

Preface

In this technology-mediated post-modern world, changes in the ways and means of living and working are so rapid that the world in which we live is dramatically different from what it was when we were adolescents, and our children will surely inherit a quite different world. We live and work in an environment, where technology is ubiquitously available, highly supportive, and fully penetrative. Not only have information and communications technologies (ICT) become part of our life, but ICT also has exerted considerable impact on the world in which we live. First, the boundary between physical and virtual worlds has become blurred (Huang et al. 2010). Both worlds are interdependent and interactive; increasingly, things previously clearly designated as virtual are becoming an everyday part of our physical existence. An everyday example is looking up a menu item on one's smartphone in a restaurant prior to settling on one's order—the Internet description of the item is virtual but one is about to eat the real thing. The word 'virtual' first appeared in connection with virtual computer memory, referring to random access memory (RAM) that only existed as RAM when needed or referenced, residing physically on a hard disk storage device. Virtual in that context meant something that appeared to be RAM but was not actually RAM. The term has more recently applied to classrooms—virtual classrooms are not physical classrooms but consist of groups of people who are connected via the Internet or other means and perform the same kinds of activities performed in physical classrooms. At some point, however, virtual classrooms will or have become so common and so pervasive that the distinction between physical classrooms and virtual classrooms loses its usefulness. The boundary between the physical and the virtual becomes transparent or vanishes entirely.

Our life is more and more marked with *e-things*, such as “e-business, e-commerce, e-government, e-mail, e-education, and all the other e-something” (Bengtsson n.d., p. 1). Second, information continues to be created at an exponential rate. We have entered a knowledge explosion era. New things come out endlessly, and knowledge is made available more than we can consume (Huang et al. 2010). Third, the pace of life has become quicker than ever. The availability of speedy transportation as well as Internet-based telecommunication is making it

quicker still. Our world has become smaller, and our life has also been transformed to an extent that our ancestors could never imagine. To a larger extent, technology has changed, the world has changed, and life has changed.

Education has changed as well. As Johnson (2005) put it, “New technology cultivates active learning, provides new ways for students to learn, and renders a more authentic, outcome-driven, performance-based type of learning” (p. 2). Technology “has transformed both *what* young people learn today and *how* they learn” (Wagner 2008, p. 178). In the years to come, we will witness a new generation of learners, who are largely digital natives (Prensky 2001). These learners are characterized by a different mentality than that of their counterparts of older generations. They view learning differently from their teachers who are largely digital immigrants (Prensky 2001). In the eyes of many digital natives, learning is more than just going to lectures and relying on textbooks; rather, learning involves engaging in technology-mediated learning activities such as doing research on the Internet, searching, finding, and analyzing a variety of resources available in the virtual world and bringing into their own lives. Digital natives would prefer to stay connected to others virtually rather than be immersed in stacks of library books (Wagner 2008). Also, digital natives view learning as discovery and creation processes (Wagner 2008). They have developed distinctive learning styles, which “involve a preference for multi-tasking, multimedia, bite-sized content and high levels of social interaction” (Ellis and Goodyear 2010, p. 21). For these Net-Generation (Net-Gen; a.k.a., digital natives) learners, learning is technology-dependent. Their learning contexts, expectations, and practices have changed. “The increasing availability of ICT has widened the range of places in which students can learn, and they now expect greater flexibility in educational provision” (p. 21). There is no doubt that learning less and less frequently takes place as it did in the age of digital immigrants and prior generations. This change towards the virtual requires immediate attention of educational researchers and practitioners to investigate how educators can best ensure effective, efficient, and engaging learning in order to better cater to the needs of learners and knowledge workers everywhere in the new millennium.

This book is timely to educators and educational researchers across the globe for three reasons: First, the book deals in detail with the nature of learning exclusively in a technology-mediated context. Second, this volume represents the wisdom and most current research of recognized international educators and researchers in the field of educational technology, all of whom particularly address the critical and pressing educational problems that we are facing today in the digital era. Third, this volume is both informative and transformative in terms of the conceptual and practical impact of technology on current educational practices.

The book is structured into five thematic parts. Part I deals with the “*New Shape of Learning*” and sets the stage for the other parts of the book. It presents the emerging learning mode and emerging dimensions of learning in the era of transformation. It also provides the changes in schools. Part II includes chapters that present the latest research on “*New Sights of Future Students*” so that the reader can understand how students have changed today. Part III covers the

developing trends of learning content and cases of learning content development. Part IV discusses various “*New Dimensions of Learning Technologies*”. Part V introduces the “*Emerging Trends in Learning Technologies*”; as a result, readers will discover the trends of technologies in education and the cases of how to integrate these technologies into learning.

Part I: New Shape of Learning

The first part of the book consists of three chapters. Ronghuai Huang, Geng Chen, Junfeng Yang, and John Loewen’s chapter proposes a new learning mode (connected learning) in today’s information society and five laws of technology enhanced learning. It also identifies how to smoothly transform from traditional learning into connected learning.

