in reflective imagination,[182] students having opportunities to nurture democratic skills, to actually learn the deliberative process.[183]

The relevance argument is the last, but by no means the least powerful justification. Relevance deals with the questions, "What is this content, this experience good for?" "Why do I need to learn this?" "Can I actually utilize what I have learned or experienced in my life outside of school?" Students participating in creating or guiding some of their curricula allows them in their decision making to realize the relevance of what they develop in the company of educators and even community members. And they will learn that relevance is not a static attribute. Certainly, there are curriculum contents that are relevant today and have been relevant in past centuries. But there are contents that may not be relevant in 10 years, or skills or strategies that are relevant in curricula that will be less relevant and perhaps even irrelevant.

Students involved in creating their curriculum can be further motivated not only to learn explicit content, but to learn implicitly that their opinions and choices matter and have educational value. Students so involved feel empowered and are encouraged to assume responsibility for matters that concern them. They also learn that engagement in curriculum design and development is ongoing. It is a process that continually must deal with the question, what knowledge is of most worth? As Lake submits, "the sphere of life is never static; it constantly is changing and being changed by the environment of social, political, and natural movement, through forces of self-preservation. . . . Education needs to continually renew itself through continual creative reflection and action, and a curricula . . . is always in the making."[184] When involved in curriculum development, students at all ages will learn what Lake has stated: Life is not static; education cannot be static. We all have voice; we all have agency.

Principals

For curriculum planning to succeed in a school or school system, the principal(s) must be involved.[185] Fullan asserts that where schools have been successful in creating quality education, the principals were leaders of instruction. We interpret instruction as synonymous with curriculum. When principals had accepted an instructional leadership role, they spent less time on administrative, financial, and logistical tasks.[186] Principals did not become the instructional leaders, but they worked closely with those individuals who were. In the last few years, a new educational position, called the school administration manager (SAM), has been developed. This person assumes many of the principal's administrative functions, allowing the principal to focus more time on instruction and, we would assert, curriculum. The Wallace Foundation has created an initiative designed to enable school systems to reconceptualize a principal's responsibilities so as to make his or her actions improve instruction and curriculum in their schools. As of 2015, 600 schools in 17 states were employing the SAM concept.

With the SAM, a principal can indeed be an instructional leader. Instead of dealing with minor administrative and management issues, the principal can increase her or his time observing classrooms, engaging teachers in discussions about instruction and curriculum, actually participating in teacher team meetings, discussing issues with students, and even engaging with students who are discussing curricular issues. SAM even allows principals some time to actually tutor students.[187]

Yet, for principals to take advantage of the SAM program, they need to possess specialized knowledge regarding curriculum and instruction. Just having the time to visit classrooms and to be a member of a teacher team-planning session will not result in improved curricula or instructional strategies. Many principals need to realize that they sorely lack curricular and instructional expertise. Most principals, when they give attention to curricular activities, do so from a largely managerial perspective.[188] Even today, most college programs for principals devote little time

to curriculum. Some colleges of education have even eliminated the area of curriculum studies. Most administration programs stress personnel matters, education law, financial planning, organizational models, and change strategies to the detriment of curriculum and instruction.[189]

Certainly, no new curriculum will be introduced or created for schools or school systems without the moral and psychological support of principals. Principals effective in leading any type of innovation—in our case, curricular innovation—must possess the skills requisite for maintaining the relationship between teachers and the larger community, whether local, state, or national.[190]

Effective principals realize that schools must function as learning communities with close ties to the outside neighborhood. Ideally, they believe that curriculum committees should involve community members along with students in decision making. This is no small task, especially at this time of myriad voices expressing divergent demands on the school. Fullan notes that "the principal is the gatekeeper of change."[191] We would submit that the 21st century principal is the gatekeeper of numerous gates of multiple diverse changes occurring at exponential rates.

Curriculum Specialists

Curriculum specialists play a major role in curriculum development and implementation. Those who are called curriculum coordinators or directors usually are curriculum generalists. They have a broad knowledge of curriculum and expertise in creating and implementing curricula. They usually do not have a major in specific content. Other generalists in a school district are known as directors of elementary or secondary education. Usually, these people have expertise in administration as well as curriculum, but their focus is on either elementary or secondary education.

People with specific content specialties are often called supervisors, chairs, or heads of a particular subject area (e.g., "supervisor of science"). They have some background in curriculum, but they possess a major in a content discipline and often are more concerned with supervising instruction.[192]

Curriculum specialists are responsible for ensuring that programs are conceptualized, designed, and implemented. This requires considerable understanding of curriculum and skill in managing people. Curriculum specialists must know how to design and develop curriculum and how to supervise and evaluate instruction.

School districts, especially small ones, sometimes ask outsiders to assist in curriculum development. These outside facilitators may be subject-matter experts who assist in selecting and organizing content, experts in instructional design who provide guidance on choosing pedagogical approaches or integrating media systems into the curriculum, or experts in needs analysis.[193]

Assistant (Associate) Superintendents

In many school districts, the assistant, or associate, superintendent is most responsible for curriculum development. This person reports directly to the superintendent. In large school districts, curriculum directors report to the assistant, or associate, superintendent. Ideally, this person (1) chairs or advises the general curriculum advisory committee; (2) informs the superintendent of major trends in the field of curriculum and how these trends are affecting the school system; (3) works with elementary and secondary directors regarding curricular activity; (4) is in charge of the budget for curricular activity; (5) provides input into the statement of philosophy, aims, and goals; (6) guides evaluation relevant to aims and goals; and (7) manages long- and short-term activities designed to strengthen programs.[194] The assistant (associate) superintendent also helps formulate policies concerning curriculum innovation.

Superintendents

The superintendent is the school system's chief administrator. The superintendent responds to matters before the school board, initiates curriculum activity, starts programs for in-service

training of teachers, informs all district personnel of changes occurring in other schools, and processes demands from outside the system for change or maintenance of educational offerings.

Good superintendents inspire change and enable curricula to respond to changing demands. They are directly responsible to the school board for the district's total educational action. They must establish the means for curricular action, interpret all aspects of the school's program to the board, and set up communication networks to inform and involve the public with regard to curriculum process.

Boards of Education

Boards of education are the schools' legal agents. They are composed of laypeople, usually elected as representatives of the general public. Board members are responsible for the schools' overall management. They must ensure that the curriculum advances the school system's goals. School boards have the final say as to whether a new program is funded or implemented districtwide. They enact district policies that facilitate the development and implementation of new curricula.

School boards and central administrative staffs seem to be losing some control over school districts. In some cases, legislated definitions of basic education have removed some control. In other cases, special-interest groups have gone to court to alter board policies that they found unacceptable. In some communities, angry community members have recalled board members. In many school districts, the school board plays only a secondary role in determining curriculum and policy; federal, state, and local professionals create new curricula.

Lay Citizens

The relationship between communities and schools reveals much confusion and seeming contradictions regarding what roles laypersons should play in determining goals, programs, instructional strategies, and standards of pupil success. Just how involved should laypersons be in curriculum development? How included do community members wish to be? In most school districts, lay citizens' role is minimal.

Many reasons exist for the lack of engagement. Perhaps the major reason is that noneducators realize they possess little knowledge about course content, course designs, or models of curriculum development. Another is that they believe that educators should be the ones engaged; it is the educators' job, after all. In some communities, there are diverse social classes and differences in real and assumed power to influence the schools. Fullan, citing Bryk and Schneider, notes that often poor parents are frequently unconfident in their relationship with schools.[195]

Presently, with the emphasis on standards, more community members are striving to have their voices heard. However, because of increasing diversity throughout the nation, the ideas of trying to influence education standards are becoming increasingly complex. Many parents are recent immigrants, bringing with them radically different views of what education should be. Some immigrants come from countries in which people did not advance beyond primary school.

How to involve lay citizens with these backgrounds in contributing to the education of their children is increasingly challenging. Increasing diversity regarding ethnicity and levels of affluence offer new problems. Many children come from single homes. Many are living in poverty. The gap between the haves and the have-nots is increasing, and has an impact on when and how lay citizens furnish input into the school systems.

In general, parental involvement in school affairs drops off considerably as students enter middle and high school. Communities that are poor often do not even have any involvement at the elementary school level. Educators must recognize that parents and other community members can be resources for creating dynamic curricula. Principals and teachers must realize that they must, in many cases, initiate the contacts with the various communities.

But not all innovative collaboration in curricular matters need be started by educators. In the 1990s, Eric Schwarz conceived of using community members as "citizen teachers" to

supplement and expand the regular school curriculum. He started his movement in Boston with the belief that low-income children in "poor" schools could learn as well as middle- and upper-class children in highly performing schools. What low-income children needed was additional time to learn and to interact with "citizen teachers" who could introduce these children to areas of expertise not taught either because of time or expense. Today, his program of "Citizen Schools" annually reaches over 6,000 students nationally. His program provides evidence that low-income students can learn at advanced levels.[196]

Schwarz, in his book, *The Opportunity Equation*, reports on other examples of citizen power. The National Academies Foundation (NAF) addressing high school students engages corporate employees from 2,500 companies as volunteers to share their expertise. This program currently engages more than 60,000 students in 39 states. Students often partake of internships at the company, working on real projects. Employees act as tutors and mentors, as well as teachers.[197]

The program City Year has young mentors who go into elementary and high school classrooms in 24 cities across the country. Experience Corps has realized and utilized a rich "citizen teacher" base: senior citizens who have retired from various professions. Many of these people are thrilled to volunteer part time in the schools. Some even are willing and eager to have second careers sharing their knowledge and skills. These "citizen teachers" are not replacing educators in the schools; they are becoming partners with educators in curriculum development and curriculum delivery.[198]

The Federal Government

For much of the 20th century, the federal government left curricular matters to the states and local districts. However, beginning in the 1960s, the federal government became a powerful force in determining educational materials and their uses. Federal dollars established and maintained regional laboratories and centers, first centering on science and mathematics and later focusing on programs for disadvantaged and minority groups.

Fullan delineates that government should and can push for accountability, should and can provide incentives, and should and can foster capacity building. He notes that if only the first two are addressed, any change in education will not last.[199] It appears that with the passage of No Child Left Behind in 2002, only the push for accountability was stressed. Perhaps the incentives push was there if we consider the threats made that if schools failed to get their students at 100 percent proficiency in two years' time, they would be classified for all to see as "in need of improvement." If the schools were still not attaining success after five years, they were cautioned they would be classified as in need of "restructuring," with the possibilities of being taken over by the state, turned over to private management, or redesigned as a charter school.[200] However, No Child Left Behind came with no money either for making educational changes or for capacity building and maintenance of the curricular innovation.

Presently, it seems that the federal government, in its passage of Race to the Top, included accountability, incentives, and capacity building in encouraging school districts to apply for federal dollars for educational innovations. Time will tell if schools can race to the top. Also at issue is that various schools and school districts have varying levels of personnel and resources to create educational proposals.

State Agencies

States have increased their role in educational policy making, to some extent at the expense of local school districts. Many state boards of education have made formal recommendations and issued guidelines regarding what the curriculum should contain and how it should be organized. Growing state involvement is partly based on the position that managing education is a state function, a position supported by the decrease in federal funding of education.[201]

States affect the curriculum in many ways. State legislatures frequently publish guidelines on what will be taught. They also mandate courses such as driver education and drug education.

Associations and other special-interest groups often lobby state legislatures to mandate that curricula include particular content or address the needs of particular students. Nationwide, state agencies have initiated minimum-competency and gate-keeping tests aimed at upgrading academic content and standards.

State boards of education continue to play roles in determining competency and certification requirements for teachers, supervisors, and administrators. In some states, people who wish to become supervisors or administrators must take specific courses on curriculum to obtain certification. State legislators' more active role in financing education indirectly affects both old and new programs. Finally, some governors have assumed the role of educational innovators within the context of the national reform movement in education.

Regional Organizations

Regional educational laboratories funded by the federal government influence school curricula by providing guidance in the production of educational materials and by furnishing consultants who serve on planning teams. Research and development (R&D) centers, both federally and privately funded, investigate curricular problems; the research results can be of value to curriculum planners. R&D centers also aid curriculum specialists by documenting the effectiveness of particular programs or approaches.

Intermediate school districts (also called *educational service districts* and *educational service agencies*) are offices or agencies that occupy a position between state departments of education and local school districts. About 40 states have some form of intermediate school district. The average intermediate district is made of 20 to 30 school districts within an area of about 50 square miles.[202]

In recent years, intermediate districts have provided school districts with resource personnel in such general areas of education as curriculum, instruction, and evaluation; in specialized areas, such as education of students who are disabled, gifted and talented, or bilingual; and in more specific areas, such as prekindergarten education, vocational education, data processing, and computer education.

Other Participants

For much of the 20th century, educational publishers gave the United States an unofficial national curriculum. For most of that century, the textbooks used largely determined the school curriculum. Students spent most of their classroom time, and nearly all of their homework time, engaged with instructional materials.

While we still have educational publishers, the textbook is in a state of transition. We do not believe it will disappear completely, but it will not be the primary source of the curriculum content. Already, the textbook, even this one, is being made available electronically, in e-book format. In this 21st century, students have access to vast amounts of information via the Internet. School systems can create their own online learning programs for use throughout the school system. Some school systems can even access online courses created in other school districts. Google and Wikipedia certainly can enrich curricular offerings.

Educational publishers are also involved in producing computer learning modules to enhance curricular offerings. It is not unthinkable that businesses such as Microsoft will expand its gaming activities to educational programs. No classroom in this century will have students unable to access electronically any and all recorded knowledge and information. And, as Brown and Berger assert, "Learning to make sense of online texts and resources is a critical skill for students' academic success as well as their ability to be literate citizens,"[203] global citizens in this dynamic and complex century.

Testing organizations, such as the Educational Testing Service and Psychological Corporation, have also contributed to a national curriculum. By standardizing the content tested, these organizations have affected what content the curriculum covers and how much emphasis is given to particular topics.

Many state departments of education have become involved in testing, thereby influencing the specifics of curricula and the time spent on the specifics. Washington State has created the Washington Assessment of Student Learning Test, which assesses reading and mathematics achievement in grades 3, 7, and 10. Since 2008, high school students in Washington State must pass language and mathematics exams in order to graduate. A comparable science-exam requirement was developed but not yet implemented as of 2015.

Professional organizations such as the ASCD, the National Council of Teachers of English, the National Council for the Social Studies, the National Association of Teachers of Mathematics, and the American Educational Research Association have directly and indirectly influenced the curriculum. Their members bring goals set forth at state and national conferences to their home school districts. Increasingly, such professional organizations are formalizing networks of schools (and school districts) to communicate curricular concerns, mount curriculum studies, and publish reports that set curricular guidelines and standards.

Although the previously mentioned professional organizations are large and well established, the American Association for Teaching and Curriculum (AATC) is small and rather recently organized. Its focus, as its name implies, centers on the areas of teaching and curriculum. As indicated before, the field of curriculum seems to be increasingly neglected, with areas of curriculum studies being eliminated in colleges of education. The AATC has as its primary goal to ensure that the field of curriculum studies as well as the field of instruction continue to be addressed by educational schools and practitioners.

Many other people and groups outside of the schools also influence the curriculum. Colleges and universities directly and indirectly influence curriculum development. Many educational consultants to the schools come from the colleges. Business and private industry are building closer connections to schools by providing special personnel, donating equipment and materials, and funding programs of special interest. Minority groups often organize to affect the curriculum. Individual educators and lay critics attempt, mostly through their writings, to give direction to curriculum development.

Various foundations also have influenced curriculum formulation, largely by supplying funds. The Ford, Rockefeller, Carnegie, Kettering, and Gates foundations have modified the curriculum through pilot and experimental programs. International in scope, the Gates Foundation is unique in the amount of money that it allocates to educational matters.

Conclusion

Prior to engaging in curriculum development, educators must determine whether they are responsible for educating students or schooling students. As mentioned at the beginning of this chapter, education and schooling have had a troubled relationship. Although the general public most often fails to distinguish between the two, educators must ascertain to what camp they have allegiance. Certainly, we can develop a curriculum for educating students, and we can create a curriculum for schooling students. Both postures result in programs that get results. Both even utilize the same or similar processes in generating curricula. We do not characterize one position as right and the other as wrong. Reflection is required just to determine for what purposes curricula are being developed.

Educators' choice of purpose is influenced by their philosophical orientation, their perceptions of the social and political forces impacting the school, their access to educational and technical support for the program being contemplated, and, certainly, their conception of the student as learner. Regardless of whether we are in the "educating students" or "schooling students" camp, it is useful to apprehend curriculum development as a variety of games with myriad rules. These games can be enacted within a technical-scientific or nontechnical-nonscientific arena. All game plans seek to develop educational content, experiences, and environments that meet the schools' objectives, goals, and aims. Today, much debate revolves around how standards relate to objectives, goals, and aims. Educators' responses are influenced by whether they view themselves as educating students or schooling them. Also, educators are affected by how the local, state, and national communities look at these two camps.

Discussion Questions

1. Which approach to curriculum development, modern or postmodern, do you consider as having the most promise for creating curricula appropriate for the 21st century? Explain your position drawing from your reading of this chapter and from other educational sources.

2. What do you consider the most challenging decisions that an educator must make in the process of curriculum development?

3. How would you argue the case for more involvement of teachers and students in curriculum development? Or how would you argue against such teacher and student involvement?

4. How would you do a self-critique of your reactions to the material on educational environments? Share your critique with fellow readers.

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8 Curriculum Implementation

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Explain in sufficient depth the nature of implementation as a change process
2. Describe the various modernist implementation models such that you and fellow readers can role-play their enactment
3. Discuss postmodernist implementation models articulating why and how such models could be activated in school settings
4. Articulate the different assumptions of modernism and postmodernism
5. Explain your affective responses to modernism and postmodernism and how your responses might influence your engagements in curricular activities

Once a curriculum is developed, it must be implemented within the shortest time frame if it is to address the current needs of students and society in an increasingly changing world. Take too long to put into practice a new curriculum, and you run the risk of delivering a curriculum that lacks relevance or misses a new evolving intellectual target. Speed of delivery and enlisting all educators and the public are essential before what is new has missed its educational mark. Yet, many planned and developed curricula are not implemented or implemented quickly enough because a plan to incorporate them into the school's educational program does not exist. In 2007, Jon Wiles and Joseph Bondi noted that more than 90 percent of new curricula fail to be implemented; in their view, educators lacked the managerial skills and knowledge necessary to deliver a new curriculum.[1]

However, it may not be that educators are deficient in managerial skills and knowledge; rather, it may be that they are rigid in their thinking strategies regarding how to approach curriculum implementation. Also, educators may be overwhelmed by the ever-increasing rate of change. Or, as John P. Kotter notes, educators, like many individuals, "don't feel the full rush going on around them, which is a part of the problem."[2] We sense that most people do feel the brisk winds of change but are attempting to "sail" into safe harbor rather than test their skills in the maelstroms ever present in this new century.

■ THE NATURE OF IMPLEMENTATION

Leslie Bishop stated many years ago that implementation requires restructuring and replacement.[3] It requires adjusting personal habits, ways of behaving, program emphases, learning spaces, and existing curricula and schedules. Stated tersely, in these rapidly changing and expanding times, many educators at all levels of schooling will have to change not only their knowledge sets regarding curricula and their creation and delivery, but also their mindsets, and perhaps even their personalities. They will have to become comfortable with risks, even thrive in pushing social as well as educational boundaries. These individuals will have to thirst for action recognizing, as Kotter declared, that "action is opportunity seeking and risk taking, all guided by a vision that people buy into."[4] Certainly, the readiness with which teachers and others accept a new curriculum depends partly on the quality of the initial planning and the precision with which the steps of curriculum development have been carried out.[5] But, in this second decade of the 21st century, we need a playfulness with the steps and new considerations of what precision really means in fluid times.

Implementation became a major educational concern beginning around 1980. Millions of dollars were being spent to develop curriculum projects, especially for reading and mathematics; yet many of the projects did not succeed. Seymour Sarason suggests that much educational reform has failed because those in charge of the efforts had little or a distorted understanding of the culture of schools.[6]

Sarason notes two kinds of basic understanding essential to implementation. The first is an understanding of organizational change and how information and ideas fit into a real-world context. The second is an understanding of the relationship between curricula and the social-institutional contexts into which they are to be introduced. Educators must comprehend the structure of the school, its traditions, and its power relationships as well as how members see themselves and their roles.[7] Successful implementers of curriculum realize that implementation must appeal to participants not only logically, but also emotionally and morally. Indeed, Fullan notes that most teachers are motivated to action primarily by moral considerations.[8]

One's view of the social-institutional context is influenced by whether one perceives the world of education as technical (modern) or nontechnical (postmodern). Those with a technical, modern, view believe that implementation can be planned down to specifics; those with a nontechnical, postmodern, view hold that implementation is fluid and emergent. We believe that the most productive stance regarding implementation is to view it as a combination of technical (modern) and nontechnical (postmodern) aspects.

How might we persuade educators to accept and implement a curriculum? First, we could assure them that implementing the new curriculum will bring some reward. Second, we could indicate the negative consequences of inaction—for example, the school will not be in compliance with state mandates, or students will fail to pass a standardized test. Third, we could point out ways in which the particular curriculum we wish to have implemented is similar to the one already in place. However, we might wish to tout the new program as nothing like—and even superior to—the existing one.[9]

Successful curriculum implementation results from careful planning, which focuses on three factors: people, programs, and processes. To implement a curriculum change, educators must get people to change some of their habits and, possibly, views. Many school districts failed to implement their programs because they ignored the people factor and spent time and money modifying only the program or process. However, focusing on the new program provides people with new ways to meet the objectives of the school's programs. Organizational processes, too, are important. Reorganizing departments can move people in the directions necessary for successful implementation.[10]

Kotter asserts that in today's fast-paced, dynamic world, we need to consider reorganizing departments and ways in which we engage in decision making and action. Although Kotter is referring to the business world, his comments and insights have relevance to educational

organization and especially to curriculum implementation. He notes that the key question facing business leaders, in our case educational leaders, is how to function effectively in this century characterized by "turbulence and disruption."[11]

Most school systems and specific schools are organized as hierarchies; decision making is initiated at the upper levels of the pyramid. At the individual school level, the administrative organization mirrors this hierarchical organization. For most of the 20th century, this decision-making structure worked well. Curriculum development and implementation were coordinated by the curriculum director and carried out by "layers" of line and staff personnel: principal, department chairpersons, teachers, and supervisors.

Curriculum development and implementation delivered via a hierarchy in this century have limitations that must be recognized and modified. Kotter denotes that hierarchies "live" by policies, rules, and procedures that actually impede speedy strategic decision making. Additionally, such an organization fosters an environment in which the educational players at the various levels are reticent to engage in thinking and actions without gaining the permission of their superiors.[12] This is evident when school boards usurp the authorities of curriculum leaders, decide what the curriculum to be implemented will be, and demand that those lower in the hierarchy fall in line. This results in complacency and marginal acceptance of the program to be implemented. In some cases, it results in resistance to the new curricular program.[13]

Kotter denotes that to address challenges "birthed" in the "mounting complexity and rapid change" of this century, we need a new organization.[14] He suggests a system of individuals organized as a network—"more like a . . . solar system." He purports that such a system, somewhat also like a spider's web, can generate and deliver innovation, in our case, new curricula with "agility and speed."[15] The network does not eliminate the hierarchies; it complements them with more dynamic strategies of thinking outside of boxes and producing innovations with maximum efficiencies.

As with spider webs, each spider species has its own web design, so it is that each school must tailor its organization of curriculum implementation to its school's unique culture within an equally unique social community.[16]

Incrementalism

Many educators, as well as members of the general public, think primarily of change when contemplating implementation. They view implementation as procedures for managing change. Yet, as Richard E. Elmore advises, implementers must query themselves as to the actual purposes of the change being considered. Focusing just on changing the curriculum and the school culture gives emphasis to the management of change. Just introducing a new curriculum or even a new textbook series can be documented when all teachers are using the educational program or material. In addition, if educators do not use the material, it is rather easy to indicate noncompliance. However, in both the curriculum development and implementation stages, the central question is, what is the value of the change for teachers and students?[17]

Although we consider implementation to be a change process, we are constantly querying: Does the change have purpose and value? Will it improve teachers' pedagogical and curricular actions and students' learnings? Simply put, change must result in improvement, and improvement in students' learnings and teachers' actions requires time. As Elmore notes, "Improvement equals increased quality and performance over time."[18]

Implementation of a curriculum designed to improve and not just change students' accomplishments requires some agreement regarding what constitutes improvement. How do we define *quality*? In the various efforts at school reform writ large and the purchasing of textbooks to support curricular change, many assume that the latest program, the newest textbooks, or the latest computer programs signal improvement. Yet this is false simplification.

Whether some new program spells improvement depends on our personal and educational philosophies. It also is contingent on our grasping in some depth the rapid changes occurring in all

realms of the world community and our dispositions to decipher emerging trends and to forecast possible events. When considering what educational programs to create and introduce, we must be futuristic dreamers. We must also realize that in many ways, we are the creators of our futures. We are or can be active players in shaping futures. Educators must accept one point: The increasing cultural and ethnic diversity of our country within a world community experiencing chaotic changes will make it more challenging to define improvement, let alone deliver improved curricula.

The implementation process exhibits a control mentality.[19] Various power groups strive to direct diverse avenues of change to serve their particular purposes. Power groups range from politicians, to parents, to community members, to business groups, to religious groups, and to educators. In the last century, we deluded ourselves into thinking there was cooperation among these various communities. In this century, it appears that while individual groups demand that the curriculum and schools improve, they have little consensus as to what improvement looks like. Most groups in this new century have policies that create or try to introduce policies and programs that serve their own narrow views on what it means to be educated. Many business groups, and some particular individuals, only want new curricula that will enable students to become skilled workers within the world economic system. Certainly today, these various groups are generating controversy and flux in the educational dialogue and program implementation.[20]

Impacting curricula implementation is often "gaming the system." Politicians game the system when they advocate policy changes to make schools accountable, knowing full well they have no idea of how to measure accountability of a new curriculum. They have played the game to please their constituents, raise standards, and make the tests more difficult; then they threaten to withdraw financial support for the schools. Educators often play the game of advocating a new curriculum program that addresses the policy of higher standards. However, often the public has not given the schools the funding capacity to implement the recommended curricula or to use pedagogical approaches based on the latest brain research.

Improvement takes time, but improvement is in the eye of the beholder. What we might consider improvement designed to foster school creativity and inquisitiveness, others might view as a negative, fostering students' questioning of authority or challenging their place in society. Although it appears everyone is into the latest technological gadgets, many "modern" 21st century people are fearful of rapid change, especially if they believe they have little control over it, or if the change occurring challenges their values and world views—their power positions.

Communication

To ensure adequate communication, a curriculum specialist must understand a school's (or school system's) communication channels. Communication channels are vertical (between people at different levels of the school hierarchy) or horizontal (between people at the same level of the hierarchy). For example, communication between a principal and a teacher is vertical; communication between two teachers is horizontal.

Horizontal networking among peers is being encouraged in many school-restructuring efforts. Communication flows more easily among persons who consider themselves equals and who are equally involved in some curriculum change. Many curricular activities that combine subject areas or integrate major segments of the curriculum presuppose effective horizontal communication.

Although formal channels of horizontal communication may exist in schools, much horizontal communication is informal. Effective curriculum leaders encourage an abundance of communication channels. They work to establish cohesive school communities composed of teachers, administrators, students, and even community members.[21] Effective communication actually requires a delicate balance, a synchronizing, of both formal and informal collaboration.[22]

As Andy Hargreaves and Michael Fullan assert, individuals involved in collaborative cultures embrace the risk of failure and living with uncertainty, essentially accepting some of the postmodern stances of risk taking and embracing the unforeseeable in hopes of creating and

implementing curricular programs of relevance and educational value.[23] And involving students in program discussions allows students to sense the complexity of defining what knowledge is of most worth and also to feel comfortable with the unpredictability of their program choices. They get to appreciate that a curriculum is not made and then just implemented, but is always in a state of being made. The curriculum is not static; it is dynamic, evolving at many levels.[24]

Communication these days is spoken, written, and seen. The World Wide Web enables collaboration among educators regardless of distance. Time disappears with computers, iPods, and smartphones. Educators may in the near future, if not now, communicate with "colleagues" in the virtual world. Ideally, such facilitation of communication should modify the cultures of schools. Teachers really do not need to work in isolation. In fact, if educational change is going to bring educational improvement in all realms of human growth, we must communicate effectively and more frequently. Technology is not going to be the death knell of face-to-face communication. Technology will likely serve to alter the educational environment in which teachers and students work.

Support

To facilitate implementation, curriculum designers must provide the necessary support for their recommended curricular innovations or modifications. They and the entire school community must facilitate capacity or capability. Elmore defines *capacity* or *capability* as those resources, knowledge, and skills brought by both teacher and students to the instructional core and the skilled actions of the total school organization to support and maximize the delivery and engagement of teachers and students with the implemented curriculum.[25]

If the new curriculum is to enable improvement in students' learnings, it must be maintained and supported over time. As Michael Fullan and others note, building a cadre of competent implementers requires the school district's sustained support.[26] Teachers must become highly knowledgeable about the new curriculum content; they must perfect new instructional approaches; they must know how to manipulate the educational environment, taking into consideration the backgrounds and learning styles of their students. Such support often takes the form of in-service training or staff development.[27]

In-service training or staff development is necessary for teachers who lack a deep understanding of curriculum and its creation. Even many educational administrators lack "curriculum literacy."[28] People who engage in teacher-education programs primarily take courses that focus on instructional methods in various subject areas. These courses lead many teachers to assume that the curriculum will be handed to them and their only responsibility will be to teach it. Teachers must have knowledge of curriculum development, even if they opt out of active involvement in it.

Research has revealed the characteristics of effective professional in-service programs. Such programs must fit into the schools that provide them. Effective in-service programs result from collaborative efforts and address the needs of those who will be affected by the new curricula. They are flexible enough to respond to the staff's changing needs. They spread knowledge of the new curriculum and increase people's commitment to it. For example, teachers in one school might learn about the curriculum from teachers at other schools, or even from schools in other countries. The Internet can help.[29] In-service programs should be scheduled at convenient times for curriculum implementers. Open discussions on new curricula should be scheduled throughout the implementation process. Such discussions allow implementers to express objections or concerns and consequently to reduce opposition. Effective in-service programs must also evaluate whether curricula are achieving their objectives and whether they are in harmony with the school district's philosophy and approach.

We purport that while in-service sessions can and do have merit, in some ways they fracture the flow of curriculum development and implementation. If, as we believe, curriculum is always

in the making, we need to have educational professionals in a constant flow of curriculum development, curriculum adjustment, and varied avenues of implementation.[30] We need school professionals in constant communion with their colleagues. As Hargreaves and Fullan denote, "It's not a good thing when teachers work alone."[31] We need professional learning communities.

Hargreaves and Fullan define professional learning communities as follows:

> Where collaborative improvements and decisions are informed by but not dependent on scientific and statistical evidence, where they are guided by experienced collective judgment, and where they are pushed forward by grownup, challenging conversations about effective and ineffective practice.[32]

We note that professional learning communities are always "on call," not just activated when a new program is being created and implemented. As we have indicated, all curricula developed and implemented are constantly being monitored and modified as information explodes, new pedagogies are developed, and new "players"—teachers and students—are engaged in schooling.

Without adequate financial support, new curricula fail. When federal funds were flowing, many school districts adopted innovations but failed to allocate funding to these innovations in their regular school budgets. When the federal funds (essentially intended as start-up funding) ran out, the districts discontinued their new curricula, citing lack of necessary funds. If school districts implement new curricula using federal or state grant money, they must devise ways to support these curricula with money allocated in the school budget.

Money is required for new materials and equipment and to pay people who help implement a new curriculum. At the local level, five steps are involved in budgeting for new programs: preparation, submission, adoption, execution, and evaluation. When a new program is adopted, the school board allocates funds for specific educational materials. The other four budgeting steps involve the superintendent at the district level and the principal (or chair) at the school level.[33]

A trusting relationship must exist among all parties in the school, especially between administrators and teachers. Effective implementation can and should utilize the services of lead teachers who are released from classroom teaching so that they can serve as salespeople for the new curricular program and as mentors or coaches so that teachers gain the knowledge and competency requisite for enacting the created curriculum.[34]

In addition, the trusting relationship among all parties in the school also involves the total community: political players, community advocates, community associations, particular foundations, and even church groups—and of course, school professionals in every capacity. As Joseph P. McDonald asserts, these members comprise both civic and professional capacities, in our case to curriculum development and implementation.[35]

McDonald denotes that when you combine civic and professional capacities with the resource money, you create what he defines as action space. Action space upsets the status quo; action space introduces challenges and productive chaos in ways that educators, working alone, are unable to achieve. Such space does not hackle educators. Rather, it inspires them to innovate; it provides them with exemplars and notes of caution that enable the creation and delivery of meaningful curricula.[36] Action space engages the professional realm not only with new skills for educators, but also the expertise of professionals in noneducational fields such as information technology, nanotechnology, gaming, and even brain research. As with any innovation, these three sources of action space will vary in contributions at particular times. The strength of influence of money, civic capacity, and professional capacity will be impacted to varying degrees by the dynamics of the times, the cultural forces in play, the economic health of the community, and the political theater present. Educational professionals must recognize action space and that they must engage with others in this space.[37]

8.1 Using Professional Learning Communities
Teachers typically use professional learning communities (PLCs) to collaborate with colleagues and improve their students' learning. How might PLCs be used when school administrators implement a new curriculum? Would PLCs help? Explain.

https://www.youtube.com/watch?v=_7YX40bWrCs

◼ IMPLEMENTATION AS A CHANGE PROCESS

The purpose of curriculum development, regardless of level, is to make a difference—to enable students to attain the school's, the society's, and, perhaps most importantly, their own aims and goals. Implementation, an essential part of curriculum development, brings into reality anticipated changes. Simply put, curriculum activity is change activity.

Yet what happens when change occurs? Of greater importance, what are the value and role of change? What is the source of change? What really motivates people to change? Can people predict the consequences of change? Are all the consequences of change beneficial to students and the general society? Can educators control changes that directly affect them? Do different educators—for instance, administrators and teachers—engage in change for the same or similar reasons? Do schools that make the most major changes actually become the most innovative and effective? Indeed, people can exert control, to varying degrees, over the process of change, but to do so requires that they understand change. Comprehending the concept of change and the various types of change allows individuals to determine sources of change. It also assists them in determining whether demands for change have educational value or just political expediency.

Even if we do have our values in place regarding educational change, we must appreciate that we cannot predict, even with limited precision, how successful the change activities will be for those involved and for those who experience the changed curriculum—the students. There is no denying that change can occur in several ways. The two most obvious ways are slow change (as when minor adjustments are made in the course schedule, when some books are added to the library, or when the unit or lesson plan is updated by the teacher) and rapid change (say, as the result of new knowledge or social trends affecting schools, such as computers being introduced into classrooms).

Currently, schools are being affected more by rapid change than slow change. We are experiencing rapid change not only in our knowledge bases of how the brain functions and how learning occurs, but also in changes in the demography of the country and the increasing diversity of groups within the general society. Rapid change is occurring in family backgrounds and structure, subcultures, and community groups. Cultural pluralism is exploding and competing voices are gaining agency. Additionally, educational technology also is exploding, having a greater impact on curricula and their implementations.

According to the research, for curriculum change to be successfully implemented, five guidelines should be followed:

1. *Innovations designed to improve student achievement must be technically sound.* Changes should reflect research findings regarding what does and does not work, not designs that simply are popular.
2. *Successful innovation requires change in the structure of a traditional school.* The way students and teachers are assigned to classes and interact with one another must be significantly modified.
3. *Innovation must be manageable and feasible for the average teacher.* For example, one cannot innovate ideas concerning critical thinking or problem solving when students cannot read or write basic English.
4. *Implementation of successful change efforts must be organic rather than bureaucratic.* A bureaucratic approach of strict rules and monitoring is not conducive to change. Such an approach should be replaced with an organic and adaptive approach that permits some deviation from the original plan and recognizes grassroots problems and the school's conditions.
5. *Avoid the "do something, anything" syndrome.* A definite curriculum plan is needed to focus efforts, time, and money on sound, rational content and activities.[38]

The data indicate that the guidelines "are systematically interrelated, and that with the possible exception of the guideline regarding structural change, they apply equally well to all levels

of education." Curricularists benefit by "considering their applicability in the particular context of their own schools and school districts."[39]

Types of Change

Curriculum implementers who do not understand the complexities of change are likely to initiate actions that will result in discord within the school, school district, or both. Curricularists also need to ascertain whether they are approaching curriculum implementation, change, within a modern or postmodern framework or a combination of both configurations. These two approaches to curriculum study, which includes development and implementation, add to the dynamics of bringing curricula to life. We have attempted to present various types of change with consideration of both modernism and postmodernism.

MODERNIST APPROACHES TO CURRICULUM IMPLEMENTATION. Individuals who adhere to modernist approaches to curriculum implementation accept that there are various defined rules and procedures for creating change and developing and implementing new curricula. The ground rules furnish guidelines as to how to define what new curricula are needed and denote the reasons such curricula will address identified needs. Ground rules provide diagnostic data to the curriculum developers and implementers, as well as guidance as to the steps needed for curricular development and action. These rules also guide how individuals in various groups engage in various actions and activities.[40]

These rules are more or less relevant regardless of the dynamic changes occurring in the general society. However, adhering to these rules alone will not produce meaningful educational programs. As Kotter purports, we need not just good management, but leadership to entice people to generate "something that did not previously exist."[41] Leadership is necessary to stimulate risk taking, novel thinking, new contents that will enable students to experience a curriculum that morphs with the times present, and times forecast.[42]

Ideally, leadership follows an avenue of *planned change.* In such change, those involved have equal power; they identify and follow precise procedures for dealing with the activity at hand. Planned change is the ideal. While individuals with a modernist persuasion will seek precise actions for addressing their curriculum development and implementation goal, planned change can exist in a postmodern stance of curriculum development. More will be discussed later.

While planned change is the ideal type, Warren Bennis denotes two more types of change: *coercive change* and *interaction change*. In coercive change, one group determines the goals, retains control, and excludes other people from participating. Those who lead such change are often defined as rigid managers. They value stability and efficiency in dealing with our volatile environment. Needless to say, coercion fosters discord, distrust, and outright anger in whatever product the group produces. In interaction change, there is a fairly equal distribution of power among groups who mutually set goals and strategies of action. However, strategies of action are not carefully developed. Rather, they are conceived as needed in the process of change. In interaction change, participants often lack deliberateness and are uncertain as to how they should implement the desired changes.[43]

We would add a fourth type of change to the list: *random change*. Such change occurs with no apparent thought and no goal setting. Random change is common in schools, as when curricula are modified in response to unanticipated events such as new legislation or pressure from special-interest groups.

We can also consider change in terms of its complexity. John McNeil listed increasingly complex types of change:

1. *Substitution.* This depicts alteration in which one element may be substituted for another. A teacher can, for example, substitute one textbook for another. By far, this is the easiest and most common type of change.

2. *Alteration.* This type of change exists when someone introduces, into existing materials and programs, new content, items, materials, or procedures that appear to be only minor and thus are likely to be adopted readily.

3. *Perturbations.* These changes could at first disrupt a program but can then be adjusted purposefully by the curriculum leader to the ongoing program within a short time span. An example of a perturbation is the principal's adjusting class schedules, which would affect the time allowed for teaching a particular subject.

4. *Restructuring.* These changes lead to modification of the system itself; that is, of the school or school district. New concepts of teaching roles, such as differentiated staffing or team teaching, would be a restructuring type of change.

5. *Value-orientation changes.* These are shifts in the participants' fundamental philosophies or curriculum orientations. Major power brokers of the school or participants in the curriculum must accept and strive for this level of change for it to occur. However, if teachers do not adjust their value domains, any changes enacted are most likely going to be short-lived.[44]

Although change that occurs in the schools cannot be fit into precise categories, curricularists must realize that types do exist and that planned change is the ideal. However, change is not synonymous with improvement.[45] Education is a normative activity. A person's advocating and then managing change means, in effect, making a statement about what he or she thinks is valuable.

