Editor's Notes

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As we begin the 21st century, a rich array of digital technologies is enabling an explosion of programmatic and content options for online learning. According to the National Center for Educational Statistics, "Telecommunications technologies are rapidly becoming core components of the instructional experience of students in the U.S." (National Center for Education Statistics, 2002). Worldwide, educational institutions are adopting technologies supporting online learning and delivering entire online and distance courses and degrees. This same phenomenon is also driving the enhancement of classroom-based instruction. Tracking and monitoring this process of evolution and deployment of innovative and transformational events can be overwhelming. We hope that this encyclopedia serves to assist in this challenge.

The *Encyclopedia of Distance Learning* brings together articles covering major arenas where online learning and technology are impacting education. These arenas span the educational landscape, including K-12 education, higher education, continuing education, and professional and technical training. The impact of online learning is diffuse, influencing teaching and learning in all contexts of online learning whether in blends of classroom and online or classroom-based. The articles reflect the latest research and theory on the many dimensions of online learning and technology while describing the range of phenomena and best practices for online learning programs and environments.

Submissions to this encyclopedia explore how K-12, higher education, and training institutions have moved past initial pilots and limited initiatives to broad-based programs using online learning and related technologies to provide high quality education for students, reducing the impact of time, space, distance and administrative barriers. Holistically, the articles describe how institutions are reshaping themselves to leverage the power of information technologies to accommodate more interactive relationships between students and institutions, between faculty/teachers and students and between institutions and societies. The aim of the encyclopedia is to address the needs of a broad audience of educators, trainers, administrators, librarians, human resource professionals, and instructional designers involved in all aspects of online learning.

This encyclopedia features a foreword from visionary Seymour Papert. In the early 1970s at MIT, Papert advanced the concept of the learner as an active participant in learning through his creation of LOGO and his development of the Constructivist approach based on the assertion that learning is most effective when the learner constructs meaning (Molnar, 1997). Using computer-driven LEGOS, he had his students define their problems and then, use tacit practical problem-solving skills to solve them. His approach evolved from a focus on "computer literacy", an appreciation of computing, to "computer fluency" (Harel & Papert, 1991), the application of computers to solve real problems.

As mentioned in the Publisher's Note to the *Encyclopedia of Distance Learning,* the editing of the encyclopedia was a collaborative effort of several expert professionals who were approached to provide this seminal work in the ever-changing, ever-growing world of distance learning at all levels. From my viewpoint the evolution of distance learning has covered very intentional and systematic steps which I will see as broken down in the following subtopics.

MIGRATING TO DISTANCE LEARNING

The first major focus in the evolution of distance learning pertains to fundamental developments and issues in the rapidly evolving technological and educational environments of the 21st century. Some of the articles in the encyclopedia consider the milieu of online learning and technology along with the prerequisites for effective program development. Some of these articles touch on systems models of educational processes, comparison of traditional and distance education, exploration of online learning growth trends, a comparative study of the diffusion of Web-based education in various countries, and a description of the manufacturing mode for online education.

As we consider the migration to distance learning, it is also important to reflect on the effect the changes create on traditional education paradigms in teaching, management and administration. Therefore, the articles in this encyclopedia relate how successful implementations of online learning and technology require planning and managing change, models for creating effective educational change involving technology, and change management issues such as faculty participation in distance education and case studies for implementing learning support systems.

In considering *management and administration issues*, you will find articles that describe support systems required for faculty and students as well as problems, success factors, and scalability issues in online learning.

Similarly, institutions providing online learning programs must be fiscally responsible, maximizing revenues while minimizing costs while providing access to quality education. Considering successful elements for self-funding of e-learning programs, the articles dealing with the financial focus discuss how to generate revenue and the cost-effectiveness of online learning and technology, including new models for improving learning while reducing costs.

Developing the consensus, cooperation, culture and communities required for optimal online learning environments are also covered, presenting methodologies for building consensus using e-research—Delphi and Nominal Group Techniques—informal communication techniques, culture, interaction and faculty support of online learning.

DEVELOPING EFFECTIVE ONLINE LEARNING

The second phase of the adoption and acceptance of distance learning is the development of effective programs. A variety of articles are presented in this encyclopedia that provides guidance on using online learning and technology to deliver a quality educational experience. Entries outline the fundamental concepts that must be considered to implement effective online learning and technology, teaching and learning paradigms (the learner-centered paradigm and the constructivist approach) that are a particularly good fit for capabilities of the online environment, suggestions of learning activities that leverage the use of teams and information rich environments, and adaptive learning frameworks in Web-based learning and collaborative learning in a contribution-oriented pedagogy.

Guidance on strategies for designing and continuing successful online education are addressed through articles that present contextual designs of online learning technologies, multimedia instruction, and specific applications including WebExcellence in mental skills education, an interactive e-lab system, and speech/text alignment benefits Web-based language learning.

Articles describe an array of technologies and tools that can be used to facilitate the design and delivery of online learning and distance education such as the role of technology in online learning, Web-based synchronized multimedia lecturing, tablet PCs as online learning tools, collaborative technologies, multimedia lecturing, tools and models, text-only techniques, XML-based technologies to developing online courses, a Web-based distance learning system using cooperative agents, use an e-card for authoring, hypermedia for distance education, and required physical enhancements for Internet courses.

From the student perspective, issues are presented on how to best design online learning programs, respecting diverse talents and ways of learning, measurement of learning styles, stress, workload, Web access and legal issues, culture, interaction, and trust.

One important online learning trend—collaboration is covered in numerous entries. Articles describing collaborative and cooperative learning, group leadership in online collaborative learning, issues in collaborative learning, observations of practice, and support for collaborative authentic activities are presented in detail.

One of the effects of the more democratic environment of online courses is that the roles of faculty and students shift. The role of the teacher shifts to more of a mentor and/or moderator and the role of the student becomes more active participant and contributor. These roles are detailed as well as how to bring out the best in virtual teams and how methods of computer mediated communication affect student outcomes.

EDUCATIONAL VENUES

No matter the venue of online learning, support for distance education programs is a major indicator of their success. Articles addressing the influences of technologies and anonymity in the classroom, participatory evaluation, student benefits, perceptions of classroom-based online learning, and scaffolding online with classroom-based instruction can be found within this encyclopedia. You'll find some articles focusing on K-12 levels, including administering a virtual school, designing distributed learning, and implementing integrated activities for the elementary curriculum.

In *the higher education realm*, you find articles on the "new space" for the university in the digital age, university transformation, and overview of the role of virtual organizations in post-graduate education as well as innovations in Web-enhanced learning at traditional universities and strategies to increase accessibility and usability.

Some articles deal with *training/continuing education*. These articles describe computer-supported network-based learning environments for the workplace and the e-learning industry that supports these educational settings.

ENSURING THE FUTURE

As the phenomenon of distance learning becomes more widely adopted, quality considerations take on more importance. Frameworks for evaluating distance and elearning will help you evaluate distributed cooperative learning in online distance learning, open learning environments, and training. Various aspects of evaluating student performance and outcomes are introduced.

The future of teaching and learning technologies depends on a great many factors, such as implementation effectiveness, managerial excellence and general acceptance by the end users. For the novice to this field, the Encyclopedia of Distance Learning is intended to serve as a mechanism to jumpstart your introduction to a concept whose potential is limitless. To those who are already involved in some aspect of the field of distance learning, you will find like and opposing viewpoints, new perspectives and possibly suggestions intended not only to serve as a reference to your already accumulated knowledge but also to trigger your thoughts and contributions to this educational revolution.

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