The chapter by Erkki Sutinen introduces a scheme where technology can serve as a vehicle to combine the assets of formal and informal learning into a creative tension towards transformational learning.

The chapter by Victoria J. Marsick, Karen E. Watkins and Sarah A. Boswell draws on trends, research, and experience in organizations broadly conceived to examine schools as learning communities, with emphasis on workplace-based and field-based learning.

Part II: New Insights of Future Students

The second part of the book consists of three chapters. Chris Jones’s chapter critically examines student characteristics in light of the popular discourse which describes students as part of a net generation of digital native young people. At the end of the chapter, it argues that there is no one shape for students and that digital technologies open up a range of opportunities and choices at all levels of education.

The chapter by Linda Corrin, Sue Bennett, and Lori Lockyer reports on a study which aims to further the understanding of the motivations, attitudes, and practices of young people in relation to technology.

The chapter by Margaret Martinez explores the use of adaptive learning technology, strategies and models, learning orientations, learner analytics, professional development, and the neurobiology of learning research to find innovative ways to adapt and improve learning and enhance educational, workplace, and career success for future generations.

Part III: The Future of Learning Content

The third part of the book consists of three chapters. Robby Robson's chapter examines the characteristics of the first generation of e-Learning content and discusses what might be expected from the next generation of e-Learning content and how this will affect the processes used to create it.

M. S. Vijay Kumar's chapter points out a clear need for a fresh perspective on how we think about resources and the relationships available to education to constructively leverage this new ecology blending technology and open education resources in powerful ways.

Yanyan Li, Yue Zhou, and Lanfang Zeng's chapter introduces National Pilot Curriculum (NPC) in China. It also presents the quality assessment framework to identify a curriculum as NPC, and summarizes the supporting role of the construction of NPC in promoting the quality of higher education in China.

Part IV: New Dimensions of Learning Technologies

The fourth part of the book consists of five chapters. John Traxler's chapter reviews previous research on mobile learning and then looks forward to a world where the notion of learning technology is itself becoming increasingly problematic as technology, especially mobile technology, starts to become pervasive, universal, ubiquitous, and therefore taken-for-granted, and not-worth-mentioning.

Gwo-Jen Hwang's chapter address how the e-learning has been affected by emerging technologies via reviewing several studies and applications; moreover, the strategies of applying the new approach as well as the potential research issues are discussed.

Kinshuk and Ryan Jesse's chapter discusses an implementation of an application for a mobile device to author authentic learning examples for ubiquitous learning environments, with ability to be reused.

Morris S. Y. Jong, Jimmy H. M. Lee, and Junjie Shang's chapter provides readers with a contextual view on educational use of games, particularly, computer games.

Cathie Norris, Akhlaq Hossain, and Elliot Soloway's chapter draws on the work of Project RED, a nationwide survey of classroom computer use, to identify the characteristics that distinguish between essential and supplemental use of computing devices in the classroom in 1:1 (one laptop per student) project.

Part V: Emerging Trends in Learning Technologies

The fifth and final part of this book consists of five chapters. The chapter by Yueh-Min Huang, Hsin-Chin Chen, Jan-Pan Hwang, and Yong-Ming Huang highlights the

possible application of Cloud technology, SNSs, and sensing technology for e-learning, and explores the pedagogical development using these technologies.

The chapter by Longkai Wu, Chee-Kit Looi, Beaumie Kim, and Chunyan Miao proposes a holistic pedagogical model and elaborates on the design of a curriculum to establish engaging scenarios where learners could experience three holistic learning dimensions in the classroom: virtual reality immersion, agent mediation, and teacher moderation.

The chapter by Steve Chi-Yin Yuen, Gallayanee Yaoyuneyong, and Erik Johnson examines the spectrum of mobile and stationary Augmented Reality (AR) applications and delivery systems, and proposes new definitions of AR inclusive of current technologies. AR applications designed for education are discussed, as well as projects and pedagogical approaches suitable for use with AR technologies.

The chapter by Dirk Ifenthaler and Deniz Eseryel provides an overview of how complex learning may be facilitated by mobile augmented reality learning environments and discusses technological, theoretical, and assessment challenges that must be addressed by future research for mobile augmented reality learning environments to fulfill their potential.

The chapter by Regina Wasti and Rory McGreal introduces mobilizing web sites in an open university environment. It analyzes Factors considered in the implementation of mobilizing web sites including screen size, the use of advanced features, the display of large images, file formats, linking to embedded objects, and so on.

In conclusion, this compilation will benefit learners, educators, scholars, and trainers by providing them the new shape of learning and emerging developments in learning technologies. In the era of transformation from traditional learning to new learning mode, we hope readers will find ways to the new learning mode and the supporting technologies in the book.

Finally, we would like to express our gratitude to the many people; to all those who provided support, talked things over, read, wrote, offered comments, allowed us to quote their remarks, and assisted in the editing, proofreading, and design.

Ronghuai Huang
Kinshuk
J. Michael Spector

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