Preface

We think too much about effective methods of teaching and not enough about effective methods of learning. -- John Carolus S.J.

This insightful book entitled “Curriculum, Learning, and Teaching Advancements in Online Education” focuses on pedagogical, theoretical, practical, and technical issues in online learning. It covers not only the pedagogical design aspects of science education and computing education, but also the courses supported by educational technologies thus serving as a valuable resource for the current and relevant research, analysis, and development of effective online teaching methods and online course design. The three main themes in this volume with some amount of overlap in this book with its interesting chapters are as follows:

1. Research and practice trends of Web 2.0 as a supporting tool in education,
2. Online course design and pedagogy and its impact on education, and
3. Applications of technologies in education.

The first section of this volume is entitled “Research and Practice Trends of Web 2.0 as a Supporting Tool in Education.” The five 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. This section aims at providing an in-depth coverage and understanding of issues related to the theory and practice of Web 2.0 technology in diverse contemporary educational/organizational settings. 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, & 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 very timely and interesting to investigate different Web 2.0 tools and their effect on community members.

Chapter 1, “Dialogues and Perception of Intersubjectivity in a Small Group,” by Mei-Chung Lin, Mei-Chi Chen, and Chin-Chang Chen from National Changhua University of Education, discusses the core value of Web 2.0 being in its potential for building technologies that are open, decentralized, and shared. This paper designs group activity to facilitate knowledge building and move on learning management system to Web 2.0 paradigms with computer supported collaborative learning in a small group. The “give-take” metaphor for knowledge construction in a small group discourse only interprets the solo voice phenomenon in asynchronous forums. Tumultuous, parallel, and connected voices in synchronous conferencing need alternative metaphors to understand the self and the other in a personified way. This paper represents discourse evidence of emerging meaning making, expertise commentary, self-identity, and collective confirmation as a process in small group collective knowledge-building. The results indicated that most dialogues belonged to the wonder (RW) category, i.e., respond to the information and responses with question, sharing and comment. The authors then use the hermeneutics and the knowledge construction in Bakhtin’s dialogism and in Hermans’s dialogical self to reveal the relationship between identity and agreement in a socialized knowledge building environment.

Chapter 2, “Podcasts as Learner-Created Content in Higher Education,” by Raphael Struck et al., University of Helsinki, Finland, aims to find out how students experienced the creating of content as learning material in the form of podcasts. They use podcasts to develop student’s meta-skills, to support mobile learning and content learning, and to facilitate student involvement. The results are two-fold. First, using podcasts included four categories: (1) the development of meta-skills, (2) mobile learning, (3) support for content learning, and (4) facilitating student involvement. Second, the students saw podcasting as a study tool. The study proved authentic, internally and systemically valid and opened up logical generalizability. Some recommendations are given for a better educational use of podcasts in higher education.

Chapter 3 “Investigating Adolescent Bloggers from the Perspective of Creative Subculture,” by Yu-Fang Chang and Eric Zhi-Feng Liu from National Central University, Taiwan; and Maiga Chang from Athabasca University, Canada focuses on blogs, and explores if the blogs influence adolescent bloggers’ creativity from adolescent peers’ viewpoint. They recruit twelve- to eighteen-year-old adolescent bloggers who continue managing their blogs to join their research and use online questionnaire and semi-structure interviews to get participants’ ratings on their perceptions of creativity about themselves and peers. According to adolescent bloggers, the creativity definition is novel, useful, and valuable. The results also show that creativity can be enhanced from doing learning activities and practicing and the blog serves as a place where adolescents can present their works and also communicate with peers.

Chapter 4, “The Integration of Web2Quest Technology into Multicultural Curriculum in Teacher Education: A Potential for Globalization,” by Li-Mei Grace Lin and Chris L. Ward, Oregon State University, USA shows how Web2Quests can be used to promote multicultural education for pre-service teachers and teacher educators in Taiwan and the United States. The results show that about 93% of 72 pre-service teachers and teacher educators who responded to the survey both in Taiwan and the United States enjoyed the Web2Quest strategy and viewed it to be effective in promoting higher-level thinking and social constructivist activities. In addition to the questionnaire survey, a 45-minute focus group discussion was conducted via Skype. The focus group members stated that using Web2Quests in their
classroom supported students’ different learning styles and multiple intelligences; moreover, they also explicitly commented that Web2Quest activities gave students opportunities to bring their personal perspectives on issues being discussed and to learn how to negotiate with team members to solve a problem in the real world.

