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## EDITORIAL

Professional journals in the field of distance education provide an invaluable source of information for practitioners and researchers. Much can be learned from the literature contributed by distance educators in neighboring Canada who have many years of experience teaching at a distance. This issue of DEOSNEWS presents abstracts from recent issues of the *Journal of Distance Education*. AJDE is published twice a year by the Canadian Association for Distance Education (CADE). You may be interested in visiting the CADE Web site for additional information about the association <<http://www.cade-aced.ca/>>.

Abstracts from Volume XI, No. 2 (1996) and Volume XII, No. 1 / 2 (1997) of the *Journal of Distance Education* appear in this issue of DEOSNEWS.

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## JOURNAL OF DISTANCE EDUCATION

VOLUME XI, NO. 2 - 1996

Author (s): Som Naidu and Mary Oliver

Title: COMPUTER-SUPPORTED COLLABORATIVE PROBLEM-BASED LEARNING: AN INSTRUCTIONAL DESIGN ARCHITECTURE FOR VIRTUAL LEARNING IN NURSING EDUCATION

Pages: 1-22

It is hypothesized that problem-based learning has many advantages for learning and teaching, especially in practice-oriented professions. Although there is consensus on the generalized view of the process, there is not much in the form of specific guidelines on how problem-based learning (PBL) can be put to maximum use in group-based learning and teaching environments. Furthermore, little is known about what actually happens in the various phases of the process (such as problem analysis) and how these can be activated and systematically enhanced. The project reported in this paper set out to fill this particular void.

Nurses encounter problem situations on a regular basis as part of their work, which makes it imperative that graduating nurses are conversant with the problem-solving process as they make their transition from the classroom into the workforce. A sure and quick way to ensure this transition is to engage students in problem-based learning. In the course selected for this project, students were presented with three authentic problem situations representative of the content of the course. Students were required to approach the study of the problem with a defined architecture, which required focused reflections and the presentation of a critical reflection record at the end of the study period. All of these learning activities took place in a computer-mediated communications environment that enabled sharing of opinions and views on each of the problems among the student group. A study of the critical reflections of students on the problem situations revealed evidence of a systematic

approach to problem analysis and problem solving.

Author (s): Denis Hache

Title: LA PLANIFICATION STRATEGIQUE DE LA FORMATION A DISTANCE A L'ERE DE LA TELEINFORMATIQUE

Pages: 23-43

(paper is in French)

Teleinformatics in distance education poses a great challenge to secondary and tertiary educational institutions. The speed at which this technology is evolving and the need for new and appropriate pedagogical strategies is reshaping distance education into a new system of knowledge transmission. The arrival of the electronic highway, the creation of a world-wide classroom, and -- in the near future -- a world-wide university and library are only a few of the manifestations of the accelerated evolution of teleinformatics in education (Knight, 1995; Rossman, 1992). The technology's capacity to meet expectations rapidly and in a flexible manner has brought about new demands for service from non-traditional users while at the same time broadening the array of choices for the traditional clientele. This flexibility in reacting to ever-changing and varied demands requires an organization that is capable of responding to the evolution of internal and external environments. Inclusion of technology in education and its use to support study programs has created a new paradigm: planning that is orderly and pro-active and that supports and preserves the establishment's mission while allowing the system to evolve in accord with the changes. To make it possible, we propose a model of strategic planning that is adapted to the particular needs of distance education in a pro-active and technological environment.

Author (s): Walter F. Ryan

Title: THE EFFECTIVENESS OF TRADITIONAL VS. AUDIOGRAPHICS DELIVERY IN SENIOR HIGH ADVANCED MATHEMATICS COURSES

Pages: 45-55

A study was conducted to compare the differences in 1) the achievement of students who studied senior high advanced mathematics by distance education and students who studied senior high advanced mathematics by traditional means and 2) the success in postsecondary calculus courses of distance education senior high advanced mathematics graduates and traditional senior high advanced mathematics graduates. Results showed that distance education students were as successful in both achievement in senior high advanced mathematics and in success in postsecondary calculus courses as traditionally taught students. Probable factors contributing to the similar results for both groups are discussed.

