

ENCYCLOPEDIA OF

DISTANCE LEARNING

Second Edition



Volume I

Editors: Rogers, Berg, Boettcher,
Howard, Justice, & Schenk

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Encyclopedia of Distance Learning Second Edition

Patricia Rogers
Bemidji State, USA

Gary Berg
Chapman University, USA

Judith Boettcher
Designing for Learning, USA

Carole Howard
Touro University International, USA

Lorraine Justice
Hong Kong Polytechnic University, Hong Kong

Karen Schenk
University of Redlands, USA & North Carolina State University, USA



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List of Contributors

Addison, Elise L. / <i>Troy University, USA</i>	1384
Adkins, Mac / <i>Troy State University Montgomery, USA</i>	1944
Agapiou, George / <i>Hellenic Telecommunications Organization S.A. (OTE), Greece</i>	1204
Aisami, Riad S. / <i>Troy University, USA</i>	1384, 1628
Alavi, Maryam / <i>Emory University, USA</i>	334, 987
Alkhalifa, Eshaa M. / <i>University of Bahrain, Bahrain</i>	1541
Allen, Stephanie / <i>Brigham Young University, USA</i>	562
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Ally, Mohamed / <i>Athabasca University, Canada</i>	571, 580, 1660
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Asher, Gregg / <i>St. Cloud State University, USA</i>	1155
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Foreword

This collection of recent work in online learning is truly amazing if viewed from a historical perspective. It is only a little over twenty years that the technology supporting the Virtual Classroom™¹ invaded distance learning. In 2007 the Sloan C projected estimated there were three million online college students and it has estimated that in 2008 there will be four million college students enrolled in credit online college courses.

In the mid 80's the Annenberg/CPB Project issued a series of Requests for Proposals for projects to demonstrate the potential impact of new technology on distance learning. Among some of the funded projects at that time was "Intermedia" for a CAI system on a single computer, but structured in Hypertext, making it an early version of the Web; and audiographic conferencing via an analog pen devices over phone lines, to allow graphical conferencing which we would now do with tablet computers. The one project that really started what this book is about was a Computer Mediated Communication System (CMC) on the NSF/ARPA network that would allow a class distributed in both space and time to engage in text oriented stored conference discussions in an asynchronous manner and which included electronic mail and other group support features. This was the "Tools for the enhancement and evaluation of a "virtual classroom™" which was given support at 1986 at the New Jersey Institute of Technology (Hiltz, 1994).

In that effort seventeen different college courses in different topics were offered in a quasi experimental study (e.g. French, humanities, business, computer science, etc.). Most online course sections were matched with the same face to face version of the course by the same instructor with the same syllabus and final exam. The results were that there was NO DIFFERENCE in any matched pair with respect to grades and exams, except in the one computer science programming course where the online students did significantly better (Hiltz, 1994). Many professionals were certain that the results would be worse when online learning was compared to face-to-face courses. These courses were offered to students in the face to face program at three separate institutions as at the time the three colleges/universities did not have a college credit distance program outside of courses offering continuing education credits. We also felt this was a better way of validating our hypothesis since the typical distance course, at that time, was a correspondence course using documents, audio tapes, or video lectures with no interaction among the students. Students in such situations tended to view any improvement as useful. For our effort the use of students that normally took only face to face classes was a much greater factor in enhancing the validity of what we were doing.

That early system was EIES (Electronic Information Exchange System] at NJIT which began operation in 1976 to investigate making improvements to scientific communications via computerized conferencing (Hiltz, 1993). A number of NJIT researchers in different departments were involved in this early effort. Since we had the technology for persistent asynchronous computer conferencing with threaded discussion structures, we started to use it with our classes as a more convenient way of holding discussions and coordinating the class activities. Within a few years we became convinced that this was a major innovation to improve face to face classes. In any course with pragmatic content such as design or problem solving courses that involved tradeoffs, student discussions became a much greater principal component of the courses. In typical technical or critical analysis courses there was never adequate time for such discussion in the face to face environment.

However, when we went to some research sponsors with the idea that using discussions over a computer could improve face-to-face classes, it was considered absurd. We faced many opinions about this technology that implied that face to face classes were the end all to education and nothing could be done to improve them. In fact some of these views are still very prevalent among educators and administrators:

“You lose something by not having human contact” says Anita Levy of the American Association of University Professors –Tune In Tomorrow: New technology and higher gas prices are driving a boom in online education across the United States, Stefan Theil, Newsweek, August 9 2008.

