

Citation: K. Petrova (2001). Teaching differently: A hybrid delivery model. In N. Delener & C.-N. Chao (Eds.), "Facilitating Competitiveness and Change in the Global Environment. Proceedings of the 2001 GBATA International Conference" (pp. 717-727). July 2001, Istanbul, Turkey.

TEACHING DIFFERENTLY: A HYBRID DELIVERY MODEL

Krassie Petrova, Auckland University of Technology

ABSTRACT

A variety of frameworks for distant, online and flexible learning have been proposed. This paper looks into the defining features of some of these models and describes the hybrid model of flexible delivery. The hybrid model integrates face-to-face classes of instructed practical works, online learning environments and distance learning units. Based on guided and self-centred student learning the model is capable of recognising multiculturalism and diverse student learning needs. It supports and encourages contributions from all participants and a team approach to teaching and learning.

INTRODUCTION

Changes in modern society have led to a renewed and increased interest in online, distant, and flexible learning models (Kurbalija, 1999). Distance education has been used systematically to create a learning environment framework capable of satisfying the needs of geographically dispersed learners. While online learning can be construed as one of the forms of distance learning it has the added features of flexibility and interactivity. Learning online does not necessarily imply great geographical diversity. The flexibility it offers can be incorporated and used beneficially in teaching and learning models which implement face-to-face education, distant classes, or a combination of both. Online educational models embrace new information technology developments and typically use the Internet as a medium for the distribution of education material and for communication.

While enthusiasts for educational technology argue that the quality of online education will inevitably continue to increase, others question the role advanced educational technology plays in assuring that online delivered educational material and on-line facilitated learning comply with the accepted standards of higher education (Garson, 1999), and some even argue that students enrolled in online courses are in fact not getting the quality they have paid for. Such concerns have prompted the formulation of guidelines and regulations for quality education online – basically requesting that the same learning outcomes and requirements are applied to online and to face-to-face classes. With a quality assurance in place universities can now respond more confidently to the pressures to provide low cost-high quality education which can respond rapidly to immediate workforce needs and also reach new markets of students (Estabrook, 1999).

A variety of frameworks for distant, online and flexible learning have been proposed, and among them - a hybrid model of flexible delivery. The hybrid model integrates face-to-face classes of instructed practical works, online learning environments and distance learning units. Two undergraduate classes - course modules in a Bachelor of Business degree offered by the Auckland University of Technology (AUT) incorporate some of the dimensions of the hybrid model.

AUT is a prime provider of business education in Auckland and in the New Zealand North. In recent years the traditional face-to-face classroom teaching has gradually changed to absorb and make place for technological innovations such as Web based client-server learning environments and online discussion databases. The focus is not on distance but on flexible education. The educational philosophy of our business education programmes is based on a capabilities building approach to teaching and learning with a high level of personal instruction and mentoring.

In the next section of this paper distance, flexible, open and online learning models are first described, based on selected literature sources. Some of the major advantages and disadvantages of distance and flexible learning are briefly mentioned. A hybrid model of teaching and learning, which enables course delivery in a flexible mode and aims to satisfy the needs of a diverse student base, is presented in the section following. The development of several graduate and undergraduate courses is used to illustrate the concept of the hybrid model. The paper concludes with a discussion on the advantages and limitations of the model. How well does it suit the needs of the current teaching and learning environments? What are the implications for the academic programmes and institutions?

MODELS OF TEACHING AND LEARNING

Traditional tertiary teaching institutions are largely based on a synchronous model of content delivery where teaching and learning occur at the same time, at the same place and at the same rate for all students. New technological developments have created a truly open learning environment, and a new paradigm of distance and flexible learning has emerged. Two key points are the foci of the discussions found in the literature: What is the relationship between distance learning and flexible, open and online learning? What are the advantages and disadvantages of flexible and online learning: for educational institutions as well as for students?

