Preface

Since the World Wide Web’s conceptualization in 1991 as a method of making research findings and scientific materials available to researchers and teachers across the globe, it has become an indispensable tool for educators. Not only has the Web achieved making scientific findings more accessible, but also it is now being used as a mechanism of course delivery. Web-based education is fast becoming the new method of teaching. Some teachers use the web to post syllabi and give tests; other courses are offered exclusively on the Web. As this new technology grows in acceptance and use, it is essential for academics and practitioners to increase their knowledge about the uses and abuses of the Web in education and to stay up-to-date on the latest findings in Web-based education research. The chapters in this book address many aspects of Web education. From how to incorporate the Web into classroom-based classes to studies on which mechanism of instruction is more effective and how students feel about instruction from the Web, the authors of the following chapters, all experts in the fields they discuss, share their knowledge.

Chapter 1 entitled, “Web-Based Learning and Instruction: A Constructivist Approach” by Valerie Morphew of West Virginia Wesleyan College (USA) defines and explains constructivist thought and then applies it to learning and instruction. The author then offers recommendations for selecting curriculum and instruction based upon constructivist thought. The chapter contains concrete direction on planning instruction, monitoring students’ responses and evaluating students and programs.

Chapter 2 entitled, “Implementing Corporate Distance Training Using Change Management, Strategic Planning and Project Management” by Zane Berge of University of Maryland Baltimore County and Donna Smith of T. Rowe Price Associates, Inc. (USA) offers a perspective for implementing distance education that integrates strategic planning, change management and project management as critical to successful overall implementation. Rather than prescribe specific models, the approach described in the chapter identifies the essence of what each discipline contributes to the process of implementing distance education.

Chapter 3 entitled, “Three Strategies of the Use of Distance Learning Technology in Higher Education” by William E. Rayburn of Austin Peay State University and Arkalgud Ramaprasad of Southern Illinois University (USA) identifies and describes strategies for using distance learning technologies at higher education institutions. The chapter describes three specific strategies: guest lecturer strategy, the automated correspondence course strategy and the large lecture hall strategy.
All of the three described strategies have antecedents in the recent history of higher education and each has its own implications for the future. The chapter discusses these implications.

Chapter 4 entitled, “Developing a Learning Environment: Applying Technology and TQM to Distance Learning” by C. Mitchell Adrian of Longwood College (USA) describes how to apply the concepts of total quality management (TQM) to the new and readily available electronic communication technologies. The chapter presents specific techniques that are designed for a distance education environment that allows for some degree of student-faculty interaction.

Chapter 5 entitled, “Web-Based Education” by A.K. Aggarwal and Regina Bento of University of Baltimore (USA) examines Web-based education and argues that it can successfully simulate face-to-face teaching models, while adding some unique features made possible by the technology. The chapter looks at several critical aspects of Web-based education, including technological, administrative, quality and control issues that need to be addressed in order to create an environment favorable to Web-based education.

Chapter 6 entitled, “Web-Based Teaching: Infrastructure Issues in the Third World” by Dushyanthi Hoole of Open University of Sri Lanka and S. Ratnajeevan H. Hoole of University of Peradeniya (Sri Lanka) discusses the problems faced by educators in the Third World who seek to incorporate the Web into their teaching. Specifically, the chapter describes the attempts by the authors in producing new ways or teaching with the Web and the development of an infrastructure for Web-based teaching at the Open University of Sri Lanka.

Chapter 7 entitled, “Cognitive Effects of Web Page Design” by Louis Berry of University of Pittsburgh (USA) addresses the cognitive implications of Web page design. The chapter does not focus on specific graphic layout and design criteria nor on visual display specifications, but rather it reviews and discusses the major theoretical and design issues impacting contemporary instructional Web page design.

Chapter 8 entitled, “Distance Education in the online World: Implications for Higher Education” by Stewart Marshall of Central Queensland University and Shirley Gregor of Australian National University (Australia) identifies the forces that lead to change in industries in the online world, including increasing global competition, increasingly powerful consumers and rapid changes in technology. The authors outline a “glocal” networked education paradigm that separates out global and local resource development learning facilitation.

