Preface

It is difficult to think of two topics more critically important to the modern world than technology and higher education. If pressed, we might mention health care, economic stability, justice, individual liberty, or national security as other critically important topics. While those topics are, of course, important, the advancement of each of those topics relies in large part on technology and higher education. Technology is widely seen as a source for improving and extending life, for expanding economic opportunity, for providing access to information and empowering individuals, and for responding to security threats. Higher education is the main training ground for physicians, economists, attorneys, social workers, teachers, military leaders, and national security experts as well as many other fields. Colleges and universities are also a major source of research and development in medicine, engineering, natural sciences, and technology.

While technology and higher education are each fascinating and important topics in their own right, we believe the interaction between technology and higher education is an even more fascinating and important topic. Technology is changing how colleges and universities function and organize themselves, how students learn and earn degrees, how faculty teach and conduct research, how institutional knowledge is collected, organized, and disseminated, and how universities, governments, and corporations interact. In turn, higher education is driving technological development, identifying and creating new markets, producing technology innovators and entrepreneurs, and developing new models for conceptualizing, marketing, and implementing innovative technologies.

Our intention in developing this book was to explore the complex interaction between technology and higher education. In looking at many of the available books on the topic of technology in higher education, we saw that most books focused on the relatively narrow topic of technology as a tool for accomplishing a specific task. From the beginning of this project we wanted to develop a book that was less about technology and more about the impact of technology. We wanted to create a resource that would help a broad range of stakeholder groups in higher education understand how technology is shaping the organizational and human aspects of higher education. While it is obviously impossible to develop a book that thoroughly explores all the ways that technology is impacting higher education, we believe the chapters included in this book provide an important and often engrossing starting point for understanding technology's impact.

ORGANIZATION OF THE BOOK

This book is organized in three sections. The first section, *Fundamental Issues*, includes eight chapters. In each of those chapters, the authors discuss topics that are central to understanding technology's impact on the social and organizational aspects of higher education. The second section, *Contexts of Social and Organizational Impact*, includes nine chapters. The authors of the chapters in this section describe the impact of specific technologies or discuss the affect of technology on specific areas within higher education. The third section, *Evolving Impacts of Technology*, includes six chapters. The authors in the final section discuss critical issues related to the future of technology in higher education.

The first section, *Fundamental Issues*, begins with an analysis by Surry, Stefurak, and Kowch of the key questions universities must ask during the technology integration process. In their analysis they describe questions that range from relatively simple "first order" questions to highly complex and contextualized "third order" questions. The second chapter, by McPherson and Jameson, presents an interesting framework for implementing information and communications technology in higher education through change management, shared vision, support, and commitment. The third chapter, by Ensminger and Lewis, describes the central role that students play in the integration of technology in higher education. In the fourth chapter Rieber, Francom, and Jensen offer fascinating personal perspectives of teaching and learning in an online environment in order to guide college faculty who may be moving to online teaching.

The fifth chapter in the first section, by Polly, Grant, and Gikas, describes two cases of university support for technology integration and offers a series of useful questions to guide the planning and design of technology integration in higher education. The sixth chapter, by Guest and Guest, provides an overview of vital issues related to copyright and privacy in higher education and discusses important recent legislation and legal cases related to those issues. In the seventh chapter, Rodriguez discusses the important topic of infrastructure development in higher education, describes a case study in infrastructure development, and offers 12 recommendations for effectively planning for infrastructure development. The first section concludes with Lea's interesting chapter on the topic of technology transfer. He describes an example of faculty entrepreneurship and uses the case to highlight challenges universities and faculty face in bringing their innovations to the marketplace.

