Editor's Notes

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Writing an encyclopedia on any subject is an extraordinary conceit, particularly on a subject as new and amorphous as computer-based learning on an international scale. The word "encyclopedia" is defined by the *Cambridge Encyclopedia of Language* as "a book or set of books containing many articles arranged in alphabetical order which deal either with the whole of human knowledge or with a particular part of it" (Encyclopedia, 2004). The French encyclopedia was one of the principal works of the Enlightenment. Inspired by the success of E. Chambers' British *Cyclopaedia*, Denis Diderot partly wrote and edited the 17 volumes that were published between 1751 and 1765. Later, other books were added for a total of 35. The *Encyclopédie* attracted articles from many important thinkers of the time, including Rousseau and Voltaire who inspired a movement of "encyclopedists." Faced with persecution and censorship, members of this movement had a widespread influence on progressive thought leading up to the French Revolution. Interestingly enough, the notoriety of the *Encyclopédie* was due, in part, to many highly controversial articles, especially on religious, political, and economic topics. In other words, in contemporary terms, the authors did not attempt to be "objective" but rather to counter the predominant religious (anti-rationalist) point of view.

It is important to understand the context of the encyclopedia movement wherein it was felt that it was best to keep knowledge secret, especially the practical or "mechanical arts" as they were known. It was in this climate that Diderot attempted to publish a systematic description of civilization's knowledge, thus promoting a new ideology of wide and open dissemination of knowledge. The Encyclopedia Movement was itself very much interested in publishing as a subject. In fact, Diderot's *Encyclopedie* includes ninety entries related to typography, a hundred and eighty to printing, a hundred twenty to bookbinding, and sixty to the manufacture of the paper used in books of the time period (Barber, 1973). This shows how important this influential group felt that book printing itself was as a subject. In many ways Diderot and the encyclopedist mission parallels the contemporary challenge—we are still trying to understand how to increase the dissemination of our collective knowledge of the world in a free and open manner. In much the same manner as the encyclopedists, this *Encyclopedia of Distance Learning* is often focused on the issue of information reproduction and dissemination itself. Printing represented to the intellectuals of 18th century Europe the hope of the future, as computers do to scholars today—the historical convergence of tele-communications, data-communications, and various media (moving images, still photography, sound, animation, etc.) into one remarkable machine. The question this book seeks to answer in a very eclectic and multi-sided way is: How can the knowledge of civilization be spread throughout the world with the use of the personal computer?

Far from aspiring to be the last word on the use of computers in education internationally, this volume strives to be one of the first words or sentences—the beginning. This book is truly an international endeavor and, fittingly, could not have been written without computers and the Internet. The writing process has been fascinating because of the experience of working with talented scholars throughout the world. In this regard, it is important to make explicit from the start the cultural perspectives and bias inherent in this project and the individual articles. First, the book is written in English and thereby begins by excluding many scholars who do not write in this language. Second, each scholar speaks from a specific cultural point of view. While

there is certainly generalized and standard international knowledge about computer-based learning in this book, the perceptions and perspectives vary greatly by region. Rather than trying to homogenize a universal perspective, the editor has sought to preserve these unique perspectives maintaining international conventions used by authors, which are often nationally based (particularly British versus American standard usage). Consequently, readers will find throughout a presentation on a specific topic from a particular scholar in a specific region of the world at this point in time. Finally, it should be noted that in the process of evaluating manuscripts using an international editorial advisory group dialogues over perspectives were constant. Especially evident were culturally-based representations of the history of technological innovations, and religious and political perspectives. More subtlety, often a scholar's specific cultural bias or tendency expressed itself in a foreground-background phenomenon which was evident in what was emphasized as important, and less so.

Overall, there is a telescoping effect throughout the book, sometimes within individual articles wherein at times the reader is positioned far back surveying a field, at other moments zooming in closely on a very specific issue or topic. In this way, articles throughout this volume dance back and forth from general to specific. For example, in the article "Interactivity: Interaction in Web-based Learning," Adams Bodomo moves from a general discussion of the theory of educational interactivity to the specific strategy for use in an online course. Often as one thumbs through this book one finds particular topics treated in overview by one scholar, and then in depth by another.

