

# Preface

In the two decades that I have been involved with IT education, the field has not just undergone evolution, it has undergone revolution. Both the degree and the speed of change have been spectacular.

One of the changes has been in what we teach. Twenty years ago, most schools taught on and about mainframe computers. Today you would be hard pressed to even find a mainframe computer at most universities. The emphasis has changed first to minicomputers, and then to microcomputers, and now to web-based networked computing.

Another change has been in how we teach. Certainly the technologies have given students greater access to information technologies. But even more fundamentally, we have learned from our experiences and research into how students learn and how best to teach them. Slowly but surely, IT education has taken its rightful place as an important research-based discipline.

## WHAT IS IN THIS BOOK?

Here is what you will find in this book. The 13 chapters are divided into four major sections.

### *Sections*

The book is divided into four major sections, the topics of which move from the particular to the general:

1. Examples on How to Teach Specific Topics
2. Teaching Techniques and Pedagogy
3. Impact of the Web on IT Teaching
4. Developing an IT Curriculum

### *Section 1: Examples on How to Teach Specific Topics*

The first section, “Examples on How to Teach Specific Topics,” is composed of three chapters. The first is “Teaching Teamwork in Information Systems” by Connie Wells of Roosevelt University (USA). As Connie points out, knowing how to effectively work in teams is very important for those developing information systems. But do we teach teamwork in our courses, or do we just throw students into groups? Connie shows us how to effectively form, build, manage, and evaluate teams in information systems courses. She argues

for explicitly teaching students these concepts in addition to the regular course content. This chapter also addresses two special issues: managing cultural diversity and managing “virtual” teams, where the team members are geographically separated.

The second chapter in this section, “The Challenge of Teaching Research Skills to Information Systems and Technology Students,” was written by Beverley G. Hope of both Victoria University of Wellington (New Zealand) and City University of Hong Kong (China), and Mariam Fergusson, of PricewaterhouseCoopers (Australia). The chapter covers issues of teaching and learning graduate research skills. The authors identify the core research skills needed and present three pragmatic models for teaching them.

The last chapter of this section, “Data Modeling: A Vehicle for Teaching Creative Problem Solving and Critical Appraisal Skills,” was written by Claire Atkins of the Nelson Marlborough Institute of Technology (New Zealand). Communication and problem-solving skills are fundamental for success as an IT professional. But can these skills be taught? Claire provides a method to teach these skills through the teaching of data modeling.

### *Section 2: Teaching Techniques and Pedagogy*

The second section deals with teaching techniques and pedagogy or, more appropriately, with applying the results of countless research programs on how best to teach to our courses.

The chapter, “Towards Establishing the Best Ways to Teach and Learn about IT,” by Chris Cope, Lorraine Staehr, and Pat Horan, all of Latrobe University, Bendigo, Australia, reports on an ongoing project to improve the ways they teach IT in an undergraduate degree. Using a relational perspective on learning, the authors developed a framework of factors to encourage students to adopt a deep approach to learning about IT. The authors define deep learning and describe the design, implementation, evaluation, and refinement of learning contexts and learning activities based on the framework they developed. Results are encouraging and show a significant positive effect when compared with a previous study by other researchers involving a different teaching and learning context.

In their chapter, “Computer-Supported Learning of Information Systems: Matching Pedagogy with Technology,” authors Raquel Benbunan-Fich and Leigh Stelzer of Seton Hall University (USA) point out the need to apply new ways of teaching. This chapter proposes a three-dimensional framework to describe how best to teach, based on pedagogical assumptions of the given course, the time dimension of the communication between learners and teachers, and the geographical location of learners and teachers. The authors review the implications of the framework for IT education.

John Bentley and Geoff Sandy of Victoria University (Australia) and Glenn Lowry, United Arab Emirates University (UAE), present their chapter, “Prob-

lem-Based Learning (PBL) in Information Systems Analysis and Design,” as the conclusion of this section of the book. This chapter looks at PBL as a possible way to provide a better match between information systems education delivery and the demands of the professional workplace. The chapter starts with a brief introduction to cognitive and learning principles, followed by a discussion of PBL and its potential to help to achieve a better fit between what students want and what employers demand. The chapter concludes with a concrete example of how to use PBL in a systems analysis and design course.

### *Section 3: Impact of the Web on IT Teaching*

“Teaching or Technology: Who’s Driving the Bandwagon?” by Geoffrey Mitchell of Victoria University of Wellington (New Zealand) and Beverley G. Hope of both Victoria University of Wellington and City University of Hong Kong (China) challenges our way of thinking about technology and education. Contrary to claims that the Web has revolutionized education, the authors argue cogently that many attempts at Web-based education simply reinforce current ‘poor’ teaching practices (perhaps disguised in new clothing). The authors argue that this occurs because of differing pedagogical assumptions and a limited understanding of how flexible learning differs from traditional approaches. They reason that flexible learning demands an increased focus on constructivism and the sociological aspects of teaching and learning. This chapter presents two frameworks that situate the authors’ approach to flexible learning with respect to more traditional offerings and discusses the implications for educational technology design.