Distance and flexible learning

In the traditional teacher-centered model of learning, the instructor controls the learning process. Students have access to resources which are primarily located at the school or the university they attend. This model is still successful and continues to deliver a good educational product as it is based upon a well-established and well-researched learning paradigm. Nevertheless, the basic schooling method of students meeting their teacher face-to-face in a classroom has been complemented by various "distanced" learning approaches ever since printing became economically feasible, and even before that - if we consider the scholarly exchange of letters as an educational activity. The term distance education has been used to represent a variety of educational models (Sherry, 1996), its hallmarks being the separation of the learner from the instructor in time and in space and the employment of a wide range of technologies – from mail to TV broadcasts. The enormously fast progress in the area of information technology (Higgins, 1998) and the need to compete in the open educational market (Epper, 1997) are among the driving forces behind the phenomenon we can observe today – the enormous growth in the number of educational institutions offering distance learning courses and programmes. (Currently, the IDLC Course Finder directory includes 127 countries and more than 50 000 courses; the Google Web directory on distance learning refers to 183 educational institutions offering distance courses using English as the language of instruction.)

In learning environments where learners are geographically dispersed and often do not know about each other's existence, the level of flexibility reached by distance delivery can vary significantly: while broadcasting on radio and TV requires all students to listen or watch at the same time (and participate in a synchronous communication activity), working with books and teaching materials is an example of an asynchronous, or contiguous communication which offers a significantly higher level of flexibility in terms of "when" to participate in the learning process. Flexible learning allows students to select their own studying parameters – not only time ("when") and place ("where") but, to a certain degree, their own pace ("how"). Although the curriculum usually places significant constraints upon the negotiability of the course material, some modern teaching and learning methods (such as teaching contracts) help to add a new dimension ("what") to distance learning. A flexible learning package can be tailored to suit the individual needs of a student while meeting the course objectives. Flexible learning is the appropriate framework for meeting the changes in the business organization and the management of work and the workplace. As Garrick & Uscher (2000) point out there is a perceived need for flexible learning structures more congruent with the flexibility of labour processes, markets, products and patterns of consumption and flexible learning links the notion of lifelong learning with that of flexible work.

Open learning

Not always flexible learning is distance learning. Often, students are not removed from a shared environment but are given a framework within which to take responsibility for their own learning. Distance learning is always flexible and “open learning” is another term used to denote a distance learning model which is flexible in the way participants are selected, assessed, and supported throughout a course. In addition to the four dimensions mentioned above ("where", "when", "how" and "what"), a learning package designed for open education might involve a "who" dimension: for example, a course might impose no enrollment restrictions such as prerequisites or prior knowledge of the subject. Brophy et al (1998) describe the open learner as a learner who usually studies for a recognized qualification through the use of specially prepared materials, without relying on teacher support but by the use of new information and communication media.

Open learning is the contextual model within which flexible and distant learning occur. In New Zealand, some educational institutions have adopted open learning as their primary teaching and learning model but the majority are not yet interested into "opening" up to the global student community. Instead, they focus on their existing students' educational needs as more and more students study part-time and become lifelong learners. An increasing demand for a well developed, customizable and flexible teaching and learning environment exists and supports a new educational paradigm which according to Higgins (1998) is strongly influenced by two factors: the need to compete in the open educational market, and the progress in the area of information technology.

Online learning

The predicted market for distance learning technology should increase by thirty three percent in 2001 compared to the demand in 1996, according to Plains & Schwartz (1998). Discussing the opportunities for educational technology providers, they suggest that because universities already have established and developed computer networks and telecommunication facilities, they offer good chances for business success. Educational institutions are well equipped to embrace current technological innovations and use them to experiment with and enrich teaching and learning. Harasim (1999) presents the following time frame of the technology development in institutions of higher learning: computer and telecommunication networks in the mid-1970s, followed by the advent of the Internet in the early 1980s, and finally – the World Wide Web (WWW) in the early 1990s. An early project (now known as the Virtual-U) aimed to address the deficiencies of the traditional face-to-face teaching and learning model and to build a flexible framework for advanced pedagogies through the extended use of information and telecommunication technologies (ICT).