Author (s): Patricia Fung

Title: ISSUES IN PROJECT-BASED DISTANCE LEARNING IN COMPUTER SCIENCE

Pages: 57-74

In the years since the inception of the Open University, UK (OU, UK), project-based work has been established as a component of many courses in the faculties of Arts, Social Sciences, Science, and Technology. Results from an early study of the desirability and feasibility of using project-based learning (Macmillan, 1975) indicated that this teaching methodology has a useful role to play in distance learning. There has, however, been no comparable use of it within the OU, UK, Mathematics Faculty. In its discussion of the first evaluation of a newly introduced project-based computing course within the Mathematics Faculty this paper considers how valid this methodology has proved to be within the different context of computer science. This discussion concludes that for a number of reasons it has proved more difficult to implement project-based work in the domain of computer science. This paper ends by considering the likely advantages and disadvantages associated with introducing electronic tutoring and conferencing to deliver this distance course and overcome the difficulties discussed.

Author (s): Ken Purnell, Eve Cuskelly, and Patrick Danaher

Title: IMPROVING DISTANCE EDUCATION FOR UNIVERSITY STUDENTS: ISSUES AND EXPERIENCES OF STUDENTS IN CITIES AND RURAL AREAS

Pages: 75-101

This study examines issues related to improving distance education course quality raised by university students in Australia. Focus group sessions were held in a number of rural and larger urban areas in the State of Queensland. Six interrelated areas of concern were identified: student contact with lecturers/tutors, assessment tasks, flexibility, study materials, mentors, and educational technology. These issues and the implications for the provision of distance education are examined in detail in this article. On some issues there were significant differences between participants in larger urban areas and those in rural areas. Participants especially appreciated real time interaction with other people in their studies, strongest in rural areas and contrasts with earlier models of distance education where students were often presumed to be fairly autonomous learners. The nature of support distance education students want is also changing, particularly in rural areas. The findings of this study support more learner-focused approaches to distance education especially as we move towards greater use of information technologies for communications and learning experiences for students.

Author (s): Don Olcott, Jr.

Title: DESTINATION 2000: STRATEGIES FOR MANAGING SUCCESSFUL DISTANCE EDUCATION PROGRAMS

Pages: 103-115

Distance education is at a crossroads. Despite the unprecedented growth of educational telecommunications, colleges and universities have yet to harness the full potential of technology to transform the teaching and learning process. This article examines some key lessons from distance education practice over the past ten years that must be addressed for developing viable distance and distributed learning systems for the 21st century. The author argues that current outreach and distance

models will not be successful in the highly competitive, student-driven educational environment. Major changes in financing, accrediting, assessment, and faculty workload will be imperative for institutions to compete in this environment. Recommendations for practice and strategies for a renewed commitment to the distance learning enterprise are presented. The author concludes by advocating that higher education institutions must learn to function more like a business and provide responsive, timely, and cost effective programs in the home, the workplace, and the traditional classroom. "Education on demand" will dominate the marketplace and those institutions that can adapt to these changes will thrive. Conversely, those who fail to mobilize their institutions may find themselves out of business. The choice is ours.

VOLUME XII, NO. 1 / 2 - 1997

## SPECIAL FEATURES

Author (s): Gary Poole

Title: BACK TO THE FUTURE: WHAT CAN WE LEARN FROM CURRENT DEBATES ON EDUCATIONAL TECHNOLOGY?

Pages: 9-13

Debates regarding the pros and cons of online course delivery have revealed fundamental values that faculty hold in terms of teaching. This paper discusses contact with students and sanctity of place which are the two values that surfaced most vehemently. The paper argues that online course delivery will not undermine either the contact we value or sanctity of place if we use the technology wisely and continue our dialogue with these basic pedagogical values in mind.

Author (s): Jon G. Houseman

Title: INFUSION, NOT DIFFUSION, A STRATEGY FOR INCORPORATING INFORMATION TECHNOLOGY INTO HIGHER EDUCATION

Pages: 15-28

To date information technology has not been widely adopted in higher education. Although I mention a variety of different reasons for why this is the case in this article, I will focus on my own experiences as both a faculty member and an information technology centre co-ordinator. I believe that as a result of a number of changes on our campus, our faculty are more willing to consider information technology in their courses. I also provide some suggestions for faculty development strategies.

