Preface

OVERVIEW

Distance learning (DL) has been defined in many ways, for this book we adopted the following: Distance learning results from a technological separation of teacher and learner which frees the necessity of traveling to a fixed place in order to be trained (Keegan, 1995; Valentine, 2002). This definition includes asynchronous learning with no fixed time and place and synchronous learning with fixed time but not fixed place.

Distance learning delivery mechanisms have progressed from correspondence in the 1850s (Morabito, 1997; Valentine, 2002), to telecourse in the 1950s and 1960s (Freed, 1999a), to open universities in the 1970s (Nasseh, 1997), to online distance learning in the 1980s (Morabito, 1997), and to Internet-based distance learning in the 1990s (Morabito, 1997). Along with this progress, online DL technologies and the associated cost have transformed from answering machines that recorded students’ messages for telecourse instructors in the 1970s, where it cost $900 per answering machine (Freed, 1999b), to Internet-based applications that were unthinkable three decades ago (Alavi, Marakasand, & Yoo, 2002; Dagada & Jakovljevic, 2004; DeNeui & Dodge, 2006).

While DL and the associated technologies progressed, a chasm between teacher and learner seem to grow between the “digital natives” of today’s learners and their teachers who are considered as “digital immigrants” (VanSlyke, 2003; Hsu, 2007; Prensky, 2001; Ferris & Wilder, 2006). This book shares experiences of teachers and how they incorporated DL technologies in the classroom.

THE CHALLENGE

Teachers have incorporated DL technologies in varying forms; some are shown in this book. While many success stories exist, there are several studies that present shortcoming of DL education. Piccoli, Ahmad, and Ives (2001) found that DL learners are less satisfied when the subject mater is unfamiliar (complex), like databases; dropout rates for online courses were found to be higher than courses offered in traditional classrooms (Levy, 2005; Simpson, 2004; Terry, 2001).

The challenge for the teacher is to identify what works and what does not.

THE SOLUTION: CONTRIBUTION OF THIS BOOK

Finding a solution that best fits the needs of the teacher and learner requires sustained research that uncovers the effectiveness of DL technologies in the learning experience (Alavi & Leidner, 2001; Hodges,
This book contributes towards this solution by sharing teachers’ experiences in information technology (IT) education.

In IT, unlike many other fields, the need to support the unique perspective of technologically advanced students and deliver technology-rich content presents unique challenges. In the early days of distance learning, a video taped lecture may have sufficed for the bulk of the content delivery. Today’s IT students need the ability to interact with their instructor in near-real time, interact with their peers and project team members, and access and manipulate technology tools in the pursuit of their educational objectives. In other fields, like the humanities and liberal arts, the vast majority of the content is delivered by the instructor and textbook, supported by outside materials. In the IT fields (specifically including information systems and computer science), virtually all of the curriculum include the need to explore IT in the content, requiring the instructor and student to have integrated interaction with the technology.

Fundamental pedagogical changes are taking place as faculty begins to experiment with the use of technologies to support the delivery of curriculum to learners unable to participate in traditional classroom instruction. The vast majority of faculty members begin with a clean slate, experimenting using available technologies, without the benefit of the lessons learned from other faculty members who have faced the same challenges. The purpose of this book is to disseminate the challenges, successes, and failures of colleagues in their search for innovative and effective distance learning education.

ORGANIZATION OF THE BOOK

The book is organized into five sections with 18 chapters: Section I: Learning Environments consists of the first four chapters; Section II: Effectiveness and Motivation consists of Chapters V through VII; Section III: Interaction and Collaboration consists of Chapters VIII through XI; Section IV: Course Design and Classroom Teaching consists of Chapters XII through XV; and Section V: Economic Analysis and Adoption Consists of Chapters XVI thorough XVIII. A brief description of each of the chapters follows.

Chapter I proposes six DL classifications and demonstrates the differences and similarities of the classifications with classroom examples, including a pilot empirical study from the author’s experience. It argues that understanding the different e-learning classifications is a prerequisite to understanding the effectiveness of specific e-learning formats. How does the reader distinguish e-learning success and/or failure if the format used is not understood? For example, a learning format with a Web site link to download lecture notes is different from one that uses interactive communication between learner and instructor and the later is different from one that uses “live” audio and video. In order to understand effectiveness, or lack thereof of an e-learning environment, more precise terminology which describes the format of delivery is needed. E-learning classifications can aid researchers in identifying learning effectiveness for specific formats and how it alters student learning experience.

