Preface

There are many interesting chapters in this edited book entitled "Evaluating the Impact of Technology on Learning, Teaching, and Designing Curriculum: Emerging Trends". There three main themes in this volume with some amount of overlap are:

1. Design and modeling issues
2. Pedagogy and communities of practice, and
3. Technology and tools.

The first section of this volume is entitled "Design and Modeling Issues". The four chapters included in this section elaborate a wide range of the most current research issues in the development of innovative, technology-enhanced learning and teaching solutions. The section aims at providing an in-depth coverage and understanding of issues related to the design and modeling of these solutions in diverse contemporary organizational settings.

Generally speaking, design and modeling can play a leading role in the development of technology-enhanced solutions for teaching and learning (Valacich, George, & Hoffer, 2009). As it has been shown in the literature, modeling engages students in meaningful learning activities such as making a plan, identifying variables, building relationships, and testing their model (Sins, Savelsbergh, & van Joolingen, 2005).The related methods and methodologies can describe in great accuracy a wide range of innovative components that have not yet implemented. At the same time, the successful design and modeling of such solutions necessitates a proper exploitation of knowledge towards enabling designers to adequately describe how the components of the system can be developed and put together, and how they will work and interoperate. The effective and efficient treatment of design and modeling issues leads to successful problem solving and planning for the foreseen solution (Maciaszek, 2001). When designing and modeling technology-enhanced solutions for teaching and learning, aspects to be considered include compatibility, usability, extensibility, fault-tolerance, maintainability, granularity, reliability, reusability and robustness. Such issues are elaborated in the first four chapters of this volume.

Chapter 1, "*Does Technology Uptake Convert to Effectiveness: Re-Evaluating E-Learning Effectiveness*" by Monika Mital, Jaipuria Institute of Management Lucknow (India), studies learner perceptions of the characteristics of learning technology as explanatory variables for acceptance behavior. It presents an empirical study examining the effects of these perceptions on two outcomes: uptake of an e-learning technology and effectiveness of such technologies that results in the intention to continue to use. It is shown that the effectiveness of e-learning programs are dependent on the fulfilment of the leaner expectations in terms of the suitability of the learning to the present task, applicability of the learning, and

the right incentives and measures to encourage and motivate employees. Work reported in this study concludes that when designing and implementing an e-learning solution, due consideration should be given to factors such as organization culture, motivation, customization and flexibility rather than just a technically well designed e-learning application. Finally, the study found that factors such as perceived usefulness and organizational factors such as support and incentives definitely result in effectiveness and end user satisfaction, which leads to continued intention to use e-learning systems on a lifelong basis.

Chapter 2, "*Framework for Developing and Assessing Business Education Wikis*" by Sunil Hazari, University of West Georgia (USA) and Tiffany Penland, University of West Georgia (USA), reports on a framework for development and assessment of business education wikis to assist educators who want to explore the use of wikis in their courses. Since research on business education wikis is limited, this framework is expected to assist educators in developing pedagogically sound educational wikis for course assignments. By using a framework that incorporates content knowledge, research skills, collaborative efforts, and instructional design, educators can create multiple opportunities for assessment that allows for instruction where all learners can be successful. Finally, use of this framework can guide instructors to develop individualized rubrics that monitor student learning.

Chapter 3, "*Cognitive Mapping Decision Support for the Design of Web-Based Learning Environments*" by Raafat George Saadé, Concordia University (Canada), mainly aims to employ the cognitive map technique to causal relationships among belief factors, and investigate various impact chains via simulations. The chapter identifies optimal e-learning design and implementation, while a partial least squares approach is performed to validate the proposed research model anchored in the Technology Acceptance Model. A survey was carried out and data were collected from 102 respondents. The proposed research model was tested and subsequent cognitive mapping simulations were performed. This chapter provides designers, instructors and decision makers an approach by which they can identify relevant factors for design, implementation and maintenance.

