Valuation of emerging learning solutions

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The Asian Conference on Society, Education and Technology 2014
Official Conference Proceedings

Abstract
Last decade has been a period of strong and rapid development of information and communication technology (ICT). However, schools have not adopted ICT for use at teaching and learning according to the available possibilities for ICT access. It has been indicated that students are in rather unequal situation in regard of 21st century learning enhanced with modern technology. This paper presents efforts to make technology-based learning solutions as an integral part of teaching and learning and to promote 21st century learning with the aid of systemic learning solutions. The paper describes an ongoing large-scale project "Systemic Learning Solutions (SysTech)"- so called value network project – which aims at collaborative efforts between researchers, companies, and educational institutions for the design and effective use of learning solutions. The project originated from the desire to refine and spread out the teaching practices, innovative ICT concepts, and procedures as learning solutions and services that can support educational institutions. The project develops a cyclical process model for the development of learning solutions in a multi-field value network among seven participating countries.

Keywords: learning solution, information and communication technology (ICT), pedagogical use of ICT

Challenges in pedagogical use of ICT

Last decade has been a period of strong and rapid development of information and communication technology (ICT). The expectations for applying technology and its applications in teaching and learning are high, but practical processes in taking it into use are challenging (e.g. Cuban, 2001; Buckingham, 2007). However, schools have not adopted ICT for diversified use at teaching and learning according to the available possibilities for ICT access. There is strong research evidence of the relation of ICT use and innovative teaching practices with 21st century learning (Norrena, Kankaanranta, & Nieminen; Shear et al., 2010). At the same time, recent trends have indicated large regional, school level and also within school differences in ICT resources, students access to ICT, and its pedagogical application (e.g. Law, Pelgrum, & Plomp, 2008; Kankaanranta & Vahtivuori-Hänninen, 2014). This places students in an unequal situation regarding the possibilities to use ICT in ways that enhance 21st century learning and skills such as information literacy (Binkley et al., 2012).

This paper presents an ongoing project "Systemic Learning Solutions (SysTech)" that aims at collaborative efforts between researchers, companies, and educational institutions for the design and effective use of technology-based learning solutions. This SysTech value network project started as a Finnish national initiative, but has broadened its scope to an international level with the collaboration of partners from 6 countries. The focus of this paper is on the added value of this international phase.

Systemic learning solutions

Systemic Learning Solutions project originated from the desire to refine and spread out innovative ICT concepts and related teaching and learning practices. The main aims of the SysTech project are: 1) to make technology-based learning solutions as an integral part of teaching and learning and 2) to promote 21st century learning with the aid of systemic learning solutions.

The project develops a cyclical process model for the development of learning solutions in a multi-field value network among seven partner countries, namely Finland, Chile, Hong Kong, Singapore, Spain, South Korea and United Arab Emirates. The model consists of four components: 1) development of research based principles, procedures, and methods for the design, use and internationalization of learning solutions, 2) a compilation of evaluated and tested technology-based learning solutions from seven countries, 3) creation and sharing of good practices and knowledge of the ways and effects of using learning solutions, and 4) building international understanding of the design, use and localization of learning solutions.

Building internationally valued learning solutions

The aim of the international collaboration is to provide an in-depth international understanding of the design, use and localization of the learning solutions. The main elements in the international phase of the SysTech project are (see Figure 1):

1. Collection of evaluated learning solutions. The collection is based on the Finnish learning solutions designed by the companies in the Systech network. In autumn 2014 the six partners countries have suggested a selection of their exemplary learning solutions.

2. Analyzing and comparing national policies and practices related to the educational systems and especially trends in the pedagogical use of ICT in seven countries.
3. Development of criteria for localizing and globalizing of learning solutions.