Online learning is a term most often used to indicate that the Internet (or a corporate intranet) and the WWW are used as a technological infrastructure for course delivery. ICT are the foundation upon which different online learning models are developed - not only in tertiary institutions but in the industry as well. For example, Shrivastava (1999) suggests that the concept of online learning communities where lifelong learning occurs can be used as framework for the management of the educational use of emerging digital technologies. An online learning environment (which requires ICT but also adequate institutional policies and learning practices) is especially important in the context of workplace knowledge and training needs. Shrivastava describes an exemplary online learning environment which supports the formation of online learning communities. Implemented in the corporate sector, the system delivers business value (“knowledgeable employees”), public image value (“the education company”) and customer loyalty value (“informed customers”) as illustrated by Motorola’s CAMP (China Accelerated Management Program).

The literature and the Web itself are rich on examples of Internet-based classes, courses, programs and virtual universities (for example, Holt et al, 1995; Bourne et al, 1997; Duderstadt, 1997; Reining & Teh, 1998; Johnson, 1999; Latchman & Latchman, 2000; Javid, 2000; Rankin, 2000). The research on the now prevalent form of distance learning - online learning, and more specifically – on its effectiveness, is not so abundant as Arbaugh (2000) and Lu et al (2000) point out. Although Brennan (2000) concludes that effectiveness of online delivery of education and training has not established yet its functional boundaries the literature on online learning is supplies ample material on the strengths and weaknesses of distance and flexible learning (including online learning). Phipps & Merisotis (1999) identify some significant research gaps that require further investigation and information – among them the need to study the relationship between course content and technology and between student learning styles and

technology, and the interaction of multiple technologies which are typical for the “third generation” of distance learning systems.

Two major strengths of distance and flexible learning are identified by Ehrmann (1995): the ability to provide access to powerful resources (such as libraries and experts) from around the world, and the opportunity to study at home or at work, at "any time". A weakness is identified in Denning (1999): he points out that "no automation can displace the primary social function of a teacher" and further elaborates on the need of students to be "admitted" to the profession rather than "simply" be taught about it. Distance and flexible learning cannot offer an entrance to the network of professionals who command positions of high social status and significant financial power.

Most of the literature sources point out that there are two different perspectives on the advantages and disadvantages of flexible online education – the student perspective and the educational institution perspective.

According to Liaw & Huang (2000) advantages include the opportunity to reflect on one's own learning, to engage in synchronous communication (for example, chat rooms), to participate in asynchronous self-paced learning, to work and collaborate with others and, according to Downes (1998) - includes the opportunity to gain access to individually tailored (personalized) education. Disadvantages include cost (of ICT resources), increased dependence on service providers, lack of immediate person-to-person interaction, the need to develop additional skills (for collaboration, group discussions, forums, online presentations, video-conferencing, etc).

From institutional perspective, advantages include increased enrollment numbers, raised profile and competitiveness, better access to funding, more opportunities for collaborative research. Disadvantages: spiraling costs, need to train teachers (Denning, 1999), to upgrade courses (Ehrmann, 1995), to pay for the additional involved in labour-intensive online delivery. Costs are high in the short term, expected to be lower in the long term - but savings will be passed over to students, in order to maintain competitiveness. There is also the need to provide additional learner support and to "humanize" the process of distance learning. Flottemesch (2000) points out that it is difficult to gauge students' reactions and to monitor class discussions. In web-based flexible learning, the increased flexibility of interactivity typically increases the complexity of Web-based instruction (Liaw & Huang, 2000). Downes (1998) identifies problems that might arise because of the inadequate international standards for accreditation and recognition of qualifications and the lack of shared protocols for delivering education online and also plagiarism, ownership and copyright issues (see also Grys, 1999). In the global environment, there is also a need to adapt and customize educational material for different cultures.

It is beyond the scope of this paper to elaborate in greater depth on the advantages and disadvantages briefly discussed above, and to analyze their interrelationships and relative importance. Still, one critical success factor emerges from the comparison of the points made by different authors: in adopting open, and more specifically, online learning environment, each educational institution must determine carefully the direction and the underlying philosophy of its development effort, and incorporate distance and flexible learning provision into the institution's strategic plans.