Many of the negative views we encountered in early days of this innovation are still prevalent. What is very significant in this compilation of papers is the increasing number of efforts by academics, who are the majority of authors, to conduct more evaluation studies of this new learning environment. There are still important biases to overcome in carrying this technology to what should be the normative goals for efforts in this area.

Some of the comments we faced in those early days were:

- No one should be allowed to teach a regular college course online because it would short change the student and this would not be ethical!
- Computers were cold and impersonal and no one would want to use them for human communications.
- They were a lot more expensive than using a 10 cent telephone call or even a physical letter.
- They could not provide the entire college experience and the other necessary support services (libraries, tutoring).
- The courses would not provide acceptable learning for a degree program.
- Campus students should not be allowed to take these courses.
- They would not provide rewards for academics seeking Promotion and Tenure Credit.
- They were more work for the instructor than face to face courses.
- This will destroy colleges and replace them with commercial attempts at colleges and universities.
- Some students did not have their own computer.

Some of the above are still being said but what was even more troublesome in the 90's and still in the new century was the sudden impression that offering college degrees was the new money maker. We had a wave of commercial investments in private enterprise to deliver courses and too many college administrators that made an argument akin to:

Think of it! A thousand students in one course using only one expensive professor to prepare polished and canned lectures with a staff of fifty graders or automated quizzes and exam questions. A real money machine!

Still today many institutions have created an artificial distinction between the “normal” face to face courses and the online distance courses with different degrees for each mode of delivery. One of those normative goals should be that it is up to a student as to whether they want to take any course in the face to face or the distance mode as part of any degree program. This goes beyond the current furor on blended courses. All courses could be a mix of students in these different modes and in some cases students could choose to come to only certain lectures by design. Restructuring all the services of any given college or university to make this possible is still an open challenge. However, current regulations at some institutions requiring distance students to have the same inoculations as on campus students might be a “bridge too far.” However justifying lower in state tuition charges for online out of state students is still a thorny social-political-economic problem for state institutions.

There was no official recognition in those early days that there were some poor quality face to face courses and that the success or quality of any educational effort is very dependent upon the instructor teaching a course, whether face to face or online. It also became clear that the methodology of learning used by the instructor had to be very different in online courses than the traditional lecture model used in most face to face courses. From our early work emerged very clear evidence that online courses required a major emphasis on collaborative learning among the students themselves, with instructors acting as guides and consultants to the process of collaborative learning used by the class as a whole as well as by small project teams for some assignments.

Perhaps worse than the objections by academics and administrators was the movement in the 90's to great major efforts at mega commercial colleges. There were major investments and many resulting failures of new ventures which began to bring back some sanity to this area. However, I am aware of instructors being forced to teach online courses where sixty to a hundred students was considered the normal class size. With our current technologies there is no way such classes can be taught in a collaborative manner and one wonders what the resulting product really is. The great advantage of increased collaboration becomes information overload as the number of students in a single course increases. The result of large class size is often the elimination of group discussions and the simulation of old fashioned correspondence courses in the computer environment. The eternal battle in education is the conflict between quality and lower costs. Too many consumers of

a college education do not yet have the experience and background to be able to evaluate what is a meaningful online class or a meaningful college education and it is not clear the accreditation process is uniformly addressing this problem. Given the growing costs of a college education there would seem to be a lot more room for a strong consumerism movement and supporting non profits to facilitate public knowledge of standards for excellence in this area.

Another area still not clear to everyone working in this area, but beginning to appear in some of the papers in this volume, is that we need better versions of the technology that support more efficient communications for learning. This is contrasted to just supporting administrative needs of institutions, which seems to be the current characteristic of most of the commercial products in this field. Many insights in this area are available in the literature on R&D in this field but have not made their way into available systems except perhaps for the work in such open source efforts like Moodle. However, we need more case studies with evaluations of using new technology in this area, and the ability of educators in the same academic field to organize their own networks on the best teaching methods and assignments for similar courses taught at different institutions. If the educators would begin to collaborate as fast as the students have learned to, we could move a lot farther into the future at a much faster pace. There will be major advances in the technology and the methodology that will allow major restructuring of educational processes. One thing that is certain is that the technology is going to advance and exhibit major changes. Those on the administrative, learning and R&D aspects of online learning should not assume the technology they are now using is going to be the same five years later.