POSTMODERNIST APPROACHES TO CURRICULUM IMPLEMENTATION.   Modernist approaches to curriculum implementation are identified as following various precise steps to produce programs that are conceived with exactitude and can be confirmed with a high degree of accuracy. In contrast, postmodernist approaches are most challenging to identify, for there are no firm definitions of this approach due to its continuing evolution. And, there may never be a time when postmodernism will essentially achieve stasis. It is a dynamic movement and cluster of attitudes in constant flux, continuously operating within chaos and complexity accompanied by uncertainty.[46]

Also, adding to the challenge of comprehending postmodernism is that it is not just an orientation to education, curriculum development, and implementation in particular. Postmodernism is a world view that addresses myriad aspects of our culture or cultures: "politics, art, science, theology, economics, psychology, literature, philosophy, architecture, and modern technology." Postmodernism nurtures an ecological and ecumenical world view that challenges the modernist positions of dominance and control.[47]

It is beneficial to think that postmodern approaches to curriculum development and curriculum implementation are somewhat like improvisational theater. One has the general idea of the play or a particular scene with a particular act. But, the person entering the situation does not have precise dialogue mastered; he or she senses the situation, and with playfulness, reacts, improvises responses, and engages in spontaneous, unplanned actions to advance the "theatrical event."

After "playing" in improvisational theater, individuals engage in interpretive analyses of their "playful" theatrical actions to assess meanings and also impacts on the various other actors and audience members. This interpretative analysis is a cluster of processes that accompanies both curriculum development and curriculum implementation. Educators so engaged analyze the value and meaning of information organized into courses and then scrutinize the procedures employed in implementing the specific curriculum. While so occupied, they realize that their critique and analyses are fluid, with surprises and unexpected consequences. Even their judgment as to effectiveness is not blessed with certainty.

Postmodernists define this activation of analyses to better comprehend the curricular content and pedagogies selected and arranged and the procedures by which the curriculum "package" is implemented as hermeneutics. Hermeneutics has been defined by schools as "the art of interpretation."[48] The term is not unique to education. Nor is it the sole possession of

postmodernists; it goes back to classical Greek times. As Slattery purports, the Greek word *hermeneuenin* means to interpret. The word draws its root from Hermes, who was the courier of the Greek gods; his task was to elucidate the edicts of the gods to other gods and mortals.[49]

Modernists and postmodernists both engage in hermeneutic activities. Perhaps the main difference is that modernists engage in such inquiry so as to attain a significant degree of precision in their understandings, while postmodernists use such analyses to challenge the views and assumptions of the modernists. Modernists state with a high degree of confidence that their methods of inquiry and actions are intellectually, politically, socially, and in our cases, educationally sound. Postmodernists challenge such a posture and, more importantly, strive to "expose the internal contradictions of metanarratives by deconstructing modern notions of truth, language, knowledge, and power."[50]

Resistance to Change

> When an institution of great complexity and importance, such as the school, becomes intricately bound up with nearly all other social institutions, attempting to bring about significant changes will meet a multitude of resistances. Some initial reforms may be allowed and even encouraged, but if they expand and threaten to cause deep and wide-scale changes, the institution will then inexorably, link by link, tighten into an adamantine obstacle preventing any major reforms.[51]

Adding complexity to the current social and educational scene are the "face-offs" between and among the various factions of modernists and postmodernists. There are individuals and groups in both "camps" who are rigid in their views and approaches to current realities of educational needs and what particular actions or dispositions are required.

Many modernists staunchly defend and demand highly defined standards that all students must attain. They advocate making America first in the world in all things. They sing the praises of the American Dream, and only lament that the schools are not being effective in delivering curricula so that that objective is attained.

Many postmodernists are resisting actions of modernists to maintain and even strengthen the existing social and school structures. Many postmodernists urge schools and their curricula to nurture students to become willing to live with nature rather than separate from nature. Students should develop a cooperative rather than a competitive posture with fellow students in the country and the world. Postmodernists advocate creating curricula that inform students that a Eurocentric view that values and views Western world culture as at a higher level than other traditions and cultures must be corrected. A postmodern curriculum, while respecting the scientific approach, stresses that there are other avenues of investigation, with moral, religious, and aesthetic traditions that can reveal "truths" that can assist students in developing new world views. As Slattery declares, postmodernists want the curriculum and its implementation to present to students and to have them accept that "the world is an organism rather than a machine, the earth is a home rather than a resource to exploit or a possession to horde, and persons are interdependent and not isolated and independent."[52]

A curriculum leader, whether a modernist, a postmodernist, or a meld of these two postures, must accept that people are the key to successful curriculum activity. He or she must also be cognizant of the barriers people place between themselves and efforts to change. Unlearning values, positions, beliefs, and behaviors is much more challenging than learning new ones. In today's diverse society, groups react differently to suggested change, primarily because they do not perceive the change as leading to improvement. We live in a hierarchical society containing many social classes. Yet, to many educational change agents, the school and its curriculum are to contain content and be taught so that all children have an equal chance at success. However, many argue that in reality, schools do not furnish curricula that provide all students an equal chance at success.

Certainly schools should offer students opportunities to gain the competence and knowledge requisite for success in life. Yet the challenge is that students come to school with different

backgrounds, capabilities, interests, and talents. Thus, the curricula introduced must cater to a multilayered student body. However, to do this, we must engage the total community to get them on board. This is the challenge in this century. For parents whose children are successful, there may be resistance to change. As Ellen Brantlinger notes, if influential people's desires are being met by the existing structures, curricula, and practices, there is no perceived need to alter them. Rather, there is a desire to retain and even strengthen them.[53]

Even parents whose children are not attaining success in schools may not wish to have the curricula dramatically changed. Often these parents are quite conservative and wish their children to experience the traditional curricula that has enabled the more privileged children to succeed. Give my children basic mathematics so they can take advanced mathematics like they do in "affluent" schools. Direct teaching makes sense. Let us not bring in a program that engages students in inquiry, in creative problem-solving. They will not pass the standardized tests, required for successful school advancement. These parents demand their students experience the standard curriculum to attain their personal interests.[54]

With regard to education, some educators strive for a classless society in which all attain that which they desire. However, in reality we do have classes. We do have communities that mold the curricula. Often these communities want only changes that work to their advantages. Communities with less power seek to gain power to influence the schools to serve their interests. Educators are ethically responsible for attempting to address all interests and aspirations of diverse communities. Yet, as noted in the first quote in this section, when an institution of great complexity and importance becomes intricately bound up with nearly all other social institutions, attempting to bring about change will meet with great resistance. Major change may eventually help all, but it initially pleases few.

Educators are being pulled in many directions. Everyone, including educators, possesses diverse thoughts. People's ruminations about education are complex, ever changing, and at times contradictory. Some want progressive, brain-friendly curricula and pedagogies. Others want more direct teaching and more conservative curricula addressing "standard" contents.

Faced with such diverse and ever-changing demands, educators often stall regarding implementing a new curriculum. Inertia shackles the staff, the administration, and even the community. Individuals are not even aware that they are resisting change. Their cognitive systems are overloaded. They have lost their ability to recognize a problem that requires attention. Even if they do recognize a problem or an unacceptable situation, they choose to ignore it for various reasons. Perhaps they realize that the problem demands efforts they are unwilling to make. Other times, people acknowledge problems that require educational change but explain the problem by blaming the community or a particular culture. There are times—especially when people attack the schools and insist on change—that educators become defensive, counterattacking those requesting the change rather than attempting to address what may well be legitimate demands.[55]

Perhaps the key reason for people's inertia is that they believe that it is simply easier to keep things as they are. It is more comfortable to stay with what is known than to attempt change and trigger the unknown. We like maintaining steady states, adhering to our cherished traditions and institutions. As humans, we tend to evade those problems and processes of change that we consider too complex.

The status quo is supported in schools when there is not a clear mission stated for a new program. At the phase of implementation, however, we must return to the mission—to the intent of the curriculum—to sell it to others in the educational organization. However, many schools phrase their mission statements as essentially bland general proclamations that do not really distinguish one new curriculum from another.

Often, teachers have not been able or willing to keep up with scholarly developments. They have not stayed abreast of the knowledge explosion, which would allow them to feel committed to curriculum change and the implementation of new programs. Teachers frequently view change as simply signaling more work—something else to add on to an already overloaded schedule for which little or no time is allotted. As Elmore denotes, "turning a school around"

requires that teachers increase their knowledge base of the new curricular content, develop new expertise in pedagogical approaches, improve their knowledge of instructional design and theory, and become expert in the latest theories of how students learn. In other words, they must increase their capacities to deliver the new programs. Increasing teachers' and administrators' capacities, essentially the schools' capacities, requires not only extra effort but, usually, extra monies. Currently, many educators are overwhelmed by changes being proposed and their implications.

Despite teachers having tremendous demands on their time, many do a remarkable job of keeping up with the literature. Even so, many of these teachers tend to disregard available evidence regarding new curricular or pedagogical practice if it challenges their current understandings and outlook. They reject altering their programs and instructional strategies if this requires a change in outlook or practice.

Can educators cope with the demands for more change for new roles? Uncertainty fosters insecurity. Often, educators who feel comfortable with the present are reluctant to change for a future they cannot comprehend or see clearly. People often prefer to stay with certain known deficiencies than to venture forth to uncertain futures, even if the changes would most likely be improvements. Bringing new students or parents or content into the curriculum realm or organizing the program in new ways makes many teachers uneasy. However, this may change as we bring new people into education who consider education as a second career. Many of these people are coming from professions in industry, and especially from high-tech fields, where change is embraced and recognized as essential for the continued well-being of any institution. These people come into education with résumés noting high involvement in reconceptualizing the business organizations they have left. Another effort to bring in people who might otherwise not consider a career in education is the Teach for America program. This program recruits individuals with content-degree specialties such as mathematics, chemistry, or languages to become teachers after taking a four- to six-week educational program. Individuals accepting the offer must commit to at least three years in the classroom. This program maintains that a great change in education can come from individuals who possess greater in-depth knowledge of a content area. Although this is change, it remains to be seen if the program translates into improvement. Many professors of education take umbrage at the notion that a person can become a competent teacher with only minimal education content.

Another factor that causes people to resist change is the rapidity of change. Many people believe that if something is implemented this year, it will most likely be abandoned when another innovation appears and will thus make all their efforts useless. Teachers are unwilling to support changes perceived as short lived. They will not commit energies to curricular changes or school reorganizations with little chance of lasting. Certainly, there have been enough "bandwagons" in education to make educators shy away from innovation.

Another key reason why some teachers resist getting involved in curricular change is that, although they may know about the planned school innovation, they do not know about the latest research, or if they know about it, they refuse to use it in guiding their actions.[56] An explanation for not knowing about the latest research is that teachers lack opportunities within their regular school day or week to read research studies. Few schools possess complete research libraries. Also, in most schools, teachers are classroom-bound and, therefore, lack opportunities to discuss the latest research with colleagues.

Even if teachers do have time to discuss research with fellow teachers, they frequently find that the research often furnishes contradictory results or does not really apply to the local school community in which the teachers work. Educational researchers often wish to obtain results that are generalizable. Teachers usually want research that essentially addresses their situations. As Shazia Miller, Karen Drill, and Ellen Behrstock submit, teachers utilize different criteria for judging quality research. Teachers classify high-quality research as that which has high potential to lead to change in curricula or instruction. If not, teachers tend to consider the research not worth their time or attention.[57]

One might think that if teachers really are knowledgeable about current research, they would engage in change, implementing new curriculum or pedagogical approaches. However, it

appears that teachers tend to discount research that does not support what they are already doing. Research that supports their current practices actually increases teachers' resistance to change.[58]

People often resist change, too, if no financial or time support is given to the effort. A project for which no monies are budgeted is rarely destined to be implemented. Often, school districts budget monies for materials but fail to allocate funds for the creation of the curriculum plan, its delivery within the classroom, or necessary in-service training.

Several years ago, Thomas Harvey, writing on the nature of change, provided an analysis of the obstacles to getting people involved in change—and why they resist it. The list is still useful.

1. *Lack of ownership.* Individuals may not accept change if they think it is coming from outside their organization; interestingly, much of the current demand for school reform and restructuring is coming from national commissions or state legislatures.
2. *Lack of benefits.* Teachers are likely to resist a new program if they are unconvinced that it will benefit students (in terms of learning) or themselves (e.g., by bringing them greater recognition and respect).
3. *Increased burdens.* Often, change means more work. Many teachers are hostile to changes that will add work to their already-heavy schedules.
4. *Lack of administrative support.* People will not embrace change unless those officially responsible for the program have shown their support for the change.
5. *Loneliness.* Few people desire to innovate alone. Collaborative action is necessary to implement new programs successfully.
6. *Insecurity.* People resist what appears to threaten their security. Few will venture into programs with obvious threat to either job or reputation.
7. *Norm incongruence.* The assumptions underlying a new program must accord with those of the staff. Sometimes new programs represent philosophical orientations to education that are at odds with the staff's orientations.
8. *Boredom.* Successful innovations must be presented as interesting, enjoyable, and thought-provoking.
9. *Chaos.* If a change is perceived as lessening control and order, it is likely to be opposed. We desire changes that make things more manageable and enable us to function more effectively.
10. *Differential knowledge.* If we perceive those who advocate change as being considerably better-informed than we are, we may see them as having excessive power.
11. *Sudden wholesale change.* People tend to resist major changes, especially changes requiring complete redirection.
12. *Unique points of resistance.* Unexpected circumstances and events can retard change. Not everything can be planned in advance; people or events outside the organization can impede our innovative spirit.[59]

Consideration of the points in the preceding list and sensitivity to the needs of people involved in curriculum change ease implementation. Also, resistance to change can benefit change agents by requiring them to think carefully about proposed innovations, consider the human dynamics involved in implementing programs, and avoid advocating change for its own sake or in order to allow some educational fad.

Leaders of curriculum activities must give primary attention to what Thomas Sergiovanni describes as a *lifeworld.* The lifeworld of a school refers to the culture of the school with its attendant meanings that hold significance to the key players in that lifeworld—the teachers and the students.[60]

Sensitive curriculum leaders realize that for successful implementation to occur, they must promote in teachers and in students their voice, their agency. They must foster in these key players opportunities to participate in and identify with the curriculum being implemented from cognitive, emotional, and spiritual orientations.[61] Essentially, for there to be successful implementation of the curriculum, there must be established, at least unofficially, a curriculum for the

teacher implementers so they can develop their human agency. Teachers must have opportunities to ruminate their behaviors through meditations that allow them to self-fashion their identities. They must have quiet time and sharing time to give dimension and description about who they are. In a very real way, teachers—and later, we hope, students—have opportunities to actually develop several identities with various and particular voices. Teachers nurtured to be receptive to change take on identities of curriculum implementer, innovative teacher, nurturer of creative and reflective students, and spokesperson of educational change. The list of persons and the variety of voices are limited only by the imaginations, dedications, and deep personalities of the individuals involved. Those who have gained some degree of expertise over their varied persons and resultant voices have attained agency to some degree. They are major players in school worlds. They have come to truly work cooperatively to create and strengthen community.[62]

Individuals must understand how the curriculum change will affect them personally. They must clearly grasp the platform on which they are to build the curriculum. They must possess a clear sense of mission and confidence that the curriculum envisioned has the potential to enrich students and teachers.

Stages of Change

Curriculum change has essentially three stages: initiation, implementation, and maintenance. *Initiation* sets the stage for implementation. It gets the school and the community receptive to the planned innovation. Planners raise essential questions about who will be involved in the school and in the surrounding community, what level of support is expected from school and community "actors," and how ready both educators and citizens in the school district are for the innovation. Also, how much money is the school and community willing to commit to the conceptualized new curricula and its introduction into the educational system? Essentially, at the initiation stage, educators must create what McDonald has identified as a specified "action space" involving civic capacity, professional capacity, and money.[63] Ideally, action space is considered and implemented not at the initiation of implementation, but at the commencement of conceptualizing the curriculum and its development process.

Implementation of change involves presenting innovation and getting people to question, and perhaps rethink, their perceptions of the purposes of education within a complex and chaotic world community. Also, at this stage, the players need to get a sense of the "fit" of the new program to be implemented and whether, with sufficient effort and adequate funding, the likelihood of success is quite high. Here, curriculum developers and implementers working with outside community members will be challenged to convince naysayers, holders of beliefs that the program is not relevant to the times or that, at this time, the innovation will not be accepted by the community or will demand too high of a financial cost. McDonald denotes that the interaction of encouraging and discouraging beliefs "feed . . . the capital market of school reform."[64] "A capital market is an 'informal aggregation' of potential investors and investment advisors and their collective spin."[65]

At this stage, all players, educators and community members, are assuming somewhat different roles for themselves. Most educators do not consider themselves as investors in education, but they are. Most community members, especially individuals from the business communities, do not consider themselves primarily as school reformers, but they can be. The various players expanding their primary views of who they are will facilitate opportunities for "reframing encouraging beliefs more often than discouraging ones."[66] There will be a melding of beliefs and views such that consensus will be achieved that the new curriculum will be "on target" for a particular school, or for certain students, or for the entire school system. Implementation does not mean acceptance without questioning what the new program presents. Teachers and other educators must put their own stamp on the innovation; they must personalize the suggested curriculum so that they can optimize the learning experiences for their unique students. This adaptation actually must be done every year to cater to the newly entered class.

Mike Schmoker stresses that for effective school programs to be implemented, schools must establish learning communities. Such communities furnish teachers with support staff and with scheduled opportunities to discuss issues that arise as a result of innovation.[67] Successful implementation requires teamwork. Fullan notes that in successful implementation, teacher-collegial relationships are central to the activity. Interaction "flavors" the relationships and teachers' thinking regarding the innovation. Implementation requires teacher collaboration; it demands teachers exchange ideas, support new actions, rearrange thinking, and assess feelings about the new program. Fullan asserts that "collegiality, open communication, trust, support and help, learning on the job, getting results and job satisfaction and morale are closely interrelated."[68] Implementation strives to make schools "learning enriched" for all the players: administrators, teachers, and students.

Maintenance is the monitoring of the innovation after it has been introduced. Maintenance refers to those actions required for the continuation of the innovation. Unless maintenance is planned for, innovations often fade or are altered to such a degree that they cease to exist. As Fullan articulates, the problem of maintenance—or, as he states it, continuation—shadows all forms of educational innovation. This challenge to continue a new educational program is endemic regardless of whether the push for the new program was external or internal.[69]

Maintenance must be planned for, but such planning is not just solving technical problems or introducing flow charts. To maintain an innovation, we must address or even ignite the affective domain of teachers and others. We must excite the senses. We must spark passion. Commitment requires emotional attachment to the innovation adventure. The positive emotional response to a change of curriculum is what fosters success. Teachers must experience positive emotional attachment to all dimensions of the curriculum. They must be excited by its aims and goals. They must respond affectively to the contents and pedagogies to be implemented. Educators must see the morality of the curricular innovation. Also, of course, students should have their emotional and moral selves activated for the innovation to take root.[70]

■ CURRICULUM IMPLEMENTATION MODELS

In today's world, choice—including choice regarding curricular change—can be overwhelming. Educators, especially in this new century, function within the construct of diversity in approaches to curricular innovation, purposes of education, organization of school spaces, creation of diverse curricula, means of engaging students in such curricula, and approaches to measure successes in student learnings. The complexity of choices is increased in this century with the debates among modernists, postmodernists, and those at the confluence of these two major views of forms of myriad realities: educational, social, political, philosophical, economic, environmental, and theological.

Postmodernists urge members of society to discard modernity, to move beyond it. They recommend a postmodern stance that celebrates uncertainty and that encourages educating students and the general society to live in compatibility with nature, to work cooperatively with fellow citizens rather than as competitors, to strive for both national and world peace through peaceful negotiation, and to recognize and utilize the wisdom of the world community, not just be led by a Eurocentric view of the evolving world. But, as previously noted, the approach of this "movement" to all phases of life is short on stating precisely how to attain results. In fact, exactness is not really viewed as attainable. There is much confusion within this "cloud" of postmodernism, both among academics and the general public.[71]

In contrast, modernists believe in varying degrees in "precise" approaches to implementing new curricula that have been created through careful reasoning. While they realize that even following well-tested procedures of development and implementation, there will still be serendipitous happenings among both educators and students. They do realize that the best-laid plans do not guarantee hoped-for results. A well-written play does not guarantee, nor should it, that all audience members will leave the theater with the same knowledge, the same affects, and the

same psychological effects. The move toward adherence to standards is in the modernist camp. Individuals of this persuasion seem to ignore the planned surprises that would occur in a post-modernist curriculum development and implementation.

We the authors exist in a middle universe between modernism and postmodernism. We realize that when people are involved in curricular activities, they are not robots, programmed for specific actions. We cannot ignore teacher intuition, which can have an impact on the evolution of the educational experience. In truth, educators responsible for curricular change should embrace the notion that the "personal and tangential can stimulate a routine venture to a novel educative venture."[72] Also, educators need to realize that learning is multidimensional in cognitive, affective, and psychomotor domains. And, learning continues after a lesson is completed and the student leaves the school arena. Students learn many things in school that have not been triggered by teachers' instructions. Teaching–learning is not a simple cause-effect relationship.

As previously stated, postmodernism is still in evolution, thus we are challenged in presenting precise postmodern implementation models. For this reason, we start with modernistic models.

As noted previously, Leslie Bishop stated that implementation requires restructuring and replacement. Primary in this restructuring is fostering and molding changes in people. Implementation, to be successful, actually requires the shaping of the school culture; that is, shaping the norms and behaviors extant in the school or school district.[73] However, enabling change in people's beliefs and behaviors is not easily or quickly accomplished.[74] Also, those engaged in new curricula or educational procedures must realize that the program being implemented deals with numerous changes—new curricular contents, new pedagogical approaches, new educational materials, new technologies, and perhaps even new educational environments. Of course, the major challenge is having an implementation procedure that allows educators time to try out different beliefs or to sample novel understandings about the innovation.

Although the models of implementation to be discussed appear to have distinct steps and stages, we must remember that implementation occurs in specific and individual settings with varying histories, unique competencies among staff, particular expectations among community members, and various capacities with regard to materials and monetary resources. Even though learning the various steps of implementation strategies appears easy, actually carrying them out is highly complex.[75] As Fullan contends, a person skilled in implementing an innovation juggles and fuses various factors that at first might appear at odds with each other: "simultaneous simplicity-complexity, looseness-tightness, strong leadership–user participation, bottom-up/top-down, fidelity-adaptivity, and evaluation–non-evaluation."[76] As Fullan submits, effective implementation—actually, any strategy for improvement—requires a nuanced apprehension of the process, a way of thinking that does not become apparent in a rigid following of a list of steps or phases to be enacted.[77]

We encourage our readers to read and consider the following implementation models with this mindset.

Modernist Models

OVERCOMING-RESISTANCE-TO-CHANGE MODEL. The *overcoming-resistance-to-change (ORC) model* of curriculum implementation has been employed for many years. According to Neal Gross, it rests in the assumption that the success or failure of planned organizational change basically depends on leaders' ability to overcome staff resistance to change.[78] To implement a new program, we must gain advocates for it by addressing people's fears and doubts. We must convince individuals involved that the new program takes their values and perspective into account.[79]

One strategy for overcoming resistance to change is to give school administrators and teachers equal power. Subordinates should be involved in discussions and decisions about program change. When leaders adopt this strategy, staff members tend to view the innovation as self-created and, therefore, feel committed to it.

Curriculum leaders using the ORC model identify and deal with staff's concerns. They understand that individuals must change before organizations can be altered. Also, change must allow for the individuality and personal needs of those involved. Based on their research on curriculum innovations in schools and colleges, Gene Hall and Susan Loucks divided implementation into four stages:

Stage 1: Unrelated concerns. At this stage, teachers do not see a relationship between themselves and the suggested change, which they therefore do not resist. For example, a teacher might be aware of the school's efforts to create a new science program but not feel personally or professionally affected.

Stage 2: Personal concerns. At this stage, individuals react to the innovation in terms of their personal situation. They are concerned with how the new program will affect what they are doing. For example, biology teachers consider their involvement in a new science program and its effects on their teaching.

Stage 3: Task-related concerns. These concerns relate to the actual use of the innovation in the classroom. For example, an English teacher would be concerned about how to implement a new language arts program. How much time will be required to teach this new program? Will adequate materials be provided? What are the best strategies for teaching the new program?

Stage 4: Impact-related concerns. At this stage, a teacher is concerned with how the innovation will affect students, colleagues, and the community. The teacher might also want to determine the program's impact on his or her own subject area. For example, will a new mathematics program influence a teacher's teaching methods and content topics in ways that help students better understand mathematics?[80]

Educators who employ the ORC model must deal with people's personal, task-related, and impact-related concerns. Otherwise, people will not accept the innovation or will deal with it in unintended ways. Educational leaders engaged in curriculum development and implementation must develop in the school or school district a strong culture of professionals. They must create a safe environment in which those involved in development and implementation feel comfortable in thinking outside the box and secure to take calculated risks. Also, to get the curriculum players to change from resistance to eager acceptance, the educational leader must create in collaboration with all involved an acceptance of the mantra; the curriculum developed and now to be implemented is to be managed with an experimental mindset. With such a mental approach to implementation, all participants will realize that mistakes will certainly happen, but with an analytical eye, one can deduce significant learnings. Dare to take risks; dare to fail, distill data from mistakes.[81] Engage in creative problem-solving. Be students of the processes in which you are immersed. Realize that curriculum development and implementation are not solo work; they require teamwork among the primary players.

Of course, curriculum leaders and the primary players must keep those educators not directly involved with the development or implementation informed of the innovation. And when the players' actions will impact directly others in the school, those affected players should be involved in the early decisions regarding the innovation. Often, faculty can be called together to share concerns and map strategies to deal with those concerns. Teachers may find that they have to change their strategies and teach different content. By sharing concerns, they gain confidence that they can make the necessary changes.

ORGANIZATIONAL-DEVELOPMENT MODEL. In the 1970s, Richard Schmuck and Matthew Miles developed the position that many approaches to educational improvement fail because the leaders assume that adoption is a rational process and rely too heavily on innovation's technical aspects. Such leaders assume that systematic properties (e.g., class size, school organization) of

local school districts are constants.[82] Schmuck and Miles's views are postmodern to the extent that they suggest doubts about individual rationality, objective measures, universal truths, and the scientific method.[83]

Schmuck and Miles suggested an approach called *organizational development (OD)*. It is a long-range effort to improve an organization's problem-solving and renewal processes, particularly through collaborative diagnosis and management. The emphasis is on teamwork and organizational culture.

Wendell French and Cecil Bell list seven characteristics that separate OD from more traditional ways of intervening in organizations:

1. Emphasis on teamwork for addressing issues
2. Emphasis on group and intergroup processes
3. Use of action research
4. Emphasis on collaboration within the organization
5. Realization that the organization's culture must be perceived as part of the total system
6. Realization that those in charge of the organization serve as consultants/facilitators
7. Appreciation of the organization's ongoing dynamics within a continually changing environment[84]

OD treats implementation as an ongoing, interactive process. The approach rests on the assumption that individuals care about the future and desire to be actively engaged in designing, developing, implementing, and evaluating the educational system.[85]

OD treats implementation as never finished. There are always new ideas to bring to the new program, new materials and methods to try out, and new students to excite. Enacting the curriculum continually engages teachers and students in growth by providing enriched learning that benefits the total person.

CONCERNS-BASED ADOPTION MODEL.   The *concerns-based adoption (CBA) model* is related to the OD model. However, those who use a CBA approach believe that all change originates with individuals. Individuals change, and through their changed behaviors, institutions change. Change occurs when individuals' concerns are made known. For individuals to favor change, they must view the change as at least partly of their own making. They must also view it as directly relevant to their personal and professional lives. Because the change process involves so many individuals, it needs time to take shape. Individuals need time to learn new skills and formulate new attitudes.[86]

Also, unlike the OD model of change, the CBA model addresses only adoption (implementation) of curriculum, not development and design. It assumes that teachers and other educational workers have already analyzed the needs of the school and have created or selected a curriculum for the school or school district that meets those needs. It certainly functions with the belief that in addition to the needs of the students, the innovation also addresses the teachers' concerns. Because we are discussing curriculum implementation, this model of implementation addresses teachers' concerns regarding content, materials, pedagogies, technologies, and educational experiences. These factors should be thought about in their varying relationships; they exist as an educational universe of variables that hopefully interact to furnish students a rich and productive learning experience.[87]

F. F. Fuller's research regarding the way in which preservice teachers evolve into experienced teachers provided the model's conceptual underpinnings. Fuller found that preservice teachers generally moved from concerns about self to concerns about teaching, and then to concerns about students.[88] Ann Lieberman and Lynne Miller found a similar sequence of teachers' concerns.[89] Others have reported two stages of concern before concern for self: (1) awareness of the innovation; and (2) interest in learning about the innovation, but no realization that the innovation may directly affect them. At stage 3, teachers wonder whether they have the skills and knowledge to implement the innovation. At stage 4, they have reservations about how to manage

1. Awareness of innovation
2. Awareness of information level
3. Concern for self
4. Concern for teaching
5. Concern for students

FIGURE 8.1 Concern Stages Relating to Implementing an Innovation

Source: Adapted from Collin J. Marsh and George Willis, *Curriculum: Alternative Approaches, Ongoing Issues*, 4th ed. (Upper Saddle River, NJ: Pearson, 2007).

their time and resources to implement the program successfully, and how to actually teach it. At stage 5, teachers focus on how the new curriculum influences students' learning. Figure 8.1 depicts the concerns.

In the CBA model, the curriculum is implemented once teachers' concerns have been adequately addressed. Teachers are expected to be creative with the curriculum, modify it where necessary, and tailor it to their students. Additionally, teachers should work with their colleagues in fine-tuning the curriculum for the benefit of the total school program.

SYSTEMS MODEL. The OD and CBA models draw on systems thinking. Both consider people's actions as performed within an organization defined by a system of relations among people and structures. People in schools and school districts have overlapping responsibilities. Also, the work of higher-level administrative or curricular teams affects that of lower-level professional teams. If people responsible for a major portion of an innovation respect, support, and trust one another, they are also likely to interact in a positive way with others throughout the organization.

The school is an organization of loosely coupled units: departments, classrooms, and individuals. These parts have flexible rather than rigidly defined relationships. Although a central administration is defined, most schools have little centralized control, especially over what occurs in the classroom. For this reason, it is difficult for curricular change to be implemented as an edict from the central office.

Planned change within the school should be perceived as "win-win." Also, we must recognize that the process never finishes: Every aspect of the implemented curriculum is unique, requiring that educators realize that even when some aspect of the program is implemented, it is not static. The implemented curriculum essentially has a life of its own. It interacts continually with the people teaching and learning it. Every encounter that students have with the new curriculum is unique; every learning is personalized. And educators must realize that even when a curriculum is fully introduced, it is taught and experienced differently each year. Although the teacher may be the same, his or her behaviors in engaging students with the implemented curriculum are unique. Different students, different times, and different demands on all the players in the educational theater are unique. Great teaching is always striving for better teaching and better curricula; each year is a new beginning.[90]

Accepting the systems model to curriculum implementation means realizing that curriculum change resembles an evolving solar system. Although it has rules, there is variation. Like the solar system, competing forces do enable order. Planets do stay in their orbits. Likewise, in implementation, conflict must be managed so that everyone can win: students, teachers, chairs, and principals. However, successful implementation requires energy, time, and patience. It demands recognizing that implementation is more than a set of techniques or disconnected approaches. In a systems approach, there must be engagement; there must be the drawing of energy among the participants; there must be the formulation of rationales for the innovation suggested. However, there must also be the recognition that there is no complete attainment of final results. Curriculum implementation, regardless of approach, is like sailing to the horizon. We can direct

our craft to the horizon, but it can never be attained. Thus with curriculum implementation, we realize we can never complete the task of introducing the new program. Curriculum innovators must be cognizant that their task is not to arrive at the perfect curriculum, but to comprehend that innovative curriculum development and implementation are continual pursuits of the next engagement of students in their learning. Implementation of novel curricula can never be finalized. Educators can never rest on their laurels. Time does not stand still, nor do the demands on curriculum developers and implementers. Educators are always called to consider something new, something that enables students to participate competently in an evolving world dynamic.

Postmodernist Models

The previous discussion of systems models suggests a dynamic—ever changing, ever expanding, resembling an evolving solar system. In a real sense, the systems model seems to occupy the "thought space" between modernism and postmodernism. We mention that in a systems model, the curriculum is never complete; it is constantly expanding, contracting, in a somewhat chaotic cosmos. Roth's book *Curriculum-in-the-Making*, while developing a case for a postconstructivist perspective, certainly informs the reader that curriculum is always in the making. Only after it has been taught can one state with any precision what the curriculum was. One cannot state what it is because it will be somewhat different and have divergent learning results the next time it is activated with new students.[91] Roth presents his perspective that the curriculum is living because it is unfinished and changing, "that takes the figure of the event-in-the-making as its fundamental motive."[92]

Postmodernists, and persons who identify themselves as postconstructivists, argue that modernists work under a mythical assumption that precise plans, curricular plans in our case, are the cause that results in the effect of students' specific learnings. Postmodernists reject this conception between precise plans and ensuing action results. They argue that there are gaps between plans and strategies and resulting actions. The plans, curricula, are essentially general and the actions suggested within the curricula are structurally unique. Modernists who believe their plans will result in specific planned learnings are misguided. As Roth posits, such plans cannot deal with all the possible contingencies, all the myriad learnings cognitively, affectively, and psychomotor related. Infinite results can arise from students dealing with plans. And most of these results cannot be determined with certitude. Too many other factors are at play: the students' abilities, their interests, their social situations, and their cultural backgrounds, among other factors. Also, we must consider the teacher's competence, interest in the subject matter, even the teacher's social and cultural background.[93]

However, while we agree with Roth that there will be many unanticipated and even unknown varied learnings and emotions that students will grasp after experiencing a curriculum according to some specific plan, at least we can identify in general terms that what was planned to occur did in some ways occur, and that students did exhibit at least minimum understanding of the curricular content presented or experienced. In the future, we may devise more precise measures to assess the depth and varieties of understanding. But, we acknowledge we will never achieve absolute *exactness* in identifying all the "layers" of understanding and emotions. Certainly, we will not be able to peer into the souls of students to assess their spirituality. However, we do hope that students will have been motivated to various degrees to continue their learning journeys.

While this section is titled "Postmodernist Models," we have found none with any degree of specificity. Indeed, we believe that postmodernists would find precise "recipes" for creating curricula anathema to their postmodern dispositions. Postmodernism is more of a philosophy that is still in a dynamic state of emergence. It is more of a critique of modernism and its influence on various realms of being and doing than a "guide" for specific actions. As Slattery states, this new posture of thinking and action addresses "the autobiographical, historical, political, theological, ecological, and social context of the learning experience."[94] This philosophy nurtures "reflective understanding, heightened sensitivity, historical grounding, contextual meaning, and a liberating praxis."[95]

Slattery posits that postmodernism does not advocate any single method or approach to educational thinking, including curriculum development and implementation. Each individual must accept the challenge of generating his or her path of curricular activity. Slattery does note that he can teach you his steps in dealing with postmodern activities, but each individual must generate his own music.[96]

While he does not actually reveal his particular steps for creating postmodern curricula, he does suggest dispositions and approaches that will foster individuals engaging in postmodernism related to schooling and to life in general. He advocates that teachers of this persuasion foster in their classrooms "reflective dialogue, autobiographical journals, nonconfrontational debate, cooperative investigations, and probing questions."[97] We assert that all effective programs and pedagogical approaches of the modernist disposition would not recoil from what Slattery recommends. Slattery notes that postmodern teaching stresses the interconnectedness of knowledge, the melding of learning experiences, international communities, the world of nature, and life itself.[98] We would counter that educators in the modernist camp also stress these intellectual dispositions. Dewey, long before postmodernism, advocated similar emphases in education.

As Doll purports, "the person having the experience must do the experiencing for him/herself." Doll cites Dewey, denoting that "The beholder must create his own experience."[99] Doll further asserts that this experiencing has an "aesthetic, qualitative, intuitive, felt, creative, even spiritual—side to it."[100] We agree. We assert that students must be the creators of their own knowledge and also their own affective stands toward it. But, as Doll recommends, teachers are there to assist students in this challenge of crafting their unique experiences and the resulting understandings and affective stances.[101]

However, it is naïve to assume that meaningful curricula that engage students in active in-depth learning results out of an ether of process. Certainly students can participate in curriculum development and implementation, but they should not be charged with creating their educational programs and bringing them to life. No modernist believes that one size fits all. No modernist believes that plans made will achieve 100 percent predictable results. No modernist is advocating means of implementation that will deny students critical inquiry, will retard free thinking, or will attempt to brainwash students so as to control them. Modernists, as is true of postmodernists, realize that information- and program-producing strategies always require further exploration and inquiry. We suggest that both thought camps, which cannot be precisely classified and interpreted, really need to meld rather than repel. Citizens of both camps should raise questions that stimulate vision about excellent curricula and their implementation rather than just generating questions that are an end in themselves.[102]

Factors Affecting Implementation

Fullan discusses key factors that affect implementation.[103] People who wish to implement a new curriculum must understand the characteristics of the change being considered. Even postmodernists need to realize that some process must be defined that will address educational concerns. Certainly, at the commencement of development and implementation, there will be rough spots in the process. Often people at the beginning of implementation will resist the innovation if they do not see the need for change. Tina Rosenberg notes that successful innovation results by persuading the players to latch onto a common cause, to buy into the program being implemented.[104] When change acts with people's values, people are more willing to accept it.

People must know the purpose or purposes of an innovation and what that involves. *Clarity* about goals and means is important. But, individuals involved must realize that goals are not endpoints; rather they are directions, pathways of actions, that hopefully will result in more enlightened and motivated student scholars. Often, people are not clear as to how a particular innovation differs from what they are already doing. *Complexity* refers to the difficulty of change. For staff experienced in curriculum development, extensive change can be rather easy. For inexperienced staff, the same change can be quite challenging. Implementers must recognize

the level of difficulty and take adequate measures.[105] However, if the curriculum is totally different from the one being replaced, even experienced teachers need time to learn about the innovation and to experiment with varying ways of engaging students. Geoffrey Canada, president and chief executive officer of the Harlem Children's Zone Promise Academy charter schools in New York, indicates that successful schools are those where teachers are enabled to experiment. To gain new knowledge and skills, teachers are afforded opportunities for professional development.[106] Often, in regular schools, teachers receive only a two-day workshop to "get up to speed" regarding a new curriculum.

To accept an innovation, people need to perceive its *quality, worth,* and *practicality.* In many cases, teachers simply do not have the time to carry out the suggestions. Sometimes curricula are haphazardly implemented that could have been well implemented if those in charge had ensured that the necessary materials were available to teachers. Often teachers in new programs soon realize that technical or support staff are unavailable to answer questions.

Table 8.1 provides an overview of curriculum implementation models.

■ KEY PLAYERS

People involved in curriculum implementation can include students, teachers, administrators, consultants, state employees, university professors, parents, lay citizens, and political officials interested in education. Depending on their skills, such people may play different roles at different times in the change process. Often, the same people are involved in both development and implementation of a new curriculum. At other times, the individuals differ, but the roles of the players remain the same. Certainly, principals and curriculum directors are involved in both development and implementation. However, implementation requires different knowledge and strategies from those of development.

Almost anyone in the educational community can initiate the change process. However, initiatives usually begin in the administrative hierarchy. Sometimes school districts pay one or more people to be internal initiators of change. These people are charged with discerning problems, demands, or deficiencies that require attention. They may get others to consider change by writing papers, forming ad hoc committees to analyze particular issues, submitting proposals, or simply sending memos to staff recommending concern for some action.

In some cases, an initiator participates in the entire change process. This is especially likely when the initiator is an insider. In other cases, an initiator can just serve as a catalyst, with no active involvement in any stage of curriculum change.

Students

Before the late 1980s and 1990s, educators rarely thought of students as agents of change. However, since then, more and more educators have realized that students, even elementary students, can contribute to meaningful education change. The degree of student involvement depends on students' maturity and on the complexity and scope of the change being considered. As Dennis Thiessen notes, "student voice" has become the clarion call for change in the way we understand, respond to, and work with students in elementary and secondary schools.[107]

Increasingly, educational practitioners and researchers realize that students possess unique perspectives on their own learning and on the nature and purpose of their schooling.[108] As Alison Cook-Sather suggests, students "should be afforded opportunities to actively shape their education."[109] Students must be included in discussions about the organization of curricular programs. Educators must form partnerships with students in designing and implementing the curriculum.[110] That way students claim some ownership of the new curriculum. They also learn valuable approaches for organizing their own learning inside and outside of school.