Author (s): Pierre C. Belanger avec la collaboration de Philippe Ross

Title: Vers une pedagogie de l'hyper-savoir?

Pages: 29-48

(paper is in French)

The general lyricism brought about by the development of the Information Society is also having an affect on the field of education. Because of the important ramifications that new information and communication technologies have upon the whole of the social organization, one must reflect upon the fundamental mission of educational institutions in a context marked by a growing infiltration of new technologies that are promoted as being educational. On that front, two oppositional discourses clash. On the one hand, there is the position of governments and industrial groups that offers a utilitarian view of education while conceiving of technological appropriation as one of the cornerstones of the educational project. On the other hand, the "techno-skeptics" discourse calls for the implementation of learning strategies oriented toward the development of critical skills via media and new technologies literacy programs. The preponderance of media as well as the abundance of information that characterize the "cyberschool" impose an evaluation of the intellectual benefits likely to be generated by media literacy programs.

## ARTICLES

Author (s): A.W. (Tony) Bates and Jose Gpe. Escamilla de los Santos

Title: CROSSING BOUNDARIES: MAKING GLOBAL DISTANCE EDUCATION A REALITY

Pages: 49-66

New computer and telecommunications technologies offer the possibility of global access to education. In theory, these new technologies should allow potential learners to access any course they want, at any time, from anywhere in the world. Perhaps most important of all, through widening choice, the new interactive technologies could empower individual learners on a global basis by making education more focused on their needs rather than those of the local providers of education.

That is the promise. But what is the reality? The reality is that international information-technology based distance education depends on developing curriculum that is relevant to learners wherever they happen to reside. It depends on well-developed information technology infrastructures whatever the location of the students. It depends on developing curricula that transcend local cultural and language barriers. And it depends on providing high quality learner support services wherever the learner happens to be.

These are challenging requirements, and there are few, if any, guidelines or precedents to follow. It is a challenge that the University of British Columbia (UBC) and the Monterrey Institute of Technology set out to meet in 1997 when they signed a collaborative agreement to develop a set of five courses in the area of technology-based distributed learning. This is an account of how this challenge has been met.

Author (s): Rory McGreal

Title: INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS: A COURSE ON THE WORLD WIDE WEB

Pages: 67-84

The East-West project has been designed to provide Canadian adult learners and particularly learning professionals with the opportunity to complete a full course online through the World Wide Web (WWW). Four Canadian provinces (Alberta, British Columbia, New Brunswick, and Newfoundland) participated in examining different approaches to implementing accredited programs for adults that would be accessible in the workplace, at home, in schools, and in community centres using the WWW. The project is an example of interprovincial collaboration, resource sharing, and credit acceptance. The experience has also been used to develop the necessary design expertise and set common standards in Web-based course development.

The course is being used to promote new ways of learning, produce effective learning materials, and provide innovative approaches to teaching. Another advantage is that teachers and designers can keep materials current. Currency and relevancy can be maintained through the development of internationally recognized open standards for instructional design, pedagogy, courseware, visual interfaces, and cybernavigation. Teachers and designers can make use of authoring standards and templates that have been developed for this project. They are available in the appendix or at the TeleEducation NB web site: <<http://teleeducation.nb.ca/>>.

Author (s): Gilbert Paquette, Claude Ricciardi-Rigault, Ileana de la Teja, and Chantal Paquin

Title: LE CAMPUS VIRTUEL: UN RESEAU D'ACTEURS ET DE RESSOURCES

Pages: 85-101

(paper is in French)

A model of the virtual campus is explored and presented resulting from work started in 1992 at Tele-universite and its research centre, LICEF. The Virtual Campus model is based on the networking of diversified actors and resources. Its aim is to offer an access, in real time and in asynchronous mode, to a variety of learning resources: trainers and tutors, content experts, managers, designers. These different actors have access to computer-based servers offering multimedia documents, courseware, integrated tools for task achievement and training, files of individual or group messages, projects and activities. We present here a survey of six different TeleLearning models, then the LICEF's Virtual Campus model, its actors and their functions, the process into which they participate and the roles they play, as well as the five virtual spaces of resources in which they navigate. We also present five different implementations of the model and outline future research and development in this field.