Although it seems that not all universities have thoroughly analyzed and conceptualized their teaching philosophies with respect to distance and online learning, the success of an educational model which involves online learning and is implemented at the tactical level of education strongly depends on the degree at which the model has been incorporated into a strategic development plan and has become an integral part of the vision and the philosophy of the educational institution. A case in point is the development of flexible learning environment at AUT. In an attempt to enhance teaching and learning flexibility, in 1998 the Faculty of Business started an on-going project to develop and maintain an online discussion database (Business On Line - BOL). BOL is an application, which supports a hybrid delivery mode where courses can be taught in a combination of face-to-face and online classes.

THE HYBRID MODEL

In his critical review of the role of technology on providing education of quality, Garson (1999) states that “as a supplement to face-to-face education, online technology is useful. As a replacement, it is a threat to liberal education.” He suggests that hybrid approaches to learning which complement traditional delivery with online

technology are among the best designs but also warns that although beneficial to learners who would undoubtedly opt for a mixed model of learning experience, mixed delivery carries higher economic cost for the education provider

A hybrid model of delivery strives to preserve the balance between face-to-face and technology-based instruction. Following Epper (1997), it blends the use of communications technology and modern knowledge dissemination techniques into a fulfilling and interactive teaching and learning space. The hybrid model relies on self-motivation and on the belief that using the Internet is only one of the means of delivering the course enhances effective learning. Discussing the delivery of four natural science distance education classes offered at the University of Oregon, Bothun (1998) states that the strength of university education lies in the mentoring process and no existing electronic interface can duplicate it. Student needs for flexibility can be met through the hybrid model without depriving them of the advantages of a face-to-face mentoring process.

The hybrid model incorporates various methods of content delivery and guided and self-centered student learning but more importantly is capable of recognizing multiculturalism and diverse student learning needs. It supports contributions from all participants - as Eddy et al (1997) put it "regardless of gender, ethnicity, or other measure of difference and diversity". The notion of offering education in hybrid or mixed models can be traced throughout the literature on educational delivery although there is no accepted definition.

Discussing the future of distance learning Neal (1999) predicts that while distance learning will undergo a process of standardization and consolidation - to be able to meet the needs for corporate training, new forms of electronic education will continue to flourish as more non-traditional students will seek degrees or will study to achieve intellectual enrichment. Neal concludes that in-person communication must be appropriated and woven into the distance learning experience. In his critical study of the commercialization which threatens students and faculty as distance learning stakeholders Noble (1998) points out that students need and demand not only virtual but face-to-face learning experience.

Emphasizing on how important it is to recognize the fact that CIT can be used to provide different types of distant education, Estabrook (1999) describes a hybrid model approach which he compares to what he calls a "commodity" model. The hallmarks of the hybrid model are the integration of face-to-face teaching into a distant learning course, the reliance on faculty involvement and on student-to-student interaction. Technology is seen as a platform which does not serve to detach the course from the institution that offers it as education involves opportunities beyond instruction - such as mentoring and socialization, and building friendships later to become business connections. Estabrook notes that a hybrid course is less scalable and that hybrid programs would be delivered at a higher cost compared to face-to-face only programs. Examples of the approach described by Estabrook are the Graduate School of Library and Information Science at the University of Illinois and the Fuqua School of Business at Duke.

Practitioners and researchers have recognised the importance and indeed the need to incorporate at least some face-to-face component in courses offered primarily online. A distance learning graduate course in Technical Communication offered at Mercer University is described by Leonard (1996). Although the course is delivered mostly through the Web, face-to-face meetings with students are arranged for feedback and verbal suggestions. Student projects include electronic documents published on the class Web site. Drawing conclusions from his experiences, Leonard concludes that "distance learning will not replace the traditional classroom... The classroom learning experience is essential to provide structure and cohesiveness to the group".