The second section of the book, *Contexts of Social and Organizational Impact*, begins with a chapter by Stefurak, Surry, and Hayes on the topic of technology's emerging role in the clinical supervision of mental health professionals. Perhaps most notably, they offer an astute discussion of technology's impact on the crucial interpersonal relationships involved in clinical supervision. In the second chapter of this section, Reeves, and Reeves discuss the roles of pedagogy and advanced technology in the reform and redesign of clinical education within higher education. They also discuss the importance of design research both for improving clinical education and for developing guiding principles upon which to base further research and development. Following this, Hopper and Johns describe applications of technology in the medical industry. As part of their description, they include a particularly interesting analysis of the use of simulators in the clinical training and continuing education of medical professionals. The fourth chapter of this section, by Pastore, Land, and Jung, discusses mobile computing in higher education. The authors of that chapter provide an overview of the most common current applications of mobile learning technologies and include a keen discussion of how those technologies impact the social and

organizational aspects of higher education. Dabbagh and Reo then provide an overview of the issues and controversies related to Web 2.0 as well as a discussion of its impact on higher education. Their chapter includes a fascinating discussion of several cutting edge topics including "Faculty 2.0", "Student 2.0", and "Classroom 2.0".

The sixth chapter of the second section, by Asselin, is a discussion of assistive technologies in higher education. This chapter includes a thoughtful overview of universal design for instruction and stresses the necessity of professional development to allow educators to make full use of assistive technologies. Following this, Parsons provides a fascinating description of virtual standardized patients that can aid in the diagnosis of psychiatric disorders and help to enhance the interpersonal skills of clinicians. In addition, he discusses the results of several studies that provide important insights into the usability and applicability of the new technology. In the eighth chapter in this section, Van Haneghan discusses the impact of technology on the vital processes of assessment and evaluation in higher education. He skillfully describes both classroom and institutional assessments and discusses technology's impact on the continuous improvement of higher education organizations. The ninth and final chapter in this section, by Haab and Cramer, describes enterprise resource planning (ERP) systems and their benefits to all key stakeholder groups in higher education. Most importantly, their chapter describes potential barriers to the implementation of ERPs in higher education and offers specific strategies for overcoming those barriers.

The third section of the book, *Evolving Impacts of Technology*, begins with a chapter by Gray and Dwight in which the authors apply the concept of "writerly" texts to online learning. This results in an interesting strategy for increasing interaction and creating more powerful online learning experiences. Following this, Plumb provides an insightful perspective of technology's role in higher education. He writes that despite much recent rhetoric championing technology's power to allow students to expand and customize their learning, technology is still widely used in higher education as a tool for transmitting a narrowly defined and highly controlled set of objectives. The third chapter in the section, by Jones and Harmon, looks at the future of online learning in higher education. Among the most interesting aspects of their chapter is an intriguing discussion of how technology may impact higher education in the long term.

In the fourth chapter of the final section, Smyth, Vale, Andrews, and Caladine describe the implementation of rich media technologies in Australian universities. The two year study described in their chapter resulted in important findings related to the funding, utilization, adoption, and implementation of rich media in higher education. Following this, Nworie provides a thoughtful synthesis of adoption and diffusion theories as they apply to technology in higher education. His chapter includes notable discussions of specific areas in which technology has been effectively adopted and of how technology has affected social relationships on university campuses. In the book's final chapter, Rasmussen, Davidson-Shivers, and Savenye offer a compelling look at how technology will likely impact higher education in the near future. Of particular interest in the chapter is the authors' description of four components that will most effectively facilitate technology integration in higher education.

We believe each of the 23 chapters included in this book adds interesting and important perspectives to the existing literature on the topic of technology in higher education. As Editors, we were extremely impressed and gratified that each author attempted to move beyond superficial statements of technological capabilities and sought to describe technology's impact on higher education in unique and meaningful ways. We believe this emphasis on the more nuanced and complex aspects of technology represents the main achievement of the book.

We hope the chapters in this book will inspire greater discussion on the topic of technology's impact on the social and organizational aspects of higher education. We hope future volumes on the topic

will follow our lead and expand on the ideas and concepts included in this book. The greatest power of technology is not its technical capability, but rather its potential to fundamentally change individuals, organizations, and societies. We will need ongoing, honest, inclusive, and intelligent discussion to ensure that the power of technology is used to fundamentally change higher education in positive ways.

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