Chapter 9 entitled, “The Consequences of e-Learning” by Henry Emurian of University of Maryland Baltimore County (USA) offers a philosophical discussion about the future of e-learning. The author discusses the role of the individual in the learning process, and concludes that the e-learning phenomena will produce a more informed learner and learning environments more conducive to different types of learners.

Chapter 10 entitled, “Student Perceptions of Virtual Education: An Exploratory Study” by Anil Kumar and Poonam Kumar of the University of Wisconsin-Whitewater and Suvojit Choton Basu of Northern Michigan University (USA)
explores the perceptions of students in a mid-western rural university regarding virtual education. The chapter also addresses the implications for the participants in the educational system. The chapter concludes by discussing the factors that encourage and discourage students from utilizing virtual education courses and provides insights for universities seeking to develop these programs.

Chapter 11 entitled, “Online Student Practice Quizzes and a Database Application to Generate Them” by Gary Randolph, Dewey Swanson, Dennis Owen and Jeffrey Griffin of Purdue University (USA) discusses a quiz database application that stores potential test questions and exports selected subsets of questions to a Web-based JavaScript program. The chapter explains how the database application works and how educators can obtain and use the application and provides guidance for constructing quiz questions that make the quiz a positive experience.

Chapter 12 entitled, “Classroom Component of an Online Learning Community: Case Study of an MBA Program at the University of St. Gallen” by Julia Gerhard, Peter Mayr and Sabine Seufert of the University of St. Gallen (Switzerland) discusses a way of designing an online learning environment and explains how to design a possible classroom component of a specific online learning community. The chapter first introduces the concept of online learning communities and then briefly describes the reference model for learning communities. The reference model is applied as a concrete MBA program, and the design of the classroom component of the MBA learning community is introduced.

Chapter 13 entitled, “Using Lotus Learning Space to Enhance Student Learning of Data Communications” by Michael Dixon and Tanya McGill of Murdoch University (Australia) and Johan Karlsson of Lund Institute of Technology (Sweden) describes how the authors deliver and manage part of a postgraduate degree in telecommunications. The aim of the degree is to foster learner-centered education while providing sufficient teacher centered activities to counter some of the known concerns with entirely learner-centered education. The Internet is used as the communication infrastructure to deliver teaching material globally and Lotus LearningSpace to provide the learning environment.

Chapter 14 entitled, “Development of a Distance Education Internet Based Foundation course for the MBA Program” by James LaBarre and E. Vance Wilson of University of Wisconsin-Eau Claire (USA) details the procedures to develop a distance education foundation course for an MBA program. All the MBA courses using this methodology are delivered to students enrolled in several universities within the Wisconsin systems.

Chapter 15 entitled, “Web-Based Learning: Is It Working? A Comparison of Student Performance and Achievement in Web-Based Courses and Their In-Classroom Counterparts” by Kathryn Marold, Gwynne Larsen and Abel Moreno of Metropolitan State College of Denver (USA) discusses the results of an in-depth study of Internet and classroom students’ test grades and assignment grades spanning three semesters. In the comparison, students from the Internet set did better on the tests while classroom students performed better on the hands-on homework. The authors conclude that the findings support the theory that Internet delivered
distance education courses require different designs and believe that their findings indicate that Web-based education is working.

Chapter 16 entitled, “Audio and Visual Streaming in Online Learning” by P.G. Muraleedharan of XStream Software (India) discusses two major players in media streaming technology, namely Microsoft and Real Networks. The chapter also addresses the two different types of media, on demand and broadcast, and the two types of connections for delivering these contents to the clients, unicast and multicast.

Chapter 17 entitled, “Relevant Aspects for Test Delivery Systems Evaluation” by Salvatore Valenti, Alessandro Cucchiareli and Maurizio Panti of the University of Ancona (Italy) presents a proposal for a framework that helps to identify guidelines for the selection of Test Delivery System. The chapter presents the metrics for the evaluation of the TDS at the elementary and system levels. The chapter then discusses how to avoid cheating and what countermeasures to adopt.