Karen S. Nantz and Terry D. Lundgren of Eastern Illinois University (USA) provide the chapter, “Delivering Course Material via the Web: An Introduction.” The trend toward using the Web to deliver course material is ever increasing. Despite the many positive reasons for using the Web in a course, its use raises a number of new issues for faculty, including the time needed and salary concerns. The chapter presents a table of six levels of website use and discusses the major problems associated with creating and developing Web courses. The authors provide practical suggestions for dealing with these problems. The final section covers global enrollment, the electronic university, and the trend toward use of the Web for the delivery of course materials.

The chapter, “Bridging the Industry-University Gap: An Action Research Study of a Web-Enabled Course Partnership,” by Ned Kock of Temple University (USA), and Camille Auspitz and Brad King, both of Day & Zimmermann, Inc. (USA), discusses a course partnership involving Day & Zimmermann, Inc. (DZI), a large engineering and professional services company, and Temple University. The course’s main goal was to teach students business process redesign concepts and techniques. These concepts and techniques were used to redesign five business processes from DZI’s information technology organization. DZI’s CIO and a senior manager, who played the role

of project manager, championed the course partnership. A website with bulletin boards, multimedia components, and static content was used to support the partnership. The chapter investigates the use of Web-based collaboration technologies in combination with communication behavior norms and face-to-face meetings, and its effect on the success of the partnership.

#### *Section 4: Developing an IT Curriculum*

The sections above have dealt with issues such as how best to teach a given course and topic. But these courses need to fit together to form a curriculum. This section deals with how to develop an IT curriculum that meets the ever-changing demands of industry.

Linda V. Knight and Susy S. Chan of DePaul University (USA) describe their efforts on “E-Commerce Curriculum Strategies and Implementation Tactics: An In-Depth Examination of DePaul University’s Experience.” Their master’s e-commerce curriculum was designed, developed, and implemented in just seven months. The program drew 350 students in its first year, and approximately 650 students with majors and concentrations in the e-commerce area in its second year. Their curriculum draws upon the principles of the IRMA / DAMA 2000, ISCC ’99, and IS ’97 model curricula. Strong technological expertise and infrastructure, solid industry relationships, and an entrepreneurial culture were critical success factors in developing and implementing the curriculum. The strategies that DePaul CTI employed and the lessons that it learned in the process of implementing its e-commerce curriculum are relevant to other universities seeking to move into the e-commerce arena.

Arthur Tatnall of Victoria University of Technology (Australia) and Bill Davey of RMIT University (Australia) point out how one can view “Information Systems Curriculum Development as an Ecological Process.” Their chapter argues that if you want to understand *how* an IS curriculum is built, and how both the human and non-human interactions involved contribute to the final product, you need to use approaches that allow the complexity to be traced, and not diminished by categorizations or assumptions about intrinsic attributes of humans and non-humans. One way that this can be achieved is by using models and metaphors that relate to how people interact with each other, with the environment, and with non-human artifacts. This chapter uses the metaphor of ecology to achieve these goals.

Linda Knight and Susy Chan used various model curricula in designing their own. Anthony Scime of the State University of New York at Brockport (USA), in his chapter “Information Technology Model Curricula Analysis,” puts these various model curricula into perspective. His chapter examines 10 model curricula on IT education and places them into grids that demonstrate how each curriculum model aims to educate students with various emphases on business, engineering, and mathematics.

The 2000 IRMA/DAMA Model Curriculum is our last chapter. It is the collective work of perhaps as many as 40 people, and I was pleased to serve as its editor. This document details an international information resources management curriculum for a four-year undergraduate-level program specifically designed to meet the needs of modern business. The curriculum provides a model for individual universities to tailor to their particular needs. That is, the IRMA/DAMA Curriculum Model is a generic framework for universities to customize in light of their specific situations. This curriculum model prepares students to understand the concepts of information resources management and technologies, methods, and management procedures to collect, analyze, and disseminate information throughout organizations in order to remain competitive in the global business world. These are all aspects of managing information. It outlines core course descriptions, rationales, and objectives, and includes suggested specific course topics and the percentage of emphasis.

This Curriculum Model addresses the needs of two distinct sets of learners:

1. students currently employed or seeking employment in the IRM field, and
2. all business students.

The IRM student needs specific in-depth understanding of IRM. All business students, if they are ever to manage effectively, require an understanding of how information management affects their job, the jobs of other managers, and their entire industry.

This book is current, relevant, and usable. Readers can start applying its lessons right away. It will prove invaluable to those revising their school's IT curriculum. Its concrete teaching ideas are perfect for those just starting out in teaching IT. Its coverage of curriculum issues from a global perspective is ideal for the experienced teacher in the throws of updating the curriculum. The book is also unique. It provides both a global perspective to IT education (so often lacking in other books) and advice based on solid research.

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**Editor**