Chapter II focuses on the design and development of blended learning environments for adult education, and especially the education of teachers. The author argues that the best combination of advanced learning technologies of synchronous and asynchronous learning is conducive to the formation of new learning environments. The chapter also presents a blended environment case study of teachers’ training.

Chapter III illustrates the findings and experiences of various communities of learners formed within a 3D immersive Internet-based virtual world developed for graduate education. This award winning 3D learning community describes how students and instructors collaborate across time and distance. Students, faculty, and guests, graphically represented by avatars, move through the 3D world spaces interacting
with each other and with artifacts within the worlds. These artifacts may be linked to different resources, Web pages, and tools necessary to provide content and support for various kinds of synchronous and asynchronous interactions. The authors show how small and large group shared workspace tools enable interactive conversations in text chats, threaded discussion boards, audio chats, group sharing of documents, and Web pages.

Chapter IV presents a quasi experiment to compare behavior modeling (teaching through demonstration), proven as the most effective training method for live instruction, in three environments: face-to-face, online synchronous, and online asynchronous. Overall satisfaction and performance as measured by knowledge near-transfer and knowledge far-transfer effectiveness is evaluated. The authors conclude by stating that when conducting software training, it may be almost as effective to use online training (synchronous or asynchronous) as it is to use a more costly face-to-face training in the long term. In the short term the face-to-face knowledge transfer model still seems to be the most effective approach to improve knowledge transfer in the short term.

Chapter V proposes a framework that links student performance and satisfaction to the learning environment and course delivery. The study empirically evaluates the proposed framework using the traditional classroom setting and distance education setting. The authors conclude that a well-designed distance education course can lead to a high level of student satisfaction, but classroom-based students can achieve even higher satisfaction if they also are given access to learning material on the Internet.

Chapter VI introduces how to differentiate instruction in an online environment. The study reviews the literature on differentiation and its connection and impact to online learning and discusses the principles that guide differentiated instruction. The authors posit that the “one size fits all” approach is not realistic for either face-to-face or online setting and provide online learning environment strategies that respond to the diverse needs of learners.

Chapter VII explores student motivation to engage in origination and distant site in an IP-based teleconferencing. The study posits that understanding student motivation for participating in IP teleconferencing as part of a class lecture will inform teachers on how to incorporate it in the curriculum. The authors examine three studies on student motivation to understand the benefits of teleconference-based DL.

Chapter VIII presents six requirements for next generation groupware systems to improve team cooperation and awareness in DL settings. The requirements are grouping, communication and discussion, specialization, collaboration by sharing tasks and resources, coordination of actions, and conflict resolution. The authors use two case studies to illustrate how the five requirements can be realized; they elaborate on how an ideal collaborative education tool can be used to construct a shared mental model among students in a team to improve their effectiveness.

Chapter IX reports survey findings on the impact of chat on facilitating participation in collaborative group learning processes and enhancing understanding of course content from a sociocultural constructivist perspective. The study used a qualitative case study of a distant course exemplifying the innovative instructional application of online synchronous (chat) interaction in virtual tutorials. The results reveal factors that affected both student perception and use of participation opportunities in chat tutorials, and understanding of course content. The authors conclude by recommending that the design of learning environments should encompass physical and virtual instructional contexts to avoid reliance on any one mode which could needlessly limit the range of interactions permitted in distance educational programs.

Chapter X investigates the factors that encourage student interaction and collaboration in both process- and product-oriented computer mediated communication tasks in a Web-based course that adopts interactive learning tasks as its core learning activities. The authors analyzed a postcourse survey questionnaire from three online classes and posit that some of the important factors that influence participation and contribute to sustained online interaction and collaboration are the structure of the online discussion, group size, group cohesion, strictly enforced deadlines, direct link of interactive learning activities to
the assessment, and the differences in process- and product-driven interactive learning tasks.

Chapter XI proposes a four step model of greeting, message, reminder, and conclusion (GMRC) to gain a closer relationship between teachers and students in a DL environment. The authors posit that when using the GMRC approach, teachers can relate their concerns with each DL learner’s specific questions and needs. The authors provide examples to support their proposed model.