Author (s): Mary-Anne Andrusyszyn and Lynn Davie

Title: FACILITATING REFLECTION THROUGH INTERACTIVE JOURNAL WRITING IN AN ONLINE GRADUATE COURSE: A QUALITATIVE STUDY

Pages: 103-126

The purpose of this qualitative study was to examine the reflections of students who engaged in interactive reflective journal writing with a course instructor. This strategy was purposefully integrated into the design of a graduate level computer-mediated course. Five students and one

instructor volunteered to participate. This study was part of a larger project on facilitating reflection in computer-mediated learning environments. The data set consisted of electronic transcripts of online journal interactions and online interviews with participants upon completion of their courses. Three themes were evident in the interactive journals: reflection as a personal process, as synthesis, and as a dialogical process. Data analysis, using elements of Glaser and Strauss's (1967) grounded theory approach, was supported with the use of a qualitative software program called Q.S.R. NUD.IST.

The findings suggest that the process of reflection may be actively facilitated through interactive journal writing. The personal learning process stimulated through dialogue with oneself or with one's instructor over time arises from the cognitive and affective synthesis of shared thoughts and the meanings ascribed to these thoughts. Journal strategies have successfully been applied in traditional learning environments and should be carefully considered in computer-mediated arenas.

Author (s): David Annand in collaboration with Margaret Haughey

Title: INSTRUCTORS' ORIENTATIONS TOWARDS COMPUTER-MEDIATED LEARNING ENVIRONMENTS

Pages: 127-152

This naturalistic research study examines six instructors' experiences with computer conferencing and documents how these instructors understood computer conferencing's educative process and its relationship to themselves and their students. The findings reveal that instructors' varied personal philosophies of learning were foundational in delineating their relationship with the technology but that other aspects, such as recognition of students' learning styles, the instructors' repertoire of preferred pedagogical strategies, and the discourse patterns privileged by CMC, were also important influences in their understanding of their computer conferencing practices.

Note: This article is based on the doctoral study of David Annand.

Author (s): Martine Chomienne, Josianne Basque, and Sonia Rioux

Title: ANALYSE CRITIQUE DES ACTIVITES COLLABORATIVES DANS UN COURS DE MATHEMATIQUES SUR INTERNET AU COLLEGIAT

Pages: 153-175

(paper is in French)

Collaborative activities in both asynchronous (teleconferencing, electronic mail) and synchronous (audioconferencing, file sharing) modes were implemented in an Internet-based math course developed by the Centre collegial de formation a distance. This paper takes a critical look at these activities, drawing on research in cooperative/collaborative learning, online communication in an educational environment, and the results of a recent testing of the course. This critical examination resulted in the formulation of a number of recommendations for Internet-based course designers. Because of the need for flexibility in distance education, collaborative rather than co-operative activities were seen as more appropriate. Another conclusion is that synchronous activities should be

optional and should be planned and managed by the students themselves as much as possible. It also emerged that Internet-based course designers require training in collaborative learning and in learner-centred teaching. Tutors must also be trained in the new roles that they have to assume in the context of collaborative distance education.

Author (s): Karen L. Murphy and Mauri P. Collins

Title: DEVELOPMENT OF COMMUNICATION CONVENTIONS IN INSTRUCTIONAL ELECTRONIC CHATS

Pages: 177-200

The widespread use of computer conferencing for instructional purposes, both as an adjunct to and a replacement for the traditional classroom, has encouraged teachers and students alike to approach teaching and learning in ways that incorporate collaborative learning and the social construction of knowledge. Discussion and dialogue between instructor and students and among students is a key feature of computer conferencing and the foundation of constructivist learning techniques. Computer conferencing can be used both asynchronously, which allows time for reflection between interactions, and synchronously, which gives opportunities for real-time, interactive chats or open sessions among as many participants as are online simultaneously.