For students to become involved in implementation, they must see the relevance of the new program and feel they truly have influence. As active participants, they are likely to greet the implemented curriculum with interest and enthusiasm.

Table 8.1 | Overview of Curriculum Implementation Models

Model	Author-Originator	Assumptions	Key Players	Type of Change Process Engaged
Modernist Models				
Overcoming resistance to change (ORC)	Neal Gross	Resistance to change is natural. Need to overcome resistance at outset of innovation activities Must address concerns of staff	Administrators, directors, teachers, supervisors	Empirical change strategy Planned change strategy
Organizational development (OD)	Richard Schmuck and Matthew Miles	Top-down approach (vertical organization) Stress on organizational culture Implementation is an ongoing interactive process	Administrators, directors, supervisors	Empirical, rational change strategy Planned change strategy
Concerns-based adoption (CBA)	F. F. Fuller	Change is personal. Stress on school culture	Teachers	Empirical change strategy Planned change strategy
Systems model	Rensis Likert and Chris Argyris	The organization is composed of parts, units, and departments. Linkages between people and groups. Implementations consist of corrective actions.	Administrators, directors, teachers, supervisors	Normative, rational change strategies Planned change strategy
Educational change	Michael Fullan	Successful change involves need, clarity, some complexity, and quality of programs.	Administrators, teachers, students, school board, community members, and government	Rational change strategies
Postmodernist Models				
Curriculum-in-the-making	Wolff-Michael Roth	Curriculum is always in the making, never completed. The curriculum is "living." Infinite results are always present from curricula implemented.	Curriculum directors, teachers, students, community members	Chaos theory basis Quantum change theory basis
Myriad approach models Individual conceptualized implementation processes stressing liberating praxis	Patrick Slattery	Each individual challenged to generate own unique approach to curriculum development and implementation.	Individual teachers, students, community members	Idiosyncratic procedural process Complexity change theory
Complexity theory influenced approaches	William E. Doll Jr.	Complex relations cannot be distilled into simple incidents. Complexity deals with interactive dynamic systems.	Teachers, students, community members	Interactive change Networks in increasing complexity

Teachers

Teachers must be central to any curricular improvement. Henry Giroux has posited that teachers are integral to the thinking that drives program creation and implementation. Teachers are directly involved with the implementation in the classroom. They possess clinical expertise.[111] As Elizabeth Campbell indicates, curriculum expectations emerge from teachers' capacities to enact curricular and pedagogic actions "with discretion, judgment, and proficiency."[112] Teachers modify and fine-tune the design work of their colleagues and outside professionals.

The key to getting teachers committed to an innovation is involvement. In addition to being members of the curriculum advisory committee, teachers should have opportunities to participate in curriculum learning communities in which they can develop identities as curriculum innovators.

Teachers need more than one- or two-day skill-training workshops. They need time to make sense of new curricula slated for implementation, time to gain competence in new instructional practices that engage students,[113] and time for frequent dialogue on the curriculum's educational purposes and the conditions necessary to implement and maintain the curriculum.[114]

Teachers must adhere to the essence of the innovation while adapting it to their students. Teachers must be viewed as full participants in curriculum implementation, not passive recipients of the curriculum. As Corey Drake and Miriam Gamoran Sherin note, teachers put their own spin on the new curriculum. Teachers bring their own knowledge, experiences, and dispositions to the curriculum and modify it to fit (see Curriculum Tips 8.1).[115]

Supervisors

Curriculum implementation must be supervised and monitored. Both the manner of teaching and the content being addressed need oversight. The supervisor provides direction and guidance and makes sure teachers have the skills to carry out the change.

Effective supervisors realize that they must adjust their tactics to the situation and participants. Supervisors can give experienced teachers much responsibility. However, they might have to give beginning teachers more structure; they might need to schedule more supervisor-teacher conferences and more in-service training for such staff members to deliver the new curriculum.

Supervisors can carry out their responsibilities in numerous ways. A few popular ways are classroom observation, demonstration teaching, supervisor-teacher conferences, staff-development meetings, and grant funding. If supervisors are effective, teachers are likely to commit to, and feel comfortable with, the new program being implemented.

CURRICULUM TIPS 8.1 **Priming Teachers and Students for Curriculum Implementation**

1. Conduct informal sessions to assess teachers' thinking and emotions regarding the new curriculum that has been developed. Obtain input from students.
2. Indicate how the new curriculum to be implemented addresses teachers' and students' needs that have been previously expressed.
3. Note how the new curriculum focuses on the overall aims and goals of the school and school system.
4. Emphasize that teachers and students will have freedoms to contribute their own knowledge and pedagogical skills to the new curriculum.
5. Inform teachers they will have opportunities to collaborate with colleagues in "fine-tuning" the implemented curriculum.
6. Stress that the new curriculum is not a static document, carved in stone. Rather, it is an educational document always in flux, in the making. Create an atmosphere of joy and excitement.

Principals

The principal's leadership is critical to the success of curriculum implementation. Principals determine organizational climate and support the people involved in change. If a principal creates an atmosphere in which good working relationships exist among teachers and between teachers and support staff, program changes are more likely to be implemented. Effective principals foster enthusiasm for the new program.

Today, principals must not only be administrators with an in-depth understanding of curriculum and implementation, but also what Catherine Marshall and Maricela Oliva have called *boundary crossers*.[116] In addition to being a school leader, a principal must be a community activist. Principals must speak and act for teachers, students, *and* the community. Principals must listen to what these individuals have to say. Principals must facilitate meaningful action among all parties involved in curriculum implementation.[117]

Curriculum Directors

Curriculum directors concentrate on the overall process of curriculum development, including implementation and evaluation. Large school districts have full-time directors who oversee curriculum activities. In some school districts, directors oversee the entire K–12 program; other districts have a director of elementary education and a separate director of secondary education. In small school districts, the superintendent or associate (assistant) superintendent assumes responsibility over curriculum matters.

Ideally, the curriculum director or assistant superintendent in charge of curriculum inspires trust and confidence and is knowledgeable, articulate, and charismatic.[118] The curriculum director or assistant superintendent in charge of curriculum should help teachers and principals gain the pedagogic and curricular knowledge requisite for curriculum implementation. They should be familiar with the latest research and theorizing about innovation and should have the skills to communicate their knowledge to the school's staff.

Curriculum Consultants

At times, a school district may wish to bring in an external facilitator or coordinator. Often, small school districts have no internal experts to consult regarding innovation. Even large districts may find they need an outside facilitator. School districts do not usually employ curriculum consultants over extended periods. Rather, schools bring in consultants to do one- or two-day workshops. However, such workshops are ineffective because curriculum implementation requires a much longer time frame. Consultants also help schools analyze programs, assess them, and obtain grant funding. Most such consultants are based at colleges and universities.

Many educational consultants are employed by state departments of education and sent to various schools and school districts to assist in curriculum development and implementation. Many consultants are on the staff of intermediate school districts and work closely with school districts served by such organizations. Private national consultants also assist in curricular activities.

Successful consultants cooperate with teachers in addressing some development or implementation issue. They assist rather than judge. Sometimes, but not usually, consultants are hired to work with teachers throughout the curriculum development and implementation process. Consultants can provide guidance, analysis, and critique without being in a district on a daily or weekly basis. Consultants can establish peer support systems, peer coaching, and networks for working with internal facilitators. They also can guide teachers to information that helps them become comfortable with, and knowledgeable about, the innovation.

Parents and Community Members

Schools exist within communities, frequently in increasingly diverse communities. Educators must realize that students actually spend more time in their communities than in school.

Educators must also apprehend that curricula exist outside school walls; student learning does occur when students exit the school. In the development and implementation of curricula, educators must strive to focus on communities and develop means of engaging parents and community members in school activities, including implementation.

The work of Geoffrey Canada with the Harlem Children's Zone Academy charter schools has shown what academic success can be achieved by considering the communities within which students live and schools exist. He engaged the community block by block. Today, that community is almost 100 blocks in area. Children who lacked many resources and were underachieving are now achieving academic success. Canada's accomplishments impressed President Barack Obama; he urged the creation of 20 "Promise Neighborhoods" nationwide.[119]

Canada views community with a wide lens. He views innovation as requiring educators and community members not only to make the school innovative, but also to work to make the community innovative. Canada posits, "We need to improve schools at the same time we address the barriers to academic success outside of schools from health problems to misguided parenting practices to lack of physical safety."[120] He urges us to broaden our definition of education and to realize that the educational experience commences at birth and continues in all environments within which students interact.

Although communities differ with regard to specific issues, the community should participate in varying degrees with the creation, implementation, and maintenance of curricula. This does not mean that parents and community members are going to do the teachers' jobs, but a partnership should exist. As Fullan communicates, "The closer the parent is to the education of the children, the greater the impact on child development and educational achievement."[121]

Educators must take the lead in engaging the community in educational actions. Fullan suggests that while both educators and community members want only the best for children, they often differ in what they consider the best. In many communities, parents do not trust teachers. Community members often believe that teachers, especially those who do not actually live in their communities, frequently "don't get it" when it comes to understanding their children and the environment in which they live. Teachers, and certainly the principal, must extend a welcoming hand to parents and community members.

However, building trust in schools, as Bryk and Schneider point out, is a major challenge.[122] It requires modifying a community culture or cultures with school or school cultures. It requires teachers actually leaving their classrooms and entering the community. Teachers can no longer stay in the comfort of their schools; professors of education must leave their "towers" and mix with the "people." It means that educators must realize that what is or should be occurring in the communities and schools is a rearrangement of power and influence. Educators should view community members as partners. Teachers cannot educate students alone in the isolation of the classroom.[123] Even with home schooling gaining in popularity, parents cannot educate their children alone. Adding to the complexity of working with parents and community members is the realization that although school and homes do have visible and measurable curricula, schools, homes, and the larger communities all possess various hidden curricula that can serve to advance or retard students' total academic learning. Moreover, we do not mean just the learning of disciplined knowledge; rather, we also consider the impact the community and its members have on students' attitudes, values, and belief systems. And what of the null curricula—that curricula that students know exist but to which we attempt to deny them access, the taboo topics we do not teach or from which we tend to shield their eyes?

Bringing in the total community to work with educators in developing and implementing curricula is not always going to be smooth. As Michelle Rhee, former chancellor of the Washington, D.C., public school system, articulates, there will be conflict, but we should not shy away from it. Rearranging power and influence, shaking up the politics of the special interests, will ruffle feathers. However, as Rhee notes, we must mount various fights, but we can do it respectfully: "[T]his is the time to stand up and say what you believe, not sweep the issues under the rug so that we can feel good about getting along."[124] However, in dealing with the community,

we must strive for a win-win result. We are not striving for anyone to lose. And educators must realize that this dynamic with parents and community members will be an ongoing drama. Educators and community members cannot wait for Superman; we must realize that challenges will be addressed by our efforts, cooperatively taken. We are superman and superwoman!

Conclusion

Curriculum implementation is much more than handing out new materials and courses of study. For implementation to succeed, those involved must understand the program's purpose, the roles people play within the system, and the types of individuals who are to be affected by interaction with the new curriculum. For successful implementation, schools essentially must establish learning communities. A major emphasis is to make the school, as a result of curriculum implementation, learning enriched for everyone involved, certainly for teachers and students.

Effective implementation does not occur without serious planning. The change process demands planning, but planning with flexibility so as to address unintended circumstances and events. As events arise, procedures must be fine-tuned.

People who create a new curriculum or course are eager to see the school or school district enthusiastically implement it. Yet implementation does not demand that educators accept the curriculum without question. School players need time to "try out" the new curriculum or course and to put their own stamp on it. Teachers need opportunities to engage their colleagues in conversations about the curriculum or course being presented. Interaction "flavors" teachers' relationships regarding the curriculum to be implemented.

Curricularists can and do bring various perspectives to implementation and employ numerous strategies. Even postmodernists have some idea of strategies to employ in creating and implementing curricula that address their concerns. Successful implementation requires a community of trust. Trust takes time as well as collaboration among the curriculum players. It takes educators developing a shared ethic of responsibility. It requires creating an environment in which various educational stands and approaches to curriculum development and implementation can be honestly discussed with respect for all participating parties.[125]

Those in charge of change must comprehend the dynamics of change strategies and the dynamics of group processes. They must be cognizant of the complexities within schools and communities. They must realize that educational postures are being analyzed, critiqued, refined, and challenged. Instigators of change, curriculum implementation, must realize that the turmoil extant in the local and national communities is reflected within the school and school district communities. We are living in a complex and chaotic time. We need to be excited and motivated to be active change agents.

Discussion Questions

1. How would you argue for "capacity building" to facilitate curriculum implementation?
2. How would you argue for the engagement of a modernist approach to curriculum implementation in the complexities and chaos of the 21st century?
3. How would you argue for a postmodernist approach to curriculum implementation in this century?
4. What defenses would you employ to convince others to use students and community members in curriculum implementation?
5. What are your affective responses to this chapter's content?

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9 Curriculum Evaluation

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Discuss the nature and purpose of evaluation

2. Articulate the assumptions behind the scientific, modernist approach and the humanistic, postmodernist approach to evaluation

3. Explain the objectives of the scientific, modernist evaluation model and the humanist, postmodern evaluation model

4. Distinguish between high-stakes, norm-referenced, and criterion-referenced tests and explain the rationale for employing each type

5. Describe various alternative assessment strategies

6. List the various issues regarding fairness in curriculum evaluation

People agree that curriculum evaluation is essential to curriculum development, implementation, and maintenance. However, they disagree regarding evaluation's meaning and purposes, how to approach evaluation, and how to employ its results. Ideally, evaluation determines the value of some action or program, the degree to which it helps students meet standards, and its importance. Implicitly and explicitly, evaluation reflects value judgments about previous curricula and instructional designs. Evaluation critiques previous documents, plans, and actions.

We define *evaluation* as synonymous with *assessment.* We believe that assessment (evaluation) involves value judgments as to merit and worth. These judgments affect which data we gather and how we view those data. Evaluation requires of educators actions to judge the appropriateness of both their and students' actions. In evaluating students' learning, educators often give tests that assess what educators consider important. Teachers critique the quality of their teaching often by viewing videotapes of an instructional session.

In curriculum evaluation, attention focuses on both teachers' and students' actions that result in students' learning specific contents and skills. Today, curriculum evaluation is more challenging than in the past. Currently, education in general, and schools in particular, exist in a dynamic complex in which social, economic, political, and technological changes generate diverse views as to the school's purposes and the intellectual competencies and skills that will serve students well. As Peter M. Taubman asserts, we are living in a transformative time under the "twin banners

of 'standards' and 'accountability.'"[1] Standards and accountability are battle cries often uttered by noneducators, particularly politicians and business leaders, with no idea as to the nature of curriculum and instruction. Most members of the public lack backgrounds in psychometrics and are especially unaware that holding educators accountable for attaining standards and also addressing diversity of students and the need for creativity in schools are often at cross-purposes.[2]

Certainly, educators should have standards and be accountable. But what does that mean? Taubman articulates that we are being consumed by an "audit culture" in which educational programs, practices, and discourses are being encapsulated, standardized, and reduced to sterile quantifications. We seem to be functioning under a cloud of doom. To avert this doom, many are urging an enactment of a one-size-fits-all program and performance. All students must learn particular subject matter and must demonstrate identical proficiency.

Much of this cloud of doom is enhanced by the myth that when compared to other students in developed countries, our students do not measure up as having comparable competencies. We are not number one! But, few challenge the notion that we must be number one, first, best in the world community. And can one determine competence, understanding, creativity, and general knowledge in cognitive, affective, and psychomotor realms by taking a standardized test? What does a score really indicate? We suggest the only precise statement that one can deduce from a test score is that someone or a group of someones attained a score—a number—higher or lower than we did. Can we state that a high score means that students actually know more than one with a lesser score? And how can we define what "knowing more" actually means?

Further, can we really utilize a test score or cluster of test scores to indicate that our schools are failing, that they need to improve? As David Berliner and Richard Glass denote, judging and critiquing school systems in our industrial world is no easy task. School systems exist within national contexts. In our heterogeneous country, it is misleading and perhaps dangerous to make general assertions about the effectiveness of our curricula and instructional strategies on students' learnings, skills, competencies, and dispositions.[3] And, as Berliner and Glass posit, how do we define better? They point out that even if we can define better, we need to query, "better for whom? better on what criteria?"[4] We also raise queries as to what "better" means when considering students' creativity, tolerance, empathy, risk taking, social skills, poise, and adventurousness.

When engaged in education and assessing the benefits of that education, we must denounce the notion that students are widgets that are to be standardized and measured accordingly. This is an underlying assumption that has been part of American culture since the 1800s. It assumes that schools are factories and students are products that populate assembly lines. In 1916, Stanford University professor Ellwood Cubberley declared the following:

> Our schools are, in a sense, factories in which the raw products (children) are to be shaped and fashioned into products to meet the various demands of life. The specifications for manufacturing come from the demands of twentieth-century civilization, and it is the business of school to build its pupils according to specifications laid down.[5]

We vehemently refute the notion that schools are or should be factories. We also challenge the belief that schools and their curricula and instructional strategies are to be determined by industry. Schools are designed to produce educated citizens. Schools are not places for training people for specific jobs in industry. Yet, in the 21st century, we have a wave of individuals from industry, government, society, and even some educators urging STEM for all: science, technology, engineering, and mathematics. The December 2014–January 2015 edition of *Educational Leadership*, a publication of ASCD, was so titled.[6] Why? We need more engineers; we need more technology experts; we need more scientists; we need more mathematicians. Why such a need? We are behind China in the numbers of engineers being graduated. We must be first. No one seems distraught that we are not producing greater numbers of literary figures, artists, political scientists, or historians. Of course, some individuals are urging that we add to STEM, such as the arts and the humanities. But, arts and humanities do not build computers or airplanes, or

furnish new chemicals and 21st century technologies. Those in industry are still recommending that schools continue as factories that produce widgets designed to industry specifications.

Curriculum evaluation should not exist to give us bragging rights in the world community. Certainly, evaluation is a necessary activity to access how our curriculum and instruction are addressing and challenging the educational development, writ large, of our students. But, as Berliner and Glass point out, educational assessment cannot be equated with the Olympics. International tests are not an educational Olympic event. These authors point out that "equating national rankings on international standardized tests with rankings in athletic events is simply deeply flawed logic."[7] We assert that employing such logic does not give an accurate understanding of the quality of American education. Nor does it present data that provide insight as to the nation's economic and educational health.

So, why do we as a society have this national perception that we are falling behind, that our schools are failing us? Partly what is driving this chaos regarding curriculum evaluation is the No Child Left Behind Act, signed into law in January 2002 by President George W. Bush. This law is a directive that all educational agencies, schools included, at national, state, and local levels will work to create and then evaluate educational programs. It articulates that states will determine academic standards at three levels of achievement: basic, proficient, and advanced. However, it notes that 100 percent of students must be proficient on state and reading standards as determined by state-created examinations in reading and mathematics. Proficiency must be attained in science. Such must be accomplished if the United States is to be competitive in the world.[8]

Proficiency suggests high standards, but we must ask, "How high and for whom?"[9] What about just achieving the standard at the basic level? How do we report standards attained at the advanced levels? Must everyone engage in the same behavior? And must this all be evaluated by high-stakes exams administered at specific times? Also, can we say with certainty that a high score on a mathematics exam translates into student success 10 years later? Will achieving a high standard of history knowledge mean that a student will be an effectively contributing citizen 15 years hence? What about the uniqueness of individual students? And can everything that we wish to accomplish be measured by an exam? How does one measure empathy and tolerance? What is basic empathy? How does one measure proficiency in empathy?

Certainly, there are ways to measure students' attainments in knowledge and action other than employing high-stakes texts. However, No Child Left Behind (NCLB) seems to celebrate standardized tests as the primary means of gathering data to determine schools' accountability. Every state must build an accountability system that utilizes tests that validly measure student learnings, levels of achievement, and teacher effectiveness. Results from these tests must be disaggregated to take into account "socio-economic status, gender, race, ethnicity, disabilities, and levels of English language proficiency."[10] This directive seems to contradict that 100 percent of students will be proficient. And, if we take into consideration students with limited English-speaking skills or students with learning disabilities, then we cannot simultaneously have 100 percent student proficiency.

Although schools have been ordered to develop curricula and evaluation means to document that no child is being left behind, the order does not indicate how the states are to develop such tests. There is no nationwide testing policy. Also, there does not seem to be much guidance from the federal Department of Education as to how to address the unique cultures and subcultures within their states. New York State, which has had the New York State Regents exam in place long before NCLB, is certainly culturally different from New Hampshire or New Mexico.

Further complicating curriculum evaluation are the explosions of knowledge regarding how the brain functions, how people learn, how the political realm affects schooling, how new pedagogies can address the needs of diverse student populations, how curricula can be created using various modern and postmodern approaches, and how assessment devices can be created and modified to get at the essences of learning. Educators should use evaluation methods and approaches that draw on the latest thinking. Yet, in some ways, the tests we currently use are based on 19th century psychology.

James Pellegrino, Naomi Chudowsky, and Robert Glaser note that our current approaches to evaluation do not adequately take into account the increase in knowledge about how the brain functions. We already measure students' learning processes and knowledge of basic facts, and we derive estimates of students' command of particular curriculum areas, but we fail to get an accurate picture of the depth and breadth of students' knowledge and cognition. Current evaluation approaches do not provide views of the complex knowledge and skills required for learning.[11] They do not adequately address student creativity, compassion, commitment to action, or enthusiasm.[12]

Current evaluation takes snapshots of student achievement with regard to knowledge and process at particular points in time. Washington State obtains data on students' achievement at grades 4, 7, and 10, but not a view of how, for example, students' understandings and skills evolve. Testing students three times a year shows that scores are going up, going down, or remaining level, but it does not necessarily indicate the amount of learning.[13]

Adding to the difficulty of evaluating the curriculum is the increasingly voiced demand that assessment be fair and appropriate for diverse students. Certain segments of society express concerns that tests, especially standardized ones, favor certain student populations. Others argue that standardized tests are not fair because they focus on subjects, topics, and processes that have not been taught in their schools. Also, some claim that the standards set for passing these tests harm less-advantaged students.

A real challenge in employing standardized tests to measure the quality of curriculum and the effectiveness of instructional strategies lies within the nature of test design itself. Wayne Au illuminates a problem with test design using the Scholastic Assessment Test (SAT) as an example. The Educational Testing Service (ETS), which primarily oversees the management of students taking this test, employs one of the six major divisions of the test as an experimental section to ascertain what questions might be potentially valid to include in future SATs. Data from this "trial" section of the test furnish psychometricians with information that allows them to either keep a question or discard a question.

The psychometricians determine the difficulty levels of these questions and how various groups of students have done in the past, specifically White students, students of color, male students, and female students. The test designers have a database that historically indicates that Whites outperform students of color and other minorities. This favoring of Whites indicates that the questions are valid when the experimental questions in the SAT reflect those results. However, if students of color outperform Whites on particular questions by a significant margin, then the test makers usually classify the questions as psychometrically invalid. They are then excluded from future SATs.[14] How to deal with this validity factor is a real challenge for those using standardized tests in this century with an increasingly diverse student population.

Today, with regard to curriculum evaluation, we are not only judging whether students are learning the curriculum effectively, but we are also charting teachers' instructional competence. We assume that the curriculum developed and implemented is of value and is worth knowing. Doubting this, we would not teach it. The value of the curriculum developed and presented is a given. However, in the current evaluation climate, some are suggesting that teachers' pay be connected to how well they teach the curriculum. Effective teaching translates into high test scores. Effective teachers will receive higher salaries. Some even have suggested that competent teachers of high-status subjects such as mathematics and science receive larger salaries because their subjects are more crucial to the nation's welfare. Such a notion would violate a rule of merit pay: create a program that encourages collaboration.[15] It likely will foster a deleterious competition among school faculty.

There is much dialogue centered on evaluating and rewarding teacher performance with merit pay. There are several myths regarding merit pay, as articulated by Chris Hulleman and Kenneth Barron.[16] The first myth is that performance pay systems improve performance. Performance pay enhancement may increase performance quantity, but that does not necessarily equate with quality. Students might learn more, but their understanding may not be increased essentially.

A second myth advanced by Hulleman and Barron is that performance pay systems will heighten teacher motivation. They cite research that indicates the opposite; expected rewards based on performing a task at a specific level actually undermine intrinsic motivation for performing the task. Most teachers do not engage a particular instructional strategy to gain a pay raise. The authors also point out the danger of applying motivational business strategies to the educational arena. Additionally, although a business person can document an increase in sales to request a bonus, it is far more difficult to quantify quality learning by students.[17] Results of quality teaching may not appear for decades. Should we give delayed bonuses if students in later years create a new business or win a Nobel Prize? How can we make an evaluation of a teacher's impact on a student? The challenge is to make a direct causal connection from a teacher's action and a student's future accomplishment. It cannot be done.

Despite our protest, the idea of teacher pay tied to performance is not going to disappear. Quite likely, it will increase as a clarion call for improving schools. We are not going to separate curriculum evaluation from teacher effectiveness in "teaching" the curriculum that is delivered. As Matthew Springer and Catherine Gardner note, we are entering a perfect storm: Teacher compensation is being battered by performance and market-oriented pay policies.[18]

Although we assert that we cannot make a direct causal connection between a teacher's action and student's knowledge or skills, this argument, according to Springer and Gardner, may be losing validity. They note that many states and school districts have created sophisticated longitudinal data systems that enable determining links between individual student performances and teachers' instructional strategies. They note that with such data systems, one can more precisely estimate teachers' contributions to students' learnings. Additionally, they note that there is increasing research that aims to develop and validate sophisticated measures of effective teaching.[19]

Currently most states have instituted one of these "sophisticated measures" identified as value-added measurement (VAM). The method employs processes of statistically measuring teachers' performances based on students' achievement determined by their test scores. Students' academic growth is measured each year to determine a gain in knowledge and understanding. Advocates of the VAM note they are controlling for variables outside of teacher influences: social class standing, ethnic groups, English proficiency, and learning abilities and disabilities.[20]

It does appear that the enactment of No Child Left Behind in 2002 added fuel to this move to hold schools and teachers accountable for enhanced learning and achievement. President Obama's Race to the Top fanned the flames. Even the title Race to the Top implies that schools are competitors. Berliner and Glass indicate that advocates for having schools compete and providing merit pay to teachers will stimulate increased teacher effectiveness and creativity and enhanced student learnings. They argue that more effective teachers, those whose students have higher test scores, will earn more money. This will motivate other instructors to be more effective in their pedagogies, to increase their salaries. Of course, as already indicated, it is a myth that performance pay systems will actually motivate teachers.

Education is not a sport; it is not a game with winners and losers. As indicated previously, education is not an Olympic activity. In sports, there are winners and losers. Do we want that in

9.1 Value-Added Measures Explained
This video explains how Ohio plans to implement value-added measures to determine if teachers are doing a good job. What are some reasons teachers may be against value-added measures and merit pay?

https://www.youtube.com/watch?v=925RnyfzbjU

education? Some might say this is already the situation with American education. But, we believe strongly that making education into a competitive sport within the country and the world will further erode our educational system. And having educational competitions will not furnish us with quality education. We will know only the participants' "scores" in the educational games. We will not have any understandings of the quality of the myriad learnings and dispositions that enable individuals to excel at the game. As Berliner and Glass denote, student achievement is impacted by forces outside of the school.[21]

Despite the commentary in the previous paragraphs, we still consider evaluation essential to the continual usage of meaningful curriculum. If teachers and the community are to support the curriculum, educators must conceive and implement effective evaluation and reporting processes. They also must query their assumptions about evaluation and whether their dispositions regarding evaluation are in the modern or postmodern camp.

■ THE NATURE AND PURPOSE OF EVALUATION

Evaluators gather and interpret data to determine whether to accept, change, or eliminate aspects of the curriculum, such as particular textbooks. Curriculum evaluation is necessary not only at the end of a program or school year, but also at various points throughout the program's development and implementation.

At the beginning of curriculum development, the very concept of the program must be evaluated. Does the program have worth and merit? Throughout the process, educators must evaluate the worth and merit of the curriculum's content and experiences. Curriculum evaluation focuses on whether the curriculum is producing the desired results. For example, does it get students to perform at the level of standards indicated for student success? Evaluation identifies the curriculum's strengths and weaknesses before and after implementation. Evaluation also enables educators to compare different programs in terms of effectiveness. People want to know how their students measure up against other students at the local, state, national, and international levels.

Pellegrino, Chudowsky, and Glaser view assessment as a process of reasoning from evidence.[22] The first question in this process is, "Evidence about what?"[23] Data interpretation is possible only when we understand what we are attempting to do and know what standards we want students to meet.

The process of reasoning from evidence in curriculum evaluation can be conceptualized as an hourglass. This schema is an expansion of Pellegrino, Chudowsky, and Glaser's reasoning assessment triangle, which had the following features: cognition at the top of the triangle, and observation and interpretation at the corners of the triangle base.[24] We have added to their model, placing curriculum at one corner of the top of the hourglass with cognition at the other corner (Figure 9.1). The neck of the hourglass represents the observation stage of reasoning. The base of the hourglass represents interpretation.

The curriculum organizes subject matter in terms of scope and sequence. In curriculum development, educators must make evaluative judgments regarding the worth of the subject matter being considered and organized as well as the political and social climates within which the curriculum will exist. Educators consider this question: What evidence suggests that the curriculum contemplated, planned, and then delivered has value, meets students' and society's needs, and is consistent with curriculum theory?

Cognitive theories inform us in our data gathering. How do students acquire knowledge, construct meaning, and develop competence? Cognitive models of teaching can assist teachers in shaping their instructional approaches and evaluating students' learning.

Observation includes all the means by which data are gathered. It may involve written tests, reviews of students' work (e.g., their portfolios), and viewing students as they engage in
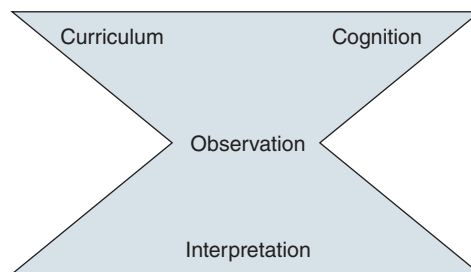
FIGURE 9.1   Process of Reasoning from Evidence in Curriculum Evaluation

Source: Adapted from James W. Pellegrino, Naomi Chudowsky, and Robert Glaser, eds., *Knowing What Students Know: The Science and Design of Educational Assessment* (Washington, DC: National Academy Press, 2001).

particular educational actions. Observation includes questionnaires, checklists, inventories, interview schedules, and video performances. It also includes data on teachers—for example, from observations of teachers, viewing of videotaped lessons, analyses of lesson plans, and interviews.

In the *interpretation* stage of curriculum evaluation, educators draw on their assumptions about curriculum and cognition. They process data into evidence regarding the curriculum's success. At the classroom level, interpretation tends to be informal and qualitative, including interpretation regarding teachers' instructional approaches. At the district level, interpretation tends to be more formal, but it still can be qualitative rather than quantitative (employing a statistical model).[25] Often, district-level interpretation is both qualitative and quantitative. Interpretation implicitly draws on theories of testing, statistical models of data analysis, and theories of decision making.

Evaluation must remain connected to the totality of curricular activities. Evaluators first must ask themselves what aspect(s) of the curriculum they wish to evaluate and what types of learning will receive focus. They then must determine which means of data gathering best suit one or more particular goals of the curriculum. Which questions will furnish the data desired for interpretation?[26]

Often, evaluators investigate the appropriateness of a particular assessment procedure or form of assessment. Frequently, evaluation centers on how to modify the staff's in-service education. Sometimes evaluation focuses on just how educators can communicate with and educate the community. Sometimes, evaluation focuses on the effectiveness of a school environment. However, most evaluation focuses on curriculum or instruction.

Evaluation that focuses on curriculum actually commences in the initial stage of curriculum conceptualization. Specifically, educators query whether the curricular content and experiences initially considered are worthy of the effort. The evaluative questions essentially reflect Spencer's question: What knowledge is of worth? And, we would add, what knowledge is of worth to the greatest number of diverse students in the 21st century? While this question might appear easily answered, to respond to it in this dynamically changing century is a Herculean task. How does one evaluate the worth of a particular content or educational experience with regard to unknown and emerging situations and demands? What content is relevant for understanding contents and situations not yet existing? For those who wish students to master contents such as the STEM subjects, what aspects of these subject contents are to be judged worthy of attention if our views of the future have not been articulated?

We assert that evaluation, or assessment, after the curriculum has been implemented focuses on two domains of activity: teacher instructional strategies and students' learning strategies. But, in the chaotic dynamics of this century, are the instructional strategies and students' learning strategies fluid enough to adjust to the dynamics of exploding knowledge realms and information technologies? What might be judged effective in 2015 may be deficient in 2020.

Catherine Taylor and Susan Nolen note that teachers first engage in assessment to gather information about students' understandings and skills.[27] Such information is gathered via various procedures so that teachers can decide what to teach and the manner of teaching and student engagement. Essentially, this is the view that assessment is a process of reasoning from evidence. They must determine the individuals' degrees of success in processing particular content and concepts. This assessment is used primarily at the commencement of a lesson or unit of study. At or toward the end of a lesson or unit, teachers map out assessment procedures to record students' mastery of some content or expertise in some skill or intellectual process. Here teachers primarily engage in observation and interpretation phases of evidence gathering. Common methods employed are tests, with teachers often assigning grades. Taylor and Nolen suggest that the final purpose of assessment is to make comparisons of their students with others; that is, to measure their students' standings compared with other students. More is said about this last purpose later in this chapter.

It does seem that evaluation, or assessment, can and does have two purposes. Lisa Carter suggests that one view is that evaluation is activated so educators can sort and select not only

curricular content and instructional strategies, but also which students experience various curricula and instructional experiences. Heavy emphasis is on employing test scores to sort and track students—that is, to place them in similar groups according to abilities, interests, and accomplishments. The second purpose of evaluation, Carter indicates, is to gather information, or evidence, in order to make educational, curricular, and instructional decisions that enhance students' learning of the curriculum being taught. Here evaluation aims to adapt the curriculum to the students rather than to mold the student to fit the curriculum.[28]

To be successful in carrying out evaluation, with emphasis on the second purpose, there are key questions to be raised. These questions, developed by Harriet Talmage in the mid-1980s, are still relevant today.

Evaluation Questions

Talmage posed five types of questions that educators can consider when evaluating curricula: questions of intrinsic, instrumental, comparative, idealization, and decision value.[29]

The question of intrinsic value addresses the curriculum's goodness and appropriateness. It deals with both the planned curriculum and the finished (delivered) curriculum. For example, a school would ask if a new language arts curriculum incorporates the best thinking to date on language arts content and that content's arrangement and presentation. Would specialists in linguistics, composition, grammar, and communication give the planned curriculum high marks? Raising such questions is not a simple matter of getting experts to analyze the curriculum document. People bring their philosophical and psychological views to the question of intrinsic value. They perceive the curriculum in light of the purpose of education that they see as paramount. (Should we stress critical thinking, citizenship, or preparation for employment?) They also see curriculum in terms of their preferred learning theory. (Behaviorists, cognitivists, and humanists have different views about content and presentation methods.)

The question of instrumental value asks, what is the curriculum good for, and who is its intended audience? Educators deal with the first part of this question by attempting to link the planned curriculum with the program's stated goals and objectives. The question of instrumental value also addresses which students accomplish what is planned in the curriculum and to what extent. The level of attainment relates to standards that reflect value preferences. Evaluation efforts should identify the types of students who are likely to benefit the most from the planned curriculum.

People faced with possible new programs often ask the question of comparative value. Is the proposed new program better than the one it is supposed to replace? Usually, new programs are created because people feel that the existing program is inadequate. When comparing programs, remember that different programs may have different goals. Is a program that stresses skills better than one that stresses contemporary world issues? Certainly, the two are different. Whether one is better than the other relates to educators' values and priorities. However, if a suggested program is of the same type as the existing program, evaluators should consider comparative value not only in terms of student achievement, but also in terms of the two programs' ease of delivery, cost, demand on resources, role in the existing school organization, and responsiveness to the community expectations.

The question of comparative value is often raised when comparing the achievement of students in various countries, if not the curricula of the countries. Currently, voices in our national educational discussion suggest that when tested, American students do not compare favorably with students in other countries. It is often noted that the standings of American students, especially in mathematics and science, do not compare well. Usually, in such comparisons we essentially are not interested in what these various students actually know. We are more attentive to just how our students compare with others. We employ such data to rank students and to determine differences between students.[30] Basing the quality of our students' achievement in mathematics or science solely on a test number provides us with scant evaluative information. It denies us evidence essential for making evaluative decisions.

The question of idealization value addresses ways to improve a curriculum. Evaluators should not be concerned only with determining whether what was planned actually happened; they should also view data in terms of ways to create and maintain the best possible programs. They consider information on how the program is working and ask themselves if there are alternative ways to make the program even better—for example, to heighten student achievement or involve students more fully in their learning. The question of idealization value should be asked throughout the delivery of the new program. Educators must continually reconsider how they might fine-tune the program's content, materials, methods, and so on, so that students will optimally benefit.

The idealization question currently is reshaped into the question of curricular and instructional improvement. This question, newly redefined, requires "finer-grained measures for detecting improvement."[31] Assessing improvements in students' performances or even changes in teacher's strategies is much like measuring the movement of a glacier. Spend the day observing a glacier, and it appears stationary. However, if you take monthly observations, you can observe whether it is advancing or retreating. Certainly, a yearly observation schedule would document movement.

In raising the idealization question, the improvement question, one should remember Fullan's comment that "changes in student performance lag behind changes in the quality of instructional practice."[32] He suggests that we need more refined assessment instruments to detect changes in students' classroom learnings and behaviors. If we neglect field studies and employ only year-end tests, we will be able to report only students' particular level of learning. We will have violated the "evidence factor" because we will be unable to articulate the little daily learnings that assisted or sabotaged student progress. The idealization question requires frequent measurement of teacher and student action, employing a variety of evaluation procedures and materials.[33]

The question of decision value deals with the vital role that the previous four questions play in the evaluation process. If those four questions have been addressed, the decisions made should be quality decisions. The evaluator and the curriculum decision-maker should now have evidence documented in such a manner that they can decide whether to retain, modify, or discard the new program. However, the question of decision value is ongoing. The value of the decisions made to date must be assessed as the curriculum is delivered in classrooms.

That the decision value question is ongoing essentially means that the previous four questions are constantly considered. Evaluation is never completed. Evaluation is challenging work. We suggest that the results we obtain and the evidence we gather are more like impressionistic paintings rather than designs generated by algorithms in a computer program. Individuals viewing an impressionistic painting draw a multitude of learnings and insights and ever-differing emotions; we must consider students more as paintings than as computer programs.