Chapter 4, "*Strategies for Enhancing and Evaluating Interactivity in Web-Based Learning and Teaching*" by Adams Bodomo, University of Hong Kong (Hong Kong) examines the concept of interactivity in web-based course design to supplement and possibly enhance face-to-face classroom teaching and how it can be evaluated. The teaching and learning environment discussed in this chapter involves a hybrid or blended course delivery system; however, it is stressed that the chapter sets out to discuss mainly the web-based aspects of this course delivery system. So the main research questions from the onset are: how can we enhance interactivity in a web-based course design and management system and how can we evaluate whether or not a course is interactive? What are some of the criteria for evaluating interactivity? This chapter sets out to address these research questions and thus aims at making substantial contributions in terms of proposing new ways of enhancing and evaluating interactivity.

The second section of this volume is entitled "Pedagogy and Communities of Practice". Electronic learning (e-learning) have been widely adopted in the education sector and the main advantage lies with its flexibility and convenience. There are many factors such as hardware, software, communication line, tasks, duration, information competency and perceptions (Fjermestad, Hiltz, & Zhang, 2005), which affect e-learning. Learning activities should be embedded within the learning environment, and that the operation of the mediating tools should be designed to facilitate group coherence and to promote social interaction among learners. Instructors are required to possess pedagogical, communicational, disciplinary and technological knowledge (Thorpe, 2002) to become effective e-instructors. However, the key successful factor is the change of mindsets of both instructors and learners where students have to assume responsibility for their own learning which is facilitated by the academics. Both parties have

to assume the roles of initiators and co-participants in online collaborative learning processes (Collis & Moonen, 2001). In other words, the teaching and learning needs to become shared experiences. Good e-instructors need to know when and how to provide expert input, to act as a learning peer and to when to remain silent (Wong & Looi, 2010). Indeed, communication and support from educators and learners is considered as a major influence on student learning (Fredericksen, Pickett, & Shea, 2000; Sims, 2003). Therefore, it would be interesting to investigate the value of discussion forums on learning and to investigate the relationships between different types of digital activity and students' cognitive ability.

Web 2.0 concepts have led to the development and evolution of many web-based communities and hosted services, including weblogs (blogs), wikis, podcasts, Really Simple Syndication (RSS) and social networking sites (O'Reilly, 2005). Users of Web 2.0 not only create and own data but also mix, amend and recombine content and are relatively more "open to the world," welcoming comments and revisions (McLoughlin & Lee, 2007). Many people assumed that instructors are automatically tuned into the new mode of teaching and learning but most of them do not have these skills and there is no training to help instructors to develop the required competence (McPherson & Nunes, 2004). Samarawickrema, Benson, and Brack (2010) suggested that teaching with technology require new thinking and it is important to peer learn by having Communities of Practice (CoPs). Members can exchange information and help each other to develop their skills and competence (Pan & Leidner, 2003). They develop a community identity around shared knowledge, common approaches and established practices and create a shared directory of common resources. Similarly, the CoP concept can also be applied to students so that they are able to learn from both the instructors and their peers. Therefore, it is timely to investigate different Web 2.0 tools and their effect to community members.

Chapter 5, "*Fostering Higher Knowledge Construction Levels in Online Discussion Forums: An Exploratory Case Study*" by Khe Foon Hew, National Institute of Education (Singapore) and Wing Sum Cheung, National Institute of Education (Singapore) replicate prior research on group size, discussion duration, and student facilitation techniques to examine the influence of these factors on the attainment of higher level knowledge construction because higher levels of knowledge construction have rarely been demonstrated in student online discussions. Data were collected from 12 online discussion forums involving undergraduate student teachers and their reflection logs. Pointing, questioning, resolving and summarizing framework was used to examine the techniques used by the participants. It was found that there is a significant positive correction between higher level knowledge construction occurrences and group size whereas no correlation is found between the discussion duration and the occurrences of higher level knowledge construction. Results also suggest that students in higher performing forums used the facilitation technique of pointing, highlighting unanswered or unresolved issues statistically significantly more than their counterparts in lower performing forums. This chapter provides instructors an in-depth understanding of factors that affect the success of organizing online discussion.