In general, this comprehensive encyclopedia divides itself into broad categories covering distance learning issues by geographical region, pedagogy, technology, management, and global issues. What follows is my perception of primary topical areas covered in this reference.

PRACTICES BY GEOGRAPHICAL REGION

The scope and variety of distance and computer-based learning worldwide, as both an editor and contributor, was impressive. First, demand for higher education worldwide is clearly leading to distance learning solutions for both economic and political reasons. The size of the demand and the institutional response internationally is awe-inspiring. At China Central Radio & TV University (CCRTVU), for example the total number of undergraduates is 690,000 including 150,000 students admitted without entrance examinations.

The recurring theme of growing demand for access to education is seen everywhere internationally, with computer-based learning viewed as at least a partial solution. According to Petek Askar, Turkey's demand for higher education will double in three years—a demand to which the current educational system cannot respond effectively. Therefore, distance education could be a solution to this problem if barriers such as regulations and accreditations, technological infrastructure, shortage of experts in distance education and perceived characteristics of distance education are effectively dealt with. As Kinshuk and Shareef point out in their entry on the Maldives Islands, distance education is seen as an appealing alternative to traditional face-to-face education in many countries with low population density because it can provide education from a central location without having to invest heavily to develop infrastructure. At the same time, such smaller and more dispersed populations cannot approach distance learning in the same way that the larger mega-universities do.

The enormous mega-universities around the world often share similarities in mission and management, but employ different pedagogical approaches as they strive to meet the demand for higher education. At the Open University in Israel, Zippy Erlich writes about a computer-mediated communication (CMC) approach where various technologies are used to emphasize student-student and student-instructor communication. According to Ramesh C. Sharma in his article on computer-based learning in India, that region has faced the challenges of lack of financial resources, rapid technological and social changes, and the increasing globalization and commercialization of education. The transition to an Open University system was part of

an effort to democratize higher education. Pedagogically it utilizes a variety of media such as radio, television, computer and Internet as a part of instructional strategies because of their resources and unique history.

Although not always based in institutions of higher education, there is a very long history of the use of various forms of distance learning for religious purposes, a practice which continues today throughout the world. According to Rogers and Howell, Islamic, Hindu, Buddhist, Baha'i, Jewish, and Christian organizations are all experimenting with distance and computer-based learning for various reasons and to different extents. They point out the way that religious, economic, and political factors influence the specific ways distance learning is used by religious institutions.

Adrienne A. Reynolds describes how educational technology plays a key role as a tool used in education in Middle Eastern countries. The status of women, according to Islamic tenets, is high in terms of guaranteed individual human rights and freedoms, but many cultural and societal traditions prevent women from assuming roles found in the Western world. For example, in Saudi Arabia, social norms and strict interpretations of Islam prevent the free association and interaction between men and women who are unrelated. This practice carries over to the educational system where male instructors are not permitted to teach female students face-to-face. Educational technologies and institutions (such Zayed University, the Institute for Technological Innovation, the IT Educational Project, Internet University in Dubai) are beginning to address these somewhat unique regional needs with the use of computer-based learning.

PEDAGOGY

Pedagogical approaches to distance learning are advancing on various fronts at the same time internationally. Some of the old discussions are continuing—the debate about constructivist versus behaviorist approaches to computer-based learning, as well as on asynchronous versus synchronous formats. Tiong Kung-Ming and Sim Khoon-Seng report on the trend toward hybrid systems that use both approaches. Certainly, one can see this occurring in a large way in many countries such as the United States.

Another clear area of interest internationally is in the possibility of adapting computer-based systems to user preferences and learning styles, with dreams of an adaptive tutor. Kinshuk and Lin discuss individual differences in cognitive processing and the potential of student learning preference modeling. More generally, Yoram Eshet describes the five major cognitive skills that comprise digital literacy: photo-visual, reproduction, branching, information, and socio-emotional thinking skills. He suggests that these five digital thinking skills exist in every learner, but differ in degree from person to person.