Definitions of Evaluation

Evaluation is a process whereby people gather data in order to make decisions. Apart from that generality, however, definitions of evaluation vary. Blaine Worthen and James Sanders define evaluation as "the formal determination of the quality, effectiveness, or value of a program, product, project, process, objective, or curriculum." Evaluation includes inquiry and judgment methods: "(1) determining standards for judging quality and deciding whether those standards should be relative or absolute, (2) collecting relevant information, and (3) applying the standards to determine quality."[34]

Abbie Brown and Timothy Green define evaluation as the process of judging, based on gathered data, the success level of an individual's learning, or a product's effectiveness.[35] According to Norbert Seel and Sanne Dijkstra, evaluation furnishes data that enable us to compare worth or value of two or more programs. It provides a basis or bases for selecting programs or determining whether they should be continued.[36]

Daniel Stufflebeam has defined evaluation as "the process of delineating, obtaining, and providing useful information for judging decision alternatives."[37] Collin Marsh and George Willis indicate that evaluation permeates all human activity. It deals with questions

such as: Is something worth doing? How well is it being done? Do I like doing it? Should I spend my time doing something else?[38]

Many view evaluation as critical inquiry, studying phenomena in order to make informed judgments. Kenneth Sirotnik and Jeannie Oakes expand on this concept of evaluation. They argue that we should inquire into the assumptions underlying the values that we hold, the positions that we advocate, and the actions that we undertake.[39] Most evaluators maintain that although the presence and importance of values cannot be ignored, they can be considered only within a particular context. We judge whether a program reflects its values and if those in charge of a curriculum have made their values explicit. Then we evaluate whether these goals have been attained. Sirotnik and Oakes advocate a type of critical inquiry that some have called *hermeneutics*. The dictionary defines hermeneutics as "the study of the methodological principles of interpretation."[40]

In taking a hermeneutic approach to evaluating curricula and their effects, an evaluator raises "deep" questions as to the educational program's value, worth, and merit. Certainly, we pose obvious questions as to what students learn. However, we also recognize that what students have learned is decided by people both inside and outside the immediate community. We judge the value of the opinions of those who decide what students are to learn and who determines levels of success. Evaluators who take a hermeneutic approach consider how well the educational program fits into the current climate.[41]

Measurement versus Evaluation

Sometimes educators confuse measurement with evaluation. Fred Kerlinger defined *measurement* as assigning numerals to objects or events according to rules.[42] *Evaluation* assigns value and meaning to measurement. For example, an evaluator might decide that a score of 70 percent correct answers means "passing" or "successful performance."

Measurement describes a situation or behavior in numerical terms. We make observations and then assign numbers to aspects of the observed phenomena.[43] For instance, a gym teacher can note the number of pushups a student does, or a reading teacher can record the number of pages per hour a student reads.

Measurement enables educators to record students' degrees of competency. However, educators must do something with the gathered data. They must decide how many pushups are enough to be good, and the extent to which reading *speed* equates to reading *ability*. They must decide whether a student who spells 18 of 20 words correctly should get an A, an A–, or some other grade. Measurement always precedes evaluation. The value judgments made in evaluation are always influenced by the educators' understandings of a program's—and education's—purposes.

■ APPROACHES TO EVALUATION

Evaluation is not content specific. The same procedures can be used to evaluate the effectiveness of any curriculum. Essentially, evaluation consists of gathering data and relating them to goals. In determining the value of a curriculum plan, educators must ask whether the expected results are worth the likely cost of delivering them.[44]

Scientific, Modernist Approach to Evaluation

How people generate questions and process data is influenced by their philosophy and psychology. Their philosophy and psychology are shaped by whether they consider themselves within the modernist or the postmodernist camp. Those who take a behavioristic, prescriptive, or sequenced approach to evaluation can be grouped in the modernist camp. They believe strongly in cause-and-effect precision in explaining the physics of the world and the exactitude of their actions in various endeavors, in our case the development, implementation, and evaluation of curricula and instructional strategies. These modernists approach evaluation specifying specific behaviors or content learned as a result of curriculum and instruction. They prefer clearly stated objectives

and precise indicators of whether their students have achieved the program's intended outcomes. They favor utilizing standardized tests to measure the attainment of learning objectives.

Humanistic, Postmodernist Approach to Evaluation

Educators who take a humanistic approach are more interested in whether the planned situations have enabled students to improve their self-concepts. They may not pay as much attention to students' specific achievements as indicated by objective tests.

Humanists, postmodernists, shun the thrust of modernity's search for truth and certainty.[45] They realize that evaluation cannot provide educators with precise results of students' learnings after experiencing various curricula and teaching strategies. Postmodernists shun employing scientific and precise measures of evaluation. They engage in "the art of interpretation."[46] They denote that their methods involve "intersubjective communication and answerability."[47] These evaluators employ various forms in interpretive inquiry. They rely less on statistical methodologies, preferring methods such as aesthetics, ethnography, autobiography, phenomenology, critical literacy, and various forms of heuristics.[48]

Slattery has critiqued modernists as searching for fundamental truths that can explain and quantify individuals, their unique experiences, even the workings of the cosmos.[49] Postmodernists engage in hermeneutic inquiry and evaluation, which reveal that the nature of life and the foci of our inquiries produce not certainty, but ambiguity, uncertainty, and risk.[50]

Doll argues that postmodernism requests that our educational actions, including evaluation, embrace a new educational posture. The only reality we have is the evolving present, which we all experience.[51] And, if we are attentive, we recognize that the here and now, our lived experience, is in disarray. Doll invites us to embrace this new approach to education, to curriculum building and curricular evaluation. However, he recommends patience in transitioning to postmodernism.[52]

Doll does suggest some stances we can take to commence our embrace of the postmodernist orientation. These perspectives impact not just curriculum evaluation, but all actions requisite for generating dynamic curricula and energetic instruction: celebrating doubt as we engage in curricular actions; stressing collaborative interactions with principal curriculum players; and critiquing our endeavors as we proceed. Essentially, Doll suggests that all participants in curricular engagements embrace the notion of dynamic interacting communities.[53]

Celebrating doubt directly challenges the modernist posture of elevating uncertainty. A modernist believes that a test score denotes a certain mastery or understanding of some subject matter. Further, he or she is convinced that students' high marks on a test indicate teacher effectiveness. A postmodernist realizes that test results and the effectiveness of a particular curriculum and various pedagogies are always open to diverse interpretations. One continuously engages in self-criticism and doubt. Pedagogical mastery and evaluative precision are illusions, essentially unattainable goals, such as arriving at an earthly horizon. Certainty eludes us in our every act. This also is true regarding students' engagements with their learning.[54]

Our interpretation of Doll's second stance is that the key players should stress collaborative interactions. Teachers do not, or should not, present monologues that their colleagues or students must accept. Educational activity and the myriad resultant learnings and dispositions of teachers and students result from interactions with others within the school and classroom cultures. The specifics of curricula and the means of evaluating them emerge from the dynamics among students and teachers. Novelty and surprise are embraced, and playfulness in the class and school communities is encouraged. Even evaluation can involve dialogue among students, rather than a monitored task performed alone and in silence.

We have modified Doll's third recommended stance: reinterpreting the practical to having all educational players, teachers and students, engage in continuous critiques of their endeavors as they plan and carry out evaluation. Focus and reflect on activities engaged. Teachers and students, do not have your actions hindered by theoretical constructs. Rather, study in depth what

occurs within the classroom, become participant observers of "educational theater" in the classroom and the local community. Incorporate your observations into a "playbook" for creating and evaluating the educational experiences of students as well as yourself and your colleagues.[55] If educators study in depth what occurs within the classroom, actually become participant observers of themselves and their students, they begin to recognize that "lived experiences" in the classroom and the local community actually can become the "playbook" for creating, enacting, and evaluating both the educational experiences of students and the effectiveness of the teacher. Also, if teachers bring into this stance the centrality of the dialogic process, they will enhance the collaborative nature of everyone's educational experience.

In Doll's final stance, he is urging all participants in "curricular theater" to engage in dynamic interacting communities. He refers to this theater as an ecological framework. Modernism celebrates individualism. It embraces a separation of ourselves from the environments we inhabit. Postmodernism honors our communion with others, persons, fauna, and flora. It accepts the notion that our realities are not static; they are always materializing. We as individuals are also evolving. Evaluation methods cannot stop this evolution. Test scores attained at one point in time cannot be accepted with certainty at another point in time. Individuals, teachers and students, exist within complexity and chaos. We need to realize that in the world community, we should not be in competition. We should recognize and embrace our communion. Teachers and students are mutually interdependent. Citizens of the United States are members of the world community that must champion "cooperative communalism."[56]

In general, evaluation enables educators to (1) decide whether to maintain, revise, or replace the existing curriculum; (2) assess individuals (primarily teachers and students) in terms of instruction and learning; and (3) decide whether the existing managerial organization of the school and its program should be maintained or reformed. Also, part of evaluation focuses on the school environment and the community environment within which the school exists.

Richard L. Curwin posits another reason for engaging in evaluation. He cites the value of employing evaluation as a means of motivating students to increase their learning. He indicates many educators believe that successfully achieving some learning goal leads to motivation. He purports that is backward. "Motivation or effort leads to success, not the other way around."[57] For motivation to stir learning, it has to present some type of challenge to the student. Previously, we compared a video arcade to a classroom. In the arcade, students just learning the game often fail to attain high scores or success. But the game has challenges that do not discourage the gamers; rather, it motivates them to attempt again, to increase their efforts to be successful. Learning should be playful and challenging; it should furnish data to students to know how they are doing. It should present opportunities that challenge students that stimulate in them an increased desire to learn. Curwin defines "the desire to learn" as educational motivation.[58] The most important aspect to curriculum evaluation is not to sort students or teachers, but to foster in students a thrill of and a perseverance in their learning and a record of their educational journeys.

Of course, evaluation occurs at different levels. But we argue that the process regardless of levels should serve the primary purpose, to let students and teachers and even the community gain data that excite the mind, motivate learning, and stimulate a love of learning. Also, evaluation should not discourage, but encourage students to play the learning game, relish what they know and be thrilled to engage in knowledge strategies that delve into what they realize they do not know. Evaluation should whet the appetites of the mind and the spirit.

At the broadest levels, evaluation focuses on an entire school district, state educational system, or even national system (e.g., with regard to No Child Left Behind legislation). Narrower evaluation focuses on particular institutions, either individually (e.g., a particular high school) or a group (e.g., all the high schools within a particular district).

At the most specific level, evaluation attends to a particular program for a particular course at a particular grade level. What is valued at a broader level should also be valued at a narrower level. It makes no sense to indicate that U.S. schools will be judged according to particular criteria if schools at the local level reject or cannot feasibly apply those criteria.[59] In 2002,

No Child Left Behind mandated that all students, even those with learning disabilities or limited English-language competency, be held to the same standards as the regular school population. They had to pass tests in reading and mathematics. Educators and others noted then and continued to protest that it was unrealistic to expect students with limited or no ability to speak English to pass a test written in English. It was also not realistic to assume that children with limited intellectual capacities could achieve at levels comparable to average children.

The U.S. Department of Education began to listen. In 2004, the department altered the rule, enabling first-year immigrants to opt out of taking the reading test. However, they still had to take the state's mathematics test. Their reasoning appears based on the fact that many students, especially Asian students, with limited English skills still do quite well in mathematics. In 2007, the Department of Education admitted that there would always exist a small number of students whose abilities are such that it is not possible to assess them meaningfully. School districts are allowed in certain cases to use alternative standards of assessment or developmentally appropriate versions of the state assessment.[60]

Scientific, Modernist Approach versus Humanistic, Postmodernist Approach

Lee Cronbach places scientific, modernist and humanistic, postmodernist approaches at opposite ends of the evaluation continuum. Actually, Cronbach does not use the terms modernist and postmodernist; we have made this adjustment. And we are not sure that these two approaches are at opposite ends of an evaluation continuum. Rather, it appears that the scientific, modernists, rather than being in a versus category with humanistic, postmodernists, are morphing into a new 21st century way of contemplating life, education in our case.

However, we the authors believe that we certainly have not left the scientific, modernist posture, but that we are tweaking it in some cases. Those in the modernist camp do favor an experimental approach to evaluation. "(1) Two or more conditions are in place, at least one of them being the consequence of deliberative intervention. (2) Persons or institutions are assigned to conditions in a way that creates equivalent groups. (3) All participants are assessed on the same outcome measures."[61] They use data, frequently in the form of test scores, to compare students' achievement in different situations. Data are quantitative, so they can be analyzed statistically. Program decisions are based on the comparative information gathered.

Most scientific approaches to evaluation draw on methods used by physical scientists. Objective tests, a hallmark of traditional approaches, are still major vehicles by which educators gather data. Of course, with further research on evaluation, essay exams and other forms of gathering data are being employed within the scientific camp. Data tend to be quantitative, but this is changing. Often program decisions are based on the comparative information gathered, but evaluators are beginning to realize the shortcomings of just using data to compare students' achievement levels. This has been noticed previously.

Catherine Taylor and Susan Nolen mention that within the scientific camp, people make four assumptions that are, in reality, problematic: (1) students are randomly assigned to schools, teachers, and curricula; (2) instruction is identical for all students in the "treatment" condition; (3) some students will have positive learning experiences from the treatment, and other students will not; and (4) objective tests are accurate and impartial judges of students' learnings and skills.[62]

Taylor and Nolen note that educators cannot blindly accept these assumptions for the following reasons: (1) students are not randomly assigned to districts, schools, programs, or teachers; (2) rarely is instruction identical for all students, even in the same school or classroom; (3) treatments in classrooms do not remain constant; and (4) tests are not impartial.[63] These authors expand on why these assumptions must be challenged. The geography of school districts and the policies of school placements are not driven by a desire to create random groups of students. Schools serve most often the students within an attendance region. Teachers realize that they individualize their instructional strategies and educational activities, even when teaching

the same curriculum. A creative classroom has great diversity of the teacher's and students' actions. Also, effective teachers strive to be an educator of many "notes," not just a "Johnny-one-note." Teachers know that tests as they are designed address various students' academic strengths and even cultural backgrounds. Students who do well on multiple-choice tests are often highly skilled in memorization and recognition. Students have various learning styles, and tests usually do not stress several learning styles.[64]

It certainly appears that the high-stakes accountability environment in which we find ourselves does favor some version of the scientific, modernist approach to evaluation. The No Child Left Behind legislation seems to be forcing educators to hold supreme objective exams, and even subjective exams in some instances, to document that educational programs developed and delivered are attaining desired results. Gina Schuyler Ikemoto and Julie Marsh note that schools and educators are realizing that data-driven decision making (DDDM) is central to proving accountability and the meeting of standards. However, Ikemoto and Marsh caution that we must not assume that DDDM is a rather straightforward process. They point out, and support it with their research, that there is variety in the ways in which educators at school levels use and interpret data.[65]

Ikemoto and Marsh assert that DDDM in evaluation can be influenced by two conditions: the type of data gathered, and the approach or approaches to data analysis and decision making. In the DDDM process, educators can process a plethora of various types of data that can go from simple to complex. Simple data are less complicated and inclusive, usually focusing on only one specific aspect of a particular subject. Usually, evaluators dealing with a less complicated evaluative focus bring only one perspective to the analysis. Those dealing with complex data tend to view the evaluation situation as multidimensional. In such situations, evaluators draw on both quantitative and qualitative data. Here we see a blurring of scientific, modernist and humanistic, postmodernist approaches to evaluation. We submit that perhaps centering on these two camps of evaluation really does not serve us well. We should not worry about classifications of evaluation, but rather, we should focus on those strategies that enable us to gather evidence that answer the question: Is what we are doing in delivering this curriculum successful in attaining our goals?

These researchers note that the evaluative process, as mentioned previously, is also influenced by the type of decision making regarding the data gathered. They assert that the types of decision making also follow a continuum from simple to complex along several dimensions: "basis of interpretation (use of assumptions versus empirical evidence); reliance on knowledge (basic versus expert . . .); type of analysis (straightforward techniques, such as descriptive analyses, versus sophisticated analyses, such as value-added modeling); extent of participation (individual versus collection); and frequency (one time versus interactive)."[66] James Comer added: "All the money we spend on research, training, equipment, instructional programs, and the like will give us too small a return on our investment until we help the adults working together in a building learn to create a culture in which they can collaborate with each other in a way that will support the development of students."[67]

A major challenge in this century, relating to creating a culture in which individuals with different philosophies and orientations toward life and education can collaborate to support the total development of students, is that most educators really do not know whether they are modernists or postmodernists.[68] They cannot ascertain just how they view the world. Many who have heard about postmodern thinking experience difficulty in conceptualizing this orientation to varied realities. They cannot embrace using ambiguity and uncertainty to comprehend, much less evaluate, an ever chaotic and changing educational reality. This is not a critique of educators or the general public. We have lived in the modernist world since the Enlightenment. We have adopted Newtonian physics as our model. Now the world is being turned upside down. Our major premises are being disputed. Postmodernists proclaim imperfections are not failures but goals that serve to motivate innovative actions. Yet, these actions cannot guarantee better "futures." Doubt is always our companion, and that is how it should be.[69]

Rather than educators trying to classify in which approach to evaluation they are, it might better serve them to realize that they function in an evaluative culture that they must nurture. In order to be effective, educators must assess the effectiveness of the curriculum and its delivery. Evaluative data, whether gathered in a scientific or a humanistic frame, provide guidance for the continuation or the cessation of action regarding the curriculum. School cultures must foster not only creativity in creating curricula, but also creativity in evaluating the curricula and the instructional strategies embraced. Teachers must embrace the collaborative model of teaching. Teaching is not a solitary series of actions performed behind closed doors. We advise that schools foster a culture that enables the sharing of data, instructional ideas, and evaluative data so that school curricula are determined successful in stimulating total student growth.

Having said that, it might be more useful for educators to realize that they exist in an evaluative culture rather than to try to classify themselves as either scientific, modernist or humanistic, postmodernist. It behooves educators to realize that their approach to their school cultures is colored by whether they view data gathered on the effectiveness of curricula from an accountability culture or an organization-learning culture. If educators subscribe to the first view, they gather data to assert that the curricula offered raise test scores. Higher scores define curricular and instructional success. Those who embrace the organization-learning culture view test results not as an endpoint, but a way point, to indicate that the curriculum is contributing to the students' educational advancement.[70]

Educators who adhere to the accountability culture value a polishing of student understanding, efficiency of instruction and learning, and an immediate identification of learning. Those in the organizational-learning culture consider education as a dance, or a movement in motion between teacher and students. This posture celebrates adventure, "discovery, risk-taking, and long term development."[71]

Of course, we need not take sides. We can have allegiance both to accountability and to organization learning. However, as William Firestone and Raymond Gonzalez point out, districts tend to be drawn to one or the other philosophical orientation.[72] The camp to which people are drawn has intended and unintended consequences that influence how they view students and their learning, how they view themselves as educators, how they use data gathered, how they reflect on how time is processed within the evaluation process, and how teachers and administrators view their interactions in curricular activity, specifically evaluation.[73] As previously mentioned, a school culture that stresses an accountability culture primarily centers on test scores as the ultimate indicator of student learning. What do the students know? A school culture tending toward an organizational approach to evaluation is more interested in utilizing data that furnish information that enables an improvement in student learning.

In an accountability culture, teachers employ data to determine how well they are teaching and how well students are learning. Do data indicate that teachers are in compliance with district, state, or national edicts? Schools stressing organizational learning are more concerned with improving learning and curricular experiences. The stress is on way points, not endpoints. Rather than just reporting that data indicate that students have learned, a school with the organizational-learning culture wants to know not only if students are learning, but why they are learning, and if not learning, why not. In this latter camp, data are employed in diagnostic manners.

Educators stressing accountability consider the time frame to be essentially short term. Educators within the organizational camp realize that student success takes time. The accountability emphasis in evaluation favors a top-down organization. Data are directed to the central office or the office of evaluation or research, where they are processed. After analysis, information and guidance are issued down the chain of command. Organizational cultures are horizontal. Colleagues behave more like learning communities, mutually analyzing data and suggesting educational approaches or curricular content that might improve student learning.[74]

The organizational school culture tends toward utilizing humanistic, postmodernist approaches to evaluation. Students and teachers are not test-taking or test-giving machines. Students are not one-dimensional individuals. Educational colleagues likewise are not

one-dimensional. Although important, tests and their scores do not reveal the entire story. And, where tests are used to compare and rank students, the tests might not provide any information of value. It appears that people are increasingly interested in more humanistic approaches. People are realizing that nontraditional evaluation procedures may furnish more complete pictures of curricula. The humanistic approach, although not completely rejecting objective tests, stresses that educators can gather more useful data employing more naturalistic approaches such as case studies and participant observations. Educators of this stripe prefer to study programs already in place rather than programs imposed by groups outside of the school district.

Humanistic evaluators primarily analyze qualitative data, such as impressions of what they observe. They describe actual incidents. They gain data by interviews and discussions with participants, students and teachers included. Analysis seeks to uncover patterns among many observations.

Those advocating the humanistic, postmodernist approach to evaluation argue that this approach is necessary at a time of multiple voices and multiple realities. We must make judgments about the complexities we find within the educational system and within the general society. And these judgments must be tentative; we cannot arrive at judgments and conclusions with abstract and generalized certainties, as advocates of the scientific approaches would have us believe.[75]

Although various models are employed in the traditional quantitative camp, most seem not to have particular names. Such is not the case with approaches to qualitative evaluation and research. We discuss five major humanistic approaches that have been identified: interpretive, artistic, systematic, theory driven, and critical-emancipatory.[76] While we have clustered these approaches within the postmodern realm, we are aware that advocates of the approaches might disagree. Such is the case because postmodernism is in a state of flux; it is continually emerging; it is constantly engaged in self-reflection, self-analysis, constantly attempting to engage uncertainty, chaos, and complexity.

In the *interpretive approach,* the evaluator considers the educational scene and interprets the meaning and significance of peoples' actions. Attention to social context is essential. The evaluators are people directly involved with the curriculum, especially teachers and students.

In the *artistic approach,* the evaluator engages in aesthetic inquiry, observing classes and other enactments of curricula and then publicly announcing what is good and bad about the curriculum. This approach relies on individual intuition honed by experience.[77] The evaluator focuses on the quality of the relationships between teacher and students. The key advocate of this approach is Elliot Eisner, a former professor emeritus of art and curriculum at Stanford University.

Among humanistic approaches to evaluation, the *systematic approach* is most familiar. Evaluators try to be as objective as possible in their descriptions, employ logical analysis and base their judgments on fact. However, they do not rely primarily on statistical techniques, the hallmark of the scientific approach.

Many evaluators take a *theory-driven* approach. These calculators apply philosophical, political, or social theories when judging the quality of curricula.

Critical-emancipatory evaluators tend to be the most radical. They judge a curriculum's quality and effectiveness according to how well the curriculum counters social forces that impede individual development and fulfillment. These evaluators draw heavily on Jurgen Habermas's work on the construction of knowledge and meaning. They also draw on critical theory, especially Marxist theory.[78]

Educators need not be tied to any one of these five major approaches. Indeed, there are several other ways to identify the approaches to evaluation.

Utilitarian versus Intuitionist Approach

Evaluation can be classified as either utilitarian or intuitionist. The utilitarian approach is closely linked to the scientific, modernist approach, whereas the intuitionist approach is tied to the humanistic, postmodernist approach.

Utilitarian evaluation operates according to the premise that the greatest good is that which benefits the greatest number of individuals.[79] Utilitarian evaluators look at large groups, such as an entire school or school district. Attention is on total group performances. Programs are judged by how they affect the school's overall student population. Programs that allow the most students to attain the objectives are judged worthy of continuation. *Intuitionist evaluators* gather data to judge the program's impact on individuals or small groups. There is no one criterion regarding worth. Numerous criteria are employed to assess a program's worth. Program participants, not outside evaluators, consider the program's quality. Everyone affected by the program can make judgments about it.[80]

Intrinsic versus Payoff Approach

In addition to viewing evaluation in terms of scientific, modernist versus humanistic, postmodernist or utilitarian versus intuitionist, we can view it in terms of what Michael Scriven has called intrinsic versus payoff.

Intrinsic evaluators study the curriculum plan separately. Their evaluation criteria are not usually operationally defined. Instead, the evaluators are merely trying to answer the question, "How good is the curriculum?"[81] Intrinsic evaluators study the particular content included, the way it is sequenced, its accuracy, the types of experiences suggested for dealing with the content, and the types of materials to be employed. They assume that if a curriculum plan has accurate content and a firm basis for its particular organization, it will effectively stimulate student learning. All evaluators must engage in intrinsic evaluation—that is, they must determine if the curriculum has value. Evaluators must consider not only how well a course or curriculum achieves its goals and objectives, but whether those goals and objectives are worthwhile.

Once a curriculum's basic worth has been assessed, evaluators must examine the effects of the delivered curriculum. This is *payoff evaluation*. Often, the outcomes are operationally defined. Evaluators can consider the curriculum's effects on students, teachers, parents, and, perhaps, administrators. This evaluation approach may involve judgments regarding the differences between pre- and posttests and between experimental-group and control-group tests on one or more criteria parameters. Payoff evaluation receives the most attention from educators because it indicates curriculum's effects on learners in terms of stated objectives.

Supporters of the intrinsic approach agree that important values cannot be assessed via the payoff approach because of deficiencies in present test instruments and scoring procedures. Also, the results reported in payoff evaluation studies are usually short-term results of a curriculum. Little attention is given to a program's long-term outcomes. If educators want to have an idea of a curriculum's relevance and perhaps elegance, they would do better to look at the curriculum's materials directly rather than at students' test scores.

Formative and Summative Evaluation

Another way to view evaluation is in terms of formative and summative evaluation. *Formative evaluation* encompasses activities undertaken to improve an intended program—that is, optimize student learning. Formative evaluation (sometimes called *rapid-prototype evaluation* by instruction designers) is carried out during program development and implementation.[82] In the curriculum-development phase, formative evaluation furnishes evidence that directs decisions about how to revise a program while it is being developed. Formative evaluators look at specific subunits of the curriculum being developed and test them in brief trial situations. They gather data, often in classrooms, that inform their decisions about how to modify these program elements before they are fully implemented. During a curriculum's developmental and early piloting stages, formative evaluation provides frequent, detailed, specific information. Formative evaluation takes place at a number of specific points in the curriculum-development process. It is essential, especially during the initial stages of the development process.[83] Formative evaluation allows educators to modify, reject, or accept the program as it is evolving.

How educators conduct formative evaluation varies widely. If they are evaluating only one unit plan, their manner of evaluation may be very informal, perhaps involving only the people teaching the unit. However, if they are engaged in creating a new program for an entire school district, formative evaluation may be more formal and systematic.

Formative evaluation also occurs during the teaching of a new or existing curriculum, focusing on teachers as well as students. Teachers can use formative evaluation to judge the effectiveness of their pedagogical approaches. Teachers must realize that formative evaluation is not a sometime activity. It is a grand composite of ways to gather and utilize data in order to make those instructional adjustments necessary for optimal student learning. Such evaluation furnishes feedback to the teacher as to how a lesson is going and how it might be fine-tuned.

For teachers to fine-tune their pedagogical strategies, they need to utilize formative evaluation to assess the levels of students' learnings and understandings. Brent Duckor denotes that teachers need to realize that formative assessment is not just a cluster of teacher-made or even standardized tests. It is much more than a checklist of student qualities. It is more than a file of collected student activities. He points out that it involves a series of teacher and student moves that define a continuous relationship between students and teacher.[84]

He outlines several essential moves that teachers can take to enhance engaging in formative assessment. Essentially, these steps involve a questioning strategy. The first step presented is to *prime the students* that you, the teacher, will be raising questions that will engage students in deep reflection. One-word answers will be insufficient. Also, students will be expected to challenge fellow students as to why they answered as they did. Step two is to *ask effective questions*. This means that questions should do more than demand knowledge responses. Questions need to address all the levels of Bloom's Taxonomy, Cognitive Level and Krathwohl's Taxonomy, Affective Level. Allow students *time to ponder the question,* time to generate an in-depth response. This is Duckor's third move.

The fourth move in this questioning formative evaluation strategy is to not let students "off the hook" with a quick acceptance of the answer. Formative questioning is not to mine certainty; it is to *probe for a rich response,* exposing deeper apprehension. Here both teacher and class members are deeply engaged in formative evaluation, assessing what is known and what is now recognized as not known. The fifth step in formative question evaluation is to *distribute the questions among all class members.* Through such questioning by both teacher and students, a record of responses is recorded. Later analyses can reveal how understandings over time have advanced. Answers can be categorized as to their value in advancing one's comprehension and even creativity.[85]

Frederick Erickson notes that for formative evaluation to really occur, teachers must know how to interpret the data gathered. Lacking interpretative understanding prevents the teacher from making instructional adjustments. Erickson asserts that often teachers are not skilled in analyzing and comprehending data. Thus, no formative evaluation occurs. Even if teachers do know how to apprehend the data, they often lack the time for analysis. It seems that perhaps a majority of teachers feel the need to "cover the book" in a certain time period. It takes time to self-critique and make pedagogical adjustments. Teachers often report that they do not have time to reteach a lesson. That objective test must be administered on time. There is so much content to teach; so much content is on the test.[86]

Erickson argues that we cannot just mandate that teachers employ formative evaluation; we must schedule time for them, working alone and with colleagues, to raise questions about what the data are telling them. He points out that teachers must really possess pedagogical content knowledge at a deep level. Skilled teaching is complicated, and often it represents improvisational theater in which teachers have to pick up on classroom dialogue from the questions and statements of students. Pedagogical content knowledge, we declare, is not solely in the domain of educational methods or instructional strategies. Pedagogical content knowledge is essentially drawn from procedural knowledge associated with the declarative knowledge of a discipline of study. Essentially, pedagogical content knowledge draws and adapts its techniques from the ways

in which scholars actually advance their understandings within their specific fields. Biologists use specific methods to advance biology. These methods differ from how historians advance their understandings of some historical period or event. Mathematicians engage in processes of solving problems unique to their fields of expertise. For example, a biologist who seeks to prove the validity of some experiment does not argue the case in point as would a historian or a mathematician. A biological investigation differs greatly from a historical inquiry. If we wish students to learn biology, history, or mathematics, our instructional methods must mimic the ways that experts in these fields also go about their learning.

Of course, experts in various disciplined fields often engage in interdisciplinary activities. Thus the biologists often utilize mathematics in experiments. Understanding this and the range of fields of study makes it even more challenging for teachers to teach—or, more accurately, to get students to learn these subjects.

Formative evaluation also refers to procedures employed by students to assess their learning tactics as well as their levels of knowledge.[87] Students must know what they know and how well they employ particular learning strategies. The level of student involvement in formative assessment depends, of course, on their maturity levels. However, even students in primary school have some idea as to whether they understand something. They certainly need the teacher's guidance to determine ways to approach learning. We want our students to become independent learners. As students gain more expertise in learning and greater knowledge, they can assume more management and refining of their learning adjustments. As W. James Popham indicates, teachers take on a more supporting role in suggesting ways to learn more effectively.[88]

Today, as more and more schools are establishing computer-based learning environments, they are actually employing formative evaluation or assessment. As Allan Collins and Richard Halverson indicate, these computer programs embedded formative assessment into the actual lessons. As students proceed through the computer curriculum, the computer furnishes feedback indicating either progress or where an error has occurred. If an error is indicated, the computer program maps out a strategy or strategies to correct the error or arrive at a correct answer. Essentially, the computer can be assessing the cumulative results of particular learnings of knowledge and strategies. In interacting with the computer program in this way, students realize that making a mistake actually provides an opportunity for immediate learning. With such feedback and really no grade on the line, students avoid taking misinformation or misunderstandings into their further learning.

We point out here that the computer is not replacing the teacher as instructor or evaluator. It is merely enabling the teacher at times to reach more students.[89] As classrooms become more like "learning laboratories," teachers and students become highly involved in the learning and evaluation processes, more engaged in dynamic interactions with each other and evolving "technological assistants." Technology will, we believe, actually humanize the teaching-learning process. Also, technology means that teachers, students, and even expert evaluators need not always be in the same physical spaces.

Of course, one need not abandon relatively mundane means of gathering formative evaluative data. Mike Schmoker discusses the power of a quarterly curriculum review in which supervisors—and, we would add, teachers—meet to discuss "how things are going." Discussions could focus on periodic formative assessment, team lesson logs or learning logs, and particularly samples of students' work. All participants can get a "feel" for how things are going, the effectiveness of particular curricular units, and the power of certain pedagogies and student class organizations.[90]

Taylor and Nolen list various assessment tools that are not high tech: anecdotal records, checklists, rating scales, conferences, journals, even homework.[91] They also note that teachers can engage in formative assessment just by walking around the classroom and observing and listening to students. Much data can be obtained when teachers listen in on brainstorming. Even wish lists regarding topics to be covered can be employed. Having students enumerate what they like to do when away from school can furnish much evaluative data useful in planning future lessons.

Summative evaluation is aimed at assessing the overall quality of a produced and then taught curriculum. As Wilhelmina Savenye notes, data are gathered to ascertain the new program's worth and effectiveness.[92] If formative evaluation has been implemented carefully, summative evaluation should indicate that the program has enabled students to attain the curriculum goals. Such summative evaluation informs educators that students have met the school's or state's educational standards. It also indicates that teachers have met the minimum accountability standards.

Overall, summative evaluation poses the question, has the curriculum worked? As its name implies, summative evaluation gathers evidence about the summed effects of a particular curriculum's components or units. We issue a note of caution regarding the question of whether the curriculum has worked. Ideally, we will find that it has worked, but only in "small letters." There are still multiple levels to the statement "worked." Here we have placed quotation marks around "worked" to emphasize, as does Doll, that the data at hand, while useful, have to be considered always partial.[93] Whether you interpret this caveat as postmodern or modern, we educators must realize that we should never be satisfied with our answers to questions, our documentation of our effectiveness, or our reporting of our students' learnings and mastery with absolute certainty. The results of evaluation, especially summative evaluation, are not endpoints, but way points. Our education, our actions, our evaluative assessments are endeavors situated, as Doll asserts, in realities continuously emerging in divergent directions.[94]

Brown and Green discuss an approach to summative evaluation that D. L. Kirkpatrick developed in the mid-1990s. Although Brown and Green are discussing summative evaluation in terms of instructional design, Kirkpatrick's approach can be applied to curriculum evaluation. Kirkpatrick delineates four levels of summative evaluation: (1) reactions, (2) learning, (3) transfer, and (4) results.[95]

Level 1, reactions, focuses on gathering data about how students reacted to the new program. The data indicate not only the amount of new knowledge acquired, but also whether what was provided to students was relevant to them. Did the new curriculum and attendant experiences meet students' social, emotional, and intellectual needs? Did the students react in anticipated ways? At level 1, evaluators might interview students or have them respond to attitude surveys (rather than tests).

At level 2, evaluators gather data on whether students have gained new knowledge, skills, and techniques implicit in the new program's goals and objectives. To collect such data, evaluators usually administer a series of pretests and posttests at various junctures of the implemented curriculum.

At level 3, evaluators pose questions about whether the individuals who experienced the new program can effectively employ newly acquired skills and knowledge and whether their attitudes have changed for the better. Using various types of tests, evaluators determine if students show evidence in everyday life, job situations, or further schooling that they are applying their new knowledge, skills, and attitudes.[96]

Level 4, results, is a major challenge for evaluators. The results of a newly developed curriculum may not be evident immediately, if ever. Some schools assess results partly through exit interviews of students, which indicate how the new curriculum has changed their knowledge, skill, or attitudes. Evaluation at this final level might also be conducted via focus-group activities. Surveys given to graduates of new curricula can also furnish summative data.[97]

The results of summative evaluation present not just a major challenge for evaluators, but a multitude of challenges for all concerned with the total educational "theater." Many educators and the general public are not even aware of these challenges, largely because most of us rarely question our conceptions of world realities. We educators take for granted that we truly comprehend the essential natures of teaching and learning. Accepting that, we neglect to reflect deeply on just what they are. Can we really know their nature?

In summative evaluation, it is assumed, usually without challenge, that teaching is an activity that can be accomplished in a specific time frame. Likewise, learning also exists in time. We can finish teaching a unit. Students can finish learning a particular lesson. We can, in our

evaluative roles, create summative tests given at a specific time that can accurately document a level of understanding or accomplishment. And we can make, from analyzing the test data or score, that "'what is learned' by students is . . . an entity that comes to exist after instruction has taken place, and thus, can be measured as a whole thing of the past. This ontological presupposition is the foundation for the entire enterprise of summative evaluation."[98]

Some, if not most, advocates of summative evaluation also assume that formal psychometric procedures are essentially the best way to gather reliable and valid documentation of student learning. Essentially, we cannot trust that teachers in the classroom using observational and other formative measures will furnish us with results that can inform us as to what educators are doing.[99]

Teaching is never completed, nor is it performed only by the teacher. Also, teaching at times occurs outside the classroom or school environment. Time is fluid with teaching. Likewise, complete learning, sometimes called *mastery learning,* in reality is never attained. Learning is ongoing, never ceasing to enrich understanding. Certainly learning exists, just as a horizon on an ocean exists. However, most of us know that we can only advance toward the horizon; it can never be reached.

And if we could somehow magically reach that horizon, our voyage would be over. Likewise, if we could really attain mastery, then our education, our journey of learning, would cease. Learning is the result of ongoing interactions with numerous peoples in a multitude of environments. Erickson notes that learning is "the process of acquisition itself, as continual change within an ongoing course of activity."[100] In this view, learning to know and comprehend the content of the curriculum represents beginnings and way points, not endpoints that can be precisely noted and statistically analyzed.

In summative evaluation, attention is on demonstrated results—on acceptance of an audit culture.[101] Summative evaluation essentially ignores the subjective aspects of learning, the emotional valences students possess. It is difficult to have a summative test for thrills or infatuation.

As Taubman notes, the learning sciences have and continue to strive for objectively measuring learning, writ large. Essentially, learning sciences are not concerned with intrinsic evaluation of the worth of curricular content or curricular experiences. Learning sciences seem enamored only of getting students to learn and urging teachers to teach.[102] After all, we hear often that if we just had good teachers and good schools, students would learn and would be prepared to compete in the world marketplace. Few question that if we just had a quality curriculum, if we just had highly emotional experiences, students would truly be changed. It is hard to measure that summatively.

The preceding discussion is not to discount summative evaluation procedures, but rather to enlighten us that even if we could create the perfect summative test with reliability and validity, we will still have only an incomplete portrait of what students have learned and teachers have taught. Much of learning and teaching will never be known, and the mysteries around these human interactions are to be celebrated. All evaluations, both formative and summative, are to be enacted with an awareness of their pluses and minuses. Education is not engineering; it is far more complex. We know when a building is complete. In education, we never know what it means for a person to be complete. Humans never attain completeness.

We hope that you, the reader, realize that the next section, evaluation models, is to be processed essentially as descriptions of evaluative procedures. It is to be hoped that the models contain within them explanatory elements.[103] Also, keep in mind that although the models may present a clean procedural pathway to gather data and make decisions, in actuality, the models can and do get messy when actually employed.

■ EVALUATION MODELS

Previously it was noted that evaluation was not content specific, and the same or similar strategies can be employed to evaluate the effectiveness of any curriculum. However, the various approaches (scientific, modernist and humanistic, postmodernist) can and do influence the

assumptions evaluators consider when analyzing particular curricula and varied pedagogical strategies. These assumptions are embedded within philosophical, educational, social, and world views. Thus, while strategies utilized in assessment have similarities, there are distinct evaluation models under the scientific, modernist organizer and the humanistic, postmodernist framework.

Scientific Models, Modernist Models

The first large-scale formal evaluation in the United States was reported in Joseph Rice's 1897–1898 comparative study of the spelling performance of more than 30,000 students in an urban school system. Soon after, Robert Thorndike was instrumental in getting educators to measure human change.[104] Finally, the Eight-Year Study (1933–1941) was a turning point in educational evaluation, ushering in the modern era of program evaluation.[105] The Eight-Year Study's evaluation plan was organized in seven sequential steps: focusing on the program's goals and objectives, classifying objectives, defining objectives in behavioral terms, finding situations in which achievement can be demonstrated, developing or selecting measurement techniques, collecting student performance data, and comparing data against objectives.

STAKE'S CONGRUENCE-CONTINGENCY MODEL.   Robert Stake distinguishes between formal and informal evaluation procedures. Although recognizing that educational evaluation continues to depend on casual observation, implicit goals, intuitive norms, and subjective judgment, he notes that educators should strive to establish formal evaluation procedures. Formal procedures are objective and supply data that enable descriptions and judgments regarding the program being evaluated.

Evaluators seem to be increasing their emphasis on providing full objective descriptions and on collecting and reporting hard data. Stake asks that evaluators collect and process more extensive types of data, consider the dynamics among people involved in the curriculum process, assess the roles various people play, allow those people greater participation in judging programs, and take positions regarding a program's worth.

Stake delineates three data categories: antecedents, transactions, and results. Applying this organization to modern-day evaluating processes yields three new categories: prerequisites, curriculum, and results. Prerequisites refer to any condition that exists prior to teaching and learning that may influence outcomes. *Prerequisites* include the status or characteristics of students prior to their lessons: their aptitudes, previous achievement scores, psychological profile scores, grades, discipline, and attendance. Prerequisites also include teacher characteristics such as years of experience, type of education, and teacher-behavior ratings.

