Title	e-Portfolio
Author(s)	Nguyen, Trung Lap
Citation	
Issue Date	2014-12
Type	Thesis or Dissertation
Text version	ETD
URL	http://hdl.handle.net/10119/12617
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Description	Supervisor: , ,

Abstract

Self-regulated learning is defined as a process by which learners self-regulated their learning. Self-regulated learning has positive effects on learners' success in and beyond school. Self-regulated learners are aware of their knowledge and skills, and proactive in learning. Self-regulated learning plays an important role in education and knowledge sharing. Thus, fostering self-regulated learning in university is necessary. Indeed, learners need significant support to make self-regulated learning productive. Research shows that self-regulated learning skills are teachable. Learners can learn self-regulated processes from instructors and peers. In addition, self-regulated learning may be fostered by technology enhanced learning environments, such as ePortfolio platform.

However, the lack of an explicit ePortfolio model for self-regulated learning leads to challenges, such as capturing and sharing self-regulated learning principles, implementing and linking self-regulated learning processes, and measuring self-regulated learning. In addition, there is a lack of reports about the impacts of such ePortfolio models on self-regulated learning.

In this research, we use ontologies to represent an integrated model that consists of ePortfolio, competency, and self-regulated learning models. An ePortfolio system was implemented based on the model. Then, we propose, implement, and evaluate an ePortfolio-based self-regulated learning model. The experiments were performed in software engineering courses. The surveys were conducted with the Motivated Strategies for Learning Questionnaire (MSLQ). The differences in MSLQ scales between pre-test and post-test, or control group and experimental group were evaluated. The trace data of learning activity was also analyzed in order to evaluate the effects of the learning model on students' self-regulated learning.

The results indicate that students had a positive reaction to the ePortfolio system, and the system affected students' achievement and self-regulated learning positively. The proposed model for self-regulated learning handles the issues of knowledge representation and sharing in self-regulated learning area and the development of self-regulated learning skills. The findings in this research also contribute to a better understanding of the effects of ePortfolio environments on learners' self-regulated learning.

Keywords: ePortfolio system, self-regulated learning, competency measuring, MSLQ, ontological model