Chapter 5, “Discovering the Life Stories of Modern Hakka Mothers in a Classroom,” by Hung-Cheng Chen and Chin-Yu Lin, Asia-Pacific Institute of Creativity, Taiwan; and Eric Zhi-Feng Liu and Sheng-Yi Wu, National Central University, Taiwan; investigates use a social network platform called Ning that allows users from different platforms such as Facebook and Youtube to interact with each other. The authors design a series of courses on the Ning to discover the life stories of “Hakka Mothers.” They recruit 200 students whose mothers are “Hakka Mothers” from three elementary schools and one junior high school. The students can not only share their first-hand stories about their Hakka mothers on Ning, but also deploy their content from YouTube, Twitter and Facebook easily and effectively since Ning also provides two-way sharing mechanisms from itself to other social networks. The results show that social network platforms are good for storytelling and story-collecting in teaching cultural relevant subjects.

The second section of this volume is entitled “Online Course Design and Pedagogy and its Impact on Education.” Electronic learning (e-learning) has been widely adopted in 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.

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, Savelbergh, & 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.
The following five chapters (viz., chapters 6-10) are related to e-learning.

Chapter 6, “The Reality of Virtual Reality: Second Life as a Tool for Online Peer-Teaching Activities,” by Karen Lybeck, Minnesota State University, Mankato, USA; Dana Bruhn, Century College, USA; and Solen Feyissa, University of Minnesota, USA explores the use of Second Life virtual world for peer-teaching activities. The research period was over one year and the sampling group consisted of 25 Teaching English as a Second Language (TESL) students. The methods practiced during the study follow the suggestions and implications given in previous research in hopes that an informed design would be the means to overcome the published limitations of Second Life. Despite this, the authors were not able to overcome previous difficulties, and did not find Second Life to be useful as a tool for classroom roleplaying in online teacher-development courses. Virtual reality, however, has promise for facilitating teacher development; thus, further investigation is needed to find an appropriate virtual venue for this purpose.

Chapter 7, “Online Faculty and Adjuncts: Strategies for Meeting Current and Future Demands of Online Education through Online Human Touch Training and Support,” by Kristen Betts, Drexel University, USA; Ronnie Kramer, Communication Dynamics, Inc., and Drexel University, USA; and Linda L. Gaines, Dutchess Community College, USA; examines online faculty recruitment, online faculty training, and ten strategies for integrating Online Human Touch training and support into current and future online programs to increase faculty and student engagement and retention. Institutions that are not evaluating online education delivery options may face crisis or financial exigency. For many colleges and university, online faculty and adjuncts will be a central part of the future of the institution. Institutions need to be proactive and develop strategies for hiring and training faculty and adjuncts to meet this shift in educational delivery. Moreover, with online student attrition reported as being higher than traditional student attrition, faculty must also know how to engage and retain students in the online classroom environment.

Chapter 8, “Structuring CSCL Through Collaborative Techniques and Scripts,” by F. Pozzi, and D. Persico, Italian National Research Council (CNR), Italy; and L. Hofmann, K. Stegmann, and F. Fischer, Ludwig Maximilians Universität München, Germany; is rooted in the research field of Computer Supported Collaborative Learning (CSCL), where the debate is lively around whether and to what extent structuring the interactions among students enhances the effectiveness of the collaborative process. The paper discusses two different design approaches to structuring collaboration: the former approach, adopted in the context of an Italian online course, is based on the use of a set of collaborative techniques, while in the latter, proposed in a German context, collaboration scripts are used to guide students step-by-step. The study describes and then compares the strengths and weaknesses of the two approaches. What can be learned from the two experiences? Is there any possibility – and with what advantages – of integrating the two approaches, so as to gain from both?

Chapter 9, “An Exploratory Study of Student Self-Assessment in an Online Learning Context,” by Chien-Hsing Wang, National Changhua University of Education, Taiwan, reports the investigation of the application of self-assessment in an online learning setting based on action research. The research participants were students who completed their self-assessment when taking the course on Classroom Management taught by the teacher researcher. Although the analytic results show the lack of critical reflection in student self-assessment, the teacher researcher learned the following lessons:
1. Self-assessment helps the students to articulate their learning results in specific;
2. Self-assessment can be a means to cultivate students’ abilities in information-integration;
3. Using multiple evaluative tools for assessing self-assessment is recommended to better describe the levels of student reflection; and
4. Effective and efficient implementation of self-assessment requires a redesigning of the learning management system.

