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.

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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 .*