Some commentators internationally point to particular classroom strategies to enhance online learning. Scholars appear to be reexamining traditional and innovative practices used in face-to-face classrooms to see how they might be used in distance learning configurations. For instance, Roisin Donnelly argues that problem-based learning can be more effectively accomplished online because of collaborative possibilities outside the classroom. Betty Collis and Jef Moonen suggest a contribution-oriented pedagogical approach in which students find, create, submit, and/or share resources using a Web-based course-support environment, a model that is particularly valuable in forms of distance and computer-based learning.

Some scholars are looking to altogether new approaches. For instance, Andrew Laghos and Panayiotis Zaphiris argue that the Internet and the World Wide Web provide delivery methods that create language learning opportunities unimaginable a few decades ago. They describe their use of participatory design for the development of an online Modern Greek language course, a design approach that focuses on the intended user of the service or product, and advocates the active involvement of users throughout the design process. Nicoletta Sala argues that a fundamental shift is occurring in education as a result of the increasing use of computers and their technology, what she calls a "cultural revolution" in teaching and learning. She promotes active "learning by doing" approaches that are assisted by the use of computers.

Even some of the older approaches such as programmed instruction based on behaviourism are seen as resurging because of new technology. Belinda Davis Lazarus argues that as technology advances, programmed instruction will continue to serve as a cost effective method that facilitates learning.

TECHNOLOGY

International perspectives on technology concentrate particularly on how technology might be applied to the field of education. Chris Houser and Patricia Thornton in their article suggest that mobile devices such as laptop computers, PDAs, and cell phones offer many features (Web pages, email, textual noting, video cameras) useful for learning both inside and outside classroom—single, easily mastered devices that can be useful in a variety of educational settings. These devices can enable collaborative problem-solving by providing easy, face-to-face sharing of data through IR beaming or distance sharing through email and Web interfaces. For learners who require repetitive practice for skills development, mobile devices offer a personal tool that can be used anytime, anywhere, for quick review. Because they cost less and are more portable than desktop computers, mobile devices have the potential to bring the power of a computer to every learner.

C. C. Ko, Ben M. Chen and C. D. Cheng describe current methods for use of Web-based laboratories. They point out that such laboratories provide a more immersive experience and work well for collaborative research involving the sharing of expensive facilities. As computer hardware and robotics become more powerful and less expensive, the possibility of controlling a robot remotely to carry out experiments from a safe distance will become more commonplace.

Questions of how to assess the educational effectiveness of computer-based software applications used are repeatedly raised. According to Michael Shaughnessy, educational software is evaluated typically now with key factors focused on student, teacher, designer, and environmental perspectives. Overall, technological issues, while clearly important, are perhaps not as discussed as how to use the new tools in educational environments.

MANAGEMENT

The management of computer-based educational programs is a key issue because of the vast size, complexity, and economics of their parent institutions internationally. Although there is great variety in the way institutions are managed worldwide, there are some common patterns of method and on-going concerns.

Some scholars use descriptive approaches to categorize what is occurring internationally on an institutional level with computer-based learning. Sarah Guri-Rosenblit notes five major models for the use of distance learning in a university setting: single-mode, dual- and mixed-mode, extensions, consortia-type ventures, and virtual technology-based universities. She concludes that they will continue to operate using primarily an industrial model producing economies of scale for large numbers of students at low marginal costs. This research is of particular interest to those in countries where the Open University model has yet to be embraced.

One primary issue of importance internationally is how to make distance learning methods scalable and thus financially stable. In "Ten Scalability Factors in Distance Education" by Laws and Howell and Lindsay, the authors argue that institutions should appropriately scale distance education enrollments to reduce costs, and protect course and program quality in ways that specific to their organizations. These scholars claim that each institution's level of scalability is determined by the interrelationship of ten factors or variables including: interaction; learning levels; student class standing; faculty tenure or continuing status; completion rates; cohort vs. non-cohort; degree vs. non-degree seeking programs; market type; tuition costs; and profitability. These variables can be weighed to better understand scalability notions. In another article, Ally

points out practical problems such as how to reduce the time to produce computer-based materials and suggests the use of intelligent agents to assist with scalability issues.