Similarly, McGinnity et al (1999) develop a concept of teaching a distributed collaborative PGDip/MSc course in a "more flexible, on/campus/off-campus approach" aimed at both part-time and full-time students. The courses taught represent a range of electronics and software systems modules. It is offered in collaboration by a consortium of three universities - National University of Ireland, Galway, the Athlone Institute of Technology and the National University of Ireland. Acknowledging the difficulty of providing practical laboratory sessions, the authors suggest that laboratory work (largely replaced by the use of various simulation packages) be supplemented by face-to-face workshops. The workshops play an essential role in bringing staff and students together and in providing social support to learners.

The hybrid model described by Grycz (1999) is the one adopted by the International Centre for Information Management Systems and Services ((ICIMSS) at the Nicholas Copernicus University at Torun, Poland. ICIMSS (which the author claims was perhaps the first institution in Central and Eastern Europe to implement distance education) delivers courses in information technology. The model involves a two-week session in face-to-face conditions, with students combining a technical class with managerial one at the beginning of a twelve week semester. Grycz argues that face-to-face exposure has advantages that are missing in distance education implementations conducted exclusively online – such as the bonding of students in a class which supports team work and group problem-solving and provides the basis for interaction among various national leadership teams.

Breuleux et al (1999) describe in detail the CollabU seminar hosted by five North American universities. This master's level course is taught online for nine weeks however students regularly meet face-to-face in their local educational institutions and are enrolled locally. They receive credit from the collaborative seminar under a local course. The authors note that course development and delivery require extensive resources but offers "impressive potential for refined design and investigation of learning in higher education".

Based on examples such the one described and on the general idea that the hybrid model fosters the ability to discuss and work through issues both face-to-face and online, an undergraduate business course class was developed to employ the model. The targeted participants are students in their second year, studying towards a graduate diploma or a degree. The course development started in 1998 and is still an ongoing project (see also Petrova, 2001).

Objectives

The course was designed as a foundation paper broadly introducing information technology for eBusiness to students who were assumed to have limited background and exposure to information technology. The enrolment is open to part-time students as well, and it is not unusual to encounter students who work as network managers or engineers. Such students are knowledgeable in certain areas in which they specialise while the other group of learners would be expecting to acquire knowledge entirely through the course of s studies. The first objective of the development process therefore was to offer flexibility of content and satisfy the different needs of full-time and some part-time students. The second objective naturally became the provision of some flexibility in class attendance through offering some instruction in distance mode – a feature of the course of equal value to all students but especially part-time ones. Believing that communication in "cyberspace" has already become a vital component of business communication, a third objective was set – to develop the capability to work as a team in virtual space and the capability to participate, in a collaborative way, in asynchronous online communication.

Design

The course continues for 13 weeks. The full amount of class contact (if delivered face to-face) is twenty six hours and comprises 13 sessions in a computer laboratory and 13 sessions in a lecturing environment. The contact hours were reduced to a total of 8 weeks, so the relative weight of the distance component is not very high. Students receive face-to-face tuition in a lecturing environment which comprises of a presentation and a discussion (students, the lecturer, or a guest speaker are the presenters). Presentation material are made available online, using BOL and can be accessed on the Web.

Eight independent learning units were developed for the laboratory classes. Only two of them require of students to attend the university (as they include some work within the university intranet). Students are provided with a computer laboratory if they prefer to come to school for the tutorials but they can do them at home or from work as well. The units are designed to equip students with understanding and appreciation of networking and data communications principles, the Internet and the Web and more specifically – with the technological requirements of various eBusiness models. They also include an introduction to HTML and Web authoring.

The assessment structure of the course consists of four assignments and a written examination. The assignments cover the learning objectives of the paper and the objectives of the course design as explained above: the first assignment (an individual one) is a research report presented in HTML and published in BOL (under a pen name).

The second assignment is a group effort which includes an eBusiness prototype and a business report. For this assignment student teams have the flexibility to collaborate both face-to-face and using BOL and are in control of their own project. The third assignment engages students in ALN-style interaction where they discuss a preset topic online as individual participants, and at the end of the discussion team up to summarise the discussion and draw conclusion from it. The assignment is structured into two such participatory activities.