This study used content analysis to identify the communication conventions and protocols that real-time, interactive electronic chat users developed in instructional settings. The study also determined that the students recognized a need to use their communication conventions and protocols to communicate clearly and minimize misunderstandings in their online transactions with others. The most frequently used conventions included sharing information or techniques for conveying meaning and indicating interest in a topic, using keywords and names of individuals, using shorthand abbreviations, questioning and seeking clarification, and establishing social presence by greeting each other and referring to others by name.

Author (s): Aude Dufresne

Title: CONCEPTION D'INTERFACES POUR L'APPRENTISSAGE A DISTANCE

Pages: 201-220

(paper is in French)

The present research focuses on interface conception that is truly adapted to distance learning and that provides the learner with tools not only to manage and monitor his-her learning but also to make the computer a supportive and motivating environment. Inspired by various experiments and evaluations of distance environments, the research highlights a number of problems of the distance learner that are related to a disorientation within the content, to technical difficulties encountered, to the difficulty of developing work methods with these new tools, and, finally, to the difficulty of establishing contacts that are equivalent to the traditional situation. This research proposes various axes for the development of distance learning interfaces, namely, the necessity to supply adequate navigation tools that are both contextual and flexible, content appropriation tools, and support functions that connect

tasks to specific methods and that guide the learner. Finally, the research proposes the introduction of various artifacts to favour personalized expression and to restore other participants' presence by providing indexes of their availability and of their comments on the information.

Author (s): Vincent P. Wade, Mark Riordan and Conor Power

Title: DESIGN AND DELIVERY OF TELE-EDUCATIONAL COURSES

Pages: 221-242

At a time when governments are eager to increase the numbers of well-qualified graduates, educational organizations are under increasing financial pressure and are experiencing a shortage of facilities to locate these increasing student numbers. Significant advancements in the capability and accessibility of computer technology have been heralded as a means of alleviating some of these pressures. Consequently, there is a movement to apply advanced information and communication technology innovatively to enhance the pedagogical aspects of teaching and relieve administration and management resources. One of the crucial determinants of whether this approach can deliver on the promises offered lies in the design of complex software systems in which many technical, cultural, pedagogical, and social factors have to be considered. This paper examines student and user requirements for the design of tele-educational course delivery and describes the experiences of applying appropriate multimedia information and groupware communication technologies to support educational services. The outcome of our initial studies based on the execution of two trials involving over 200 university students is presented, and the implications these have for the design of future systems is discussed. The paper also examines and presents trial experience on how educational services could be expanded beyond the university setting so that small independent educational companies could service niche markets for specialized short-duration tele-educational services using similar technologies.

#### SPECIAL APPLICATIONS

Author (s): R. D. McLeod, M. G. Britton, A. Tregobov, and K. Sundstrom

Title: DISTANCE LEARNING: INTERACTIVE LEARNING IN ENGINEERING USING BROADBAND NETWORKS AND THE INTERNET

Pages: 243-256

This paper describes several ongoing distance education activities in the Department of Electrical and Computer Engineering at the University of Manitoba. Differences from alternative and more traditional distance education are being realized through extensive use of the Internet, related tools and applications, and access to experimental broadband services networks.

Author (s): Iris Garland and Lisa Marie Naugle

Title: A UNIVERSITY DANCE COURSE IN CYBERSPACE: THE TELELEARNING EXPERIENCE

Pages: 257-269

Dancing in Cyberspace: Creating with the Virtual Body is a pilot university dance course that explores a new concept of teaching aspects of dance through the medium of telelearning via the World Wide Web (Simon Fraser University, 1996). This totally online course was offered for the first time between January 6 and April 4, 1997 through the Virtual-U at Simon Fraser University by the School for the Contemporary Arts and the Centre for Distance Education, Continuing Studies. The class members were regularly enrolled students at Simon Fraser University and distance non-credit participants from elsewhere in Canada, the U.S., Spain, and France.

This paper provides the course organization, examples of class materials as they appeared on the Web pages, methodologies of the Virtual-U, reactions from students and instructors to the online environment, and speculation about the future potential of the place of the Internet in dance education.

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