Curriculum in the model refers to the planned or potentially considered interactions among students and teachers, students and students, and students and resource people. Curriculum also addresses students' potential interactions with curriculum materials and classroom environments. At this stage, educators attend to how the planned curriculum is affected by time allocation, space arrangements, and communication flow. Attention essentially is directed at the teaching process. In the curriculum planning stage, educators contemplate how the engagements considered actually play out when the curriculum is applied and evaluated.

Results are the program's anticipated and then acquired outcomes, including student achievement and, sometimes, attitudes and motor skills; impact on teachers' perceptions of their competence; and influence on administrators' actions. Evaluators must also consider long-range results and other outcomes not evident when a program concludes. According to Stake, educational outcomes are immediate and long-range, cognitive and affective, personal and communitywide. Stake's evaluation model encompasses curriculum design, development, and implementation. Data elucidate disparities between what was planned and what has actually occurred.

Figure 9.2 shows the deliberate connection of the prerequisites, curricula, and results in the planning stage. The evaluator looks for empirical information in the implemented curriculum. Do the data reveal that transactions are supported empirically in the implemented curriculum?

Curriculum Development
(Intentions and Plans)

Curriculum Evaluation
(Observations, Actions, and Results)

Potential
Prerequisites

Potential
Curriculum

Potential
Results

Prerequisites
Applied in
Context

Evaluation of
Applied Curriculum

Acquired
Results
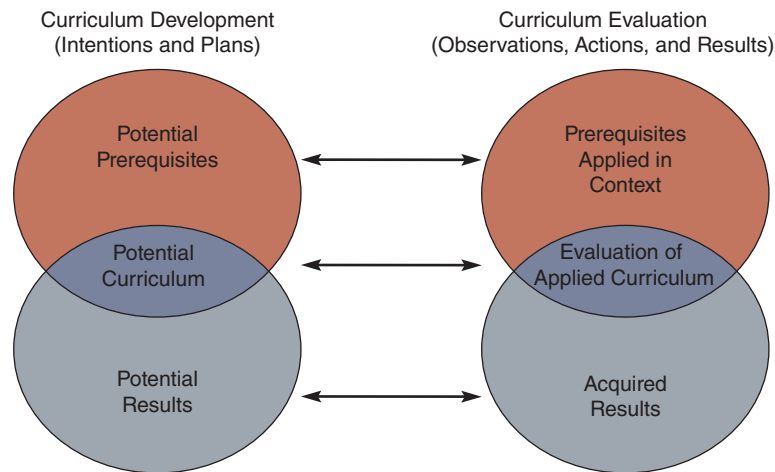
FIGURE 9.2   Consequence-Contingency Model

Source: Based on Robert E. Stake, "The Countenance of Educational Evolution,"
Teachers College Record (1967), p. 7.

Do data make the case that the results attained are really the consequence of the procedures employed during instruction? Effective evaluation links prerequisites, curriculum, and results in both the planning and evaluation stages.

Stake's model also depicts the relationships between what is planned and what is enacted and then evaluated. For complete congruence between plans and results, all observed prerequisites, curricula, and results must be the same as the intended ones. Although Stake's model is very useful, complete congruence is impossible. There is no exact correspondence between some action and student learning. Outside of school, students encounter material that affects their thinking about a particular lesson. Such an unintended transaction can result in learning noted as an attained outcome.[106]

STUFFLEBEAM'S MODEL: CONTEXT, INPUT, PROCESS, AND PRODUCT.   Daniel Stufflebeam provides a comprehensive evaluation model that is an important contribution to a decision-management approach. According to Stufflebeam, information is provided to management for decision making. Evaluation must include the following: *delineating* what information must be collected, *obtaining* the information, and *providing* the information to interested parties. Stufflebeam delineates four types of evaluation: context, input, process, and product.[107]

Context evaluation involves studying the program's environment. Its purpose is to define the relevant environment, portray the desired and actual conditions pertaining to that environment, focus on unmet needs and missed opportunities, and diagnose the reason for unmet needs. Context evaluation is not a one-time activity; it continues to furnish information on the total system's operations and accomplishments (see Curriculum Tips 9.1).

Input evaluation provides information regarding resource use. It focuses on feasibility. Evaluators assess the school's ability to carry out evaluation. They consider the suggested strategies for achieving program goals, and they identify the means by which a selected strategy will be implemented. They might consider alternative designs that lead to the objectives while requiring fewer resources, less time, and less money.

Evaluators assess specific aspects or components of the curriculum plan. Input evaluation addresses these questions: Are the objectives stated appropriately? Are they congruent with the school's goals? Is the content congruent with the program's goals and objectives? Are the instructional strategies appropriate? Do other strategies exist that could achieve the objectives? What is the basis for believing that these contents and instructional strategies will result in attainment of the objectives?

CURRICULUM TIPS 9.1 **Assessing the Curriculum Context**

Most curricular actions occur within a socialized context, and most of their delivery or enactment processes take place within a socialized context. Those in charge of the overall program must evaluate the process by which they create and deliver curriculum. The following tips can assist in assessing the context of curricular action:

1. Determine the values, goals, and beliefs that drive the curriculum.
2. Obtain a reading of the community, noting the key players.
3. Determine the history of past curricular activity in the school district.
4. Get some indication of the physical facilities available and necessary for enactment of the curriculum.
5. Judge the pressures for and against actions generated from within and from without the community and school district.
6. Determine the budget needed and the budget allocated.
7. Determine what performance outcomes are important for the school and community.
8. Get a fix on the perceptions, expectations, and judgments of teachers and administrators, what they expect out of the evaluation, and how they intend to use it.

Source: Personal paper, F. P. Hunkins, 2005.

Process evaluation addresses implementation decisions that control and manage the program. It is used to determine the congruency between the planned and actual activities. It includes three strategies: "The first is to detect or predict defects in the procedural design or its implementation stage, the second is to provide information for decisions, and the third is to maintain a record of procedures as they occur."[108] To deal with program defects, educators must identify and continually monitor potential sources of project failure. They must attend to the logistics of the entire operation and maintain communication channels among all affected parties. The second strategy involves decisions to be made by project managers during project implementation. For example, managers may decide that certain in-service activities are needed before program implementation. The third strategy addresses the main feature of the project design—for example, the particular content selected, new instructional strategies, or innovative student-teacher planning sessions. Process evaluation occurs during implementation. It is a piloting process conducted to debug the program before districtwide implementation. It enables evaluators to anticipate and overcome procedural difficulties.

Product evaluation has evaluators gathering data to determine whether the final curriculum product now in use is accomplishing what they had hoped. To what extent are the objectives being met? Product evaluation provides information that enables evaluators to decide whether to continue, terminate, or modify the new curriculum. For example, a product evaluation might furnish data showing that a science program planned for talented science students has allowed students to achieve the program's objectives. The program is then ready to be implemented in other schools within the system.

Humanistic Models, Postmodernist Models

Stake's and Stufflebeam's evaluation models draw heavily on the quantitative-technical approach to evaluation. Their models are most useful for addressing the standards and accountability demands of this century. They certainly find acceptance within the camps of cognitive science, educational psychology, computer science, and now neuroscience.[109] Also, their scientific models mesh with the thinking of those managers of the marketplace as well as of most politicians.

However, there seems to be a constant, but small, number of educators who believe that evaluators have bought excessively into the "education as a business within the marketplace" paradigm. Some educators have become mesmerized by observing or measuring the attainment of specific "learnings." They have spent excessive amounts of time generating elaborate evaluative schemes to measure program success.

Challenging this business posture, some educators are advocating more humanistic (naturalistic) or postmodernist methods of evaluative inquiry. These evaluators realize that actual learning is messy. Students and teachers are unpredictable actors in educational theater.[110] Individuals have different values, abilities, interests, dispositions, histories, cultures, and even different perceptions of reality. There are no standardized students. Thus, these evaluators argue for a more holistic approach to evaluation, one that provides detailed portraits of the situations being evaluated.

Evaluation reports are less lists of numbers than written descriptions of findings or occurrences. The approach focuses more on human interactions than on outcomes and more on the quality than the quantity of classroom or school life. Humanistic evaluators delve into the *why* behind the *what* of performance. The stress is on interpretative understanding rather than objective explanation.[111]

Whereas scientific evaluators might simply ask what students learned, humanistic, postmodernist evaluators query the value of the knowledge learned. These evaluators generate questions that cannot be answered with any finality.[112] Their questions produce responses enriched not with certainty, but with "difficulty, risk, and ambiguity."[113] The responses trigger in both the asker and the responders a myriad of moods and a universe of emotions.[114] Such questions are anathema to scientific, modernist, evaluators. Often, humanistic, postmodernist evaluators raise questions in their approaches that may not even relate to the aims of education. They realize in assessing the curriculum that it exists within political, social, and moral realms. Data must be processed as to its significance. Humanistic, postmodernist evaluators are cognizant that inquiry is not value-free. Even objective data exist within a sphere of subjectivity.[115] This acceptance of subjectivity allows focus on the true, the good, the beautiful, the just, the right, the spontaneous, the awesome, the amazed, the unexpected, the imaginative, the unique, and the emotional.[116]

EISNER'S CONNOISSEURSHIP AND CRITICISM MODELS.   Elliot Eisner has recommended two humanistic evaluation models—connoisseurship and criticism—that draw heavily from the arts. Both models are designed to produce a rich description of educational life as a consequence of new programs.

Eisner describes *connoisseurship* as a private act engaged in to personally "appreciate the qualities that constitute some objects, situation, or event."[117] Connoisseurship has essentially five dimensions: (1) intentional, (2) structural, (3) curricular, (4) pedagogical, and (5) evaluative.[118] These dimensions reflect different aspects of curriculum and evaluation. *Intentional evaluation* refers to a personal assessment of a curriculum's value, merit, and worth. *Structural evaluation* assesses the curriculum's design and the school's organization. (According to Eisner, the spaces within which educators and students function influence the quality of the curricular experience.) *Curricular evaluation* assesses a curriculum's specific contents and how they are organized and sequenced. *Pedagogical evaluation* assesses instructional design and teaching strategies. (Does the instructional approach suit the curriculum's aims and content?) *Evaluative evaluation* assesses evaluation itself. How are evaluative data obtained? How is the curriculum assessed? Are tests and other evaluation methods giving a full and accurate picture of student progress?

The data sources for connoisseurship evaluation are many.[119] Evaluators observe teachers in the classroom and note how they interact with students. Evaluators might also interview students. Other data sources include the particular instructional materials used, student products, and teacher-made tests.[120]

Unlike connoisseurship evaluators, criticism evaluators share their critique of a new curriculum with the public. They interpret and explain the results of the new program. *Criticism evaluation* entails (1) description, (2) interpretation, (3) evaluation, and (4) thematics. Evaluators (1) write reports in which they describe the curriculum and educational environment; (2) interpret their findings for audiences—for example, by answering questions as to the reasons for the new curriculum; (3) attempt to determine and communicate the new program's educational value; and (4) ascertain from looking at the curriculum what theme or themes emerge. In considering

specific curricular situations, criticism evaluators seek to extrapolate general themes about learning and meaningful knowledge—themes that can guide curriculum development and execution.

By definition, connoisseurs possess expert knowledge. Educational connoisseurs must have knowledge of curriculum and instruction to determine what to observe, how to see, and how to value or appreciate. Good critics are aware of and appreciate a situation's subtleties; they can write about nuances in ways that help others become more aware of the phenomenon under consideration.

Eisner would have evaluators engage in qualitative activities—for example, participate in the classes they observe and ask many questions about the quality of the school and the curriculum. Evaluators following Eisner's model engage in detailed analyses of pupils' work. They use films, videotapes, photographs, and audiotapes of teachers and students in action. They note what is said and done, but also what is *not* said or done. They strive to describe the *tone* of the curriculum in action.

Eisner makes the point that evaluation should include reporting to the public (parents, school boards, local or state agencies, and so on). Evaluators must communicate the educational scene.

Slattery, in discussing the connoisseurship and criticism models, characterizes Eisner as a transitional figure moving away from modernism and toward postmodernism. Slattery purports that Eisner's models will be deconstructed by the postmodernists, revealing not a precise notion of expertise or masterpiece but templates echoing a multitude of voices and subcultures.[121] If we accept Slattery's judgment regarding Eisner, we might have to put all of the humanistic, postmodernist evaluation models in the transition realm. We further retort no one in the postmodern universe can say with any certainty that they are deep within the postmodern cosmos. For we do not know its dimensions, and if we did glance at them, we would realize that they are dynamic and ever changing; they are complex and chaotic.

ILLUMINATIVE EVALUATION MODEL.   Another humanistic, postmodernist approach to evaluation is illuminative evaluation, sometimes called *explication.* Originally developed by Malcolm Parlett and David Hamilton, this approach illuminates an educational program's specific problems and unique features. To determine these problems and features, we must focus on the educational environment within which a curriculum is developed and delivered. Curricula rarely (if ever) are implemented and maintained as originally conceptualized and created.

Illuminative evaluation allows evaluators to discern the total program as it exists and functions and to gather data about its particular workings. The evaluator determines the results of the taught curriculum and identifies assumptions evident in its delivery; the attitudes and dispositions of teachers, students, and the public; and the personal and material factors that facilitate or impede the program.

Illuminative evaluation has three steps: observation, further inquiry, and explanation.[122]

1. *Observation.* Evaluators get an overview of the program and describe the context within which the curriculum is being delivered, considering all factors that might influence the program. They can gather data on the arrangement of school subjects, teaching and learning styles evident, the materials being used, and the evaluation methods employed by the teacher.
2. *Further inquiry.* Evaluators separate the significant from the trivial and seek to determine whether the program works and why it works or does not work. They gain a sharper focus from continually examining the program in action, spending extended time in the field. They also gather data by examining school documents and portfolios of students' work and by interviewing or giving questionnaires to staff and parents.
3. *Explanation.* Evaluators who use this model are not attempting to pass judgment on the program but to furnish data on what is happening with the program and why. Evaluators' explanations are presented to the people affected by the program, who then make decisions.

The illuminative approach is holistic and subjective. Observed interactions are not broken down into discrete categories for measurement, but considered within the context of their environment.

Action-Research Model

Action research is an evaluative approach that blends the scientific, modernist and humanistic, postmodernist. It is concerned with continual modification of the educational experience so that every educational event is fresh.[123]

Action-research evaluation is distinguished by direct participation in the curriculum. Parker Palmer states that the only way to evaluate teaching and learning is to be present within the learning environment.[124] Teachers are the key players in action-research evaluation. They evaluate both the curriculum and the teaching of the curriculum. They are willing to take chances and learn partly by trial and error.

When the action-research approach is weighted toward research, evaluators investigate quantifiable results of particular classroom actions—results that they hope will allow them to generalize to similar groups of students in similar classrooms. The data suggest general approaches to creating and delivering curricula. They also encourage self-evaluation by teachers and provide insights into the effects on teachers of conducting research within their classrooms and schools. Such data illuminate how teachers' attitudes and prejudices affect student learning.

When action-research evaluation is weighted toward assessment, it is not concerned with education in general but with the unique classrooms of individual teachers. It does not focus on gathering data from which to generalize to other teachers, students, and classrooms. It is concerned with engaging a specific teacher in problem solving to optimize the learning of specific students at a particular time. Gathered data are used to determine whether to continue or modify a particular curriculum or particular instructional approach. The teacher continuously adjusts content, teaching, and educational experiences.

The first step in this fine-tuning is for the teacher to identify what he or she wants to accomplish with a particular aspect of the curriculum or a particular pedagogy and what students wish to accomplish from their engagement with the curriculum. The next step is to determine how to monitor the implemented curriculum. The third step is to interpret the data gathered during monitoring. The fourth step is to continue the process of action research. This step can be accomplished only by teachers who gather data during the actual teaching of the curriculum. Teachers may videotape their teaching, have colleagues observe their teaching, take time from their teaching to record actions and their results in journals, interview students after a particular educational activity, and of course, administer tests.

Figure 9.3 depicts the general sequence and feedback of action research. Table 9.1 provides an overview of evaluation models.

Identify goals, purposes
(for teacher and students)

Determine means of monitoring

Reflect on how to interpret

Activate and continue process
(reflecting, assessing, modifying)
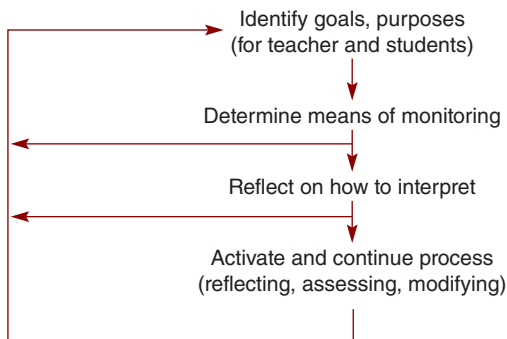
FIGURE 9.3 General Sequence/Feedback: Action Research

Source: Based on the comments by Collin J. Marsh and George Willis, *Curriculum: Alternative Approaches, Ongoing Issues*, 4th ed. (Upper Saddle River, NJ: Pearson, 2007).

				Possibility of	Role of
Model	**Author**	**Approach**	**View of Reality**	**Generalization**	**Values**
Congruence-contingency	Stake	Scientific, modernist	Reality is tangible, single.	Yes	Value free
Context, input, process, product	Stufflebeam	Scientific, modernist	Reality is tangible, single.	Yes	Value free
Connoisseurship/criticism	Eisner	Humanistic, postmodernist	Realities are multiple, holistic, ever changing.	No	Value bound
Illuminative	Parlett and Hamilton	Humanistic, postmodernist	Realities are multiple, holistic, ever changing.	No	Value bound
Action research	Wolf	Humanistic, postmodernist, Scientific, modernist	Realities are multiple, holistic, ever changing.	No / Yes	Value bound / Value free

Table 9.1 | Overview of Evaluation Models

■ TESTING

> This is an age of examinations. . . . Is it not a wonder that so many of our American boys and girls survive the almost continual examinations to which they are subjected? There are oral examinations, written examinations, daily examinations, weekly examinations, monthly examinations, quarterly examinations, yearly examinations, examinations for admission, examinations for promotion, examinations for graduation, competitive examinations . . . in short, there is no end of examinations in this life.[125]
>
> —Charles I. Parker (high school principal, Hyde Park, Illinois), 1878

> However much we may deprecate the evil of cramming and other mis-directions of energy, and deplore its waste, . . . it must be admitted [that mandatory and demanding examinations] mean the thorough awakening of the schools.[126]
>
> —L. E. Rector (educator from Jersey City, New Jersey), 1895

The above quotes hopefully provide you, the reader, with a sense that testing in the United States has an extensive history. Throughout this history, we have had advocates of increased testing and critics such as Parker who indicate that we are caught in a testing tempest. Today, we are still in a maelstrom of debate about testing and holding schools accountable for highly educating their students.

As William J. Reese asserts, written examinations have become well established within our educational system. The expanding complexities of our world insist we respond to these dictates and furnish evidence that our educational actions are effective. We must assess whether we are providing relevant curricula and effective pedagogies to meet not only economic demands, but also social demands. In fact, we frequently feel that the public is making ultimatums that schools produce renaissance individuals. This utopian aim is not possible, even if we started formal education of children from birth. If attempted, we would have only 18 years at a minimum and 22 years if including college. And, as Reese notes, even if such a person could be nurtured and developed with advanced degrees and postdoctoral study, there can be in the 21st century no guaranteed economic opportunities.[127] Additionally, psychometricians have yet to develop a test that measures one's understanding of knowledge yet discovered or formulated. Tests cannot accurately measure students' aptitudes for occupations not yet envisioned.

Testing, while in constant debate, is well situated in this country and its schools. Testing is big business. Reese notes that the Educational Testing Service in Princeton, New Jersey, is the largest "nonprofit" business there is. The company develops in excess of 50 million tests annually for over 180 countries. It further manages the taking of the tests and scores such tests.[128] Even educational publishing firms are entering test development and administration. Also, there are many businesses engaged in educational tutoring to prepare students for these exams.[129]

The test has been pervasive through much of our history. It is even more pervasive in this new century attempting to define our relationship to questions of trust, knowledge, and even reality.[130] We seem continuously poised as a society to blame the schools when society in general has problems. Politicians often ignite a distrust of schools and a dissatisfaction with the quality of curricula and teaching. No Child Left Behind was created by politicians, not educators. A Nation at Risk was a political critique of the American educational system. Race to the Top is a political animal based largely on myth regarding American schools.

David C. Berliner and Gene V. Glass have written a book titled *50 Myths and Lies that Threaten America's Public Schools*. Myth 1 is that international tests reveal that U.S. schools produce a second-rate education.[131] Such comparison reads too much into a score. Berliner and Glass also point out that the United States is much more heterogeneous than other industrialized nations. You need a lot more information in order to determine who has the better school system. And, as they posit, "better for whom? better on what criteria?"[132]

High-Stakes Tests

> [H]igh-stakes testing is taken as an a priori assumption in educational policy. An educational system without high-stakes testing is nearly unthinkable, unimaginable, . . . the tests are "here to stay."[133]
>
> Teaching and assessment play critical roles in helping students develop an understanding of why they study different subjects in school. . . . The purpose of learning" is "to do well on tests."[134]

Wayne Au denotes that a test is high-stakes when the information it provides is employed in making important decisions that impact all the educational players directly engaged in teaching and administering a school. Also, the data can influence the entire school district and the community itself.[135] High-stakes tests determine whether a student graduates from high school. Such tests can be used to decide teachers' and administrators' salaries.[136]

Education is expensive. The public is increasingly concerned with getting the most for their money. The public demands that schools maintain high academic standards. Certainly, every person wants the best that can be obtained. Parents realize what their students learn in school will contribute in important ways to their future successes. Schooling and education are integral parts of a high-stakes life game.

National associations of content and discipline specialists have created standards that give consideration to student knowledge of specific content, skills, and procedures. The standards of the National Council of Teachers of Mathematics, National Research Council (which sets science standards), National Council for the Social Studies, and National Council of Teachers of English have significantly influenced assessment. State departments of education, as well as most U.S. school districts, have taken note of these standards and the public's demand that they be met. These standards are provided to guide teachers' curricular and instructional actions and influence the performance levels that students must demonstrate.

However, are standards to be used as guides? Increasing numbers of educators are perceiving standards not as guides to teachers' and students' actions, but as controls and regulations of what occurs regarding curricula and instructional strategies. High-stakes standardized tests are being used as instruments to determine how close educators and students adhere to the standards most frequently set from afar. If students and teachers miss their marks, they are penalized. Students may not be advanced or get diplomas, or teachers may not have contracts renewed. Schools can even be shut down.

Au notes that with the emphasis on high-stakes testing, there is a narrowing of curriculum content. Content is selected to match what is on the test. Essential subjects are only those that are tested. Subjects considered nonessential receive less emphasis or are eliminated. Many schools have reduced or eliminated subject areas such as art and music. Some schools have even eliminated recess—it's not on the test. Physical education usually is not part of the high-stakes testing picture.

Au suggests that high-stakes testing controls not only the content, but also the manner in which content is experienced. Teaching to the test shapes curriculum form—"the organization

of meaning and action, including the order in which [students] are introduced to content and the very form that knowledge itself takes, in the curriculum."[137] The flow of knowledge organization suffers as the content knowledge is dissected so that it meshes with how the high-stakes test will measure students' mastery of it.

Not only is the content being molded and organized to mirror what is contained in the high-stakes test, but teachers are having to relinquish their instructional strategies and accept those pedagogies that correlate "to the forms of knowledge and content contained on the high-stakes tests."[138] Some assert that teachers are abandoning what they consider best practice in order to be in compliance with standards-based education and to be judged accountable.[139]

Standards from professional and other organizations, both public and private, have certainly increased testing in public schools. Currently, there is considerable controversy regarding the soundness and consequences of testing to address particular standards. Do we want to narrow the curriculum? Do we desire to shape how the curricular content is organized? Do we wish to limit the creativity of teachers in the way that they orchestrate their instruction? Finally, do we want various outside sources at local, state, and even federal levels essentially to determine school policies with regard to curricula, instruction, and approaches to evaluation?

It appears that we do, or at least, that educators are not able to counter the demand for being accountable and efficient. Of course, educators do wish to be accountable; they wish to be effective in educating their students. However, are the key criteria for evaluating education efficiency to be the maximum amount of content knowledge learned in the least amount of time and the speed in which skills are demonstrated at high rates of accomplishment? As Taubman asserts, it does seem that testing, especially high-stakes testing, is now defining not only our approach to education, but just what we mean by student and teacher "knowing" and competencies.[140]

Today, all states have statewide testing programs. Vast numbers of school districts have their own districtwide testing programs. Testing, it seems, is almost the school's major educational activity. Often, as suggested before, whether students advance to the next grade or graduate depends on whether they pass or fail a particular test.[141] Teachers whose students pass such exams tend to be evaluated more favorably than teachers whose students fail. Some people, as indicated earlier, recommend that teacher pay should be determined by the performance of their students on these high-stakes tests. Pay for performance has been in the news for more than a decade. Matthew Springer and Catherine Gardner note that Google News reported in 2010 that an average of 4,558 news stories per year dealt with teacher pay being determined by student performance on tests.[142] States such as Texas, Florida, and Minnesota have allocated more than half a billion dollars to incentive pay programs that aim at rewarding teachers for "effective" teaching. The funding of the federal Teacher Incentive Fund was quadrupled in 2010. The Race to the Top federal program emphasizes performance pay. This program has allocated more than $4 billion to this effort.

It does appear, as Springer and Gardner assert, that pay for performance is poised to become a reality factor when evaluating educational effectiveness.[143] This being the case, educators and those advocating for increased effectiveness of education must query themselves about how we are to define teacher and student performance. Certainly, one score on a high-stakes test cannot be the sole deciding indictor. As Taubman cautions, "in reducing everyone and everything to quantifiable data from test scores and attendance records to performance on behavioral check sheets, all historical, personal, idiosyncratic, and context-specific details about the person or event are erased, creating, as the anthropologist Geoffrey C. Bowker states, 'the least possible information that can be shared about events, objects, and people while still maintaining a viable discourse around them.'"[144]

We mentioned in a previous chapter that when standards are emphasized at the time of creating aims, goals, and objectives, there is a tendency to engage in activities that standardize the educational experience of both teachers and students. We cited some cautions. Taubman states that in enforcing standards and a standardization of curricula and instruction, we endanger individuals' idiosyncrasy. In using the same metric to measure "attainment of the standard," we break down human spirits and behaviors into a sameness that crosses boundaries, both geographic and intellectual.[145] Employing the same metric ignores that students are diverse, unique, and differing in abilities, interests, values, beliefs, anxieties, dispositions, and often language.[146]

High-stakes testing has caused many teachers to game the system—not only teaching to the test, but coaching students with sample test questions or even excusing those students who might not do well on the test to have a "day off." Although gaming the system might boost test scores, are such scores evidence of high-quality learning? Indeed, that is the key question with regard to all tests, either teacher-made or standardized. What do the resulting scores actually tell you? According to Alfie Kohn, tests, especially standardized tests, provide scant information about what students actually know and can do. Tests can indicate that some students are more proficient than others, but we still do not know how proficient each student is regarding specific subject matter.[147] Likewise, tests can indicate that one teacher's students attained higher scores than another teacher's, but the scores do not note with any precision whether one teacher was more effective than the other.

It appears that most tests administered by U.S. schools measure knowledge in an unsophisticated way. Various studies have indicated these tests require of students only relatively shallow thinking.[148] Essentially, they test superficial knowledge, not understanding.

Norm-Referenced Tests

Norm-referenced tests (NRTs) are the most commonly used. A student's performance on a particular test is compared with that of other students who are his or her peers. The items in an NRT usually address a wide area of content. The students, as a group, establish a norm. Students can be grouped by age, grade level, ethnicity, sex, geographic location, or any other easy-to-categorize factor. In order to make comparisons among the students, these tests must be administered to the students in similar fashion and formats and at basically the same time. The manner of scoring the tests must also be the same to furnish meaningful comparison data.[149]

Standardized achievement tests are probably the best-known NRTs. They provide information useful in ranking individual students or groups of students. Specifically, these tests identify which students are successful in their learning and which students might require remediation. Are the students who took this test progressing at a rate comparable to their peers? If groups of students are tested only once, the test results have questionable value for measuring the quality of a curriculum or instruction. However, when such tests are administered each year at the same time, then the test data can furnish information that depicts patterns revealing both the quality and shortcomings of the curriculum and instructional strategies.[150] However, teachers must realize that NRTs do not specifically relate to a particular curriculum, nor do they effectively measure what has been taught. They do not indicate what a student can or cannot do, nor do they provide evidence that a student knows or does not know specific content.[151] In addition, many educators fail to realize that different standardized achievement tests are not interchangeable.[152] When educators use a particular test to rank their students with regard to other students who have taken a different standardized achievement test, the rankings cannot be accepted with any confidence. When states employ such tests to compare their students with students in other states, they cannot reach meaningful conclusions regarding the relative worth of their curricula.

W. James Popham faults the educational community and the general public for ignoring the nature of standardized tests used in curriculum comparisons or various other educational research attempts. He states that "inadequate scrutiny of the tests used in key investigations is particularly galling whenever a study's results indicate that there is 'no significant difference' between the achievement of students from one group to that of another group."[153] He indicates that reporting no significant difference deprives us of any useful conclusion. Standardized achievement tests cannot detect the "differences between students taught effectively and students taught ineffectively."[154]

Research indicates that standardized achievement tests highly correlate with students' socioeconomic status. This high positive correlation obscures the impact of educational efforts such as new curriculum. Despite these limitations, educators continue to employ standardized tests to determine the curriculum's success and evaluate teachers' effectiveness. Educators

continue to use such tests to rank students in various schools and to determine which students should advance or graduate.

Criterion-Referenced Tests

The most common alternative to the NRT is the criterion-referenced test (CRT). The CRT is designed to indicate how a student performs a skill or task, or understands a concept, with respect to a fixed criterion or standard. The performing of a skill or task is measured against what are defined as proficiency or achievement standards. The depth of understanding of a concept or certain content is measured by a content standard.[155]

Currently, many of these standards are created by groups outside of school districts (state education agencies or state legislatures). Often, the standards are broken down into specific objectives, frequently stated in behavioral terms. For example, a CRT might require a learner to identify longitude and latitude lines on a map or to multiply two-digit numbers. Well-delineated descriptions of the learning are the key features of such tests. This specificity enables educators to determine precisely what a student does or does not know—or can or cannot do—in relation to a particular curriculum. The score on each item interests the evaluator. The teacher wants the student to master the content, skills, or attitudes addressed in each item. Teacher and student will persevere until the student gets the test item right.[156]

CRTs indicate changes in learning over time (in contrast, NRTs measure learning at a specific time). As Taylor and Nolen indicate, teacher-made tests most often are CRTs administered to determine the proficiency of a student's learning in relation to a standard or goal.[157] For CRTs to indicate student mastery, the criterion must be appropriate. Most educators consider 80 percent correct as indicative of mastery. Why? We don't know exactly, but 80 percent does seem to indicate a high level of performance. However, we must consider a test item's age-appropriateness. Otherwise, a test item might be so easy that everyone scores 80 percent or higher, or so difficult that no one does.[158] We must also ask ourselves if a standard of 80 percent is appropriate for all learners in all realms of the curriculum. A level of 80 percent mastery might suffice with regard to understanding a book but not suffice with regard to conducting a science experiment. Likewise, 80 percent is inadequate with regard to accounting exercises (which require 100 percent accuracy).

W. James Popham notes that when educators employ criterion-referenced tests, they need to consider what is an optimal grain size. He defines grain size as "the breadth of a criterion domain."[159] We would add, must all students attain similar or identical grains in all subject areas where criteria have been identified? In raising this query, Popham is viewing a criterion not as a level-of-performance, but criterion-as-domain. He notes that while assessing student performance is important, the purpose of criterion-referenced measurement criteria is to specifically delineate the skills or knowledge being assessed.[160] We assert these tests do both indicate a level-of-performance of specific skills and curricular content. Popham cautions that if the grain size of contents and skills is too narrow or too vast, it will not be of value in assessing the effectiveness of pedagogies or curricula.[161]

The grain size essentially deals with the level of specificity. If the specificity of CRTs is intense, as noted previously, it can be a disadvantage. Because such tests address specific objectives, as many as 10 to 15 tests may be necessary to get a thorough picture of the curriculum.

The primary value of CRTs is that they are curriculum specific. They enable curriculum evaluators to assess a new curriculum in their school districts. Evaluators also can determine the instructional realm's effectiveness and whether certain content and skills have been taught. The tests are good tools for assessing student learning and teachers' pedagogical approaches.

It is not easy to determine the standards for acceptable performance. Just what is the cutoff score for mastery of an objective? Educators usually set the passing score somewhat arbitrarily. Perhaps the most serious criticism of CRTs is that most lack information regarding their reliability. In fact, most are constructed without any attention to reliability. However, CRTs have curricular validity: The items usually coincide with the curriculum's objectives.[162] Table 9.2 presents a comparison of NRTs and CRTs.

| Table 9.2 | Comparison of Norm-Referenced Tests (NRTs) and Criterion-Referenced Tests (CRTs) |

Characteristic	NRT	CRT
1. Comparisons made	Score to group average	Score to minimum standard
2. Purpose	Survey or achievement test	Mastery or performance test
3. Validity	Content, criterion, or construct	Content *and* curricular validity
4. Degree of validity	Dependent on instruction	Usually high
5. Reliability	Usually high	Usually unknown
6. Importance of reliability to test model	Important	Unimportant
7. Traits measured	Exist in varying degrees	Present or not present
8. Usability		
Diagnoses	Low general ability	Specific problems
Estimation of performance	Broad area	Specific area
Basis for decision making	How much was learned	What has been learned
9. Item difficulty	Medium	Easy items
10. Administration	Standardized	Variable
11. Size of group tested	Large	Small
12. Content covered	Broad	Narrow
13. Skills tested	Integrated	Isolated
14. Control of content	Publisher	Instructor or school
15. Limitations	Inability of school personnel to interpret tests on local level	Difficulty of constructing quality tests
16. Versatility	Extensive	Limited
17. Comparison of results between schools	Readily available	Not yet developed
18. Distribution of scores	Normal (one)	Rectangular (two)
19. Range of scores	High	Low
20. Repetition of test if test is failed	No, one test	Until mastery occurs
21. Basis for content	Expert opinion	Local curriculum
22. Quality of items	High	Varies, depending on ability of test constructor
23. Pilot testing	Yes	No
24. Basis of item quality	High discrimination	Content of items
25. Student preparation	Studying for test does not help much	Studying for test should help
26. Teaching to test	Difficult to do	Encouraged
27. Standards	Averages	Performance levels
28. Scores	Ranking, standard score, or number correct	Pass or fail
29. Type of measure	Relative	Absolute
30. Purpose	Ranking students	Improving instruction
31. Revision of test	Not possible	Often necessary
32. Student Information about test content	Little available	Known in advance
33. Motivation of students	Avoidance of failure	Likelihood of success
34. Competition	Student to student	Student to criterion
35. Domain of instruction	Cognitive	Cognitive or psychomotor

Source: Based on Allan C. Ornstein and David A. Gilman, "The Striking Contrasts between Norm-Referenced and Criterion-Referenced Tests," *Contemporary Education* (Summer 1991), p. 293.

Subjective Tests

NRTs and CRTs are both categorized as objective tests. This essentially means that the test questions have one correct answer. However, curriculum evaluators also have access to subjective (constructed-response) tests. These tests have many correct responses to each question. For this reason, they are much more challenging to score than objective tests. Often, it is the depth or creativity of the response that determines the evaluative ranking. Essay tests are subjective. Style, insight, originality, use of accurate information, strength of argument, and knowledge of the topic are criteria by which an essay is judged. If educators wish to use essay questions to compare students or programs, the essay questions presented must be the same for all students.[163]

■ ALTERNATIVE ASSESSMENT

Since the early 1900s, student data have been gathered by means of teacher-made or standardized tests. Today there is an increasing call for alternative forms of assessment.

States and school districts are engaged in efforts to better align tests and other evaluation efforts with state and district standards and to create means of assessment that truly capture students' knowledge and skills.[164] Many new forms of assessment involve open-ended tasks; students are required to use their knowledge and skills to create a product or solve a problem. Such evaluation events are called *performance assessments.*

Many educators consider performance assessment to be synonymous with authentic assessment. Certainly, they both are examples of alternative assessment, because they employ methods other than multiple-choice or like-developed objective tests. However, in 1992, Carol Meyer argued that performance assessment and authentic assessment are not the same. For an alternative (performance) assessment to be authentic, it must engage students in tasks and activities that resemble actions in the real world. The tests cannot be contrived by the teacher.[165]

A writing exercise is an example of a performance assessment, but it may not be authentic. For instance, here is an example of an inauthentic assessment of students' writing skills. The teacher presents the students with a precise formula for preparing to write and actually writing a short story. On the first day, the students have 50 minutes to generate the story's topic; on the second day, they have 50 minutes in which to create a rough draft; and on the third day, they have 50 minutes in which to revise and prepare the final draft.[166] Certainly, the students have been engaged in the writing process. However, actual writers do not follow such a restricted process in their writing of short stories. Thus, the contrived activity is not authentic. To make this writing of a short story more authentic, teachers might indicate that students should engage in creative writing throughout the year when the spirit moves them and then file such writing in portfolios. Students select the time for their writing and decide when to share their drafts with the teacher and other students. They revise their drafts according to their own schedules. In this case, students are engaged in an authentic writing assessment, writing in a way that resembles the way that professional writers actually work.

Authentic assessment includes real problem solving, designing and conducting experiments on real problems, engaging in debates, constructing models, creating videotapes of performances, doing fieldwork, creating exhibits, developing demonstrations, writing in journals, creating new products, formulating computer simulations, and creating portfolios. Authentic assessment employs strategies and approaches that present students with real-life situations and conditions.[167] Authentic assessment is more than the gathering of students' products. It involves teachers' observations and inventories of students' work with accompanying commentary regarding the judgments made. Authentic assessment reports on individuals and groups within the classroom.

| **Table 9.3** | Alternative Assessment versus Traditional Assessment |

Alternative Assessment	Traditional Assessment
Samples: student experiments, debates, portfolios, student products	*Samples:* multiple-choice tests, matching tests, true-false tests, completion tests
Evaluation judgment based on observation and subjective, yet professional, judgment	Evaluation judgment based on objective recording and interpretation of scores
Focus on individual students in light of their learning	Focus more on score of student as it compares with scores of other students
Evaluator able to create an evaluation story regarding an individual or group	Evaluator able to present student knowledge as a score only
Evaluation that tends to be idiosyncratic	Evaluation that tends to be generalizable
Furnishes data in ways that allow curricular action	Furnishes data in ways that inhibit curricular or instructional action
Allows students to participate in their assessment	Tends to place evaluation under the aegis of the teacher or external force

Source: Based on Dennie Palmer Wolf and Sean F. Reardon, "Access to Excellence through New Forms of Student Assessment," in Joan Boykoff Baron and Dennie Palmer Wolf, eds., *Performance-Based Student Assessment: Challenges and Possibilities*, Ninety-fifth Yearbook of the National Society for the Study of Education (Chicago: University of Chicago Press, 1966), pp. 52–83.

Table 9.3 presents some comparisons between alternative, authentic assessment and traditional paper-and-pencil test assessment.

We believe that both alternative and traditional assessment should be used. Educators sometimes accept new practice too readily. Dennie Wolf and Sean Reardon caution, "If new forms of assessment are to work, they require serious gestation."[168] Educators must reconceptualize intelligence, rethink what it means to know something, redefine excellence, and rethink their measurement habits. At the same time, educators must be careful not to interpret the new means of evaluation with traditional mindsets.

William Glasser has proposed seven features of optimal assessment. First, assessment itself should foster student growth. Second, it should allow us to see the consequences of instructional effects. Third, assessment should illuminate the processes and products of learning. Fourth, it should involve student self-assessment; that is, students should be active participants in judging their achievement. Fifth, assessment should be an integral part of group activity. Assessment data should inform the educator not only about what a student knows, but also about how well the student works with others and adapts to group dynamics. Sixth, assessment should entail meaningful tasks that tie in to overall learning and the curriculum's knowledge goals. Seventh, assessment should be comprehensive, addressing a broad range of information and skills rather than centering on narrow understanding of a particular content.[169]

Alternative assessment should be an ongoing activity integral to curriculum enactment, not an activity engaged in only at particular times of the year to obtain information on student progress. Teachers and students should continually question how well things are being taught and learned. A paper trail should elucidate the quality of student learning.