Implementation

During a semester there are four to five classes running in parallel, and students in each class have their own lecturer. A module coordinator coordinates the team of lecturers. Student teams are formed within a class, and each lecturer is free to organise his or her class with a “flexible” degree of flexibility which is negotiated at the beginning of the semester. Learning resources published in BOL are available to all classes but each class has its own working area as well (to which all lecturers in the teaching team have access). Feedback from students is collected both online and through hard-copy questionnaires. Communication between lecturers and students outside class is almost exclusively through e-mail (BOL has its own internal mail systems as well). Student-to-student interaction occurs in face-to-face conditions, via e-mail, in the BOL discussion forum (asynchronous), and in the BOL chat room (synchronous; not used extensively).

Another undergraduate course (“Electronic Transactions and Security”) is currently being developed following the design above, and will be offered in Semester 2, 2001. The expected student body and student background are similar to the ones assumed for the information technology course. The design described was used to deliver 40 percent of a more advanced course (Issues in international business). In this case the distant and face-to-face modes were of the same weight. The students were of international background (different countries and cultures), with most of them non-English speakers but fluent in English. The content covered Internet business security and Web site evaluation.

One of the defining features of the design presented here is the in-built course content modularity (learning units). The course can be easily converted into a course taught within four weeks of class contact, followed by seven weeks of distance learning and a finishing two-week block, or a course with face-to-face on Saturdays, or a course taught entirely in a face-to-face class. The course has to be completed within the confines of the semester – it is not an open and flexible in this respect. The continuity during the semester is maintained mainly through the staged assessment structure which requires a deliverable at regular intervals. Such a hybrid structure would meet student demands for flexibility without compromising the quality of intramural learning and is in line with the movement from campus-based learning to Web-based education.

One can assume that supporting access to the best educational resources is a definite advantage to the learner while the exclusion from the network of professionals will be perceived as a disadvantage. Are there any other advantages and disadvantages to the student undertaking a flexible learning course in a hybrid mode of delivery?? What are the implications and the possible benefits and drawbacks for the educational institution offering such a course?

Student survey results

A small survey was carried among the 80 students who took the course in information technology in Semester 1, 2001. The first group of questions refers to different teaching models and to students’ perceptions about them.

The number of respondents was 55, out of which 37 were working. About 70 percent of the working students have jobs which to some extent are related to the course content. Asked if they would take the current class in distance Web based mode, 32 percent responded positively and 36 responded negatively. Asked which mode they would choose if the class were offered in all three modes (face-to-face, mixed, distance) – 51 percent chose the mixed mode, 20 percent - the Web based distance mode, and 30 percent - the face-to-face mode. Asked about their general preference (distance, face-to-face, mixed) 42 percent said that they preferred a mixed learning environment

and 56 percent - a face-to-face class environment. Only 10 percent of the students thought that in the future almost all education would be online.

The second group of questions was related to the experiences students had in class and with BOL. About 64 percent of the students they enjoyed (“Quite” and “A lot”) their current class. Approximately 66 percent enjoyed working on their group assignments (which have a significant online component) and 41 percent find BOL useful for teamwork. The same percent enjoyed the discussions held in BOL (only 11 percent said that they did not enjoy these discussions at all).

The last group of questions refers to perceived advantages and disadvantages of a mixed mode of teaching and learning (part face-to-face, part Web based). The advantages ranked as follows:

- More flexible, especially for working students (50 responses)
- Less travel involved; lower tuition fees (31 responses each)
- Less time consuming (20 responses)
- Easier to submit work online (10 responses)
- More efficient - less distractions (7 responses)
- Less peer pressure (5 responses)
- Easier to pass exams (3 responses)

The perceived disadvantages were ranked as follows:

- Less direct contact with lecturers (46 responses)
- ; less direct contact with peers (38 responses)
- Less direct feedback (32 responses)
- Not sure about quality (17 responses)
- Cost for Internet access; requires technical skills (9 responses)
- Not used to it (4 responses)

The results from the survey are in line with the finding reported in the literature. Students are well aware of the benefits of face-to-face learning and value the opportunities for direct communication with peers and lecturers but need the flexibility offered by distance learning models. Overwhelmingly students support a mixture of both models and it seems that hybrid models will suit well student demands. Even more so, the current economic environment has opened up the New Zealand educational market for a fierce competition. Developing flexible learning packages attracts students from an extended geographical area.