Finally, further research can focus on the possibility of promoting the level of student reflection by encouraging students to use evaluative tools to assess their self-assessment.

Chapter 10, “Application of Multiple Criteria Decision Analysis and Optimization Methods in Evaluation of Quality of Learning Objects,” by Eugenijus Kurilovas, Irina Vinogradova, and Silvija Serikoviene, Vilnius University, Lithuania, analyses and presents the new scientific models and methods for the expert evaluation of quality of learning objects (LOs) paying special attention to LOs reusability level. Currently all existing approaches in the area are quite subjective and depend only on the experience of the decision-makers. The authors analyze several scientific methods and principles to minimize the subjectivity level in the expert evaluation of LOs quality. They are: (a) the principles of multi-criteria decision analysis for identification of quality criteria, (b) technological quality criteria classification principle, (c) fuzzy group decision making theory to obtain evaluation measures, (d) normalization of the weights of criteria, and (e) scalarization method for LOs quality optimization. The authors demonstrate that the complex application of these approaches could significantly improve the quality of the expert evaluation of LOs and noticeably reduce the level of the expert evaluation subjectivity. The paper also presents the example of practical application of these approaches for evaluation of LOs for Mathematics subject.

The next four chapters (viz., chapters 11 to 14) serve as a starting point for continued efforts in online pedagogy and course design.

Chapter 11, “Pictorial Pedagogy,” by Philip Barker, Teesside University, UK, discusses these issues in context to their use in developing and promoting online pictorial pedagogy through the medium of computers. As the size of an image collection grows, some form of picture repository is needed in order to store, manage, and retrieve images. In this context, the role of a digital object repository is discussed and a case study involving the use of a very large image collection is briefly described.

Chapter 12, “Personality Scales and Learning Styles: Pedagogy for Creating an Adaptive Web-Based Learning System,” by Anshu Saxena Arora, Lemaro Thompson, and Reginald Leseane, Savannah State University, USA; and myself, Mahesh S. Raisinghani, Texas Woman’s University, USA; explores the behavior and learning style of the human mind and its capacity in different learning environment. The authors examine theory, similarities, differences, and implications of the five relevant learning models discussed in the paper. Analyzing and interpreting these learning styles and behaviors will help the reader employ the best scale or combination of scales that should be used in the creation of Web-based learning environments (WBLE) for students and adapting WBLE to their particular learning styles and preferences.

Chapter 13, “‘Stay out of the Way! My Kid is Video blogging through a Phone!’ A lesson learned from Math Tutoring Social Media for Children in Underserved Communities,” by Paul Kim, Stanford University, USA; explores a mobile video blogging model embedded in a learning support community as a means of addressing learning needs among underperforming students of low socioeconomic status.
The current trends in social network media, coupled with increasingly advanced and ubiquitous mobile technology point towards great potential for their use in learning support and an emerging possibility of “deconstructing digital divide.” In this study, various mobile video recording approaches were analyzed and some blogging strategies were linked to higher learning outcomes. Although a few challenges and issues were identified, the mobile video blogging community was generally found to be a viable learning support model for children in underserved communities.

Chapter 14, “Reflecting on Portfolio Development: How Does the Portfolio Facilitate a Preservice teacher’s Growth?” by Hea-Jin Lee, The Ohio State University, Lima, USA; and Leah Herner-Patnode, The Ohio State University, Lima, USA; adopts portfolio assessment as a means of deepening pre-service teachers’ understanding of teaching and learning. The ultimate goal of using the portfolio was to bring the program in line with the mission of the institute, the criteria of the NCATE and INTASC, and the standards of the Ohio State License. This study discusses the challenge of implementing a year-long portfolio assessment procedure, as well as investigating how the exit portfolio assessment plays a role in facilitating pre-service teachers’ professional growth in terms of knowledge, skills, and dispositions. Results indicate that preservice teachers considered the capstone portfolio as a tool for reflection, which helped them improve critical thinking skills, self-assessment, and advancement. Also, the portfolio process helped teacher candidates develop a professional identity and promote teaching. Overall, there was growth and improvement in knowledge, skills, and dispositions toward teaching, the role of a teacher and learner, and using the web-based portfolio process.