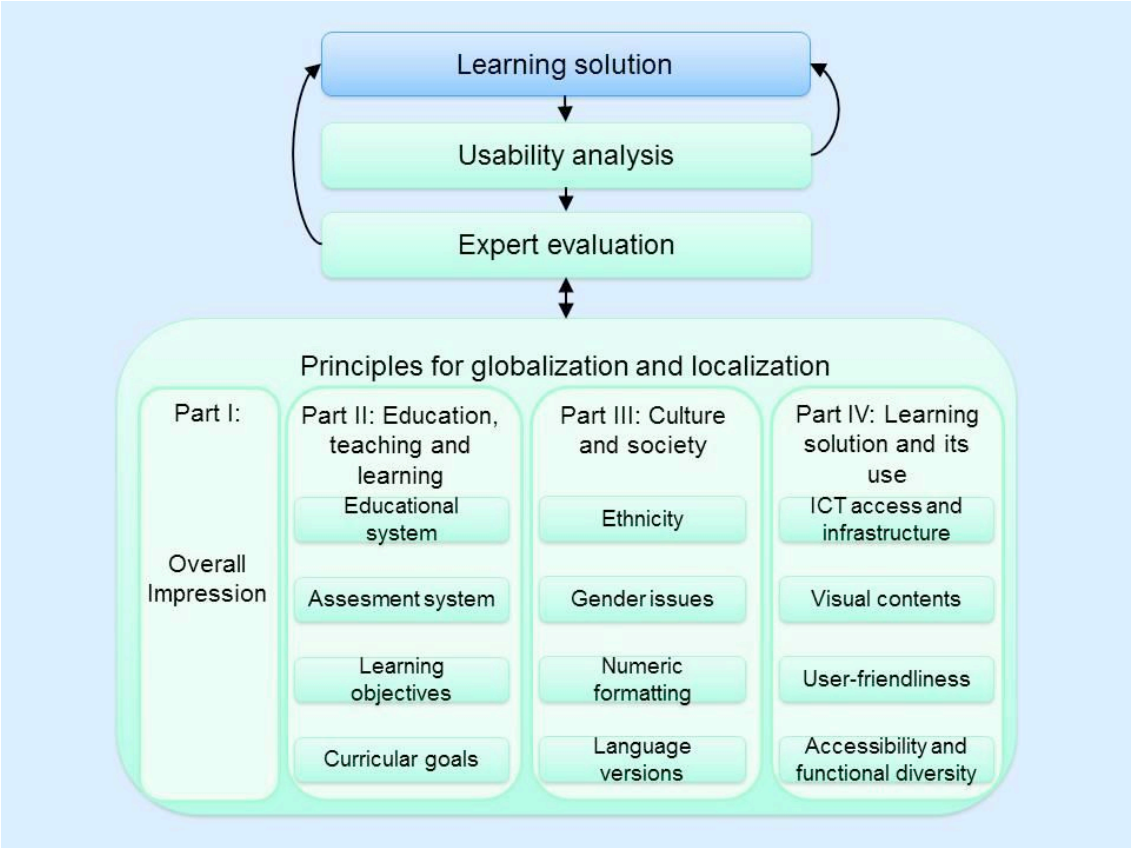

Figure 1: The process of evaluating learning solutions and developing principles for globalization and localization.

The learning solutions are evaluated through expert evaluation in two phases: 1) Finnish learning solutions were evaluated by altogether 75 experts during spring and early autumn 2014 in six partner countries, and 2) the learning solutions from partner countries will be evaluated by Finnish experts during late 2014-early 2015. Prior to expert evaluation all the selected learning solutions go through usability analysis in order to ensure their technical readiness. In the expert evaluations educators and other related experts evaluate the learning solutions with the aid of a criteria consisting of three main parts: 1) education, teaching and learning, 2) culture and society and 3) the learning solution and its use. Examples of the developed criteria of each part are presented in Figure 1. Additionally, the overall impression of the learning solution is assessed.

Future developments and expectations

Sharing of international multi-disciplinary research experience is in the heart of the collaboration. Through this collaboration the international value network activities is continuously expanded and developed further. The activities in the network will also be developed in sub-networks for different actors. There are several options for strengthening the collaboration:

- Deepening the reciprocal collaborative activities between international experts, educators, researchers and learning solution developers
- Enabling different network parties to effectively utilize the compilation of evaluated learning solutions across different countries
- Piloting the learning solutions from the partner countries in different educational systems
- More in-depth understanding of the underlying cultural perceptions affecting the collaboration.

References

Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., and Rumble, M. (2012). Defining Twenty-first Century Skills. In P. Griffin, B. McGaw & E. Care (Eds.) *Assessment and Teaching of 21st Century Skills.* Dordrecht: Springer: 17-66.

Buckingham, D. (2007). *Beyond technology. Children's learning in the age of digital culture.* Cambridge: Polity.

Cuban, L. 2001. *Oversold and Underused: Computers in the Classroom.* Cambridge, Mass: Harvard University Press.

Kankaanranta, M. and Vahtivuori-Hänninen, S. (2014). Building research-based and practical guidelines for ICT use at Finnish schools. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2014* (pp. 161-167). Chesapeake, VA: AACE.

Law, N., Pelgrum, H. & Plomp, T. (Eds.) (2008). *Pedagogy and ICT use in schools around the world. Finding for the IEA SITES 2006 study.* The University of Hong Kong: Comparative Education Research Centre.

Norrena, J., Kankaanranta, M. & Nieminen, M. (2011). Kohti innovatiivisia opetuskäytänteitä. In M. Kankaanranta (Ed.) *Opetusteknologia koulun arjessa.* [Educational Technology in Schools Everyday Life II]. University of Jyväskylä: Finnish Institute for Educational Research. (In Finnish), 77–100.

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