CONCLUSION

What are the implications for the academic programmes and the institutions of higher learning? It is hoped that students, and especially mature learners, will find the alternative of the hybrid model attractive than the current university tradition. Removing some of the barriers to access to education adds a strong competitive edge to an educational institution's marketing strategy. Flexible learning is becoming a realistic alternative as it offers choice and more opportunities, and improves the effectiveness and productivity of learning (Higgins, 1998). Tertiary institutions and programmes need to offer the flexibility required by students to remain viable and through a careful planning process might be able to offset the costs which sources suggest will inevitably increase.

The progression from childhood education to secondary (and) tertiary education, then to work and retirement has changed and what was a fairly straight line has now become a set of parallel lines where work and learning occur concurrently and continue even during the retirement period. Individual students' learning needs are no longer as similar as they were perceived to be in the traditional educational models, and resources which are located at different places around the world are accessible to distance students equipped with the latest information technology tools. The success and even the existence of an educational institution might depend on its approach to the demands for distance and flexible learning, and one possible answer is the adoption of a hybrid mode of delivery – an area of

teaching and learning in which research effort should be directed towards determining the variables of the model and their interrelationship.

REFERENCES

- Arbaugh, J. "Virtual Classroom versus Physical Classroom: An Exploratory Study of Class Discussion Patterns and Student Learning in an Asynchronous Internet-Based MBA." *Journal of Management Education*, Vol. 24, No 2 (2000): 213-233.
- Bothun, G."Distance Education: Effective Learning or Content-Free Credits?" *CAUSE/EFFECT*, Vol. 21, No. 2 (1998): 28-31.
- Bourne, J., McMaster, E., Rieger, J. & Campbell, J. "Paradigms for On-Line Learning: A Case Study in the Design and Implementation of an Asynchronous Learning Networks (ALN) Course." *JALN*, Vol. 1, No.2 (1997).
- Brenan, R. "Competing Views on Online Delivery of Education and Training." *Proceedings of the 8th Annual International Conference on Post-Compulsory Education and Training*, Brisbane: Australian Academic Press, 1999.
- Breuleux, A., Owston, R., Laferriere, T., Estes, N., Resta, P., Hunter, W. & Awalt, C. "CollabU: A Design for Reflective, Collaborative University Teaching and Learning". *Proceedings of the Computer Support for Collaborative Learning Conference*, Mahwah, New Jersey: Lawrence Erlbaum Associates, 1999.
- Brophy, P., Craven, J. & Fisher, S. *The Development of UK Academic Library Services in the Context of Lifelong Learning*. Manchester, UK: JISC, 1998.
- Denning, P. (1999). "Teaching as a Social Process." *EDUCOM Review*, Vol. 34, No. 3 (1999).
- Downes, S. (1998). *The Future of On-Line Learning*. (1998).<http://www.atl.ualberta.ca/downes/future/home.html>
- Duderstadt, J. "The Future of the University in the Age of Knowledge." *JALN*, Vol.1, No 2 (1997).
- Eddy, P., Murphy, S., Spaulding, D. & Chandras, K. 21st Century Leadership Practices Needed For Higher Education. *Education Vol. 117, No. 3* (1997): 327-331.
- Ehrmann, S. "New Technology, Old Trap." *EDUCOM Review*, Vol. 30, No.5 (1995): 41-43.
- Epper, R. "Coordination and Competition in Postsecondary Distance Education." *The Journal of Higher Education*, Vol.68, No. 5 (1997): 551-587.
- Estabrook, L. *Will Distance Education Destroy the University?* Laserow Lecture (1999).
<http://alexia.lis.uiuc.edu/~estabroo/willdistance.html>
- Flottemesch, K."Building Effective Interaction in Distance Education: A Review of Literature." *Educational Technology*, Vol.40, No 3 (2000): 46-51.
- Garrick, J. & Usher, R. "Flexible Learning, Contemporary Work and Enterprising Selves". *Electronic Journal of Sociology*, Vol. 5, No. 1 (2000): <http://www.sociology.org/content/vol005.001/garrick-usher.html>
- Garson, D. *The Role of Technology in Quality Education*. (1999). <http://hcl.chass.ncsu.edu/sscore/garson2.htm>
- Grycz, C. "Experiences with a Hybrid Distance Education Model in Central and Eastern Europe". *The International Working Conference on Building University Electronic Educational Environments*, University of California, Irvine (1999).
- Harasim, L. "A Framework for Online Learning: The Virtual-U". *Computer*, Vol. 32, No. 9 (1999): 44-49.