One normative goal (Hiltz, 2005) will be supporting continuous teams of students that move at a preferred pace through a program of study in a collaborative knowledge structure maintained by faculty, who are also guides and judges of accomplishments, rather than the current division of courses. A given team could move as fast or as slow as they need to given their makeup and degree of time commitment. There will be more emphasis on faculty roles to meet the needs of a given team for content expertise or process tailored to the given team situation. Students as they advance will become contributors of material and guidance to other students in a Montessori type atmosphere. What has been happening at the college level will filter down to the public school system and might move even faster into the future with increasing computer literacy among the young. To some extent what we have been viewing is a drawn out transition to a virtual environment for much of education.

Murray Turoff
August 20th 2008

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ENDNOTE

¹ “Virtual Classroom” by NJIT in the mid 80’s and largely ignored and unenforced.

Murray Turoff is an information scientist who has been involved in the design and application of group oriented Computer Mediated Communication (CMC) Systems since 1970. In 1971, he designed and implemented the “Emergency Management Information System and Reference Index” as a nationwide EMISARI to the hundreds of professionals around the U.S. managing the 1971 Wage-Price-Freeze. This system continued to be used by the federal government for emergency operations until the mid 1980’s. After joining NJIT in 1973 he developed the Electronic Information Exchange System (EIES) as a research test pad for different applications of CMC by being able to structure the communication process for different applications. Originally developed for scientific and professional communications exchanges (communities of practice) in 1975 it was extended to applications in project management, standards, handicapped communications, collaborative writing, Delphi Design and Learning Applications. The development of the virtual classroom and various special software communication features to support learning was a major accomplishment of that effort. Since 9/11 Dr. Turoff has turned his research efforts to Emergency information/Communication System applications and was a co founder of ISCRAM (Information Systems for Crisis Response and Management). In that application training and learning is also a very important component. Some assorted papers on his efforts are at his website .

Preface

In the twentieth century, the dominant approach to education focused on helping students build stocks of knowledge and cognitive skills that could be deployed later in appropriate situations. This approach to education worked well in a relatively stable, slowly changing world in which careers typically lasted a lifetime. But the twenty-first century is quite different. The world is evolving at an increasing pace. When jobs change, as they are likely to do, we can no longer expect to send someone back to school to be retrained. By the time that happens, the domain of inquiry is likely to have morphed yet again.

We now need a new approach to learning—one characterized by a demand-pull rather than the traditional supply-push pull mode of building up an inventory of knowledge in students' heads. Demand-pull learning shifts the focus to enabling participation in flows of action, where the focus is both on "learning to be" through enculturation into a practice as well as on collateral learning. (Seely-Brown & Adler, 2008, p.30)

Since the first edition of the *Encyclopedia of Distance and Online Learning*, my colleagues and I have experienced life at "twitch speed," a term coined by Marc Prensky in describing 21st century learners and their learning lifestyle. Most of us who are a little beyond the teen years would presumably be unable to keep up with the pace of new learning, new knowledge gains and, specifically, new technologies that support our new learning. Happily, this is not true! The authors in this second edition of the *Encyclopedia of Distance and Online Learning* have clearly kept up with the pace and pulse of life in the 21st century educational community.

What continues to surprise many of us who have made the jump to "twitch speed" with its accompanying new technologies and educational delivery/learning environments, is what amounts to a fear of change. Those who tolerate change, or who have some idea of the potential invigorating environment distance and online learning can provide, have moved into the new environments (e.g., web-based learning, Second Life, Vodcasts, and so on) with some sense of enjoyment of the challenges these environments bring to teaching strategies and our definition of "teacher" and "learner" as well as when and how we are "in school." Those who do not tolerate change or perhaps even fear the change associated with distance and online learning, raise issues such as those discussed by Murray Turoff in the foreword to this Encyclopedia.

This atmosphere of resistance from some of the educational community ignores and even denies the fact that we do have something off-balance and even quite limited in the traditional structure of our educational institutions. Our current structure was created, not out of consideration for the future identity of a campus or school poised to enter the twenty-first century, but rather due to financial constraints and convenience of access to education in particular physical locations in communities. Being almost entirely place-bound provides some insight into why many institutions now face a crisis of survival. We could argue from the academic side that this is ultimately a crisis of curriculum, which includes discussions on physical and virtual locations of educational institutions, program and course relevance, right sizing program offerings, etc. But more importantly, we should recognize that this curriculum crisis is based on the changing nature of learning and what it means to be an educated person in the twenty-first century. Thus P-12 schools and post-secondary institutions in the twenty-first century should be considered (among other things of course) as creating critically aligned curricular offerings that provide a rich environment for curricular innovation and creativity, with faculty and leadership well versed in the intricacies of the changing global learning environment.