New assessment methods require new assessment criteria. George Hein would include a moral standard among indicators of effective schooling. A school curriculum that meets a moral standard provides students with skills and knowledge requisite for contributing to the general social good. As Hein indicates, moral purpose was central to the progressive education philosophy.[170]

The portfolio is perhaps the most popular method of alternative assessment. Because it is a sampling of student work over time, a portfolio provides evidence of a student's understandings, skills, and behavioral dispositions. It often records a student's degree of effort and participation in learning. Taylor and Nolen identify several different kinds of portfolios, each one having a different purpose: showcase portfolios, growth portfolios, process portfolios, and cumulative portfolios.[171]

Showcase portfolios, truthful to their name, use concrete examples to emphasize what students have attained in a particular time capsule and at a particular level of accomplishment. Such a portfolio might show a student's art for a given year or samples of a student's essays. With regard to a science showcase, the portfolio might present write-ups of experiments done or notes on field studies.

Growth portfolios provide a visual mapping of a student's increased skills or competencies or understandings over time. A student, often assisted by a teacher, plots out way points denoting progress in both declarative and procedural knowledge. Such a portfolio serves to both guide and inspire students in their learning journeys. For example, a portfolio can include a composition that a student wrote at the beginning of the school year and another composition written at year's end. The student and teacher can critique the two papers to determine writing progress. As Taylor and Nolen denote, growth portfolios enable students to assess their increased competencies regarding learning a completely new subject or skill. Such a portfolio is most informative to students and teachers in activities such as learning a new language.[172]

A useful device for documenting students' process or enactment of procedural knowledge is the process portfolio. Here materials included denote how successful students have been in accomplishing authentic performance. These authors define *authenticity in work* as that which has relevance and authenticity in the out-of-school world.[173]

The fourth type of portfolio, the cumulative portfolio, is part of the summative evaluative data story. This portfolio contains a student's entries of all his or her work for a year or even longer. The works presented are considered by both student and teacher to be the best examples of work done and tasks attained. Taylor and Nolen posit that these cumulative portfolios become part of students' cumulative records, denoting their progress during their total school experience. Teachers at the start of each year can use cumulative portfolios from the previous years to personalize the curriculum for the incoming students.[174]

For students to create each type of portfolio at a quality level, they must determine, with the teacher's assistance, what criteria are to be employed in judging what should be included. Of course, as students progress through the year or years, they can delete material that, upon later reflection, does not exemplify quality work. Specifically, students working with teachers must engage in critical analysis of their work and their learning strategies.

One of the greatest benefits of portfolios is that students are major players in their own evaluation. Students must reflect on their work, critique their level of understanding, and judge their study and analytic skills. Portfolios enable, even demand, that students continually self-evaluate, not for a grade, but to increase the quality of their learning procedures, the depth of their understandings, and the significance of their resultant works. Additionally, students can utilize this alternative evaluative instrument to personalize their curricular experiences.

Portfolios essentially allow students to present themselves as whole individuals. Portfolios enable students to become their own scholars and to define their works in regard to value and significance. In using portfolios, students use their voice to add evidence regarding their progress. Students have more than a list of scores or letter grades. Portfolios furnish students, teachers, and parents with material for conversation.

■ HUMAN ISSUES OF EVALUATION

We are not widgets. Wayne Au counters that the way we engage in evaluation assumes we are.[175] Yet despite our evaluative actions, deep down we realize that we are individuals with diverse personalities, talents, dispositions, interests, values, emotional stabilities, and intellectual

capacities. This section deals with human issues of evaluation, yet the human dimension seems absent in our evaluative deliberations and actions.

Students have been quantified, objectified, made into commodities to be molded, assembled, inspected, and then compared in the world marketplace.[176] We have standardized them and embraced the assumption that all students are essentially alike. We have touted that our tests are indeed objective and that factors such as local cultures, ethnicity, languages spoken, racial group, and socioeconomic status are essentially meaningless.[177] We need not really consider the environments of the "factories" in which the widgets are manufactured. All we must do is measure and judge the quality and quantity of the widgets.

However, ignoring the environments within which evaluation occurs means that it often is destined to fail, despite being valid in all technical details. Evaluation must be sensitive to ethnic or racial bias. Evaluation must be enacted with sophisticated consideration of the evaluative process and the social milieu. Evaluation is shaped by the stakeholders to whom it is reported. Evaluation neglecting the manner of presentation risks having evaluation results being misused, misinterpreted, or simply ignored.

Today, there exists a hidden dimension in evaluation activities: control. This control is over the teachers, the students, the curriculum. A central question is, Who is behind this control? We know that evaluation entails value judgments. The key question is, whose value judgments are they, and are they worthwhile? Who is deciding the purposes of education and the standards by which education is judged? There is no definitive answer. It depends on the sociological nature of various communities. However, it is apparent that evaluation is part of the political process. Often, schools release test results not to improve programs, but to please various power groups within the community or demonstrate to legislators that an educational program is effective. Sometimes test results are broadcast to convince various minority groups that their children are experiencing equity within the school system.

Not only that, students are being tested, via standardized testing, with fairness and equality. All students are being measured with the same metric. The tests put everyone on a level playing field. However, we assert that although the standardized tests may put students on a level evaluative playing field, they certainly ignore a level playing field when it comes to instruction and the curriculum. When evaluating students, we must consider their social, economic, ethnic, and, certainly, educational backgrounds. Not all students come to school with equal backgrounds for assuring school success.

We agree that our students function in a society that celebrates meritocracy. Accepting this, most citizens believe that "regardless of social position, economic class, gender, or culture (or any other form of difference), based on merit and hard work, any individual competes freely and equally with other individuals in order to become 'successful.'"[178] Yet such a belief is challenged by reality. Clearly, some students come to schools more likely to succeed in our schools and to master the curriculum. We do have inequalities in our society that place many students at a disadvantage regarding school success. As previously mentioned, even test designers bring various assumptions about social, cultural, and ethnic groups to their test making. If certain minority students do *too* well compared with the dominant white group, test items are not used in the next designed test. Experimental test items have to reflect what psychometricians assume about our diverse populations. And there is considerable debate if we should use our schools to reproduce our current society. Certainly, we must consider multiple interests when designing curricula and creating evaluative measures to determine student success. However, many educators and evaluators are reluctant to confront issues such as social justice within the educational system.[179] Educators are eager not to polarize communities and stir up controversy. However, fairness is crucial to consider when dealing with evaluation.

According to James Pellegrino, Naomi Chudowsky, and Robert Glaser, the idea of comparable validity is at the core of fairness. A fair test furnishes data from which we can draw valid inferences across individuals and groups.[180] Many people believe that tests tend to be

biased in favor of students who belong to the dominant culture. Tests use language and terms more familiar to the mainstream majority than to minority cultures. Students bring their cultural backgrounds and world knowledge to test situations. Deborah Meier states that "any choice of subject matter, vocabulary, syntax, metaphors, word associations, and values presupposes a certain social and personal history. We may have equally big vocabularies, but different ones. We may be speaking a grammar that is consistent and accepted, but not the standardized one used in academia."[181]

Evaluators and test designers realize that certain test items produce different results among students from different groups, even when all students have been matched in ability regarding the attribute or knowledge being assessed. For example, students responding to a test question about the discovery of the Americas might well respond differently depending on whether their cultural group sees the actions of Europeans as discovery or conquest. Students raised on farms are more likely than inner-city students to answer a question about agriculture correctly.

Also, is it fair to hold students with disabilities to the same standards as other students? Obviously, wheelchair-bound students cannot be held to physical education standards. Should students with reading and writing disabilities have to meet school standards in order to advance to the next grade or graduate?[182] Should we furnish computer systems to students with reading disabilities to help them with their reading?

The issue of fairness also affects evaluation of students classified as gifted. How do we judge the performance of such students? Many secondary students in advanced-placement and college-level classes complain that their A's look no different on their transcripts than the A's of students in the regular curriculum. Is this fair?

Evaluators are attempting to address the issue of fairness in evaluation by looking at a variety of means of evaluation. Certainly, the alternative methods of evaluation are useful here. Also, we can have grading that is based on multiple criteria. Several evaluators and assessment experts suggest that to really address the issue of fairness, we must consider students' backgrounds when we engage in evaluation. If we do this, we will be able to make conditional inferences from the data analyzed.

Students experienced with particular tasks find them easier than inexperienced students of similar innate ability. Confronted with a new aspect of the curriculum or a new problem, students first determine whether they have background information on which to draw. Those who do are likely to deal successfully with the content or problem. Those who don't may find the content or problem beyond them. We cannot simply say that some students succeeded and others failed. We must consider students' background when we make an evaluative judgment.[183]

Evaluation should encourage, not intimidate, students. It should foster cooperation and a sense of community among students rather than feelings of tense or aggressive competition. Teachers should present tests as learning experiences, not as means of reward and punishment. Much evaluation, especially standardized testing, produces fear among both students and teachers. Deborah Landry investigated the behavior of 1,058 K–5 students during a standardized reading test by asking teachers to report on their observations of these students. Landry conducted an online survey of 63 teachers and interviewed four others. The teachers reported that the standardized testing produced anxiety in the students, who commonly sighed, moaned, and even cried. Teachers reported that 49 percent of the students fidgeted during the testing; 33 percent were worried about how hard the test was; and 21 percent said they were nervous. Landry concluded that the students' behavior indicated strong feelings of helplessness, fear, abandonment, and self-doubt.[184] Other studies of standardized testing have yielded similar results.

Must we test all things? It seems so. As Landry reported, we seem to be not only assessing our students, but also creating psychological problems in students that we are not

assessing. In some cities, infants are being assessed as to whether they will fit in to particular preschools or kindergartens. In 2006, Peg Tyre wrote an article querying whether, in the first grade, we are doing too much too soon.[185] Must first graders be tested for everything? Must we score their play? Must students measure up right from the beginning of school? Where is the emphasis on the uniqueness of individuals?

It does appear that we are evaluating with such frequency and intensity that we are smothering students' joy of learning. With our push for standardizing, students are becoming widgets to be shaped and polished. Even students who are precocious are not always ready to be evaluated and sorted by psychometric devices. Tyre noted in 2006 that it appears that early schooling has become "less like a trip to Mr. Rogers' Neighborhood and more like SAT prep."[186]

Evaluation of students during their schooling has become excessive. We probe, poke, measure, assess, judge, sort, encourage, and discourage students so we can inform them as to how they measure up with regard to others. Educators should not make evaluation like a gauntlet that students must somehow survive. The educational experience should not be a series of pressured encounters for grasping a brass ring.

■■ CHALLENGES IN THE 21ST CENTURY

In this chapter, we have focused on the approaches to evaluation, the mechanics of engaging in curriculum evaluation, and the types of tests and various assessment procedures. We have noted that we utilize evaluation to judge our curricula, our pedagogies, and students' learning. We have essentially followed a safe route, not being specific about what particular contents and what pedagogical strategies should receive our evaluative efforts.

But in the 21st century, this chaotic, complex, and morphing time, we need to evaluate what we are stressing in our educational programs and certainly shaping by the tests we construct. We certainly are stressing science, technology, engineering, and mathematics (STEM). And some have added the arts. Howard Gardner in 2011 published a book titled *Truth*, *Beauty*, *and Goodness*, *Reframed*.[187] We believe these three concepts should also be addressed in today's schools, embedded in the various subjects, but also having their own specialized emphasis.

In this technological century, it appears we are living in an age, as Gardner suggests, of "truthiness" and Twitter. Students are accessing much information from technology without assessing its accuracy, its truthfulness. Postmodernists suggest that belief in truth implies a modern rigidity. There are many truths within all realms: "political, economic, social, cultural"—and certainly educational.[188]

Gardner denotes that beauty describes the property of experiences, and we would add objects. Gardner indicates, "to be deemed beautiful, an experience must exhibit three characteristics: it must be interesting enough to behold, it must have a form that is memorable, and it must invite revisiting."[189] We seem blind to beauty, our eyes captured by our cell phones. Do we attempt to measure the beauty of the various disciplines, and should we?

Gardner describes goodness as relating to the interactions among humans.[190] We add that this quality also refers to our relations with the flora and fauna of the world and their and our environments. Yet we are not doing much in our schools to nurture goodness in any specific ways. We are not evaluating whether our students have this quality.

There is a need in this century for expanding what and how we evaluate our students, ourselves. All learning does not occur in schools; how to engage in self-evaluation is needed when functioning within the community. Perhaps the most basic questions in evaluation are not "What do you know?" or "What can you do?" but rather, "Who are you? What can you contribute to the world community?"

Conclusion

Evaluation addresses the value and effectiveness of curricular matters and activities. It centers on both teachers' and students' actions within the educational arena, primarily the classroom. Today, there is much debate regarding evaluation, primarily with demands that we must assess more effectively the actions of teachers and the learnings of students. There are clarion calls for teachers to be more effective in their pedagogical approaches and for students to achieve more and to attain higher standards to be competitive in the world community. These calls exist under the twin banners of *standards* and *accountability*.

Much talk about evaluation and, particularly, testing reveals a "buy in" by many people that education is a "business within the marketplace" and that its effectiveness should be judged with the same metric by which we judge workers and businesses. Productivity, attaining business goals, meeting quotas, and meeting market expectations are all ways to determine whether a business is meeting what it has set out to do. Schools should do the same.

This argument essentially reflects a scientific, modernist approach to evaluation. However, educators primarily in the humanistic, postmodernist camp of evaluation counter that schools are not making cars, processing mortgages, raising corn, or producing televisions or other electronics. You can count cars produced in a certain time period and make a judgment as to efficiency of production. Not so, many educators argue, with students' learnings. Certainly, you can compare test scores, and this seems to be the major metric for determining the effectiveness of teachers and the amount of student learnings. However, many involved in evaluation debate this query: What do test scores really say other than someone attained a 95 percent or is at the ninth stanine, and someone else got an 85 percent and is at the eighth stanine? And what do such comparisons really mean?

The current dialogue does indicate that evaluation addresses complex activities within complex contexts. There are myriad voices within these contexts, all driven by particular agendas. It behooves us to be knowledgeable about the clusters of procedures that deal with people as well as programs. Much dialogue regarding evaluation seems to exist within clouds of fear, confusion, ignorance, myopic thinking, and of course, enlightened ruminations. These dialogues involve individuals and groups of all stripes: educational, social, business, political, and even religious. Within these stripes we have stratifications of views, beliefs, aspirations, and attitudes. And within the stratifications we have degrees of certainties, uncertainties, stubbornness, and tolerance. This being the current state of affairs regarding educational evaluation, we should be mindful that evaluation not only assesses learning, but also promotes and nourishes it.

Discussion Questions

1. What are the nature and purpose of evaluation?
2. How do scientific, modernist and humanistic, postmodernist approaches differ in their assumptions?
3. How do formative and summative evaluation differ?
4. Describe the evaluation models recommended by Elliot Eisner.
5. What are the various issues that may be faced by minorities with regard to meritocratic education?

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10 International Scenes in Education

LEARNING OUTCOMES

After reading this chapter, you should be able to

1. Discuss the concept of "global mind" and its impact on American and world education

2. Explain the concept of *cosmopolitanism* and how it may or should influence our educational actions

3. Describe the particular educational organizations of the five countries presented

4. Identify and explain the teacher education programs at the elementary and secondary levels of the five countries depicted

5. Critique the five countries' curricular and instructional organizational strategies

We are well into the second decade of the 21st century as this is written. However, we are not living as a nation apart from the world community, nor are we living as a political and economic entity holding itself superior to the rest of humanity. Certainly, we are a superpower both militarily and economically, but we do not exist and function in a cultural national vacuum.[1]

Al Gore informs us that we exist in an era of an expanding global mind.[2] He references Earth Incorporated that has generated a "planet-wide extension of the human nervous system that transmits information, thoughts, and feelings to and from billions of people at the speed of light."[3] We are all members of the "world brain." Consider ourselves as world-citizen neurons and our connections with others as "synapses" of this world brain. Our communications with others within our own communities and with other world communities can be compared to neural pathways or networks. Gore posits we are an integral part of a "round globe . . . a vast brain, . . . with intelligence."[4]

A key question facing world citizens, and especially educational professionals, is how should we live in the 21st century? At present, we have no precise answers. Even more challenging is the query of how we should educate our students in this fast-paced century. This question generates myriad answers, but also fear and intense concerns. Gore purports that our civilization and especially our schools are well behind where they need to be in processing the dynamics and chaos of expanding knowledge and the myriad technologies that are creating further realms of erudition.

Students in our schools today have access to more information both inside and outside of school walls. But, Gore decries that students, while gaining information, are not learning how to discern connections among different realms of knowledge, are not able to grasp the deeper meanings in patterns of information, and are challenged when required to evaluate the total information package.[5] While not totally accepting Gore's conclusion, we do note that this century does present significant educational challenges that must be addressed for all our students.

But to speak to the increasingly diverse and challenging demands, we must deal with the most essential 21st century educational question: What are the purposes of education in this century? To respond, we need to query: Who are we? In what culture or cultures do we exist? How and why do our culture or cultures relate to others' cultures? How might all peoples contribute to a tapestry of world cultures or actually an earth culture?

Where to start? David T. Hansen has provided a partial answer: cosmopolitanism. Hansen denotes that the concept of cosmopolitanism has its origin in ancient Greek history. The concept means "citizen of the world."[6] Certainly, not a new concept; its early use was noted by Diogenes (c. 390–323 BCE), a philosopher who considered himself a world citizen rather than a resident of a certain nation-state.[7] Currently, researchers embracing this conceptual approach are investigating how individuals in world societies are committing themselves to "cross-cultural" social intercourse.[8] From such encounters, "notions of educational cultural creativity" are generated.[9]

An analysis of the literature of cosmopolitanism presents a posture for "addressing practical prospects in the human condition."[10] Certainly, educators and others are investigating how humankind analyzes the human condition. In this century, humans are processing myriad assaults both natural and human-made. And American educators cannot just look within their own house, their own national culture. This is one reason for this particular chapter: to gain perspective on our educational system by applying lenses on other countries' educational modus operandi. Some educators and members of the general public seem overwhelmed by the increasing complexity and chaos of Earth Incorporated. They attempt to place blinders on their eyes and earplugs on their ears to shut out incoming world messages and challenges. However, if we allow ourselves linkages with other nations' educators, we can not only be challenged into educational innovation but be thrilled by alternate pedagogical approaches and new arrangements of curricular contents. We can, as Hansen denotes, learn to move both "closer and closer apart and further and further together."[11] As Clynda A. Hull and Amy Stornaiuolo assert, "closer and closer apart and further and further together" translates into actions where we "perceive and understand differences and at the same time move further together as we engage in interaction."[12]

Rather than asking how we compare with other educational systems, we can query: How do we learn from others' educational efforts? How can we exchange educational experiences that will enhance the qualities and contributions of the world community? How can we benefit humankind and Mother Earth? We have already indicated that one of the myths about American education is that our once-great schools are slipping, sliding behind the rest of the world. This demand to improve our education is based on viewing our schools with a false lens and employing a defective metric. This is not to say that we educators can rest on our laurels. Events are in motion; population dynamics are chaotic. Information is exploding. As Gore indicates, there is a "tectonic shift in our relationship to the world of knowledge."[13]

We are entering the era of "Big Data!" Gore depicts the emerging field of "Big Data" as a new frontier of information science in which mathematical algorithms guide supercomputers through massive amounts of data that humans were unable to process, at least not quickly.[14] Rather than researchers starting with a hypothesis to be proven or discarded, big data algorithms are designed to enable supercomputers to search vast amounts of data for trends, connections, and relationships. These computers scour for ways of proving a hypothesis or hypotheses. These computers do in seconds or minutes what would take a team of humans perhaps a decade or longer. Thus, knowledge can be "discovered" in seconds and validated in minutes or hours. Knowledge can be discovered in areas of data sets that were recently unimagined. "Big Data" certainly can assist in uncovering thrilling new realms of educational information. We have in this century

a need to be ready to accept and utilize vast new realms of knowledge. We need to develop new receptivities to knowledge discoveries. In recent years, a professor in Stanford's College of Engineering created a start-up company to process big data in the health sciences.[15]

We agree with Berliner and Glass that a great myth exists that American schools are second-rate when compared to schools in other similarly developed countries. We also question why we should be first in everything, including education. Certainly, it is human nature to have something about which to brag. But, in this new century, perhaps we should challenge the urge to boast. As Berliner and Glass have stated, education is not an Olympic sport in which we count the number of gold medals.[16] And, they posit, while we do not have the highest scores on international tests, "we really don't do badly given the goals we have for the development of youth."[17] Additionally, they report that American schools where there are few students living in poverty have pupils who do very well on standardized international tests. Where schools have a majority of pupils living in poverty, results on the same tests indicate poor student performance compared to other nations. These results put a damper on American students' overall test results.[18]

Berliner and Glass cite that Finland, which is the first nation we discuss in this chapter, has a very low level of poverty. That is a fact that can be verified. But, do Finland's schools and their curricula comprise a more effective school system? That can be debated. We are not suggesting we have nothing to learn from Finland or any other country discussed in this chapter. When we compare our American students with similar students in other nations, we find that our students match them quite well. Perhaps our schools are not failing as many pundits assert. Conceivably, it is the poverty that numerous students live in that is the culprit. Perchance it is a flaw in our American society that tolerates having large numbers of youth living in environments that stunt their abilities to be productive 21st century learners.[19]

Berliner and Glass indicate that determining who has the best school system in the modern and postmodern world is very challenging for a plethora of reasons. First, we have to judge any school system recognizing the context within which the system functions. Before that can happen, we must consider the overall educational goals the general society deems worthy. American educators, and we would add the general American public, strive to have "well-rounded" individuals graduate from our schools and universities.[20] "Well-rounded" is a fluid concept, constantly reinterpreted almost every year in this new century. But, we assert that just having high test scores in certain subjects, especially STEM subjects, is a narrow understanding of "well-rounded."

One of the authors of this book, who lives in Seattle, read an article in *The Seattle Times* about two high schools in Seattle and one high school in Snoqualmie, Washington, being finalists for the second year in a row in the Essentially Ellington jazz competition and festival. The three schools will compete with schools from around the nation at the Lincoln Center in New York City. Each year, 15 jazz bands are selected for competition. They play music based on the recordings of Duke Ellington and other major jazz composers. Having Seattle-area schools recognized for excellent high school jazz programs is not unusual. In 2008, five high schools were finalists. More than once, a Seattle high school has received top honors.[21] We argue that these students are examples of "well-rounded" individuals. This is presented not to brag, but to focus on the effective work that educators in American schools do every day. Jazz is central to our American culture. We do not expect Chinese or Finnish students to be masters of this music genre. We do not demand that the industrialized world be "tested" on mastery of jazz.

We believe that the American general public overall has been misinformed. Politicians, business leaders, the general public, and even some educators have been handicapped by a psychological immune system.[22] Psychologists note that individuals are most comfortable cogitating about the future when they utilize assumptions currently accepted to solve future situations. Rarely do they question whether current assumptions are applicable in evolving futures. As Martinez posits, "Essentially, our brain is hard-wired to look for confirmation of our existing hypotheses."[23] We must challenge present assumptions about American education and how we as a nation stack up compared to other nations. We might well be responding to the current dynamic times in ways that are essentially self-defeating.

Martinez states that the legislation No Child Left Behind is arguably a result of activation of our psychological immune system, an autoimmune response. Such a response, while enabling decisions to be made and ideas to be constructed under the aegis of rational action, actually contributed to weakening the system further.[24] The reasoning went that our schools were not measuring up to expectations. We needed to raise educational attainments by demanding that schools assume greater responsibility for student performance. Standards needed to be written. Weak teachers had to be weeded out, and competent teachers had to be rewarded with higher pay. These demands reflect a business-market view of education, employing assumptions that essentially applied to times long past. No Child Left Behind, instead of improving the system, actually hindered real reform by mandating rigid and narrow measures that corralled the types of learning truly essential for functioning in this century.[25]

The reader may wish to argue this point, but the Race to the Top legislation being encouraged as of this writing suggests that No Child Left Behind failed. However, look at the test results of U.S. students, especially in mathematics and science, compared with students in other countries. Finland is the current exemplary statistic. U.S. students are not number one. You cannot brush that statistic under the rug. Yet, what does that factoid tell you? Have U.S. students ever been the top scorers on these international standardized tests? Danny Westneat reports that Tom Loveless, a researcher at the Brookings Institution, has noted that the United States never has led the world with regard to objective test scores. In fact, U.S. students have never even been close. However, we are doing better now than in the early 1960s. Now, we are about average but still behind some Asian counties. In fact, U.S. students' latest scores in both mathematics and science reveal our greatest gains. As of this writing, our students ranked 22nd out of a pool of 67 countries or territories.[26]

Some educational critics might assert that the preceding paragraphs support their contention that American schools are not effective. Twenty-second out of a pool of 67 countries or territories is still TWENTY-SECOND! Our students should be first. We must seize the future. Being second is unacceptable. Such comments provide evidence of autoimmune response—dealing with future educational challenges employing present-centered, comfortable assumptions. We must realize that we all suffer from this cultural, psychological, metacognitive "ailment." We are "in" our cultural context so deeply that we are unaware of it, much as a fish is unaware of the water in which it swims.

However, current times demand that we focus our inquiries inward as we reflect on the current state of education. Past metrics such as content covered, facts cited, grades passed, tests taken, scores attained, goals reached, and standards attained to determine educational success and student achievement mislead us in our quest for excellence in 21st century education. This is not to advocate scrapping these metrics. Rather, it is to encourage new metrics to accompany these well-accepted metrics. Certainly, we want content covered to be considered in judging schools' successes. Yet what does content covered mean? And does content covered precisely indicate student knowledge and understanding? And is knowledge as defined in the 20th century adequate for judging educational quality in the 21st century?

As R. Hanvey noted in 1976, educators and those who would offer advice regarding education must possess mindsets that provide insight into what education should be in this century. Hanvey remarked that truly modern educators must embrace five dimensions of focus for thinking about education.[27] The first dimension involves perspective consciousness. Just what are our views regarding local, state, national, and global realities? How do these views influence our thinking and our problem solving regarding educational challenges? Are our perspectives, what we think of our situational environments, enabling us to develop new insights, or are our perspectives hindering our views of current and evolving situations? Perspective consciousnesses influence the second dimension of focus, the state-of-the-planet awareness. Most of us possess some awareness of local and, perhaps, national scenes, but few of us are really aware of the state of the planet. This second dimension requires identifying global issues and examining their impacts on students' lives. This second dimension requires a mapping

10.1 PISA: Measuring Student Success Around the World
The widely regarded international assessment, PISA, compares the performances of 15-year-olds in OECD nations. Watch how it does this and discuss whether you believe it accurately indicates a nation's education system.

https://www.youtube.com/watch?v=q1I9tuScLUA

of cultural, economic, and physical dimensions on this globe and the current and potential impacts on people.

Attending to the second dimension leads to a third dimension—awareness of global dynamics. Just being aware of the planet and its specific aspects is insufficient to make informed determinations, in our case, educational judgments. We must be cognizant of the dynamics of the myriad planet-world dynamics. Peoples and nation-states are no longer islands unto themselves. Global dynamics have been occurring since the 17th century. Today, these world interactions are occurring not in centuries or decades, but in years and days.

This third dimension of the world's dynamics writ large feeds into the fourth dimension—cross-cultural awareness. Here, attention centers on gaining in-depth understanding of the various cultural and political groups. This fourth dimension directs our efforts to analyze other nations—in our case, their schools—to gain information to enable us to adjust or maintain our school activities.

The fifth and last dimension is awareness of human choices. When all is said and done, what happens in our world is up to what people choose to do or not do. If we have an enemy regarding quality education, it is we, the people. The weapons we, the enemy, employ are outdated thinking, false aims, rigid ideologies, lack of compassion, lack of comfort in our beliefs, fear of uncertainty, and outdated views of the world and the world community.[28] A prime reason for having a chapter focusing on certain nations in the world community is to deduce lessons about how to educate our students, not to attain educational victory over others, but to free human potential.

Activating the five dimensions of focus to direct our thinking about education in this century requires us to comprehend present and evolving scenes, remaining cognizant of the pasts through which we have traveled. Most modern educational systems have evolved within a rather precisely defined product—the nation-state.[29] Our schools and schools in other countries have been designed primarily for national purposes—economic, political, and social.[30] Schools are the primary arenas where young people "learn what it is to be 'x'—either formally, through what is explicitly taught, or informally, through adapting to the practices that structure daily life." Curricula are selected to shape students into various social, cultural, economic, and political behaviors requisite for effective national and global citizenship. Pedagogies are orchestrated to configure students to be acceptable x's, to think and approach knowledge and national citizenship in particular ways.[31] A danger of educating students to become successful x's is that they will learn their lessons too well. They become x's who can function effectively within their nation, but they develop myopic views of the world.[32]

Readers, as they consider education in the countries selected for this chapter, should be cognizant of the forces of globalization that have an impact on established bonds between nation-states and educational systems. National boundaries are becoming more porous, figuratively and literally. Although we can strive to tighten our boundaries in attempts to keep out certain groups, we must realize that our borders are porous to ideas, ideals, and desires of various world groups. With technologies such as Facebook, YouTube, and Twitter, the world is essentially an open book.

Nation-states have always been products of interaction. The United States did not self-generate in isolation. Our country evolved not only from interaction with Great Britain, but also from relations with other European countries. Our conception of nation resulted from centuries of idea distillations by myriad peoples and cultures. Our present political, social, economic, and educational behaviors are driven by our interchanges with the current world—thus the need for this chapter.[33]

◾ EDUCATION IN PARTICULAR COUNTRIES

No nation is an island unto itself. We are living at "warp-speed" globalization. We are challenged not to retreat, but to embrace our evolving world for the benefit of all. Some people are enthusiastically welcoming opportunities for new human relations. Others seem to ignore the world as a

global community. And still others express fear that globalization will undermine the concept of nation-state resulting in significant loss of their self-determination.[34]

Pasi Sahlberg denotes that globalization presents us with a cultural paradox. Celebrating globalization enables peoples and their cultures to attain degrees of unity, common causes, shared aspirations, and similar strategies and policies that can meld nations into common purposes. It certainly can facilitate members of the global community to address similar challenges, in our case educational confrontations.[35] However, globalization also can cause citizens to transform themselves so that they establish unique identities.

In the 21st century, we are challenged to join the world human family. But, at the same time, we must not become clones; we must not lose our identities. We cannot and definitely should not demand of our teachers and students that they become shrews following crowd behaviors. As Sahlberg cautions, we should not from our analysis of the world community strive for standardized knowledge and similar mass behaviors.[36] We need to distance ourselves from making widgets; we need to treasure and preserve our uniqueness within our humanity. What the world needs in this maturing century is "flexibility, risk taking, creativity, and problem solving through modern methods of teaching combined with community networks and smart technologies."[37]

As we consider the five countries (Finland, Australia, China, Singapore, and South Africa) in this chapter, we must possess a mindset, albeit a cautious one, of expansive global consciousness. We must be intelligent and circumspect when considering the global educational reform movement (GERM) with its emphasis, even overreliance, on standards, testing, and test scores. We need to realize that this world emphasis on global educational reform incorporates policies, strategies, and assumptions that have not originated primarily with educators. As Sahlberg posits, GERM was conceived and has been promoted by "multinational private corporations, supranational development agencies, international donors, private foundations, and consulting firms."[38] These noneducational clusters are deeply engaged in influencing educational changes, specifically dealing with curricula and pedagogies. Even multinational educational corporations are players on the world stage. Most of the "outside" entities employ corporate models of introducing change, innovation, and means of assessing the effectiveness of such actions.

We certainly value the contributions of the corporate and philanthropic worlds, but educators must be cognizant that they—we—are dealing with a unique and fragile resource: human bodies, minds, and spirits. We must recognize, as hopefully the discussions and presentations of these five countries will stress, that we must purge ourselves of classifying individuals, stressing conformity, privileging certain groups, and overcontrolling all educators, especially students and teachers. We must reject those curricular and pedagogical approaches designed solely to train students for slots in the marketplace. We are charged with generating educational experiences that prepare our students for dynamic and chaotic clusters of communities, from the local to the state, to the nation, and to the world. Einstein observed, "Imagination is more important than knowledge."[39]

■ FINLAND

> The aim [of Finnish education policy] is a coherent policy geared to educational equity and a high level of education among the population as a whole. The principle of life-long learning entails that everyone has sufficient learning skills and opportunities to develop their knowledge and skills in different learning environments throughout their lifespan.[40]
>
> The objective of basic education is to support pupils' growth toward humanity and ethical responsible membership of society, and to provide them with the knowledge and skills necessary in life. The instruction shall promote equality in society and the pupils' abilities to participate in education and to otherwise develop themselves during their lives.[41]

Background

The Republic of Finland exemplifies a country that has progressed from an agrarian society in the 1950s and lagging behind its northern European neighbors in educational attainments

to an information society whose economy was judged the most competitive in the world from 2001 to 2005.[42] Just prior to its stellar economic achievements, the world spotlighted Finland in 2000 for its 15-year-old students excelling in the Organization for Economic Co-operation and Development's Program for International Student Assessments (PISA). These Finnish students surpassed their peers from 32 countries in reading, literacy, mathematical literacy, and scientific literacy.[43]

However impressive, these test scores really provide little information useful to educators and others. As Ari Antikainen suggests, a more useful and valid way to consider these results is to investigate what, specifically, those individuals involved in Finnish education actually did to have their students attain such results. Inquiring into the *why* of such results—investigating in detail what actions and what procedures were engaged, what curricula were employed, what pedagogies were utilized, what educational policies were implemented, and what organizational strategies were implemented—can furnish other educators from around the world with new knowledge and new motivation to innovate within the educational arena.[44]

Although answers to these queries can prove useful, we must remember when looking at Finland and other countries that we are not striving just to raise students' test scores. Quality education is not defined by high marks on international standardized tests. As Keith Baker reminds us, "There is no association between test scores and national success, and contrary to one of the major beliefs driving U.S. education policy for nearly half a century, international test scores are nothing to be concerned about."[45] Baker further argues that policy makers and politicians, when they hold up other nations' test scores as evidence that U.S. schools are falling behind, are committing a logical error identified as the *ecological correlation fallacy.* There is evidence, usually unknown to many and ignored by some, that the actions and the effects of those actions in education with nations "does not transfer to differences among nations."[46] Thus, when individuals in the United States state that the data drawn from other countries' students' performances lead us to conclude that our schools are failing, we must recognize such conclusions not as proven generalizations, but rather as hypotheses, requiring further study and research.[47]

The preceding comments are intended neither to diminish Finland's educational accomplishment nor to suggest that American citizens, and particularly educators, cannot learn from Finnish educational actions. The statements are to remind us that while Finland and the United States share the same globe, we are not Finland, and Finland is not the United States. Recognizing this, we can view Finland and its educational system as offering potential lessons for Americans and American educators.

The Uniqueness of Finland

On December 6, 1917, Finland declared its independence from Russia. Until that time, Finland had been claimed at times by Sweden and at other times by Russia. Lenin recognized Finnish independence in the final week of December 1917. Sweden, Germany, and France followed suit. However, Finland's independence was threatened during the Bolshevik revolution and again during World War II. In the winter of 1939–1940, the Soviet Union invaded Finland. The Finns strongly resisted. In the summer of 1944, Finland and the Soviet Union signed a peace agreement.

Because Finland shares an eastern border with Russia, it has been ever mindful of its geographically large neighbor. National leaders realized the wisdom of balancing their actions between the East (the Russians) and the West (the United States and its European allies). Since 1995, it has been a member of the European Union.[48]

Woven into the uniqueness of Finland has been the Finnish people's struggles for survival and to maintain their Finnish identity. Developing, maintaining, and shaping their Finnishness has been challenging. Sweden ruled the area from the 100s to the 1800s. Russia controlled Finland from 1809 to 1917.[49]

Geographically, Finland is a Nordic country that shares many parallels throughout its history with the other Nordic countries (Denmark, Norway, and Sweden), but essentially, it is not

Nordic. Nor is Finland Scandinavian. Its culture and language differ greatly from those of the Scandinavian peoples.

As indicated previously, Finland evolved from an agrarian state into an industrial, capitalist welfare state and, since the 1980s, into a postindustrial, or informational, society. Today, Finland has transformed itself into a competitive state within the global community. Although competitive, it still is a *welfare state,* meaning that the government has formed a productive relationship between labor and capital.[50] Social welfare shapes much government action and activities of societal groups. Specifically, this means that minimum levels of the following services are nonnegotiable: education, health, social security, employment, and housing. These services are provided as rights of citizenship.

Finland's successes as an information society and knowledge-based economy essentially provide the financial bases for the health of Finland's welfare state. Electronics leads the information society. Some have identified Finland as the Silicon Valley of Europe, a key member of network societies. Network societies shape a new social dynamic. "Networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture."[51] Finland's networking has strengthened its long-standing commitment to education as a basic citizen right. Schools, colleges, and universities network with each other. Likewise, these educational institutions generate functioning links with companies, their employees, and even citizen groups, all cognizant of education's centrality to working life and civic participation. Additionally, Finns realize that working communities and civic associations also have an impact on education.

Finnish Education: Cultural Linchpin

Finland can be defined as a learning society. Torsten Husen has four criteria with which to define such a society: (1) people are afforded opportunities for lifelong learning, (2) formal education is available to all ages in the society, (3) informal learning is prized and independent studies are urged, and (4) other institutions are invited into the educational enterprise.[52]

Ministry of Education

The Ministry of Education in Finland has a broad range of responsibilities relating to educational, scientific, and cultural matters. The Ministry is accountable not only for promoting education in schools, colleges, and universities, but for science, culture, sports, and youth work. It also has responsibilities relating to the civil education of all Finns so that they recognize their responsibilities as it benefits their personal goals as well as society's goals.[53]

Within the Ministry of Education are two ministers: the Minister of Education and Science, responsible for education and research relevant to educational issues; and the Minister of Culture, who manages matters relating to "culture, sports, youth copyright, student financial aid, and church affairs."[54] Finland has a long history of including religious instruction in its curriculum. Its religious curricula deal with the teachings of the Evangelican Lutheran Church of Finland or the Orthodox Church of Finland. However, the Finnish government is neutral with regard to religion and churches in curricular content and experiences. Nevertheless, it does fund the education of clergy in university schools of theology. Also, it funds denominational instruction in elementary and secondary school. For students not affiliated with any denomination, the Ministry of Education supports ethics education at primary and secondary levels.

The Finnish Educational System

THE COMPREHENSIVE SCHOOL.   Presently, the Finnish educational system is divided into preprimary education, nine-year comprehensive schools, postcomprehensive general and vocational education, and higher education and adult education. The nine-year comprehensive school, identified as *Peruskoulu,* consists of two divisions: primary school and lower-secondary school.

The *Peruskoulu,* conceptualized in the late 1960s as a comprehensive school, was planned to be implemented in 1972 in the northern parts of Finland. The entire country would have these schools by 1978. The conceptualization behind this new school was that this educational organization would enable all students to learn. What was required was that appropriate pedagogical methods be applied. This was a change from the belief that all children could not learn all things, that children had different abilities; students had various talents and various levels of those talents. With this new school organization, which students entered in the year they turned seven, all entrants were considered capable of learning. Initially in 1972, the National Curriculum for the Comprehensive School directed what content would be covered, its organization, and the types of instructional strategies for diverse student populations. However, in 1985, all ability grouping was discontinued in schools throughout the nation. Since then, all students experience the same curricula. Teachers are trusted to create appropriate instructional approaches for their students.[55]

The forms, or age-based classes, are very similar to how U.S. elementary schools are organized. However, there is a major difference regarding primary teacher placement. In most schools, teachers are kept with the same group of students for several years in a process called *looping.* Essentially, teachers determine how long they remain with a particular group of students. If a teacher so desires, he or she can remain with the same group of students for the entire primary school experience—six years. This practice allows teachers to know their students at a deeper level.[56]

The lower-secondary school division of the *Peruskoulu* engages students for three additional years. In this division, comparable to grades seven to nine in U.S. schools, the students are organized into subject-area classrooms. Those students who wish to conclude their compulsory education have to complete a 10th year of schooling. Finishing this curriculum is requisite for gaining entry into upper-secondary postcomprehensive education, enrolling students 16 to 19 years old. All students attending comprehensive school have an academic year of 190 school days.[57]

Although the Finnish government formulates broad national objectives and the time allotments for teaching various subjects at particular school levels, the National Board of Education specifies the global objectives and core curricular content. Local educational professionals and individual teachers create the basic and specific curriculum for the local community's students. The basic curriculum addresses the mother tongue and literature (Finnish or other national languages, either Swedish or Lapp [Sami]), foreign language (commencing at the third form), environmental studies, civics, religion or ethics, history, social studies, mathematics, physics, chemistry, biology, geography, physical education, music, visual arts, crafts, and home economics.

