

# Preface

The field of information technology (IT) education encompasses many areas: educating the IT professional, using IT in the classroom, curriculum issues and the issues associated with distance learning and web-based learning. As information technology is changing rapidly, it is essential for the curriculum being taught to students to keep up with changes. Additionally, rapidly developing technologies can be used to significantly enhance the ways in which students are taught and what they are being taught. The challenges facing IT educators are far more challenging and IT educators need to keep up with these technologies in order to be effective educators. The chapters of this book address the practical experiences of IT educators and those who utilize IT in their teaching. Web-base learning and teaching, accreditation issues, where and how students should be taught and the ethics associated with IT are just some of the issues addressed in the following chapters.

Chapter 1 entitled, “Web-Delivered Education: Shaking the Foundations of the ‘Establishment’?” by David A. Banks of University of South Australia suggests that the growth of the new and dynamic educational marketplace, populated by a wide range of education providers will bring with it significant new problems, or rather new incarnations of older problems, that may challenge the existence of some current educational providers. The chapter indicates that these threats are not technical, but are being driven by market related perceptions that may alter provider/student relationships as the web-enabled, client-led learning paradigm develops.

Chapter 2 entitled, “An Advanced Course in Application Programming and Design” by Cecil Schmidt of Washburn University (USA) gives an overview of new course offerings which address the need of the continuing evolution in state-of-the-art business applications such as those that support e-commerce, advancements in programming language such as Java, and the requirements for persistent data access mechanisms. The author suggests that application design

should emphasize object-oriented techniques that take full advantage of the most recent enhancements to programming language and that alternative file structures and data access methods should be incorporated into course developments.

Chapter 3 entitled, “Establishing a Telecommunications and Networking Technology B.S. Degree” by Julie Mariga of Purdue University (USA) discusses how a telecommunications and networking bachelor’s degree option was established at Purdue University. The chapter discusses why the program started and how it has evolved. Other areas discussed in this chapter include: the curriculum, facilities, faculty and the industrial advisory board. The chapter concludes by examining the future direction for growth of the program.

Chapter 4 entitled, “An Action Learning Approach for the Development of Technology Skills” by Richard L. Peterson and Joan D. Mahoney of Montclair State University (USA) is a case study of the experiences of students in a course that required them to complete action learning technology projects for social services clients. The results discussed in the chapter suggest a generalizable model for improving the relevance of the curriculum within universities in the 21<sup>st</sup> century.

Chapter 5 entitled, “Real-World Learning of Information Resource Management” by Dusan Lesjak and Miroslav Rebernik of the University of Maribor (Slovenia) describes an Information Resources Management program at the Faculty of Economics and Business at the University of Maribor, Slovenia that is based on a real-world learning principle. The aim of the described course is to provide students with knowledge and experience to deal with information technology systems in small business from a managerial perspective. The theoretical part of the course is conducted in a classroom and the practical part is experienced in mentor firms. Thus students have an opportunity to compare, combine and verify theory and practice instantly and to develop capabilities to transfer the acquired knowledge and skills into practice.

Chapter 6 entitled, “IS Education in the New Millennium: Determining the ‘Right’ Curriculum” by Sanjeev Phukan of Bemidji State University (USA), Ashok Ranchhod of the Southampton Business School (U.K.) and T. Vasudavan of Edith Cowan University (Australia) presents an exploratory investigation of a specific class in which a case method was taught in both online and face-to-face modes. The study captures some insights on the processes that were seen from a participant observer’s perspective. The chapter identifies the changing roles of the instructor and students in an online case discussion. It points out three factors unique to the dynamics of a computer-mediated environment. Finally, the study indicates a number of learning instances that are non-traditional. Most important is the evidence for emancipatory learning as manifested in students’ action to be self-determining and self-reflective.

Chapter 8 entitled, “The Place of Homework in an Information Systems Tutorial” by Bill Morgan and Bob Godfrey of the University of Tasmania (Australia) presents findings from a study of Information Systems tutorials. The study presented in the chapter seeks to discover the use of prescribed homework which improves the learning of the students. In addition to regular tests, examinations and assignments, students were given homework to complete. Students are then surveyed using the College and University Classroom Environment Inventory (CUCEI) instrument before and after the experiment. Several components of the study show significant improvement for those students in these tutorials.

