Introduction

With the rapid development of information technologies, especially the popularization of internet, e-learning has become one of the most important tools to assist students' learning. E-learning leverages network technologies to facilitate real-time communications among e-learners, overcoming the obstacles of time and space, encouraging e-learners to be more proactive. Consequently, it is close to proposed ideal interactive learning model. Many studies showed that the applications of e-learning tools can offer efficient and effective learning through customized learning environment (Chen, Lee, & Chen, 2005; Liaw, 2004).

Though e-learning brings tremendous benefits, there still exist great rooms for improvement, such as learner control, disorientation and cognitive overload. As a result, without properly devised learning assistance and help, disorientations and inefficiencies could happen easily, then results in great deviations toward teachers' established teaching objectives.

This study conducts an experiment with junior high students as e-learners of a self-designed mathematics e-learning website. Path controls was manipulated according to the logic relationship of course materials. Students' computer self-efficacy were measured to provide insights on their performance. During the experiment, performance tests were conducted as means to provide feedback, as well as corrective measures.

In sum, the aim of this study is to investigate the relationship among learning methods, learning paths, computer self-efficacy and learning performance, in order to enhance e-learning performance.

Literature Reviews

The Advantages of E-learning

The idea of e-learning grows more and more popular under the background of advancement of related theories and technologies. It has played the role as one of the learning tools with great potentiality. E-learning can be defined from different perspectives; from the user's viewpoint, e-learning covers the following 5e: exploration, experience, engagement, ease of use, and empowerment. Under e-learning, abundant

teaching materials and resources can be digitized, then be integrated into physical teaching environment on-demand flexibly to improve teaching effectiveness dramatically (Chen et al., 2005; Piccoli, Ahmad, & Ives, 2001).

Extensive research has shown that students benefit from e-learning (Hwang, Sung, Hung, & Huang, 2012; Liaw, 2004; Miller, 2005). Some of the benefits are: provides time and place flexibility; results in time and cost savings for educational institutions; fosters self-paced and self-directed learning by enabling learner-centered activities; creates a collaborative learning environment by linking each learner with physically dispersed experts and peers; and allows knowledge to be updated and maintained in amore timely and efficient manner (Pituch & Lee, 2006).

Data Mining and Web Mining

Data mining is a multi-disciplinary research and application area that aims to discover novel and useful knowledge from vast databases, using methods ranging from artificial intelligence, statistics and databases (Grupe & Owrang, 1995). Data mining techniques have traditionally been used in domains that have structured data, such as customers' relationship management in banking and retail. The focus of these techniques is the discovery of unknown but useful knowledge that is hidden within such datas. Data mining explores information or knowledge from the patterns. Modern enterprises often collect a large number of patterns, including important information such as the market, customer, supplier, rival, and trend in future. With data mining, one can explore the useful knowledge through massive data for enterprise to make decisions, and enhance enterprise competition advantage.

The term of Web mining was first proposed by Etzioni (1996). Etzioni claimed that Web mining is the use of data mining techniques to automatically discover and extract information from World Wide Web documents and services. Web mining includes Web content mining (Cohen, McCallum, & Quass, 2000), Web structure mining (Henzinger, 2000; Kuo & Wong, 2000) and Web usage mining (Borges & Levene, 1999; Kosla & Blockeel, 2000; Madria, Bhowmick, Ng, & Lim, 1999). Web content mining centralizes on the structure of the within documents of a website, it is the process of extracting knowledge from the content of web documents (Cohen et al., 2000). Web structure mining tries to discover the link structure of the hyper-links at the inter-document level.