Upon completion of the curriculum, students receive a certificate indicating acceptable completion of the curriculum of the comprehensive school. The standards for completing the certificate qualifications are determined at the local school level by administrators, teachers, and other support staff. As students travel through the curriculum of the comprehensive school, they never are tracked or placed in special groups, nor are they subjected to various tests at specific levels to determine whether they advance to the next school level or form.[58]

THE POSTCOMPREHENSIVE EDUCATION (UPPER-SECONDARY EDUCATION).   The postcomprehensive curriculum has three track offerings: compulsory, specialized, and applied. The total curriculum contains 38 lessons focused on specific subjects: "mother tongue and literature (Finnish or other national language), foreign language, a second foreign language, environmental studies, civics, religion or ethics, history, social studies, mathematics, physics, chemistry, biology, geography, physical education, music, visual arts, crafts, and home economics." The National Board of Education is charged with generating the core objectives and the content foci of the complete curriculum; the detailed curriculum is generated by educators at the local level.[59]

Although there are no exams for students to attain their certificate for completing the comprehensive and postcomprehensive schools, there is a matriculation exam that students must take if they wish to be accepted for college or university study. This exam is scheduled in the spring and autumn and is administered in all upper-secondary schools. This exam contains four

tests: a test in the mother tongue, a test in the second official language, a test in a foreign language, and a test in either mathematics or general studies. All these tests are open-ended, stressing critical thinking, problem solving, and writing mastery. Each test is created at two levels of difficulty, reflecting the curriculum that a student has taken in school. Students are free to choose the exam's level of difficulty. However, they must take one exam at the upper level and pass it. They must pass all tests, regardless of level.[60]

Lessons from Finland

Just what did Finland do to make it an educational envy of the world? Certainly, it was not the Finnish school year of 190 school days. The curriculum subjects did not seem out of the ordinary. We suggest the following novelties that the Finnish Ministry of Education introduced: going from an agency that was highly centralized, managing education with curriculum guides exceeding 700 pages, to an organization working more as a catalyst to get educators at the local level to assume responsibility for creating curricula and assessments; going from a central authority prone to issue edicts as to what teachers should do in schools and classrooms to an organization that expressed confidence that teachers, with excellent preparatory programs, could be trusted with creating curricula and innovative pedagogical strategies; and a stress on local and idiosyncratic assessment generated by teachers.[61]

Perhaps the most significant novelty embraced by Finnish authorities at the national level is their trust in educational professionals, particularly teachers. In Finland, there is no teacher evaluation system. Nor is there a demand for one. Teachers are considered professionals who do their best work when under their own control. In Finland, education is a highly viewed profession where teachers generate quality curricula and instructional approaches from the ground up, with guidance and support from the upper educational levels in government.[62] Compare that Finnish fact with a current headline in *The Seattle Times*, dated February 23, 2015: "New Tools for Making a Better Teacher." "Washington schools will soon have to assess teachers with in-depth observations by principals or other evaluators. The plan centers on teaching practices that have a track record of success."[63]

Leo Pahkin, counselor of education at the Finnish National Board of Education, states: "We trust our teachers. They will find the best solutions, or they will create their own. They are doing very well without inspections and testing."[64] Not only are teachers trusted with being professionals, but they are even trusted in how they use their time. Neither teachers nor students in Finland are required to be in school except when they have classes. And when they are in classes, they usually teach only four hours a day. The remaining time is used for planning and collaborating with other teachers. And those interactions can be done at school or at home. As Richardson denotes, "Finnish teachers work in conditions more closely associated with being professionals than the highly regulated work environment of American schools."[65]

In Finland, there is cooperation among schools. Finnish teachers have the time to network with their workmates within their schools and with colleagues in other schools. In the United States, we have schools in competition with schools statewide and nationwide. Race to the Top fosters a market mentality among schools. Whomever wins the "race" gets the "gold medal." And to add more "sport" to the competition, we have charter schools, independent schools, and private schools also vying to be the best.

Teachers in Finland live up to the trust they have been given approaching their vocation as nurturers of personalized and individualized learning. All children are unique, and teachers must accommodate the curriculum to the varied and unique needs of students. The national curriculum, which is essentially a pamphlet, provides a general overview. However, teachers within individual schools are responsible for generating school-based curricula and personalized pedagogies. They often base their educational planning on current research studies. In fact, educational researcher is a role that many teachers assume. And the flexibility of their teaching schedules provides time for both individual and collaborative research efforts.

In the United States, teachers are essentially hampered by the curricula offered and the teaching methods employed by the nationwide push for learning channeled by externally set goals and standards and the administration of standardized tests. Standardized testing has narrowed curricular content covered and even the ways in which students are to process the content.

It appears that Finnish educators are more in the humanistic, postmodernist camp; they focus primarily on the totality of the student-citizen. They believe that schools' curricula are not just to prepare masters in science, technology, engineering, and mathematics, but to enable students to become effectively functioning Finnish citizens. Finnish educators have been successful, at least according to their students' performance on international tests.

Trust in the educational profession, while prevalent at the school levels, also extends upward to the college and university levels. Educators in higher education are challenged and trusted to create educational programs that will graduate competent, creative, and committed educators. Sahlberg denotes that teacher education is now classified as "academic." This means that all curricular content and educational experiences must be based on knowledge scientifically based. And, throughout both the bachelor's and master's programs, the curricular experience must emphasize thinking strategies and cognitive skills requisite to designing and conducting educational research.[66]

For example, students in the primary teacher education master program at the University of Helsinki in 2014 were required to take the following courses: introduction to educational research (3 credits), quantitative research methods (4 credits), qualitative research methods (3 credits), and curriculum theory and evaluation (3 credits). Additionally, they had to take two credits in the basics of curriculum planning, one credit at the bachelor's level and one credit at the master's level.[67]

In Finland, universities are responsible for teacher education. Individuals wishing to teach at the lower levels of comprehensive schools must earn a master's degree in education. The degree requires a total of 160 credits and five years of study, including practice teaching. The education of persons focused on being subject-matter or discipline teachers is offered at the university level in the respective discipline faculties. Again, teachers in these programs must earn a master's degree in their respective fields. This program also requires five years of study (160–180 credits), including a teaching internship. Teachers with this degree can teach at the lower elementary schools and also at the secondary and upper-secondary school levels.[68]

However, not everyone wishing to be a teacher is admitted into teacher education. Prospective teacher education students must compete with others with this academic and professional goal. As Linda Darling-Hammond notes, of those who apply, only the top 15 percent are accepted. Of those approved for the program, the college or university offers them a free three-year graduate program and also a living stipend.[69]

A hallmark of the student teacher's experience is working a full year with an experienced teacher in a model school frequently associated with a university. Not only does the novice teacher learn how to teach, but he or she learns how to draw on educational research that supports pedagogical approaches. Novices are encouraged to experiment with varied instructional approaches. In Finland, teachers and students engage in inquiry directed not only at learning content, but also at polishing methods of teaching and learning. Student teachers are presented with visions of classrooms as laboratories where teachers and students collaborate in varied investigations. They also are presented with notions that the classroom is an arena where views, conclusions, and hypotheses can be challenged. A major purpose for these experimental classrooms is to cultivate independent and active learning in students.[70]

Additionally, students having clinical experiences in model classrooms have opportunities to learn how to develop innovative and challenging curricula. They also acquire skill in creating appropriate assessment instruments (tests and alternative means) for communicating to students their learning strengths and areas needing improvement. In Finland, there are no external standardized tests administered to students. Students are not ranked as a result of any assessment. The primary means of teacher feedback to students is delivered in narrative form, noting not

only knowledge gained or needed to be gained, but also the effectiveness of the student learning process employed.[71]

Finally, education students come to realize that teaching and related activities such as developing curricula and assessment are not solitary activities. In many Finnish classrooms, the teacher has a cadre of fellow educators to assist in teaching, collaboration with students, and individual remedial work with students. Many schools have a teacher's assistant available to work with various teachers in a school. This person may not have a master's degree in education, but rather may be a postcomprehensive graduate with some specialized education in how to work with students needing special academic assistance. In many schools, there are special-needs teachers who have appropriate degrees to allow them to teach at various levels. Often, these individuals are special education teachers who not only help with instruction, but assist teachers with designing and creating curricula that address particular student needs.[72]

> Overall, the Finnish approach to . . . schooling relies on building the capacity of schools—the competencies of teachers, the availability of support personnel like school assistants and special-needs teachers, the creation of conditions that enhance the ability of teachers to work effectively (such as small scale and teacher participation in decision making)—as well as the capacity of social programs to back up schools. It does not rely on excessive amounts of low-level testing or on draconian accountability systems.[73]

10.2 Finland: One of the Best Education Systems in the World
Watch this news segment on why Finland has perhaps the best education system in the world. What parts of its reform efforts can be duplicated by the United States? Should they be duplicated, or is it possible? Explain.

https://www.youtube.com/watch?v=Ctuo7ibEWZI

■ AUSTRALIA

Background

Australia and the United States share some similarities in their histories as well as currently. Both were claimed by the British through the actions of explorers. In Australia's case, it was Captain James Cook who, in 1770, sailed northward along the eastern shore of the continent. He claimed for Great Britain what is now the Australian state of New South Wales. The settlement of Australia was unexpectedly influenced by 13 North American colonies gaining their independence from Britain as a result of winning the American Revolution and signing a peace treaty with Britain in Paris in 1783.

Up to that time, Britain had sent many of its convicts to the American colonies. After the Americans defeated the British, Great Britain required another locale where prisoners could be sent. Australia proved ideal due to its great distance from England. However, prisoners had to be guarded; this required free workers. Other free citizens of Britain also wished for a better life and immigrated to Australia. The number was small until the discovery of gold in 1851 generated a mass migration, primarily from the British Isles. People sought riches. The United States was 68 years old, but the colonies making up Australia were not much older; it had been only 81 years since Cook's discovery. The U.S. gold rush happened at almost the same time, gold being discovered in California in 1849. Although the U.S. gold rush attracted people from Europe, Australia also attracted gold seekers from similar areas.

A similarity between Australia and the United States is that, especially in the New England colonies, there was an early emphasis on education as a foundation to a strong moral society. In the United States, early school emphasis was on reading so that pupils could read the Bible. In Australia, by 1810, the convicts were being released from prisons and becoming a free minority. This free minority realized that a successful community required principled behavior and moral restraint.[74]

Although Australia had established a small society of freemen by 1810, there had been attention paid to education prior to that time. Colonists who were not prisoners wanted their children, who increased in number after women arrived, to have education and faith. The Anglican Church responded. A further strengthening of the Church's involvement in education resulted from the arrival of Anglican missionaries fleeing uprisings in Tahiti. These missionaries proselytized that religion was education.

The Australian colonies supported the Church's view that education was the vehicle for fostering belief and adherence to Christian church principles. The state firmly believed that religion was essential in the quest for social and moral order, and religion had to be woven into the educational experience. However, not all Christian denominations were included. In 1838, the Church Acts legitimized the Anglican, Catholic, Methodist, and Presbyterian denominations as the accepted forms of Christian worship.[75]

In the 1830s and 1840s, churches increased their hold on Australian education to an extent that concerned the central administration of the Australian colonies. The government agreed to continue government support of the denominational schools under the aegis of the Denominational Schools' Board if the churches allowed the government to establish and fund a parallel board, the Board of National Education. All parties agreed to it, and the Board of National Education was established in 1848. Essentially, this arrangement laid the foundations for private and public education to exist in parallel tracks.

From the middle to the latter years of the 1800s, citizens and those persons in government began to realize that the Denominational Schools' Board furnished preference to the majority Anglican population. People questioned why religious schools should receive state funds. In 1851, South Australia became the first colony to terminate funding to denominational schools. Tasmania and Western Australia followed, as did Queensland and Victoria. In 1872, New South Wales finally followed as well. The severing of governmental support during the period of 1880 through 1900 for denominational school systems stimulated free, compulsory, and secular education. Legislation was passed in the various states that strengthened departments of education.

The last two decades of the 19th century were a period of heightened economic activity. Certain individuals amassed great fortunes in mining and various industries. Education benefited in several ways from the philanthropy that resulted. Religiously based private colleges received endowments that assured their continued developments. In Australia, the term *college,* especially when referring to private schools, describes what Americans identify as a high school, or more specifically, a private high school or academy. During this period of largesse, there occurred a major expansion of Presbyterian and Methodist Ladies Colleges (private high schools). Accompanying this educational expansion at the college level was also a growth of the grammar school.[76]

During the entire 19th century, the Australian states were separate British colonies. However, with the various economic activities and the numerous growing educational systems, there arose among the Australian colonists a nascent desire to unite the colonies. In 1885, a federal council was established to do just that. The desire for union had been planted, and on January 1, 1901, the Commonwealth of Australia was proclaimed. The new parliament had its first meeting on May 9, 1901.

The Australian Educational System

From the very beginning of nationhood, education has been part of the national goal of attaining a highly functioning society. All Australian states have compulsory attendance laws, requiring children to attend school from K to grade 10, ages 5 to 15. Education is managed by the various state departments of education. In the Northern Territory, education receives federal funding, and education programs are administered through the Northern Territory administration.

Australians describe their schools in some ways unfamiliar to Americans. Public schools in Australia are called *government schools.* Government schools classified as primary enroll the majority of K–6 pupils. There also are secondary government schools. However, private secondary schools, attracting an increasing number of secondary-age students, are part of a K–12 private school system. Adding to name confusion are the *greater public schools.* These are mostly church sponsored and are actually private corporations.

Also different from the U.S. system of public schools is the governmental funding of private schools. Additional private schools also exist in the "Catholic systemic schools and low-fee

paying Christian schools."[77] For the past several years, some Australians have spoken against using public monies to support private school education.

PRIMARY EDUCATION.   State governments direct primary education, which ranges from pre–year 1 to year 7 in South Australia but pre–year 1 to year 6 in the other states. In the past, states' central Boards of Education played major roles in determining curriculum, educational materials, and instructional approaches. Currently, the Boards simply provide general educational guidelines, leaving the details of curriculum development and material selection to school districts and individual schools. Teachers create curricula designed for specific pupil populations. Teachers and support staff also produce student assessments. External assessment systems are not utilized to any extent. This has been standard practice since the 1970s.[78]

Primary school curricula in many ways resemble those offered in the United States: reading, language study (English), writing, mathematics, general sciences, social studies, Australian history, geography, and civics. Students also can study personal development/health, commerce, computer technology, and the visual arts. Foreign languages, especially Asian languages, are also offered: Indonesian, Japanese, and Chinese. The introduction of these languages has been rather slow. Other language offerings are Italian, Spanish, French, and German. In Aboriginal schools, especially in the states of Western Australia and Northern Queensland, the Aboriginal indigenous languages are offered; these languages are offered in the Northern Territory as well.[79]

SECONDARY EDUCATION.   As noted previously, secondary education occurs in government (public) educational institutions as well as private secondary education institutions (colleges). Both receive governmental funds from state and federal sources. Since the early 1980s at least, there has been competition between government and private schools for funds and students. The private secondary schools seem to be winning. As noted by David T. Gamage and Takeyuki Ueyama, in the early years of the first decade of this century, the private sector was receiving billions of dollars from the Liberal and National Party coalition government, whereas government schools were being financially starved.[80]

With more than sufficient funds, private schools, especially at the secondary level, have generated what many Australians deem superior curricula and learning experiences. Many Australians consider the teachers better prepared. Also driving parents to enroll their students in private secondary schools are current social dynamics. Australian society is becoming more diverse. Many cultural groups comfortable in a predominantly White culture are now retreating from the increasingly diverse public social scene. Australia has experienced an increase in violence in the general society and in schools, primarily secondary schools but also middle schools. Many communities have drug problems both within and outside school boundaries. Traditional Australian values are being challenged. Many secondary students in government schools are not graduating.

There has been and continues to be an exodus to the outer suburbs surrounding Australia's major cities. Communities of like-minded individuals, often exhibiting middle-class and upper-middle-class values, are congregating in somewhat identical communities. As White middle- and upper-class Australians exit the cities proper, private schools follow. Private schools in Australia receive public funding on a per student capita basis. With this formula, students can experience more intense educational programs.[81]

Although there may be differences in the quality of instruction and depth of content coverage, the curricula of secondary governmental and private schools are essentially the same. Both systems' schools stress the following disciplines: English, mathematics, science, history, geography, economics, personal development/health, computer science, modern technology, and visual arts. Some secondary schools offer technology courses. Students planning to attend a university must pass public matriculation exams.

Australia, like the United States, has been involved with the Global Educational Reform Movement, which, as we have indicated previously, has a corporate model underpinning.

A major test of this reform movement is the Programme for International Student Assessment (PISA). Sahlberg references a study conducted by B. Jensen, B. Weidmann, and J. Farmer for the Grattan Institute in Australia that studied the worth of relying on a market mentality to assess the effectiveness of various educational approaches. These researchers focused on how market mechanisms, particularly competition among schools, allowing parents and teachers to have the power of choice of school, and allowing schools such as charter schools to have autonomy from the regular schools in a public school system, influenced schools' students' educational attainments. Their results indicated that governments urging increased competition among schools did have positive impacts on various sectors of the overall economy, but schools increasing their effectiveness was not achieved.[82]

Teacher Education

Individuals wishing to be teachers, whether at the primary or secondary education level, must complete a four-year university program. In the last year of study, students take courses focused on various methods courses and the history and context of education. For students desiring an edge in the job market, there are master's degree options in educational administration, general education, and curriculum design and development. Education curricula also address the technical aspects of modern society, offering courses in computer sciences designed specifically for educators. In their last year of university study, education students, both primary and secondary levels, engage in six weeks of supervised student teaching. Students preparing to be primary school teachers usually take a broad liberal arts curriculum before their senior year. Those students focusing on the secondary school often concentrate on a particular discipline such as mathematics, science, English, or history.

As is well known, teachers never really complete their education upon graduation. One program in Australia that addresses this constant need to update knowledge and pedagogical skills is the Quality Teacher Programme. This program, available to all teachers throughout Australia, addresses both primary and secondary education. Under the direction of Teaching Australia, the program encourages the creation and implementation of novel instructional methods, orchestrates research relevant to teachers' concerns, and communicates research results to educators. Additionally, Teaching Australia furnishes hands-on guidance in creating professional development courses dealing with a range of educational responsibilities.[83]

The Australian central government, in cooperation with the various states, also coordinates various National Projects, which identify and promote best practice in both curriculum and instruction. Also addressed is acquainting teachers in the field with the best resources in various curricular fields. Further, these National Projects help establish national educational networks for teachers and support staff, including administrators and supervisors. Examples of such projects include school-based action research, workshops, distance learning sessions, and the education of school project leaders.[84] In Western Australia, there is a project termed Getting It Right (GIR), which educates teachers to become specialist teachers (ST). Teachers chosen for learning to be STs are actually recommended by fellow teachers in a particular school.

Teachers chosen by their colleagues experience seven 3-day workshops over two years, the length of their ST appointment. The STs usually focus on numeracy and literacy for at-risk pupils and work with the classroom teacher for a half-day each week. This enables STs to collaborate with a school's teachers over a week's time. Specialist teachers also track particular students' learnings, becoming participant-observers. At times, they assist teachers in developing particular lessons to address specific students' needs. They also serve as sounding boards for the classroom teacher.[85]

The curricula stressed in teacher education make clear that Australia is a Western industrialized country. It draws on, as does the United States, its English colonial history. But unique to Australia is the influence of its position in the English Commonwealth of Nations. However, Australia is not geographically European. Currently in Australia, there is a beginning movement

to make Australians cognizant of their geographical and cultural location: Asia. Peta Salter has initiated a study to influence Australian teachers' cultural maps. Essentially, he wishes to nurture a curricular response known as "Asia literacy." His study is part of a major project exploring renditions of Asia literacy that is being considered in the nation and how attention to this literacy is influencing educational policies.[86]

Salter indicates that National Australian policy defines Asia literacy as "possessing knowledge skills and understandings of the histories, geographies, arts, cultures and languages of the diverse Asian region."[87] Salter's work is an effort to introduce curricula in Australian schools eventually so that students and future citizens comprehend how Australia will function in an "Asian Century." Salter indicates that the National Australian Curriculum created by the Australian Curriculum, Assessment and Reporting Authority (ACARA) has in place an educational priority of having all educational institutions in the country prepare its citizens to effectively engage with the various Asian countries in myriad ways: economic, ecological, cultural, social, and perhaps even militarily. Salter posits that this new national focus is challenging for Eurocentric Australia.[88]

The success of this program rests primarily with teachers. Of course, this is a truism with regard to any new curricula being introduced. Teachers have to buy into this need for an expanded curricular orientation. Salter recognizes the challenges he and teachers confront when considering Asia literacy. The Asia that is Australia's neighboring landmass is diverse in geography, in culture, and especially politics.[89] China is certainly succeeding in making its economic and military presence known, and increasing numbers of students from China are seeking higher education in Australia.

Salter posits that the Australian government has tended to make Asia literacy a political rather than an educational slogan. Politicizing the need for Asia literacy seems to imply that teachers must be savants regarding knowledge of this vast diverse region. An educational emphasis nurtures the understanding that various teachers will have to develop particular knowledge bases. Each teacher can bring her or his understanding of a particular Asian country or topic to the total curricular experience of students. We recognize that introducing a program or programs of Asia literacy to Australian teacher education is a Herculean challenge.

Lessons from Australia

The Australian education system, although somewhat similar to that in the United States, does have some major differences. One difference is a strong parallel private school system supported by the government that competes with the public government schools. Such strong government support of the private system seems to have created a continued distance between social classes. Perhaps a lesson for the United States, even though we do not finance private schools directly, is to nurture in our citizens an appreciation of all citizens and a recognition that all people are needed for a smoothly functioning society.

Another lesson for us is that much innovation and assessment are managed at the local level. State education boards trust their educators. The GIR project exemplifies a confidence that teachers in local schools possess the necessary expertise.

One lesson worth noting is that in Australia, educational innovation is being encouraged by fostering cooperation and collaboration among different schools and educators. The Quality Teacher Programme does not put schools and districts into competition for funds.

◼ CHINA

Background

China's history extends back at least 4,000 years. Historians classify China as one of the four cradles of civilization. From its beginning as a political entity, it has viewed education as essential to its existence. Scholars were considered of greater importance than soldiers. Educational

institutions were well established by 2000 BC. However, these institutions were only for the ruling and wealthy classes, often the same peoples.

Amazingly, China had established government schools and local schools beginning in 800 BC. These schools became more common up to 400 BC. During this period, China even had established civil service examinations. These examinations determined which civil servants were competent and also reflected the views of the highly respected philosopher Confucius, who scholars believe lived from 551 BC to 479 BC. Confucius's ideas and views greatly influenced Chinese thought regarding government, civil service, education, and basic personal behavior. He believed in a meritocracy in which the leader of a government should be the most qualified person, not necessarily the most powerful. Also, Confucius urged that individuals should strive for great civility and accept freely their societal obligations.

A flourishing society required citizens who were gentlemen. These persons did not come primarily from the wealthy. Once leaders, through their merit, had risen to positions of power, followers were required to give due respect and reverence to those people. Appropriate for education, Confucius considered that a true gentleman engaged in continuous self-examination. Today, we interpret this to mean continuous inquiry as to a person's action, knowledge possessed, and inquiries enacted.[90]

Confucius did not advocate education for the masses; indeed, he believed that most common folks lacked the abilities to attain high merit. He considered that a gentlewoman, in contrast to a gentleman, should not receive any formal education. Followers of Confucius over the centuries noted that if men were to live peacefully, they had to be molded by education. This stress on formal education, even if only for the few, influenced Chinese cultural development in all its dimensions. This influence visibly lasted until the early 1900s.[91]

In the first half of the 20th century, not only did the influence of Confucius change, but the Chinese government and the systems of education went through convulsions. The last emperor decreed that Chinese education should be accessible to greater numbers of Chinese and that education should strive to be more modern and Western. In 1905, the civil examination system was discontinued. In 1911, China's dynastic tradition ended, replaced with the new Nationalist Republic. China entered what many called a Golden Age, in which education was recognized in thought and deed. Education expanded its offerings to increasing numbers of citizens. However, the Sino-Japanese War (1937–1939) devastated Chinese educational strides. Military action essentially destroyed 70 percent of Chinese cultural institutions, including educational institutions. Then came World War II (1939–1945).

After these military conflicts, China, instead of rebuilding its educational institutions, became engaged in a civil war that lasted from 1946 until 1949. This war pitted the Chinese nationalists against the Chinese Communists. Education not only did not advance, it retreated. The Communists were victorious and in 1949 established the People's Republic of China. The new leaders rejected Western influence on Chinese education, drawing inspiration from the then Soviet Union.

Under Communist rule, China and its educational institutions experienced turmoil. In 1958, the Ministry of Education launched educational reforms that essentially ranked mental and manual labor at equal value. Productive labor had value and was essential for China's growth as a modern nation. Labor gained legitimacy and was melded into the Chinese curricula at primary, secondary, and higher education levels. Educational experiences were divided into half work and half study.[92]

This Cultural Revolution, many argue, stagnated the development of curricula requisite for functioning in the later 20th and early 21st centuries. With the death of Mao Zedong, the leader of China since the Communist victory in 1949, the Cultural Revolution ceased. What followed and continues to evolve is major and extensive innovation at all education levels. Further affecting China is the government's drive to rapidly modernize the nation. Education has been adapted, and, more surprisingly, the Communist government has integrated free-market approaches in building a modern economy.[93]

The Chinese Education System

Throughout China's long history, education has been central in the peoples' thought, especially those among the privileged ranks and those in leadership positions. As noted before, Confucius's thought has had strong influence upon leaders' actions. And although Confucius's thought fell out of favor under Mao, it appears to have regained influence in more recent times.

Currently, the Chinese government elevates education as key to the country's economic growth and political world influence. Until the 1990s, the Chinese educational system was almost completely centralized under the directive of the National Ministry of Education. The Ministry had been established in 1952 and terminated in 1966 with the blessing of Mao Zedong. In 1975, it was reestablished. It again was abolished in 1985 and reemerged as the State Education Commission. This Commission, under direct central government control, the State Council, is responsible for all educational policies, the management of educational innovations, and the establishment of educational aims and goals, as well as educational standards and measures of assessment.[94]

A central educational aim of the State Council under the direction of the Chinese Communist Party has been since 1999 to create and deliver quality, *suzhi.* The State Council has directed a curriculum reform called *suzhi jiaoyu* (Education for Quality).[95] "Education is fundamental to the comprehensive formation of national strength, increasingly measured by *suzhi* of workers and the development of talented human resources. This places a more urgent demand on educating and training the new generation for the 21st century."[96]

Wu denotes that *Suzhi* as a concept is essentially a flash point in China in the 21st century. However, the debate about quality, *suzhi,* has been part of public "conversations" about policy relating to various levels of governance and particularly education. Presently, universal basic education has been touted by the State Council as a way to bring all of China's education systems into modernity. This effort at bringing modernity to education is especially focused on rural areas of China. The push has been to foster *suzhi* in the countryside to bring schools serving ethnic minorities up to the same level of performance as schools in the urban areas. Essentially, the goal is to enable rural minority persons to become citizens who can contribute to the nation's future.[97] Wu directed her study not only to analyze the success of this effort, but to investigate the bases of particular approaches to the concept "ideal citizen." Furthermore, she aimed her study to assess curricular procedures at the national level that were introduced to foster "shaping" China's "learners, citizens, and workers" into effective 21st century national and world participants.[98]

State Education Commission

For most of Communist China's history, the educational system has been highly centralized. Governmental and educational leaders realized that for China to gain its "rightful" place as a world leader, they needed to have strong control over educational curricula and pedagogical practices. However, they also perceived that for China to excel on the world stage, they needed to foster innovative education. The reform movement *suzhi jiaoyu* was one attempt to bring innovative education to all Chinese schools, whether urban or rural. In the 1990s, the Commission developed curricular guidelines that encouraged the Chinese education system to decentralize education at the primary and secondary levels and to develop a quality-oriented rather than a test-oriented approach to curricula and pedagogical strategies that focused on the learner rather than the content covered. Finally, the Commission urged that schools at these levels provide more in-service education.[99]

The city of Shanghai, with approximately two million students in 2,800 schools, has really accepted the challenge of the State Education Commission to innovate. The city has adopted the mantra of Singapore, "Teach Less, Learn More."[100] It also has realized that its school system needed to include all of its children of school age. That meant guaranteeing that all children of migrant workers would be given an education. And that connoted more than creating classroom space for these children. It denoted schools with large numbers of migrant children receive

additional educational supplies. Furthermore, these schools benefited from transfer teachers judged as extremely competent in teaching such students.[101]

Where schools existed in Shanghai's high-need communities, students have school tuition and other fees waived. They are provided free textbooks and other materials. In most of China, especially the urban areas, students do have to pay tuition and for school supplies. Also in Shanghai, schools deemed "good" are directed to collaborate with those schools assessed as "needing improvement."[102]

To improve teachers' pedagogical strategies, teachers in all schools observe their colleagues' teaching. They also have time to engage in strategic educational planning and curriculum development. They have access to online sources of curriculum and instructional resources. Curricular improvements exist in that there are more optional courses for students reflecting a stronger emphasis on their interests. Expanding students' educational experience has been achieved by schools partnering with cultural institutions such as art galleries and museums. Shanghai schools have also diminished the importance of national exams. They even have placed limits on the amount of homework given to students. Students have tasks such as cleaning their classrooms and other spaces in the schools to nurture an understanding that "this is their school." Students also have opportunities for social learning, citizenship learning, by visiting rural villages and marginalized groups within city limits.[103]

Although the State Education Commission has loosened the central educational reins of the state, it is still functioning under the aegis of the Central Committee of the Chinese Communist Party and the State Council. To an outsider, the State Education Commission appears to be attempting to follow two contradictory directives: allow for more openness in educational matters to foster diversity of thinking among the populace, but not to the extent that divergence of political thought encourages protest and dissent.[104]

Still, the State Education Commission has lessened its grip on the curricula at all levels of education. It is encouraging states, local communities, and local schools to create more flexible curricula and allow students some choices among various curricula. The Commission encourages teachers in local schools and local and state governments to develop collaboratively curricular materials and select textbooks. The effort encourages educators to rely less on formalized testing and to employ more learner-centered educational activities.[105]

The State Education Commission directives have nurtured extensive changes regarding assessments in general and examinations in particular. The Commission urged the abolishment of the entrance examination for middle school, which had prevented some elementary students from continuing their education, at least at a quality school. The Commission strongly suggested that elementary and secondary schools create their own graduation examinations. The general public, parents, and students were to be involved in discussions of how to evaluate their schools.[106] The primary purposes of these recommended changes were to "equip students with patriotism, collectivism, a love for socialism, and the Chinese cultural traditions, as well as moral-ethic values and a democratic spirit with Chinese characteristics."[107] "Furthermore, the new curriculum has as its goal fostering creativity, developing practical abilities, and cultivating scientific and humanistic spirits as well as environmental awareness."[108]

PRIMARY EDUCATION.   The Chinese primary school involves a six-year program. Attendance is compulsory. In cities and urban areas, children often enter primary schools having experienced one year of kindergarten. Children in rural areas usually do not have kindergarten experience, or, if so, the experience is not a quality one.

As recently as 1999, primary schools were under the rigid control of the State Education Commission. Curricula were standardized, and instructional approaches were common throughout the nation. However, the central government pushed to encourage more local control in creating curricula, developing pedagogical approaches, constructing educational materials, and even selecting a variety of textbooks. All this is under the push for quality education.

Even with the encouragement of local curriculum development by teachers and local community members, the major subjects of the primary school—at least considered globally—are similar to the curricula of "preinnovation" primary schools. Chinese is offered, including reading, composition, and speaking. Other subject areas are arithmetic, natural science, politics, geography, history, music, art, and physical education. Since the mid-1990s, foreign languages have been offered, with English as a major offering; English is now mandatory, usually starting in grade three. Some primary schools offer English in grade one.[109]

Perhaps the greatest change in the primary school has been in instruction. Before the push for innovation, there was great stress on rote learning and memorization. The teacher expected uniformity of understanding. Pupils were to sit quietly listening to the teacher and repeating information presented. Today, primary schools exhibit a greatly altered picture. Increasing numbers of primary school classrooms have pupils engaged in class discussions, various types of group work, and even role-playing.[110] Students are participating in cooperative learning, investigating problems in real-world situations in mathematics, environmental science, or social studies. Students are encouraged to engage in *challenge groups,* where student investigators have to defend and define their methodologies of investigation. Students also are, under teacher guidance, learning to write investigative reports. In science and mathematics, pupils derive formulas that explain and support their individual or collaborative work.[111]

In addition to innovative instruction, many primary school children also have access to the latest instructional technology. Computers are available for student use. Instructional computer programs engage students in their studies.

The preceding description of a modern primary school and its classrooms is not yet the norm in China. Such ideal schools exist primarily within cities, and often the students in these schools are from the wealthy and other privileged elites. There are more than 200 million students in primary and secondary schools. Approximately 80 percent of these students live in rural areas, where schools and educational services are scarce and, where available, not of high quality. This is now, as noted, being addressed.

The State Education Commission's major challenge is bringing new educational ideas and excellence in teaching to all students throughout the country. Essentially, the aim is to have nine-year compulsory education adhered to and delivered with excellence. The aim has not been widely achieved in part because rural communities cannot afford to pay salaries for highly qualified teachers. Even if monies in rural communities were sufficient, which is not the case, many highly trained teachers do not wish to teach in rural communities, preferring city life.

Another difficulty for rural communities is that with about 600 million people, the average living wage is $2 per day. Families surviving on such meager wages cannot afford to pay teachers high salaries; nor can these parents afford to purchase high-quality educational materials. Often, the lack of electricity creates a roadblock to the use of educational technology.

Although the rural schools' curricula somewhat resemble that of urban schools, the curricula are taught mostly by teachers who have completed only a two-year teacher-preparation program. In some rural communities, primary teachers have completed only primary school themselves. Those teachers who have earned a bachelor's degree usually have attained it through a distance education program.[112]

SECONDARY EDUCATION.   Compulsory-education laws require that students, upon completion of primary school, finish three years of secondary school. For students desiring to continue their education, some secondary schools offer an additional three years of education. China has had a tradition of dividing its secondary schools into *key* and *ordinary* schools. Key secondary schools offer a curriculum perceived as more rigorous academically than that offered in ordinary secondary schools. Initially, key schools were to educate students gifted in various knowledge areas deemed necessary for China's advance into the modern world.[113]

Key secondary schools are staffed by the best teachers. These schools also have first choice of the latest textbooks and educational materials. In some key schools, teachers and support

staff actually create textbooks and support materials. Most frequently, key secondary schools are found in China's major cities. Often key students are children of the privileged classes: government workers, major Communist Party members, business executives and other high-level employees, and others who have key contacts within the urban community. Shanghai has challenged this norm with its educational actions. Also, the central government is striving in this century to bring quality education to all students, rural and urban, privileged and less privileged.

It is not commonly known that these key schools, either three-year or six-year, accept only students whose parents have contacts within the city community. Exceptions are made for students with exceptional talents if they live within the city's boundaries. Students whose parents have migrated to the city to work cannot send their children to the city's public schools. These workers have to send their children back to their home communities for their education at the secondary level. In many cases, this is not possible. And, if it is possible, most likely the secondary school is classified as ordinary.[114] As Kam Wing Chan notes, "this is engineered by the discriminatory 'hukou,' or household registration system, which classifies them as 'outsiders.'"[115] This practice exists in most Chinese cities.

It appears that the secondary school curricula in global terms focus on the same broad disciplined areas. It also appears that the State Education Commission has mandated that all secondary schools utilize innovative educational materials and pedagogical strategies. However, most city schools still have superior materials and better-qualified teachers. Some rural secondary schools still lack chairs and desks.

The curriculum offered at secondary schools, regardless of type, includes studies in Chinese, mathematics, English, political ideology and morality, political and legal knowledge, philosophy, economics, physics, chemistry, biology, geography, and history. Computer science is offered where possible. Physical education, art, and music are also taught. Most curricular courses are studied for the duration of secondary school, either three or six years. Geography and history are offered for three years. Computer science requires one year of study.[116]

As noted, China in this century has created educational policies and offered structured encouragement to create more flexible curricula while still focusing on the key disciplines. It also has urged state and local school levels to facilitate utilization of novel pedagogies. In many cases, there has been success.

Betty Preus has noted that in China, parents, community members, and teachers realize that for pupils to maximize their potential for success, they must do well in school and pass exams. Shanghai appears to be an exception. Exams still reign supreme, but their utilization is being challenged by educators at both the primary and secondary school levels and by parents and the general public.[117] A growing number of educators and regular citizens are pushing universities to place less emphasis on entrance exams as well as exams throughout the university experience.[118] But teachers and the public realize that the history of examinations in China is not going to be immediately drastically adjusted. Teachers pushing for change in testing still realize that students presently must do well through both primary and secondary schools. Success in passing exams at the primary level increases students' odds of getting into a key secondary school. Students excelling at the secondary level must do well on the national university entrance examination. Even students at ordinary secondary schools must excel and pass exams to gain admission to vocational and technical schools.

Recently, government members and educators have been urged to view assessment as less central to quality education; limited progress has been made. In some schools, students are now participating in developing their own means of evaluation. As noted previously, in Shanghai's schools, teachers and administrators have reduced their reliance on exam scores.[119] Yet this move to lessen attention on formal assessment, for example, examinations, seems not to be having much impact on schooling in rural areas. In these areas, teacher tests and formal examinations are still widely used. This may be due to teachers in rural schools having less educational training and thus are more reliant on formal tests as well as government-produced materials. Also, it may be because of the government's push for improving the quality, *suzhi,* of education in rural areas.[120]

Teacher Education

Teacher education is under the guidance of the Teacher Education Bureau, one of the many bureaus of the State Education Commission. This bureau is charged with creating teacher education policies and providing strong guidance to teacher education. Additionally, the Bureau manages directives for structuring the curriculum and the admission requirements of education students.[121]

In the last decade of the 20th century, the Teacher Education Bureau initiated a series of innovations to make teacher education more responsive to the then-approaching 21st century. The goal, which has essentially been attained, is for all education students to have four years of undergraduate education. As of 2007, there were some primary teachers who still had only three years of training. In the first decade of this century, an increasing number of teachers, especially those planning to teach in city schools, were obtaining graduate degrees.[122]

The improvement of teaching in China's schools not only addressed raising the quality of preservice education, but also attended to in-service education. Chinese authorities realized that practicing teachers at primary and secondary levels needed to be "retooled." Such education addressed specific needs of the teachers. Some in-service courses stimulated particular research projects aimed at ameliorating particular education problems.[123]

The Chinese government today, while ramping up attempts to bring innovative and diverse teacher education programs into higher education, is constantly dealing with echoes from a past in which teacher education was rigidly regulated by the State and Communist Party. Chinese educational thinkers are attempting to be creative within state-mandated rigid confines.