Chapter 6, "*Exploring the Association Between Leisure Time Digital Immersion, Attention and Reasoning Ability in Pre-Teens*" by Mick Grimley, University of Canterbury (New Zealand), Mary Allan, University of Canterbury (New Zealand) and Cathy Solomon, University of Canterbury (New Zealand) investigate the relationships between different types of digital activity, reasoning ability and attention in a pre-teen population because some researchers claim that digital natives are endowed with greater cognitive abilities than digital immigrants. Two hundred twenty-four participants (139 males, 85 females) aged 10-12 years from New Zealand completed a questionnaire measuring leisure time digital immersion. Factor analysis reveals 5 distinct types of usage. They are: (1) creation and communication, (2) basic media consumption, (3) mobile phone centric, (4) unconnected production and (5) multime-

dia experience. To further examine the relationship between type of digital user and cognitive ability, ninety-two convenient participants completed tests of reasoning and attention. Results indicate that users who engaged in simple low level writing and drawing tasks with technology were inclined to have low literacy levels and poor concentration levels. Users who engaged in computer mediated communication and content creation showed inconsistent and instability in their performance on the attention task. Although social economic levels did not suggest any difference on digital use characteristics, males used digital technology to communicate and create contents more than the female counterparts. This chapter provides designers, instructors and decision makers a good understanding of the relationships between different types of digital activity, reasoning ability and attention in a pre-teen population.

Chapter 7, "*The Impact of Blogging and Scaffolding on Primary School Pupils' Narrative Writing: A Case Study*" by Ruth Mei Fen Wong, National Institute of Education (Singapore) and Khe Foon Hew, National Institute of Education (Singapore) investigate if the use of blogging and scaffolding can improve primary pupils' narrative writing. 36 primary school pupils took English language as a subject in Singapore. They were given a pre-test and post-test on a narrative writing task. The teacher gave them a writing guide to scaffold pupil's use of language and plans for the blogging activities. Pupils used blogs to post their drafts which were commented by their peers. They then revised the draft according to their peer's comments. The pre and post-test scores showed that pupils' mean scores had improved in terms of content, language and overall. Pupils' reflection also indicated that they enjoyed using blog as writing tool more than writing on paper. They also found blogging fun and catered for individual preferences. This chapter provides instructors, primary school teachers in particular, an alternate approach to improve pupils' language competence.

Chapter 8, "*Cognitive Apprenticeship in an Online Research Lab for Graduate Students in Psychology*" by Stephanie W. Cawthon, University of Texas at Austin (USA), Alycia Harris, Walden University (USA) and Robin Jones, Fielding Graduate University (USA) present a qualitative study of student perceptions of a cognitive apprenticeship in an Online Research Lab (Lab). The aim of the Lab was to provide psychology graduate students an online university with hands-on experience in the full trajectory of a research project. 12 students participated in the interview. The interview data were analyzed using the four categories of the Cognitive Apprenticeship theoretical framework which consists of Content, Method, Sequencing, and Sociology. Responses related to the content of the course were among the most prevalent in the study. Students focused on the challenges of tasks that went beyond their previous coursework and knowledge of statistics. About a quarter of the interview responses were related to methods of instruction. Students focused on the multiple ways course members communicated with one another. The sequence of the course played an important supporting role whether internally as a research project or externally as part of the graduate program. The Lab provided an interactive community. From a sociological perspective, social loafing, or non-responsiveness from colleagues, had a negative impact. It was suggested that instructors must support students by applying multiple modes of communication, provide ongoing narratives of the study context, and encourage students to support each other. This chapter provides instructors and designers some practical ideas on using online environment to facilitate cognitive apprenticeship.

Chapter 9, "*A Knowledge Management Process in Communities of Practice of Engineering Based on the SECI Model for Knowledge*" by Akila Sarirete, Effat University (Saudi Arabia), and Azeddine Chikh, King Saud University (Saudi Arabia), proposes a knowledge management process to exploit tacit and explicit knowledge in the engineering domain within the framework of an engineering Community of Practice (CoP). The approach used in this work introduces new elements in the Nonaka's SECI model

for knowledge creation. To validate the proposed process, a qualitative case study was conducted on two CoPs, namely "CPsquare" and "The Cisco Learning Network". The authors conclude that the use of web technologies and socio-technical approach in the management of knowledge in CoPs is of high importance. It is shown that CoPs and social learning have a huge impact on learning as well as on knowledge sharing. This study also underlines the importance of tacit knowledge. The use of qualitative methods to assess this component is clearly of importance to a full understanding of CoPs.