Chapter 9 entitled, “Human Learning Models and Data Collection Over the ‘Long Haul’ ” by Kevin Reilly and Norman Bray of the University of Alabama Birmingham (USA) offers solutions and suggestions based on the authors’ experiences and theory-based practical approaches. The authors note that modeling human learning and performance that also involved data collection requires teamwork. They further note that when research is of long duration, changes occur in personnel and research areas. The chapter identifies several problems in the “long haul” interdisciplinary research in which IT plays a key role.

Chapter 10 entitled, “Are Information Systems Students in Their Right Minds?” by Steven Benson and Craig Standing of Edith Cowan University (Australia) examines the fundamental thinking styles and the implications for IS course design and delivery. The authors conducted an initial investigation into the left versus right brain orientation of their students and curriculum. Given the logical and technical biases of information systems, the expectation was to find a high degree of logical left brained orientation in the student sample. Contrary to their expectations, the authors found that the ration of right to left brained students was 3:1. The chapter outlines the left-right brain divide and questions the validity of the division from a neuropsychological perspective. The chapter then discusses the practical implication of the exercise and identifies issues for further research.

Chapter 11 entitled, “The Gender Issue in Information Technology: Collegiate and Corporate Solutions” by Donald Caputo and Frederick Kohun of Robert Morris College (USA) focuses on the ongoing strategies employed for the integration and retention of women in the collegiate and corporate sphere. The chapter recounts the experiences of the authors in revamping the information systems program at Robert Morris College. The program was modified from a one-size-fits all program to a program with tracks that included different options. The chapter reports that the program grew at an astounding rate after the change took place and reports the changes also helped retain women in the program.

Chapter 12 entitled, “A Methodology for Validating Entry Level Value versus Career Value of Courses in an MIS Program” by Earl Chrysler of Quinnipiac College and Stuart Van Auken of Florida Gulf Coast University (USA) reports on

a study designed to determine which entry level and career-level course evaluations are drivers of an attitude of approval toward an MIS program, and whether alumni evaluations coincide with the beliefs of faculty who designed the curriculum. The chapter concludes that the extent to which the value of the content of a course is a driver of a graduates overall satisfaction with the course correlates to the graduate's time frame.

Chapter 13 entitled, "A Personalized System of Instruction for Teaching Java" by Henry Emurian of University of Maryland-Baltimore County and Ashley Durham of Health Care Financing Administration (USA) addresses the challenge of how to structure a learning environment to teach object-oriented computer programming to students who may need an introductory course in that discipline, but who lack the experience to use symbol manipulation with confidence. The chapter presents data gathered from self-report and performance in the pedagogical approach which is described.

Chapter 14 entitled, "Places and Processes in Learning Environments" by I. T. Hawryszkiewicz of the University of Technology (Australia) describes ways to create a variety of learning environments. The chapter suggests that good practices require both the definition of places of learning as well as clear definitions of processes to be followed within the learning places. The chapter then presents a metamodel for defining different environments as well as a system called LiveNet which can be used to configure different learning environments to implement the metamodel.

Chapter 15 entitled, "IS Program Issues: From Origin to Accreditation" by Douglas Leif of Bemidji State University (USA) suggests the challenges of academic information systems programs are a product of origin and evolution. Based upon literature and survey results, the author then suggests issues concerning origin, perceptions, solutions and accreditation. The chapter discusses why accreditation is important to industry and how universities can improve.

Chapter 16 entitled, "Educating the Business Information Technologist: Developing a Strategic IT Perspective" by John Mendonca of Purdue University (USA) discusses why a strategic perspective is important for all IT professionals to develop. The chapter then proposes a framework for teaching strategic IT to non-managers. The author explains the need for fostering a strategic information perspective for non-managers and illustrates a practical application of that framework. The chapter indicates that the third-era view of IT as a strategic resource within a fast-paced, fast-changing environment places the burden of strategic thinking on all levels of IT workers. Education and practice for developing this perspective is critical to meet the expectations of corporate leaders, and this chapter explains the crucial steps.

Chapter 17 entitled, “Collaborative Ph.D. Examination” by Mike Metcalfe and Samantha Grant of the University of South Australia argues for an interpretist approach of enriching the learning experience of the examiner, Ph.D. candidate, supervisor and university by requiring the advantages of complex sustained interaction in an oral examination. The chapter provides a literature review in support of the argument that examiners need to be interactively involved with supervisors and examiners, especially in IS which changes rapidly and is experiencing a move from positive to interpretive methodologies.