- Higgins, A. "Winds of Change and Paradigm Shifts: Correspondence, Distance and Open Learning." *Journal of Distance Learning, Vol.4, No.1* (1998): 23-29.
- Holt, P., Fontaine, C., Gismondi, J. & Ramsden, D. "Collaborative Learning Using Guided Discovery on the INTERNET", ICCE95, Singapore (1995). <http://ccism.pc.athabascau.ca/html/ccism/deresrce/icce95.htm>.
- Javid, M. "A Suggested Model for a Working Cyberschool." *Educational Technology, Vol. 40, No 1* (2000): 61-63.
- Johnson, G. "Issues to Consider When Creating a Virtual University." *The International Journal of Engineering Education, Vol. 15, No. 1* (1999): 8-16.
- Kurbalija, J. "Using The Internet To Train Diplomats." *A Virtual Diplomacy Publication* (1999). www.usip.org/oc/vd/vdr/diploedu.html
- Latchman, H. & Latchman, S. "Bringing the Classroom to Students Everywhere." *Journal of Engineering Education, Vol. 89, No. 4* (2000): 429.
- Leonard, D. "Using the Web for Graduate Courses in Technical Communication with Distant Learners." *Technical Communication, Vol. 43, No. 4.* (1996): 388-401.
- Liaw, S. & Huang, H. Enhancing Interactivity in Web-Based Instruction: A Review of the Literature. *Educational Technology Vol. 40, No.3* (2000): 41-45.
- Lu, A., Zhu, J. & Stokes, M. "The Use and Effects of Web-Based Instruction: Evidence from a Single-Source Study." *Journal of Interactive Learning Research, Vol. 11, No.2* (2000).
- McGinnity, T., Maguire, L. & McDaid, L. "Flexible Learning in a Cross –Border Environment. *The International Journal of Engineering Education, Vol. 15, No. 2* (1999): 137.
- Neal, L. "Distance Learning in the New Millennium." *NetWorker, Vol. 3, No. 4* (1999): 30-31.
- Noble, D. "Perspectives: Digital Diploma Mills: The Automation of Higher Education. " *NetWorker, Vol. 2, No. 2* (1998): 9-14.
- Plains, M. & Schwartz, K. "An Education in Practice", *Reseller Management, Vol. 21, No. 7* (1998): 84-88.
- Phipps, R. & Merisotis, J. *What's the Difference? A Review of Contemporary Research on the Effectiveness of Distance Learning in Higher Education.* Washington, DC: The Institute for Higher Education Policy, 1999.
- Petrova, K. "A Course Design for Flexible Learning". *14th NACCQ Conference*, Napier, New Zealand (2001).
- Rankin, W. "A Survey of Course Web Sites and Online Syllabi." *Educational Technology, Vol. 40, No. 2* (2000): 38:42.
- Reinig, B. & The, J. "Supporting Higher Education with the World Wide Web." *The Journal of Computer Information Systems, Vol. 39, No. 1* (1998): 76-83.
- Sherry, L. "Issues in Distance Learning". *International Journal of Educational Telecommunications, Vol.1, No. 4* (1996): 337-365.
- Shrivastava, P. "Management Classes as Online Learning Communities." *Journal of Management Education, Vol. 23, No. 6* (1999): 691-702.