Editorial: Technology Enhanced Learning: Moving Theory into Practice

- Best Papers Selected from the Conference TELearn 2009

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Abstract: TELearn 2009 has successfully attracted over 91 submissions, from
4 continents, 11 countries. Half of the submissions came from the outside of
Taiwan, which indicates TELearn has become a truly international event. This
year, TELearn accept 18 full papers, the acceptance rate of full papers is less
than 20%. From the 18 full papers, 5 best papers from Japan, Taiwan, USA,
Finland and South Africa were included in this special issue to contribute the
understanding of social computing in e-learning and raise potential questions
which will require reflection.

Keywords: Technology Enhanced Learning, e-Learning, Learning

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Chen, N.S. et al.

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1. Technology Enhanced Learning

Recent rapid development of advanced information technology brings high expectations of its potential to improvement and innovations in learning. Current researches on
technology enhanced learning shift their focus from technology to support factual learning and memorization and the reinforcement of basic skills to stimulate students to engage in meaningful learning. The support of information technology would help students develop higher-order skills, such as critical thinking and problem-solving as well as domain-based reasoning. Technology enhanced learning is an interdisciplinary field where a multitude of sciences work together and needs to draw on the following possible perspectives (Balacheff, Ludvigsen, Jong, Lazonder, & Barnes, 2009):

- the design area – a focus on the design and co-evolution of new learning activities;
- the computational area – a focus on what technology makes possible;
- the cognitive area – a focus on what the individual can learn under certain conditions in different types of contexts;
- the social and cultural area – a focus on meaning-making, participation, and changes in activities in schools, universities, workplaces, and informal settings;
- the epistemological area – a focus on how the specificities of the domain impact the design and use of technologies.

Although, many technology enhanced learning researches demonstrate how technologies were successfully employed to support learning activity which resulted to more efficient learning, there are still some issues yet have to be considered. The problems of institutional acceptance and the “fit” of the technology into ongoing educational practices have hindered their acceptance into the educational mainstream (Tchounikine, Mørch, & Bannon, 2009). The area has also suffered from an over-hyping of technological possibilities with relatively meager evidence of successful implementations from very limited field trials and highly resourced experimental sessions.

2. Introduction to this special issue

More and more researchers realize the issues related to technology enhanced learning become more important and their increase of interest gives rise to more and more initiatives. One of such initiatives is the annual Technology Enhanced Learning Conference (TELearn) and this special issue shows a short overview of some excellent papers presented in TELearn 2009.

In order to bridge the gap between theoretical research in the field and its practical implementation, the National Science & Technology Program of Taiwan initiates annual Technology Enhanced Learning Conference (TELearn). The major aim of TELearn was to provide a forum for the technology enhanced learning researchers to publish their research results and exchange their experiences and ideas. The first TELearn conference was held at National Central University, Taiwan in July, 2007 with the main theme “Knowledge infrastructure of the future”. The second TELearn 2008 conference was held in Ha Noi, Vietnam in December, 2008 and the theme was “Create a Diversified e-Learning Environment Afford for Learning Anytime Anywhere”. The third TELearn 2009 conference was held in Academia Sinica, Taiwan. Its main theme of the conference was “Social Computing in e-Learning” with the following topics:

- Systems and platforms for e-learning
- Theoretical foundations for e-learning
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In the first paper of this special issue, Tosh Yamamoto (2010) reported his study about the assessment of interactivity of multimedia and e-Learning content that could lead to learning effectiveness. Theoretical constructs were defined such as interactivity, interest, knowledge and experience and the interactivity was further divided into subcomponents to develop an assessment tool - the rubrics to measure and visualize interactivity from the learner’s and teacher’s perspectives.

In the second paper, Ju-Shih Tseng and Ming-Puu Chen (2010) presented their study about the influence of instructional strategy and grade level on students’ music composition performance and attitude. They designed experimental learning activity for third and fifth grades students of elementary school based on the 5E learning cycle model with two instructional strategies such as instructor-led and learner-led with music composition software Hyperscore. The results demonstrate that fifth graders outperformed third graders in creativity, whereas, third graders had higher extrinsic motivation and perceived that the computer-based music composition software was useful in learning music composition in contrast to fifth graders. Besides, students with instructor-led instructional strategy outperformed significantly than those with learned-led instructional strategy on creativity and craftsmanship.

The third paper, by Kuan-Chung Chen, Syh-Jong Jang and Robert Maribe Branch (2010) investigated the relative salience of perceived autonomy, affiliation, and ability on learner motivation and learning outcomes. They found that the most salient predictor varied from categories of motivation and learning outcomes, and the number of significant predictors increased by participants’ level of motivation/self-determination. The results implied that to keep students highly motivated and obtain expected learning, multiple strategies should be integrated into the online learning environment that support autonomy, affiliation, and ability.

The fourth paper, by Kirsi Silius, Thumas Miilumäki, Jukka Huhtamiäki, Teemo Tebest, Joonas Meriläinen and Seppo Pohjolainen (2010) investigated students’ motivations for usage of the social network site. Based on the needs of Finnish university students, especially freshmen, one social networking site called “TUT Circle” was developed and implemented in Basic Engineering Mathematics learning at Tampere University of Technology and provided students convenient tools for interaction and study support. In this research, the discussions were presented about students’ attitudes towards social networking sites, the aspects of social network services that motivate students to actively participate in discussions.
The fifth paper, by Sibitse Mirriam Tlhapane and Sibongile Simelane (2010) presented a case study of a technology-enhanced problem-based learning methodology implementation in the B Tech Occupational Nursing program at the Adelaide Tambo School of Nursing Science in South Africa. The study tried to examine how technology-enhanced problem-based learning enhances students’ thinking and social skills and social space. Results of the study demonstrated that the proposed technology-enhanced problem-based learning methodology could enhance students’ critical thinking, problem solving, and social skills improved, social space and their learning performance.

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