Chapter XII presents a framework for developing Web courses, demonstrates the design and application of an online course, and discusses the experimental results for the selected course. The study compares speed of loading, file size, security, and flexibility of different development tools based on analytical discussions and experimental results; a sample course implementation that integrates the proposed principles and selected tools is presented. The authors conclude by presenting design rules of thumb for online Web courses.

Chapter XIII provides the lessons learned from teaching information security in a DL setting. The case study identified successful DL techniques and technologies for teaching information security. The authors found that lecture recording and virtual private network (VPN) technologies were relevant for teaching online information security courses. The later, VPN technology, was used to support hands-on laboratory exercises virtually.

Chapter XIV examines the challenges and opportunities of teaching computer programming in management information systems (MIS) curriculum in general and teaching computer programming instructions for MIS curriculum in particular. The study describes a hybrid computer programming course for MIS curriculum that embraces an assignment-centric design, self-paced assignment delivery, low involvement multimedia tracing instructional objectives, and online synchronous and asynchronous communication. The authors employed survey methodology to evaluate the course and observed two opportunities that impact MIS research and practice: the integration of ICT for instructional purposes, and the development, use, and validation of instruments designed to monitor our courses.

Chapter XV provides a primer on establishing relationships with high schools to deliver college-level IT curriculum in an asynchronous learning environment. The study describes the curriculum, provides details of the asynchronous online learning environment used in the program, and discusses the challenges and key lessons learned. The authors posit that the college environment, in which professors have local autonomy over curriculum delivery and instruction, differs from a public high school environment where curriculum has rigid standards that must be achieved, along with guidelines on methods of delivery. The authors state that forming a politically savvy team aware of how to navigate the high school environment is a must for ensuring success.

Chapter XVI presents an in-depth study of the factors influencing asynchronous distance learning courses purchase decision. The study identifies motivators and inhibitors of distance course adoption among consumers, focusing on the impact of relations with the medium, service considerations, and perceived purchase risk. The empirical study results show that perceived course utility, lack of mistrust in the organizing institution (service considerations), and satisfaction with the use of Internet when doing this type of training (relations with the medium) determine the asynchronous distance learning course purchase intention. The authors conclude by providing a set of recommendations to positively influence the purchase decision of asynchronous DL courses.

Chapter XVII analyzes e-learning from an industry perspective by evaluating the use of ICT technologies for university teaching. A scenario framework developed for the study of ICT impact on knowledge industries is applied to an e-learning case study. The study outlines a scenario framework for analyzing ICT impact on knowledge services, discusses different types of e-learning from the authors’ experiences, and provides an analysis of the market for e-learning. The authors posit that the most important lesson from the experiences is that although a substantial part of the learning can be done by use of ICT, it is
essential for students to meet occasionally; once personal contact among students and fellow teachers
is established, interactive learning by use of online communication can be performed much more ef-

ciently.

Chapter XVIII evaluates the relationship between the size of student enrollment in distance learning
education and unit operational costs. Per conventional wisdom, the authors posit that the larger the size of
the DL educational facility in terms of student enrollments, the lower the unit capital and unit operating
costs; empirical evidence in the correlation between enrollments and average total costs is unmistakable,
if not significant. The study looks at the nature and strength of these relationships. The authors conclude
by suggesting minimum efficient scale (MES) to achieve economies of scale.

CONCLUSION

This book shares lessons learned from hands-on experience in teaching in synchronous and asynchronous
DL. The book discusses DL issues ranging from learning environments to course design and technolo-
gies used in the classroom. The first section, learning environment, identifies different formats, presents
the design of blended learning environment, and discusses the experience of 3D learning communities
and a longitudinal experiment comparing face-to-face, synchronous, and asynchronous learning envi-

ronments.

The second section, effectiveness and motivation, presents a framework for designing an effec-
tive DL course, shares lessons learned on how to differentiate DL courses to meet learners needs, and
discusses student motivation to participate in teleconferencing. The third section, interaction and col-
laboration, presents suggestions on how to improve team collaborations in DL courses, a discussion on
lessons learned from virtual tutorial moderated by synchronous chat, and recommendations on factors
that promote online discussion and collaborations. The last section, economic analysis and adoption,
presents the motivation for purchase decisions of DL courses, discusses the impact of DL technologies
on knowledge industries, and compares the nature and strength of relationship between DL enrollment
and operational costs.

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