Chapter 18 entitled, “An Overview of Agent Technology and Its Application to Subject Management” by Paul Darbyshire and Glenn Lowry of Victoria University of Technology (Australia) provides an overview of agent software generally and autonomous agents specifically. The chapter then discusses the application of autonomous agents to educational courseware, and describes a project using autonomous agents to aid in Web-based subject management tasks.

Chapter 19 entitled, “A Comprehensive Approach to Teaching Visual Basic Programming” by Yun Wang of Mercy College (USA) introduces the background of the visual basic course taught at Mercy College and briefly outlines previous teaching approaches. The chapter describes the current teaching methodology in detail and examines existing course questions and proposes future revisions by studying the results of this new teaching approach.

Chapter 20 entitled, “What Do Good Designers Know That We Don’t?” by Morgan Jennings of Metropolitan State College of Denver (USA) reports on an investigation of the immersive properties of game and learning environments. From the findings, the author develops prescriptive aesthetic framework based on data and aesthetic experience literature. The author chose aesthetics because popular multimedia environments appear to arouse the same experiences as aesthetic experience. The results reported indicate that this is the case.

Chapter 21 entitled, “Learning with Multimedia Cases in the Information Systems Area” by Rikke Orngreen of Copenhagen Business School (Denmark) and Paola Bielli of SDA Bocconi (Italy) presents research investigating possible learning scenarios for three Italian and three Danish cases through the collection of qualitative and quantitative empirical data. The objective of the research is to gain knowledge about how the chosen learning objectives from a multimedia case are best transferred to the users. The methodology and current experiences are described and preliminary results reported.

Chapter 22 entitled, “Who Benefits from WWW Presentations in the Basics of Informatics?” by Pekka Makkonen of the University of Jyväskylä describes the use of Web-based guided tours as a complementary addition to conventional lectures
in the basics of informatics. The authors analyze the benefit of an optional coursework, including the use of guided tours, search engines, and directories on the World Wide Web. The chapter presents who benefits and who does not from the optional coursework. The authors hypothesize that the students who are not familiar with computers and the Internet benefit more from the Web-based learning.

Chapter 23 entitled, “Towards an Automatic Massive Course Generation System” by Ahmed H. Kandil, Ahmed El-Bialy, and Khaled Wahba of Cairo University (Egypt) considers a system for massive course generation. The courses that are generated are built on top of open Internet standards and broadcast on the Web. The system described is equipped with an automatics system for final exam generation. The chapter discusses the implementation of the described systems in six courses in the biomedical engineering department at Cairo University.

Chapter 24 entitled, “A Case Study of One-to-One Video Conferencing Education over the Internet” by Hock C. Chan, Bernard C.Y. Tan and Wei-Ping Tan of National University of Singapore (Singapore) investigates the use of Internet video conferencing for one-to-one distance education. Through in-depth observations and interviews with two instructors and three students in Singapore, the chapter examines the impact of four critical factors, namely, system characteristics, mode characteristics, social presence and media richness, on the effectiveness of teaching and learning in such a context. This classroom focuses on the impact of virtual learning in small environments.

The Internet has changed the lives of individual students and educators in innumerable ways—it has also changed the face of education. Universities across the globe are offering Web-based courses and alternatives to classroom-based instruction, and teachers are incorporating Web-based activities and tests into their curriculum. The chapters in this book represent the best research currently available on Web-based education. They address the critical issues of how to select software for use, how to use the Web and associated technologies to generate tests and quizzes, how to measure the effectiveness of Web-based instruction and what the future of Web-based education is. Leading experts in the fields of education share their expertise and outline the road to successful implementation of the Internet in education as well as sharing practical tips on how to avoid some of the pitfalls that may lie ahead. This book provides practical guidelines for researchers and practitioners alike. It will be useful to teachers as they strive to improve and broaden their teaching, and the research of this book will prove to be an excellent resource for academicians and students alike as they explore this expanding field.

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