Chapter 18 entitled, “Information Systems and Computer Science Model Curricula: A Comparative Look” by Anthony Scime of State University of New York College at Brockport (USA) explores the intricacies of the interrelationship between computer science and information systems. The author looks at why universities lack the funding necessary to support two computer-related departments and provides a model for IS and CS curricula. The aim of this chapter is to provide IT departments the ability to develop an information technology curriculum which can effectively meet the needs of its students.

Chapter 19 entitled, “E-Commerce Curriculum Development and Implementation” by Linda Knight and Susy Chan of DePaul University (USA) proposes a conceptual model for the design and development of an e-commerce curriculum and chronicles the experiences of DePaul University’s School of Computer Science, Telecommunications and Information Systems in developing a new e-commerce Master’s degree. The chapter identifies eight key principles for universities seeking to embark on a new e-commerce curriculum.

Chapter 20 entitled, “The Challenge of Teaching Research Skills to Information Systems and Technology Students” by Beverley Hope of Victoria University of Wellington (New Zealand) and City University of Hong Kong (China) and Mariam Fergusson of PricewaterhouseCoopers (Australia) identifies the core of research skills needed by information technology students. The authors present three pragmatic models for teaching these skills. This research provides a basis for a shared knowledge and discussion based on the lessons learned.

Chapter 21 entitled, “Towards Establishing the Best Ways to Teach and Learn About IT” by Chris Cope, Lorraine Staehr and Pat Horan of La Trobe University (Australia) reports on an ongoing project the ways people teach and learn about information technology (IT). By using a relational perspective on learning, the authors have developed a framework of factors to encourage students to adopt thoughtful approach to learning about IT. This chapter describes the design, implementation, evaluation and refinement of learning contexts and learning activities based on the framework.

Chapter 22 entitled, “Bridging the Industry-University Gap: An Action Research Study of Web-Enabled Course Partnership” by Ned Kock of Temple

University and Camille Auspitz and Brad King of Day & Zimmerman (USA) discusses a course partnership involving Day & Zimmerman, Inc. (DZI), a large engineering and professional services company. The course's primary objective was to teach students business process redesign concepts and techniques. A Web site with bulletin boards, multimedia components and static content was used to support the partnership. The chapter looks at the use of Web-based collaboration technologies used in conjunction with communication behavior and face-to-face meets. The authors evaluate the success of these modes of learning and their effect on the partnership.

Chapter 23 entitled, "Data Modeling: A Vehicle for Teaching Creative Problem Solving and Critical Appraisal Skills" by Clare Atkins of Nelson Marlborough Institute of Technology (New Zealand) looks at the process of learning data modeling techniques. In order to successfully master these techniques, students must understand the problem, be able to create and recognize a number of possible solutions, and then utilize critical thinking skills in choosing between them. This chapter examines these issues and describes various ways in which senior undergraduate students, taking a specific course in data modeling, have been encouraged to develop their creative and critical ability to solve problems.

Chapter 24 entitled, "Information Systems Curriculum Development as an Ecological Process" by Arthur Tatnall of Victoria University of Technology and Bill Davey of RMIT University (Australia) argues that in order to understand how and information systems (IS) curriculum is built, and how the human and non-human interactions contribute to the final products, it is essential to utilize an approach that allows the complexity to be traced and not diminished by categorization or assumptions.

Chapter 25 entitled, "Teaching or Technology: Who's Driving the Bandwagon?" by Geoffrey C. Mitchell of Victoria University of Wellington and Beverley Hope of Victoria University of Wellington (Australia) and City University of Hong Kong (China) argues that instead of revolutionizing education, often Web-based education just reinforces poor teaching practices. The authors indicate that this occurs because of a limited understanding of how flexible learning demands an increased focus on constructivism and the sociological aspects of teaching. The chapter presents two frameworks that situate an approach to flexible learning with respect to more traditional education.

Educational theory is constantly changing. The modes and methods of student learning must evolve to keep up with emerging technologies. The IT field is rapidly expanding and universities are facing the daunting task of keeping up with emerging technologies. The chapters in this book represent the best research and practice of information systems curriculum, web-based learning and teaching, educational theory as it applies to the IT field, the ethical issues of IT as well as

*xvi*

strategies for teaching emerging technologies. Leading experts in the fields of education and IT share their years of expertise and outline the road to successful technology use and teaching as well as sharing practical tips on how to avoid some of the pitfalls that may lie ahead in the implementation and teaching of IT. This book provides practical guidelines for researchers and practitioners alike. It will be useful to teachers as they strive to improve their teaching, and the research contained herein is an excellent resource for academicians and students.

IRM Press  
October 2001