The third section of this volume is entitled “Applications of Technologies in Education.” The impact on learning and the lessons learned are discussed. There are five chapters related to the applications of technologies in education and they contribute to the broadening of the overall body of knowledge regarding the multi-dimensional aspects of Web-based technologies in educational contexts, assisting researchers, practitioners, and decision makers to design more effective learning systems and scenarios. The focus on application of these learning technologies, explores the technical, social, cultural, organizational, human, cognitive, and commercial impact of technology.

Chapter 15, “A Comparison of Student and Instructor Preferences for Design and Pedagogy Features in Postsecondary Online Courses,” by Xiaolin C. Hu, Johns Hopkins University, USA; and Edward L. Meyen, University of Kansas, USA; investigates the preferences of instructors and students for design and pedagogy features of online instruction at the post-secondary level. Participants included 60 instructors and 200 students at a comprehensive research university. Correlation coefficients of .95 on the design item rankings and .87 on the pedagogy item rankings were found between instructors and students. An independent sample T-test was conducted, resulting in a finding of significant difference between the preferences of instructors and students on 19 of 63 features. Additional findings included the high level of agreement on design and pedagogy features among all students as a group and subgroups (e.g., students earning regular university credit and those pursuing professional development goals). An interesting finding was the concurrence in the low preferences by instructors and students. Both groups rated low those features pertaining to social networking and collaboration.

Chapter 16, “Videogame Performance (Not Always) Requires Intelligence,” by M. Ángeles Quiroga et al., from Universidad Complutense de Madrid, Spain; tests whether videogame performance requires intelligence even when practice periods are much longer than previously reported and involves 27 university female undergraduates. Intelligence was measured using several tests both before and after videogame practice. Participants played videogames one day per week for five weeks completing five blocks of trials each day. Total practice consisted of twenty five blocks of trials (250 trials). The main
finding shows that performance for some videogames is systematically related to intelligence along the practice period, indicating that basic abilities underlying these videogames cannot be easily automated. However, for some videogames, the relationship to intelligence is greatly reduced along the practice period. Ways to challenge intelligence using videogames are proposed from these findings.

Chapter 17, “A Study of the Relationship Between Gender and Online Social Presence,” by Chih-Hsiung Tu, Northern Arizona University, USA; Cherng-Jyh Yen, Old Dominion University, USA; and Michael Blocher, Northern Arizona University, USA; assesses the predictive relationship between gender and online social presence. A total of 395 graduate students participated by responding to the Computer-Mediated Communication (CMC) Questionnaire. CMC has been considered a “democratizing” technology; however, research indicates that CMC does not automatically result in social equality, and points to the importance of social and cultural factors surrounding the adoption of technology. Research suggests that CMC may impose a disadvantage to females, demonstrating lower levels of social presence. Quantitative research designs and analyses were applied. This study concluded that online social presence is not related to gender; therefore, gender cannot serve as an effective predictor for online social presence. A female’s online social presence can be as high as a male’s. Effective strategies to improve online social presence for both genders are suggested. Additionally, this study raises the importance of gender equity in emerging social media.

Chapter 18, “Technology Capacity Building for Preservice Teachers Through Methods Courses: Taking Science as an Example,” by George Zhou and Judy Xu, University of Windsor, Canada; argues that the use of technology in teaching requires integrated knowledge between technology, pedagogy, and subject content, and this highly blended knowledge is best developed through the methods courses of a teacher education program. The key message is that preservice teachers need to be consistently exposed to technology and regularly be required to practice it in many aspects of instruction.

Chapter 19, “The Relationship Between Student Learning Styles and Motivation during Educational Video Game Play” by Michael R. Findley, Gwinnett County Public Schools, USA; determines if students found educational video game play to be a motivating experience and if a relationship existed between student learning styles and levels of motivation. Educational video games allow for a level of intrinsic motivation and engagement that is not found in other forms of learning. High school psychology students played two short online educational video games and, upon completion of the activity, their intrinsic motivation levels were determined using an evaluation questionnaire. The data, as determined by the evaluation questionnaire, revealed that students found playing educational video games to be intrinsically motivating. Further examination revealed no statistically significant differences between the student learning styles and the motivation experienced during educational video game play.

Happy Reading and Learning!

Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning. --Albert Einstein

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REFERENCES