In observing the curricula offered to education students, there is a sameness of disciplined offerings: educational foundation courses, second languages, instructional strategies courses, psychology, philosophy, history of education, sociology, moral education, and physical education. At the secondary-level curriculum are the major academic disciplines: mathematics, history, sociology, biology, chemistry, and physics. Today, courses are offered in computer science for both primary and secondary teachers, especially those preparing to teach in urban schools. In some cases, primary teachers specialize in particular subject areas. All teacher education students have a teaching practicum. This practicum, usually six weeks long, occurs in the third and fourth years of the educational program.[124]

Lessons from China

Perhaps the most important lesson for American educators, and especially American politicians and the American public, is that test scores on standardized tests that solely report a nation's students' achievement essentially offer no useful information. As we have learned, in China most test scores reported are very misleading. As Kam Wing Chan has noted, comparing U.S. students' scores with the scores attained by students in Shanghai's schools is like comparing the scores of students attending select schools in New York City with students of an entire other country.[125] Another lesson to consider is that China is moving toward empowering local schools to assume more responsibility for their curricula, pedagogies, and means of assessment. American politicians and some educators are urging an opposite thrust.

A third lesson is that we must always consider the cultural, political, and geographic contexts of the nation to which we compare ourselves. In China, parents judge how well their children are doing in school by external indicators: "grades, test scores," and "admission to prestigious universities."[126] To Chinese parents, their child's number-one job *is* school. This puts tremendous stress on children, particularly those attending city schools. Also, in China, conformity is the norm. A person must fit in with his or her group. The push for academic excellence often means that subjects and activities that American parents consider important to their children's total development, such as art, music, and sports, may be perceived as detrimental to serious study. As Zhao posits, many Chinese students, in attempting to reach high external standards of success, develop a loss of self-confidence and a belief in the value of external metrics of motivation.[127]

10.3 China's College Entrance Exam
In China, competition to get into higher education is based solely on the national college entrance exam known as the *gaokao.* Watch how it consumes parents and students in this video. How does this test compare with U.S. college entrance exams like the SAT and the ACT?

https://www.youtube.com/watch?v=xGAd4qFWm28

■ SINGAPORE

Background

Singapore is Asia's top financial center, and as one of the world's major commercial hubs, and among the top five busiest ports, it's also the third most important venue for financiers all around the world. In its early years, Singapore was mostly made up of migrants from China, India, the Indonesian archipelago and the Middle East. Like the United States, Singapore has faced challenges with regard to inter-ethnic harmony since independence. Singapore was also under British colonial rule, gaining self-governance in 1959 and independence in 1965. Unlike the United States, however, Singapore is a much smaller country, and it lacks substantial natural resources. Singapore has, therefore, focused on its most important asset: its people.

The modern history of Singapore dates back to February 6, 1819, when Sir Stamford Raffles, Temenggong Abdu'r Rahman, and Sultan Husain Shah of Johor signed a treaty that gave the British East India Company (EIC) the right to set up a trading post in Singapore and formally hoist the British flag, marking the island's birth as a British settlement.[128] With the Anglo-Dutch Treaty of 1824, the areas north of the Straits of Malacca—including Penang, Malacca, and Singapore—were designated as British settlements, while the Dutch took control of the areas south of the Straits. Singapore, together with Penang and Malacca, formed a single Straits Settlement unit under the administration of the EIC until 1867, when the Straits Settlements became a Crown colony.

In 1942, Singapore was captured by the Japanese, who held it till 1945.[129] It was governed by the British colonial administration till 1953, when a British commission recommended limited self-government. Singapore held its first state elections in 1955. In July 1963, a short-lived federation was formed among Malaysia, Singapore, Sabah, and Sarawak, but on August 9, 1965, Singapore separated from Malaysia as a sovereign and independent nation. The nation had to grapple with problems such as tensions between different ideological and religious groups among migrants, a lack of space for agriculture, a lack of natural resources, and a small market for goods manufactured at home due to the nation's tiny population. The government had to develop the economy through the manufacturing and service industries, for which it required a skilled labor force. It quickly realized that national integration through a centralized educational system was essential for economic survival. To attain these objectives, the government decreed that every child from the age of six would have six compulsory years of education.[130]

The Singapore Education System

Education has played a vital role not only in creating a skilled labor force that has ensured remarkable economic progress, but it has also contributed to the citizens' social mobility and success.[131] In 1965, when Singapore gained its independence, the government made key decisions that influenced the education landscape of today. The goals of the new government are laid out in the nation's pledge of allegiance, which promises unity to build a democracy and equality to achieve economic growth and political stability. It recognizes the need for harmony among a diverse people as well as the value of a just and transparent system of social advancement. This approach has infused the educational policies that have been followed to this day,[132] reflected in the three pillars of Singapore's educational system: centralization, meritocracy, and bilingualism.

(A) CENTRALIZATION. Since its independence, the Singapore education system has been described as centralized, standardized, and bureaucratic. An efficiency-driven, top-down approach of planning, disseminating, and enforcing educational changes served the country well in its early years of governance, but it has been criticized as unsuited for the modern, globalized era.[133] In order for the system to cater to the rapidly changing demands of globalized socio-economic conditions, it needs to embrace flexibility and innovation.[134]

The Ministry of Education has taken steps in this direction by relinquishing decision-making powers to schools as well as developing new frameworks for curricula and pedagogy that would inculcate innovation in students.[135] Curricular initiatives to develop students' critical

thinking, creativity, innovation, life-long learning, and positive attitudes and values are being carried out[136] with the intention of balancing the autonomy of practitioners and control by the Ministry of Education, the entity responsible for broad strategic directions. Schools are also to become more proactive and involved in setting their own goals and developing their own plans.[137] This decentralized centralization movement attempts to shift the center of management from ministerial directives to school leaders and classroom teachers. Where the syllabus for all the subjects taught in government schools is concerned, the Ministry of Education retains centralized control by publishing uniform content. The Singapore Examinations and Assessment Board (SEAB), a central government statutory board, develops and conducts national examinations in Singapore as well as examination syllabi for each subject.

(B) MERITOCRACY.   The Ministry of Education promotes meritocracy as a way of recognizing the ability and effort of every student, regardless of their background. Educational attainment is evaluated on the basis of high-stakes national examinations, and it is believed that this method is fair and unbiased; that it promotes discipline, endurance, and perseverance; and that it urges Singaporeans to maintain a competitive edge throughout the world (however, there are debates over this over-emphasis on educational credentials).[138] Students encounter at least two national examinations, one at the end of six years of their primary schooling and another at the end of their secondary schooling. Promotion to vocational or tertiary institutes depends on how students fare in the latter examinations.[139] Focused specifically on testing mastery over content and skills, these assessments promote academic outcomes[140] that act as the basis for employment or progression for further study.

Despite the accountability this standardized measure of progression guarantees,[141] studies have drawn links between the reliance on testing and the employment of drill-and-prepare teaching methods,[142] enormous pressure on parents as well as children,[143] and a widening socio-economic gap and bias toward vocational training and blue-collar jobs.[144] The increasing reliance on testing by teachers[145] has resulted in students equating learning with passing the examinations.[146] However, the preoccupation with examinations is due for a change as both the government and the people recognize that some priority and weightage needs to be shifted from examinable subjects like mathematics, science, and the languages to other forms of learning such as the humanities subjects and other talents, like music, art, and sports.[147]

C) BILINGUALISM: Singapore's bilingual policy was adopted in 1979 with the intent to achieve social cohesion, equality, and secularism in a multiracial and multicultural society.[148] The Republic of Singapore Independence Act of 1965 declared that the National Language of Singapore would be Malay; however, English would be the working language as well as the medium of education. This would have the immediate practical benefit of attracting foreign investment. All students were also required to learn a second language, which would be their *mother tongue* or indigenous language.

Primary School Education

Children, including citizens and permanent residents of the nation, begin the compulsory six-year primary school education at the age of seven. Compulsory education (CE) was instituted in 2003 to give the children (a) a common foundation of knowledge for further education and training to prepare them for a knowledge-based economy and (b) an educational experience that would help to build national identity and cohesion.[149]

Prime Minister Lee Hsien Loong's first National Day Rally Speech in 2004 announced that primary education should aim to teach Singapore students less so they learn more, [150] thus creating self-directed learners who are innovative and enterprising but also capable of adapting to change and ambiguity.[151] The Ministry of Education then recommended a new approach of active learning that focused on non-academic aspects of the curriculum.[152] According to this new approach, primary school students would be exposed to a broader range of sports and games as well as visual and performing arts to develop leadership, character, confidence, and solidarity.[153] A shift away from the exam-based education system was promoted by the Primary Education Review and Implementation Committee, which recognized the need for a more balanced school-based assessment system

and sought to propagate more meaningful learning focused on skills development and constructive feedback in support of both academic and non-academic aspects of a student's development.[154]

In primary school, children learn English, mathematics, and the mother tongue until the third year. From the fourth, science is introduced. Within the curriculum, the students are exposed to civics and moral education from as early as the lower primary level of the first year.[155] Primary school education culminates in the Primary School Leaving Examination, which is a national examination. Based on the results, students are allowed to choose their secondary schools. The final posting to the schools is, however, decided by the Ministry of Education.

Secondary School Education

The roots of the secondary school duration system in Singapore can be traced to the British education system during the colonial period. Secondary school education leads to the General Certificate of Education Ordinary Level (GCE O Level) examinations. Cambridge International Examinations, the Ministry of Education, and the Singapore Examinations and Assessment Board are the joint examining authorities for the Singapore–Cambridge Examination. Typically, students spend about four or five years in secondary school. In addition, students are expected to participate in various non-academic curriculum activities to build life skills such as sports, uniformed groups (Boys' Brigade, Girl Guides, National Police Cadet Corps, and St. John Ambulance Brigade),[156] clubs, and societies. Schools also build students' life skills through Character and Citizenship Education, National Education, the Programme for Active Learning, physical education, and the Values in Action program.

There are three *streams* in the secondary school system: Express, Normal (Academic), and Normal (Technical). The Express course spans four years, leading to the GCE O Level examination. The curriculum here ensures that students get a grounding in content-based subject disciplines such as science, mathematics, and the humanities. Another area of focus is on building the students' knowledge skills, that is, their capacity to think, process information, and be effective communicators. In particular, Character and Citizenship Education aims to inculcate values and build social and emotional competencies in students. The focus is to help students develop an understanding of the values that define Singapore society, show concern for the world that they live in, and demonstrate empathy.

In 1997, National Education was launched to foster national cohesion, the instinct for survival, and confidence in the future in every student through the teacher.[157] The initiative was intended to promote the core values of meritocracy as well as multi-racial and multi-religious harmony.[158] Thus, primary school curriculum now includes a daily flag-raising ceremony, the oath of allegiance, as well as visits to key state institutions. In addition, all schools have activities for four core annual events: Total Defence Day, International Friendship Day, Racial Harmony Day, and National Day.

The Normal course spans five years. Students join either the N(A) or the N(T) course. The curriculum in the N(A) course typically focuses on developing students in areas similar to those in the Express course. The main difference is that students take between five and eight subjects, depending on their academic ability. The compulsory subjects for both curricula are English, the mother tongue, and mathematics at both lower and upper secondary levels. Lower secondary subjects also include humanities and the arts as well as science subjects.[159] In the upper secondary–level curriculum, the additional compulsory subjects include "combined humanities," which has two components: a compulsory paper for social studies and an elective paper.

N(T) course students take six or seven subjects. The compulsory subjects in this course are English, mathematics, "basic mother tongue," and computer applications, the focus being to prepare students for technical–vocational education. After they graduate from secondary school, students can continue their education at an Institute of Technical Education. These institutes were established by the Ministry of Education in 1992 and are a key provider of vocational and technical education in Singapore,[160] offering courses that span between one and two years. These vocational courses include accounting, engineering, beauty and spa management, event management, and hospitality operations.

At the end of four years, students take the GCE N Level examination. Students from the N(A) stream who perform well in this examination qualify for a fifth year of study to prepare them for the GCE N Level examinations. Students from the N(T) stream can transfer to the N(A) stream in any year of study if they do well academically.

In recent years, new programs have been introduced into the education system. *Integrated programs*, for instance, are meant to cater to well-performing students who can benefit from engaging in broader learning experiences.[161] The six-year integrated program offered in selected secondary schools and junior colleges provide an integrated secondary and junior college education for secondary school pupils who want to proceed to junior college without taking the GCE O Level Examinations, providing greater breadth in the academic and non-academic curriculum.[162]

Over and above mainstream subjects such as English and mathematics, students can take up an art elective program or a music elective program at the secondary level for four years and at the junior college level for two years.[163] An enhanced art program and an enhanced music program were introduced in 2011 for upper secondary students at selected secondary schools.

Post-Secondary Options

Students who are not in the integrated programs can choose their post-secondary education after their GCE O Level examinations. Students who are generally academically inclined often enroll in junior colleges. Junior college education spans over two years and students sit for the GCE A level examinations to qualify for the various universities.

Students who are more inclined to practice-oriented courses can enroll in polytechnics upon receiving the relevant GCE O Level qualifications. The courses here span about three years. Polytechnic students with good qualifications can pursue tertiary education in the universities. Other students who are not academically inclined can pursue vocational courses at an Institute of Technical Education. Students who do well there can enroll in polytechnics to further pursue their area of interest. If they do well, they can pursue tertiary education in the universities.

Teacher Education

A tripartite relationship between the National Institute of Education (NIE), the Ministry of Education, and schools offers the collaborative framework that is necessary to further teacher learning and education research and to provide teachers with the best support for their work. While the Ministry of Education oversees the field of education as a whole, the National Institute of Education is the sole teacher education institute in Singapore, providing all levels of teacher education, from initial teacher preparation, to pre-service and in-service training, to graduate programs.

At the NIE, student teachers are taught academic skills alongside character building and leadership skills, with a focus on values. The various programs offer different features to the student teacher. For example, the Meranti Project gives student teachers the chance to explore Character and Citizenship Education, and the Group Endeavors in Service Learning program includes service learning projects that help build empathy and social skills by understanding community needs, thus educating student teachers about the broader context and responsibilities they will face as educators.

All student teachers are engaged by the Ministry of Education after a rigorous interview process. Applications are open to any potential candidate who has a degree or an international baccalaureate or has passed a polytechnic course, integrated program, A Level, or O Level. Mid-career professionals may also be eligible. There are various programs that selected candidates can enroll in. With the relevant university degree, they can join the one-year Post-Graduate Diploma in Education (PGDE) program, with primary or secondary specialization. The PGDE (Physical Education) program is offered to successful candidates who will teach physical education in schools; it too offers primary and secondary specializations. Those who are interested in pursuing their career in teaching after A Levels can join the four-year undergraduate bachelor of arts or bachelor of science degree programs offered by NIE.

The NIE also plays an integral part in the continual learning of teachers, offering courses for teachers to continually update and upgrade themselves. In addition, it offers higher degree programs for teachers so that they can pursue masters or doctor of philosophy degrees.

Lessons from Singapore

The effectiveness of the Singapore education system can be gauged from the many accolades the Republic has received. A report published by the Office of Economic Cooperation and Development in 2015 placed Singapore at the top in mathematics and science scores.[164] As it is illegal for parents to fail to send a child under twelve to school, there are few challenges in getting the students enrolled in primary schools. Students also have a wide repertoire of options to choose from after primary education.

Aside from the benefits of attracting foreign investments, Singapore's adoption of English as the working language has helped to transcend the language barriers among its various ethnic groups and has ensured that everyone can enjoy equal opportunities. At the same time, its bilingual policy has ensured that young Singaporeans do not forget their culture and heritage.

By enforcing continual learning in teacher education, the Ministry of Education has also put in place plans to keep teachers up-to-date with relevant pedagogical and technological knowledge to improve learning in the classroom. For their part, teachers are constantly upgrading their skill sets for learner-centric approaches in the classroom. In addition, schools have been provided with the infrastructure and hardware to enable technology-mediated learning.

One of the challenges that the government does face is that of striking a balance between an examination-oriented culture and the need to develop the student or learner holistically in areas other than examinable subjects. While testing and high-stakes examinations do offer an accountable and meritocratic method of measuring academic achievement, they have been criticized for their effects on teaching methods, the mental well-being of students and their parents, as well as attitudes toward vocational training and blue-collar jobs.

To resolve this issue, the future direction of the education system will require a shift in focus from a highly competitive approach that is overly focused on grades and book smarts to one that celebrates and encourages programs and courses in dance, drama and other non-academic talents. Such an approach, it is hoped, will ultimately equip students with life skills and help them stay abreast of real-world scenarios and current events.[165] Outdoor education is also being promoted.[166]

Placing the emphasis on manpower has helped Singapore to grow into a successful commercial hub, and the investments made in building the abilities and competencies of teachers have contributed to the strengthening of Singapore's education system. The continued focus on improving education at every level has paid significant dividends with regard to the economy, but this has always been but one part of the Ministry of Education's educational remit. The other is the ongoing endeavor to instill national awareness and consciousness among young Singaporeans, building and maintaining cultural harmony. In this regard too, the Ministry of Education's efforts can be judged a remarkable success.

■ REPUBLIC OF SOUTH AFRICA

Background

Harm de Blij noted in 2005 that among Americans, the continent of Africa, especially the region south of the Sahara, is mostly in the realm of the unknown: *terra incognita.* The exception to our knowledge situation is the Republic of South Africa.[167]

American awareness of South Africa is largely due to its being the most economically developed and wealthiest African nation. Additionally, much of its history has been influenced by Dutch and British colonial rule. The British connection has motivated many Americans to consider this nation. Also, South Africa's 1948 separation of the White European citizens from all other non-White citizens, a policy called *apartheid,* brought international negative attention to South Africa. Today, apartheid is no longer national policy. South Africa reigns as Africa's main economic powerhouse, with strong economic and political connections with the global community.

South Africa's strategic location at the most southern part of the African continent has motivated various European groups over the centuries to engage in battles for control. In 1652, the Dutch established a base, now Cape Town, for the East India Company. The prime reason for the base was to supply provisions to Dutch ships rounding the Cape of Good Hope, destined to points east. The indigenous peoples, mainly people identified as the Khoi, early became concerned that these Whites had intentions of staying. This view was confirmed in 1658, when the Dutch East India Company established the first school, mainly for imported Black slaves.[168]

The Dutch were not alone in recognizing the value of this land. Indeed, Europeans, even during the 1500s, had sited trading posts along the west coast of Africa. However, these early posts and surrounding settlements remained primarily on the coastal areas;[169] but early in the 1700s, Dutch traders and settlers increased their numbers, pushing the native peoples from their lands. Following the Dutch came the British, French, and Germans. In 1795, the British invaded the Cape area, pushing out the Dutch. The British returned it to the Dutch in 1803 and retook it in 1806. The 1820s saw increasing British settlement in a region about 800 miles east of Cape Town. Between the Dutch and the British, the indigenous peoples were pushed further from their historical lands. Toward the end of the 19th century, Europeans controlled all the African peoples' territories.

As increasing numbers of British immigrated to the region, the Dutch became alarmed at potentially being colonized by the British. Therefore, in 1836, the Dutch commenced what is now called the "Great Trek." In this trek, the Dutch migrated from the Cape region to the interior region. Here they discovered fertile lands and ample water. However, the region was also inhabited by native peoples. As they did in the Cape region, the Dutch pushed the indigenous peoples from their lands, often hiring them as laborers. In time, the Dutch established two republics in this area: the Transvaal and the Orange Free State. During this time, the Dutch had also created their own language, Afrikaans. Today, outside of Pretoria, there is a monument to the Afrikaans language, the only monument to a language in the world. Today, Afrikaans is still the major language in the country, with English a close second. Nine other native languages are spoken in the country.

With the Dutch vacated from the Cape region, the British established Cape Colony and Natal. However, with the discovery of diamonds in 1867 and gold in the 1870s in the two Dutch states, the British eventually declared war against the Dutch, resulting in the Anglo-Boer War (1899–1902). The British were victorious, but they later realized that to maintain dominance over the native peoples, they needed to align themselves with the Dutch. In 1909, the Dutch (the Boers) and the British signed an agreement that essentially laid the foundation for combining the Dutch and British territories into one nation. In 1910, the nation, the Union of South Africa, became part of the British Empire.[170]

Although the new nation, actually a British colony, solidified European power, including the German and French settlers, the national arrangement still disadvantaged the Blacks, who made up more than 75 percent of the population. Schools, mostly organized and managed by church groups (primarily the Dutch Reformed Church) were established to serve different racial groups. Schools for the Europeans, primarily Dutch, British, French, and German, aimed to install in the White children that it was their right to have dominance over the indigenous peoples in all matters, social, economic, and political. Other schools, also primarily administered by religious organizations, did create curricula for the natives, stressing Western culture and Christianity.[171]

The indigenous Africans perhaps at first welcomed the inclusion of their lands under the rule of the British Empire, but they certainly were not content playing subordinate roles in what they perceived as their country. In 1912, the native Africans created the South African Native National Conference, later known as the African National Congress. What made this Congress unique was that it was the first-ever organization on the African continent to have various indigenous tribes cooperate and collaborate to gain political dominance in their country.[172]

In 1931, Great Britain granted complete independence to South Africa. Independence did not bring peace and harmony to the various European settlers. Conflicts continued, primarily

between the British and the Dutch—the Boers. Seeking to control the new nation, the Boers, identifying themselves as Afrikaners, established the National Party in 1933. The National Party gained control of the nation in the 1948 election. Non-White South Africans were not allowed to vote. With the National Party in power, it introduced the policy of apartheid, the complete separation of Europeans and non-Europeans.[173]

The policy of apartheid not only prohibited the mixing of non-Europeans, the indigenous peoples, with Europeans, it further ruled that particular ethnic groups had to live separately in particular areas, called homelands. These homelands incorporated 260 small locales in various separate sections of the country. Essentially, these homelands were in poor undeveloped "backwaters" with few natural resources, initially lacking electricity and communication systems. The minority Whites were awarded the remaining areas of the nation. In contrast to the homelands, the White state was a contiguous land area. It contained most of the nation's natural resources, all of its major cities and seaports. Further, the White state was connected to its various regions by railways, highways, and airways. One of the most important natural resources was extensive productive agricultural land. Even today, most of the large agricultural lands are owned by the White community.[174]

Since the Black homelands had no real resources or any industry, the non-Whites had to commute from their homelands to their workplaces in towns and cities in the White state. If they worked in the cities, they were required to have passes and documentation to explain the reason they were within city boundaries.

Although schools in South Africa had essentially neglected the education of the natives in the past, the schools for the natives (Black), Coloreds (mixed race), and Asian Indians (people originally from India) were even more oppressive under apartheid. No longer was their education to make them Western. The Bantu Education Act was passed by the White government in 1953, putting the education of Blacks, Coloreds, and Indians under direct government control. The government's stance on the education of non-Whites was made clear by the then minister of native affairs, a Mr. Verwoerd:

> There is no place for him (the Black African), in the European community above the level of certain forms of labour . . . for that reason it is of no avail for him to receive a training which has as its aim absorption in the European community, where he cannot be absorbed.[175]

Almost as soon as the Bantu Education Act went into effect, there was resistance from the Blacks, Coloreds, and Indians of South Africa. Indeed, non-European South Africans had protested their conditions before the Bantu Act. The African National Congress became a thorn in the government's side, so much so that the national government outlawed the party in 1960. Resistance went underground.

In 1964, the White government passed the Bantu Laws Amendment Bill, removing the last vestige of rights that non-White South Africans had: the right to live in any urban area. The only exception to this prohibition was if a non-White was employed by a White person and if the non-White paid taxes on his or her earnings. But the government ruled that while working within the White community, he or she possessed no rights with regard to the government that controlled his or her actions. These "homeland" citizens did have some rights in the collective of the homelands. They could vote for 45 elected members to a Legislative Assembly that "governed" these regions. However, the White republic's government appointed 64 chiefs from various tribes to oversee the actions of the Assembly members. These chiefs, being appointed by the White government, were given powers to overrule the actions of the 45 elected members, which they often did.[176]

In the late 1960s, a "Black Consciousness" movement gained ground. To counter its effectiveness in rousing the people, including liberal White South Africans, the government outlawed the Black Consciousness movement in 1977. Violence had erupted the previous year, 1976, at schools in a homeland, Soweto (Southwest Township). One trigger to the violence was the students' demand that the language of instruction not be the mother tongue of the particular students' ethnic group. The students felt that such instruction limited their learnings and options

after school. Most students also shunned the official national language, Afrikaans. They wanted English. English was the high-status language; it had greater utility both within and outside the country. The government ignored the demands. Students rioted in the streets of Soweto, and some students were shot and killed. Although the government quelled the uprising, the students did receive the option of having their instruction either in Afrikaans or English. Most students selected English.[177]

The masses continued to push for their rights as full citizens of South Africa. In February 1990, F. W. DeKlerk, the last White head of state, lifted the bans on the various political organizations. Political prisoners, the most famous being Nelson Mandela, were released. The nation was on a new path. A major way point was achieved in 1994 with South Africa's first democratic election. The people elected Nelson Mandela as the first indigenous president. The following year, an Education White Paper was produced that presented "the vision for a new racially integrated education system based upon the principles of democracy, equity and the redress of past inequalities."[178]

The South African Education System

Today, the Republic of South Africa is a parliamentary democracy. Attaining and maintaining this form of representative government has been challenging. Numerous provocations to democracy have resulted from the region's past actions such as the Bantu Act, passed in 1953, and the policy of apartheid, enacted in 1948. Adding to the disputes, especially for the country's educational system, is the diversity of its peoples. As of 2015, just over 72 percent of South Africa's population is Black, almost 9 percent are Coloreds (mixed race), almost 9 percent are Asian Indians, approximately 9 percent are Whites, and 2.5 percent are Asians.[179]

However, variety exists among these various groups. Among the Blacks, there are nine native languages. Among the Whites, there are English and Afrikaans, the latter a version of Dutch. Among the mixed race, there are variations of languages; Asian Indians have a diversity of languages. And among the Asians, there are numerous languages. The national government recognizes 11 official national languages. The major languages in terms of numbers of speakers are isiZulu (11.6 million native speakers), isiXhosa (8.2 million native speakers), Afrikaans (6.8 million native speakers), and English (4.9 million native speakers).

As indicated previously, the government essentially has two national languages, Afrikaans and English. In schools, students had rioted in 1976 in Soweto to demand that they be educated in English, not in their ethnic mother tongue or the Afrikaans language. Their demand was based on the reality that being educated and competent in English would allow them to participate more fully as South African citizens. The government at first resisted their demands. Today, schools do have all students being educated in English, but also keeping their native cultural tongue.

Another test facing modern South Africa is enabling various political parties to play a greater role in national government. While the country is a parliamentary democracy, all of its leaders since the election of Mandela have been members of the African National Congress. Additionally, all the South African presidents have been members of the Zulu tribe. Another issue facing the country is that the majority of businesses and agricultural lands are mostly in the hands of Whites. While there is a strong middle class, it is mostly populated by Whites, Coloreds, Asian Indians, and Asians. Certainly, Blacks are moving into this middle class, but far too many Blacks still live in townships or in "shantytowns" with limited access to running water and electricity. Despite these shortcomings and issues, South Africa is still the most technologically developed and modern nation among all African nations, especially among those in sub-Saharan Africa.

The nation's educational system has played and continues to play a major role in addressing past and current inequities. It has mandated that all learners through the age of 15 or grade nine have quality educational experiences. Major educational goals are fostering a strong belief in democracy, reducing racism and sexism, raising people out of poverty, developing appreciations of diverse cultures and languages, and fostering allegiance to the nation.[180] Indeed, all citizens

of the Republic consider themselves members of a "rainbow nation" that includes citizens of various colors and hues.

The Department of Education

South Africa's basic aims and goals are articulated by the Department of Education. Directives for enacting guidelines at the provincial and local levels also come from the department. The provincial educational departments oversee both public and private schools at the various levels: preprimary, primary, secondary, and higher education. The specific creation of curriculum and the organization of instruction are undertaken by local school authorities.[181]

Perhaps the department's greatest challenge is equalizing educational access and occasions for quality education. Throughout the nation, there is a great disparity among educational options for those living in both rural and urban areas. In urban areas, many children live in slum cities. Few slum cities have schools. Rural areas do have some schools, but they rank far below city schools in quality.

Adding to the problems of rural schools is the fact that few teachers wish to teach in them. Also, the rural poor have other issues besides having their children attend school. Daily chores usually carried out by rural school-age children take precedence over formal education. Schools in city slums also have difficulty attracting teachers.[182]

Despite slow progress, the Department of Education remains committed to improving education for all students. The movement to quality education did receive a boost, at least at the conceptual level, from a policy document, *Curriculum 2005,* which outlined a new national framework for curriculum development and implementation. Innovation in both curriculum and instruction was directed to start in grade one and continue through the various grade levels. The concept of outcomes-based learning was integral to the suggested innovation. The new curricula and instructional strategies were to be perfected by a decentralized educational system.[183]

Curriculum 2005 called for a systems' break. No longer was education to fill up students' heads with knowledge and skill sets. No longer was the purpose of education just to pass tests to graduate to the next educational level. The educational experience was to develop in students the disposition of lifelong learning. This learning called for interactions among learners and between learners and teachers. Teachers were urged and educated to be facilitators, not just deliverers of information.

Observers from outside South Africa would conclude that in this century, South African education has improved. One of the authors of this book visited this nation five years ago and came to the conclusion that democracy was working to a degree; education was improving and being offered to the nation's children and young adults not only in cities, but somewhat in former "homelands." Certainly, the stress on outcomes-based education has been softened. The stress on interactive learning and putting students in control of their learning has been achieved in some schools, mostly urban schools. Some interpret the softening of outcomes-based education as meaning that it never really was introduced effectively. Christopher Merrett asserts that public education along with the nation's health system has seriously worsened in this century.[184] He states that many teachers often vacate their classrooms to engage in union meetings that address their professional concerns rather than the concerns of their students.[185] We agree that South African education at the primary and secondary levels still has a long way to travel before it overcomes the apartheid legacy of keeping the Whites privileged and the rest of the people denied of their rights.

PRIMARY EDUCATION.   The primary school in South Africa engages students in six years of study starting at age 6. The curriculum in the first three years emphasizes reading, writing, and arithmetic. Additionally, study of a foreign language is introduced. Most instruction is given in either Afrikaans or English. Foreign languages are usually selected from one of the remaining nine national languages. However, students are not limited to these nine national languages. Because of the large numbers of Asian Indians, there is demand for Hindi and other major Indian

languages. In the remaining three years of primary school, students focus on the following discipline and subject areas: mathematics, general science, environmental studies, history, geography, health education, and language, including the student's first language and the foreign language previously selected. The curriculum also stresses physical education, art, and music, often reflecting the local cultural groups where the school is located.[186]

As noted before, teachers are urged to be facilitators rather than lecturers. On paper, it appears that instruction stresses inquiry and group investigations. However, many teachers still favor "teaching as telling." One issue confronting teachers in both urban and rural schools is the scarcity of quality educational materials.

SECONDARY EDUCATION.   Secondary education involves six years, grades 7 through 12. In the first three years, the curriculum has some flexibility, stressing a broad knowledge of the various disciplines, introduced in the later primary grades. In the last three years, students select a discipline area for concentrated study. The discipline areas offered are general and commercial education; natural sciences, such as biology and chemistry; social sciences, such as geography, anthropology, and sociology; history; technical studies, such as computer science; art; and, finally, agriculture. Primary language and foreign language studies continue. Essentially, the curricula in these last three years are offered to allow students either to enter the workforce with specific knowledge and skills or to advance to higher education either at the university or technical school levels.[187]

Pedagogical approaches in the first three years involve collaborative learning and an open-ended inquiry emphasis. During the last three years of secondary study, students engage in more apprentice-like and lab-like learnings. Teachers assume greater supervisory roles in their pedagogical methods. Of course, these methods are the ideal.

Teacher Education

For most of South Africa's history, teacher education has been sporadic. As did most other professions, teacher education evolved as the demand for more-educated citizens increased. In South Africa's case, teacher education was hindered by the separation of the Whites from all other groups. This was commonplace well before the official implementation of apartheid. For those few Black, Colored, and Indian children who did attend school, the teachers often had little more education than the students being taught.

In the late 1800s, at least among the White population, the view that teachers should have some formal education to mold young minds arose. Early forms of formal teacher education were established in colleges that were quite similar to U.S. normal schools. These institutions followed a similar evolvement, becoming teacher-training colleges. Teacher-training colleges furnished the majority of teachers until 1998, at which time teacher education shifted from the college level to the university level.

Many teachers' colleges did not wish to lose their identities and chose to become affiliated with particular universities. With this arrangement, teacher education students could apply their college credits toward particular university degrees. This connection strengthened in 2005 with the publication of the National Qualifications Framework. Today, in South Africa, education students do receive what can be defined as a basic liberal arts curriculum and then a specialty in education or a subject discipline.[188]

Lessons from South Africa

In reflecting on lessons that might be learned from education in South Africa, it appears potential lessons may come not solely from the country's educational evolution, but from its actions writ large. From South Africa's initial settlement into modern times, the European settlers viewed the indigenous peoples as less than Whites. They enslaved some. They certainly took advantage of all native peoples.

Perhaps a major lesson for us is that although education can bring knowledge, education brings a change in values, attitudes, and actions only slowly. Curricula introduced often bring memories of past events that are irritating. Emotions are very challenging to direct into positive realms when injustices have been part of prior histories. South Africa and its educational system are still reaping the negative spoils of apartheid. Inequalities in education offered remain very present still. The differences between the urban and the rural areas still create tension.

If we utilize a large lens, we see that South Africa's education has contributed to the nation becoming modern and rich. The Republic's government has fostered prosperity. However, Nathan Geffen has argued that while post-apartheid years have nurtured economic growth in the nation, the rewards of such growth have not equally benefited all South Africans. The wealthier citizens, including "new Black economic elites," have benefited disproportionately.[189] While South Africa has now rejoined the legitimate world family of nations, it certainly has new challenges. The economic prosperity of the nation and its democratic government have been a magnet to other Africans living in nations that are in political turmoil. Many Zimbabweans have migrated to South Africa. Congolese citizens feeling the conflict in their nation have entered into the "rainbow" fabric of the Republic of South Africa. In Cape Town, many Somalis have become small entrepreneurs. One would assume that the government and the educational establishment would welcome these new potential citizens. However, as Geffen recounts, many have been met with xenophobic behaviors such that numerous new arrivals are willing to return to their nations from which they fled.[190] Education in South Africa, as in all countries, can rather easily increase students' cognitive knowledge. But, changing emotional intelligence, belief systems, is much more challenging. We in education delude ourselves if we think we can easily facilitate acceptance of others. We must remember that it was not South Africa's educational system that brought respectability to its shore; it was that the nation realized that apartheid was a cancer. The nation had to accept that basic rights are for all citizens. Now it has to realize such rights for new citizens.

Education still has much to do to bring equity to all citizens. Although the nation is the richest in the African continent, it still has major economic and racial divisions within its borders. Indeed, the Republic of South Africa has singular challenges in all phases of its social, economic, and educational realms. Part of its unique challenges are due to the repeal in 2010 by the national government of the Bantu (Black) Authorities Act of 1951. That act essentially created the homelands but also inaugurated the administrative organization of the homelands' territories to authorities from the various tribes.

With the end of apartheid and the introduction of democracy, members of the Congress of Traditional Leaders of South Africa pushed for being recognized in the new democratic republic. Essentially, they lobbied for the passage in 2003 of the Traditional Leadership and Governance Framework Act. The passage of this legislation assured that those in leadership positions in the homelands under apartheid would retain their positions of power. Essentially, this law provided the chiefs of these former homelands with their administrative powers of these regions. Today, the various chiefs actually have more power than they did before democracy was declared. Their powers have the potential of diminishing democratic government in these areas.[191]

Essentially, chiefs have control of education in these homelands. The central government, with its push for educating all citizens for the 21st century, at times is in conflict with traditional tribal values seemingly enshrined within the various chiefs' powers. A Rural People's Movement (RPM) has resulted that strives to eliminate the Traditional Leadership and Governance Framework Act. Members of this movement argue that the act enhances the power of tribal authority. The chiefs are recipients of various levies and dues paid by members of the particular region. Essentially, members of the RPM, and even those who are not members, argue that they see only abuse from chiefs. In these homelands, poverty exceeds 50 percent. Unemployment is high, for there is no industry in the villages. Put plainly, citizens of these homelands stress that "We voted for a democracy of the people by the people. We did not vote for individuals," for chiefs.[192] Most rural citizens are demanding municipalities end the government of chiefs. It remains to be seen

CURRICULUM TIPS 10.1   **Ways to Address New Curricular Challenges**

1. Provide all educators access to computer programs that deal with global and national educational issues and practices.
2. Develop an educational library in comparative education. Include books, pamphlets, and government documents.
3. Develop an educational library section that deals with 21st-century issues, forecasts of various futures, and how such futures might impact local, state, and national education.
4. Schedule time in faculty meetings to discuss futures and international educational practices and issues.
5. Provide opportunities for teachers and support staff to discuss educational issues on a global scale.

if the national government will listen to the people. Will education in rural regions become equivalent with the educational establishment in urban areas?

Ideally, education not only enables individuals to become active citizens in society, but also prosperous citizens. Today, there is still a range between the economic haves and have-nots, and this division continues to expand. While schools and new communities are being built to educate and house the have-nots, these citizens are still challenged to participate in the benefits of democracy. South Africa still has too many shantytowns that encircle many of its major cities. Most often the inhabitants of the "communities" are migrants from rural areas.

Perhaps in ruminating about education in South Africa, we can view South Africans' actions as an ongoing experiment that has potential relevance to all nations. However, we must remember that education, even that deemed excellent and effective, cannot solve the world's problems. It might be well for the reader to recall the four myths of education that were discussed in Chapter 6.

10.4 Unequal Education in South Africa
Despite the end of apartheid in 1994, the performance and success of young South African students still largely fall along racial (and income) lines. What inequalities parallel those in the United States? How are they different than ours? Discuss.

https://www.youtube.com/watch?v=Qh0L--drwP0

Conclusion

This chapter began with the statement, "We are well into the second decade of the 21st century." We are living at "warp-speed" globalization. Truly, we are sharing the planet with others. Increasing numbers of us are recognizing that our times are uncertain and are confronting us with novel problems to which we do not have immediate answers—and perhaps never will.

This time situation must be recognized by all concerned with education. As noted by Robert Cooper, "when you have a problem you cannot solve, enlarge the context."[193] This is the reason for this last chapter—enlarging the context of education to acquaint ourselves with five countries. Considering these countries will not solve our problems, but such observations may provide new insights. Certainly, we cannot address challenges and generate educational solutions solely within the confines of our national borders. We are not an island.

To educate students for effective membership in the world community, we as educators and contributing members of the public must comprehend peoples living outside our borders. We require some grasp of their histories, their cultures, their aspirations, their world contributions, and even their problems. We must apprehend how they have addressed and currently address the challenges of education.

The five countries (Finland, Australia, China, Brazil, and South Africa) were not chosen randomly. They are exemplars of regions. These countries are presented to stimulate our awarenesses and insights and to furnish us knowledge of their educational histories and current educational actions so that we can contemplate our own educational behaviors and challenges with expanded cognizance.

All nation-states educate their citizens. Yet some, if not all, nation-states at times miseducate their citizens. From our purview of these countries, we observe that all possess the commonplaces of schools: curricula, pedagogies, educational materials, and school personnel (teachers, administrators, supervisors, and so on). At least currently, all schools have their students' interests at heart. These school systems draw curricular foci and pedagogical approaches both from within their countries

and from the world community. The commonplaces of education, while common, are shaped in unique ways by the political and social cultures within which they function. From the stories of these countries, we can extract how they are preparing their student-citizens to comprehend the world community—varied spaces outside their country. We must also query ourselves on this point.

All countries, including those in this chapter, create educational institutions to pursue their interests, as do we. However, as Cooper articulates, the essential "question . . . is how they define" their interests. "Is their view wide or narrow? How do they want to shape the future? What sort of country do they want to be? What kind of world do they want to live in?"[194]

Discussion Questions

1. What is the concept of "global mind"? How does it impact education around the world?
2. According to Hanvey, what are the five dimensions of focus that educators must embrace while offering advice regarding education?
3. Why is the education system in Finland regarded as one of the best in the world? Which reforms of the Finnish system would you like to adopt in your own country?
4. What are the similarities and dissimilarities between the teacher education programs of the countries discussed in the chapter?

5. Which country mentioned in this chapter closely resembles yours in terms of primary and secondary education? If none of them do, describe and analyze the unique characteristics of the education system of your country.
6. What are the various curricular and instructional strategies adopted by the five countries discussed in the chapter?

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