Intuitively, and based on data available throughout the articles in this edition of the *Encyclopedia of Distance and Online Learning*, we can see the potential advantages given to moving P-12 and post-secondary learning environments into configurations that provide a rich medium for growth and ability to adapt to the changing needs of twenty-first century living. That is, we expand our sense of the "classroom" to include a variety of locations (virtual and physical), a variety of times (synchronous and asynchronous), and a variable sense of who is teaching and who is learning (social interactions, small groups, collaboratives, cross-cultural communications to name a few examples).

I suggest that what we have collectively stumbled upon is a sense of the evolution of our schools and universities toward a configuration that fosters an environment responsive to the education **demand-pull** described in a recent article in

Educause by John Seely Brown and Richard P. Adler (2008). While not the most elegant or catchy of economic terms, the concept of demand-pull in education is much more accurate than the corporate image of market-driven forces, an image often criticized by faculty for its tendency to encourage band-wagon curricular responses. Rather, Brown and Adler are talking about creating environments that provide the right elements that can readily respond to the real needs of today's learners. This should not be confused with "just-in-time" learning, though there may be some aspects of that embedded. Instead, this is deliberate positioning or repositioning of programs to create a critical diverse learning environment that can respond to the new and large scale demands of living in 2009 and beyond.

This concept is in contrast to what higher education, and indeed much of the P-12 education community often identifies as a birthright: to provide (supply) a body of information or knowledge, assume that this is what is needed for all learners to move from grade 4 to grade 5, from freshman to sophomore and so on...and to push that as our curriculum and expect the enrollments to pull us along into success. That mode of operating, characterized by Brown and Adler as the **supply-push pull** model, is no longer viable today for an entire institution. It may be that delivering knowledge, that is, teaching in the "writing on the blank slate" sense is necessary for some programs, but we should not automatically assume that education operates in this mode particularly when we think, for example, of liberal education as the basis for twenty-first century learning. And it seems that much of the uneasiness about distance and online learning centers around those aspects of P-12 and post-secondary foundations of more advanced learning: the fear is, the novice learner (at any level of being a novice) cannot advance without a supply-push traditional classroom experience. This fear typifies the ongoing struggle between the essentialist and the constructivist assumption about knowledge and learning: in knowing a certain unit of blocks I can pass to you or is it building blocks and what you (and society) can make of it?

It is time for the educational community to reframe the meaning of education and what it means to be an educated person in the twenty-first century. It seems that what we ideally intend to do is to create a basis for learning how to learn, rather than supply what we assume all learners should learn before (push) they begin the real work of learning. Considering how 21st century learners take in information and how quickly that information is used and re-used, it seems our real task is to seek a reinvigorated approach to creating an environment of demand-pull throughout our educational community typical of growing fields. Media, teaching strategies, and delivery modes follow these design changes in curriculum. So, new technologies, distance and online learning, cell-phone group work, social collaborations, and crowd sourcing become part of the repertoire in the rich environment of teaching and learning and not points of contention in an either/or disagreement between those who embrace change and those who do not.

I think the reader will find convincing evidence in these pages! We are excited about the latest release with over three hundred and fifty articles including over one hundred new articles and over one hundred updated articles from the first edition. On behalf of my fellow editors: Gary A. Berg, Judith Boettcher, Caroline Howard, Lorraine Justice, and Karen Schenk; welcome to the *Encyclopedia of Distance and Online Learning, Second Edition*.

Patricia L. Rogers
Lead Editor

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Acknowledgment

With the writing of this page, the editors finally pause for breath.

Producing a second edition of the *Encyclopedia of Distance and Online Learning* was a major team effort that required large amounts of time and energy. Often, our emails crossed the globe in near real time as we corresponded on articles, direction, and deadlines. And through all of our efforts, we once again had the support and over-all vision from Dr. Mehdi Khosrow-Pour and his great team at IGI Global. Their help and guidance over the last few months before the manuscript went into production are a testament to the caliber of wonderful people working at this prolific publishing house!