The third and final section of this volume is entitled "Technology and Tools". The use of Information and Communication Technologies and tools in education is subsumed within the above two themes but this section focuses on its application and implications for theory and practice.

Chapter 10, "*Supporting the Interconnection of Communities of Practice: The Example of TE-Cap 2*" by Élise Lavoué, Université de Lyon (France), and Sébastien George, Université de Lyon (France) proposes a general model for the Interconnection of Communities of Practice (ICP) by creating links between local Communities of Practice (CoPs) and global Communities of Practice on the Web. Tutoring Experience Capitalisation (TE-Cap 2) platform for an ICP of tutors allows the capitalisation of tutors' contextualised knowledge by making it easily retrievable from all the tutors in their daily practice. It presents interesting findings from a longitudinal descriptive investigation over a four-month period and forty-two users registered on the platform.

Chapter 11, "*The Blended Learning Ecosystem of an Academic Institution in Greece*" by Mara Nikolaidou et al., the Harokopio University of Athens (Greece), a longitudinal study over a period of three years explores the potential of blended learning in the academic environment and relations between blended learning ecosystem constituents (i.e., instructors, students, consultants, and technology) and their evolving relations focusing on the instructor-student interaction. The ecosystem metaphor proposed in this paper focuses on assessing the way the relations between individual groups is affected by the introduction of e-learning technology, which is constantly changing. It may contribute to the constant assessment of blended learning environments by evaluating the impact of specific technology features on the evolution of the learning process.

Chapter 12, "*The Automatic Evaluation of Website Metrics and State*" by Izzat Alsmadi, Yarmouk University (Jordan) focuses on studying website structural and related metrics (e.g., size, complexity, and speed of page loading due to links, documents, forms, and so forth) that can be used as indicators of the complexity of the website and predict maintainability requirements; and evaluating possible correlations between structural metrics and popularity (particularly in-links) metrics. The structural, navigability and popularity metrics studied in this research are somewhat at odds where focusing on building a website with heavy structure of images, docs, multimedia, and so forth may impact its navigability and popularity. On the other hand a website with many missing, incorrect or out of-date links may affect its visibility or navigability attributes. While results showed that structural metrics are not good indicators of websites' popularity, they may influence indirectly the popularity through their impact on the performance or the usability of those websites. The chapter provides valuable practical recommendations for educational institutions' websites that should combine somewhat conflicting requirements of: high performance (particularly web page loading and speed of transaction), reliability; current, correct and up to-date information, navigability, visibility and popularity (i.e., website information should be visible internally and externally and should be easily indexed and searched for).

Chapter 13, "*Finding Determinants Affecting Distance Education Effectiveness in Terms of Learner Satisfaction and Application Achievement*" by Jeong-Wook Kim, Kyung Hoon Yang, Kichan Nam and Sung Tae Kim, the determinants of educational effectiveness from previous literature regarding tradi-

tional educational environments, and empirically tested the authors' hypotheses to examine factors that affected educational effectiveness in terms of learner satisfaction and application performance using a structural equation model. It was found that learners' learning motivation and usefulness of the contents are the two most important factors on learner's satisfaction and application performance. Face-to-face interaction also increases learner's satisfaction. Results show that factors in traditional education are still significant in terms of application performance while certain factors in distance education affect learner satisfaction. The research finding can serve as a guideline for distance education in the private sector.

Eugenia Ng
Hong Kong Institute of Education, China

Nikos Karacapildis
University of Patras, Greece

Mahesh Raisinghani[1]
Texas Woman's University, USA

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ENDNOTE

[1] I would like to dedicate this book to my delightful kids, A cubed---my inspiration!
-- Mahesh S. Raisinghani