Another important focus internationally is on quality assurance and ways of improving online learning's overall effectiveness. In the entry on the Sloan Consortium, we see an attempt to systematize online quality issues and to create a larger dialogue on this issue.

Faculty issues vary greatly by country and region because of different traditions, governance structures, and political systems. According to Shaw, a shift in the paradigm of teaching is occurring and faculty need to be flexible, acquire new skills, and appreciate the many advantages of distance learning.

The use of technology in the management of distance learning institutions is also a recurring theme. Diane Chapman discusses learning management systems made necessary because of the tremendous growth of e-learning and the need for tools that present, organize, and deliver instruction in ways that are easily accessible and cost effective.

GLOBAL ISSUES

What does open or distance learning mean? Sarah Guri-Rosenblit argues that confusion still reigns among scholars as to the meaning of open and distance learning. She points to the essence of all distance teaching universities internationally reflecting a concern with widening access to higher education, and that the large mega-university programs are universally products of governmental planning needing to find a way to serve large numbers of students lower costs. Open entry or admission practices are linked in some of these programs to open access, and Guri-Rosenblit points out that the first course then often becomes in practical terms the admissions test for those students. However, only a handful of the approximately thirty distance teaching universities worldwide have an open admission policy. She notes further that one of the primary deficiencies of the large Open Universities is control over the curriculum—standardization is a both strength and a weakness economically and pedagogically.

One clear impact of the increased use of computer-based learning is the encouragement of cross-cultural learning and the mixing of different nationalities and cultures within individual classrooms. In "Collaboration Among Multicultural Virtual Teams: Issues, Challenges, Strategies," the authors (Cagiltay et al.) point out that little research has been conducted to systematically investigate the dialectic between culture and computer-mediated communication (CMC). They point out importantly that if used poorly, distance learning can homogenize different views rather than take advantage of the inherently complex learning experience. Similarly in "Teaching Culture and Communication," Kirk St. Amant emphasizes that cultural groups can have different perspectives on how to communicate online. Furthermore, often non-English speaking students find their research activities restricted by native languages. As a result, these students are often cut off from important cultural perspectives that have been presented in other languages. St. Amant notes that to participate effectively in the growing global community, better understanding is needed on how cultural factors can affect online interactions. By using materials created by different cultures, instructors increase the chances that students will become more productive members of an international online community.

CONCLUSION

Copyright issues are clearly of utmost importance on the international scale. In "Copyright with an International Perspective for Academics" the authors point that human society depends on second-hand knowledge—knowledge usually comes from some other sources. On some level, very little is really original. From a non-western point of view, enforcement of copyright might be seen as a way of maintaining power structures. In this context, one cannot help but think of the background of Diderot's work where those in power during the 18th century in Europe did not want to disseminate their secret knowledge.

"Openness" or "access" is the essence of the computer-based learning movement internationally. This emphasis can be seen in small specific ways in the research literature on computer interface design. More generally, these user-centered design approaches are aligned with the focus on providing broader access to education for underserved populations. For instance, Zaphiris and Kurniawan argue that application of user-centered design accommodates older users. Finally, it is hoped that this volume contributes to the widening access to information about the evolving and important field of computer-based education.

REFERENCES

Barber, G.G. (Ed.). (1973). *Book making in Diderot's Encyclopedie*. Westmead, UK: Gregg International Publishers Limited.

Encyclopedia. (2004). *The Cambridge encyclopedia of language*. Cambridge, UK: Cambridge University Press.

Encyclopedie. *Britannica concise encyclopedia*. Retrieved July 6, 2004, from Encyclopædia Britannica Premium Service from *http://www.britannica.com/ebc/article?eu=389010*