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*Patricia Rogers, Gary Berg, Judith Boettcher, Carole Howard,
Lorraine Justice, and Karen Schenk
Editors*

About the Editors

Patricia L. Rogers, PhD, is currently the interim dean of the College of Health Sciences and Human Ecology and the School of Graduate Studies at Bemidji State University. Dr. Rogers has doctoral preparation in both art education and instructional systems and technology from the University of Minnesota. Recently, she was a professor and graduate program coordinator at Bemidji State University in the department of Professional Education. She is a member of the Minnesota Commissioner of Education's Online Learning Advisory Council, is the past-chair of the Minnesota Online Council, and won the first Pioneer Award (2006) for online teaching and learning. Dr. Rogers is a Getty Fellow (1996 Dissertation Fellowship from the Getty Center for Arts in Education) and a Fulbright Scholar (2000-2001) working on designing distance-learning programs in Iceland (Iceland University of Education: Kennarahaskola Islands). She consults internationally on e-learning, is the author of several articles on instructional technology, and regularly presents at technology and education conferences. She was the keynote speaker at UT 2001, a technology and education conference held in Reykjavik, Iceland, and presented follow-up research at The Learning Conference in London, England July 2003 and the Hawaii International Conference on Education in January 2004.

Gary A. Berg, PhD, is currently director of extended education and distance learning for California State University, Channel Islands. He has worked in higher education for many years as an administrator and was director of extended education at Chapman University. Dr. Berg has developed many distance learning format courses and programs, been interviewed for numerous national publications, and consulted for educational and government organizations on the use of distance learning. He is author of *Why Distance Learning?* and over twenty articles on higher education and the use of technology in education. Prof. Berg is the editor of the book "The Knowledge Medium: Designing Effective Computer-Based Learning Environment", 2003, Information Science Publishing.

Judith Boettcher, PhD, is a consultant and author in the areas of designing for learning, faculty development, and the future trends of technology in teaching and learning. Dr. Boettcher is also a lecturer at the University of Florida in distance, continuing, and executive education. Prof. Boettcher has consulted with a wide range of major universities and organizations; has been a Syllabus Scholar since 1996; and serves on a number of editorial and academic advisory boards. Dr. Boettcher has been involved with the leading edge implementation of technologies for online and distance instruction for over 25 years; and has authored and edited many articles and books on these topics.

Caroline Howard is an author, editor, consultant, and educator. She is an associate professor at Touro University International. Prior to joining Touro, she was on the faculty of Emory University's Goizueta Business School and the University of Colorado at Colorado Springs. Caroline holds an MBA from The Wharton School, University of Pennsylvania, and a PhD in management information systems from the University of California, Irvine, where she received honors for her teaching and research. She has published a number of articles on technology and learning. Her books include *Winning the Net Game: Becoming Profitable Now that the Web Rules have Changed*

(Entrepreneur Press, 2002), *The Design and Management of Effective Distance Learning Programs* (Idea Group Publishing, 2002), *Distance Learning and University Effectiveness: Changing Educational Paradigms for Online Learning* (forthcoming, Information Science Publishing). For more information on Caroline, visit her Web site at www.techknowledge-e.com or www.carolinehoward.com.

Lorraine Justice, PhD, is currently at the Hong Kong Polytechnic University. Dr. Justice has served in higher education for the past fifteen years, teaching in the areas of industrial design and human computer interface design. She has published and presented her work worldwide on topics such as interface design. She assists educational institutions worldwide with curriculum development. Dr. Justice was responsible for organizing the First China-USA Industrial Design Conference in Beijing, and the First Doctoral Education in Design Conference in Ohio. Dr. Justice was recently made a fellow of the Industrial Design Society of America (IDSA). She has twice served on the Business Week/IDSA IDEA jury for best products and is a jurist for international paper competitions.

Karen D. Schenk, PhD, is a professor of Information Systems at the University of Redlands, California, and North Carolina State University, teaching courses in information technology and systems design. Her research has focused on distance education, lifelong learning, decision support systems and human-computer interfaces. She is currently senior partner of K. D. Schenk and Associates Consulting, working with companies on decision support systems development and IT internal customer relationships. Prof. Schenk is the co-editor of two books “*The Design & Management of Effective Distance Learning Programs*”, 2002, Information Science Publishing, and the book “*Distance Learning and University Effectiveness*”, 2004, Information Science Publishing.