Effects of matching teaching strategy to thinking style on learner's quality of reflection in an online learning environment

Nian-Shing Chen a,⁎, Kinshuk b, Chun-Wang Wei c, Chia-Chi Liu d

a Department of Information Management, National Sun Yat-sen University, No. 70, Lien-Hai Rd., Kaohsiung 80424, Taiwan
b School of Computing and Information System, Athabasca University, Canada
c Department of Management Information System, Far East University, Taiwan

A R T I C L E   I N F O

Article history:
Received 17 March 2010
Received in revised form 14 June 2010
Accepted 20 August 2010

Keywords:
Pedagogical issues
Teaching/learning strategies
Interactive learning environments
Architectures for educational technology system
Distance education and telelearning

A B S T R A C T

Reflection plays an important role in improving learning performance. This study, therefore, attempted to explore whether learners’ reflection levels can be improved if teaching strategies are adapted to fit with learners’ thinking styles in an online learning environment. Three teaching strategies, namely constructive, guiding, and inductive, were designed to match with three thinking styles, namely legislative, executive, and judicial respectively. An online reflection learning system was subsequently developed to reflect this scenario. An experiment was then conducted where the learners were classified into fit or non-fit group in order to analyze whether there was a good fit between the teaching strategies designed by the teacher and the thinking styles of learners. A total of 223 graduate and undergraduate students participated in the experiment. The results revealed that the reflection levels of the fit group had outperformed the non-fit group.

© 2010 Elsevier Ltd. All rights reserved.

1. Introduction

Many studies have pointed out that reflection plays an important role for knowledge construction and helps to improve learning performance (Chen, Wei, Wu, & Uden, 2008; Leijen, Lam, Wildschut, Simons, & Admiraal, 2009; Quinton & Smallbone, 2010). Several researchers have attempted to describe the concept of reflection over the past decades. Dewey (1933) defined reflection as an “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends (p. 9).” Moreover, Boyd and Fales (1983) considered reflective learning to be “the process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self, and which results in a changed conceptual perspective.” Boud, Keogh, and Walker (1985) defined reflection as “an important human activity where people recapture their experience, think about it, mull it over and evaluate.” According to these definitions, reflection is the key to learning from experience which can be applied in new contexts. Therefore, reflection is usually related to experiential learning which regards the experience as the center of the learning process (Jarmon, Traphagan, Mayrath, & Trivedi, 2009; Kolb, Boyatzis, & Mainemelis, 2002). In this study, reflection is emphasized as an approach to achieve deep learning which correlates with an intention to search for meaning. Learners would attempt to connect with previous knowledge or experience to create new ideas or concepts. Deep learning is different from surface learning which just focuses on the memorization of learning materials (Marton & Säljö, 1976, 1984). Reflection is also regarded as a kind of metacognitive ability which relates to monitoring and controlling individual cognitive processes (Saito & Miwa, 2007).

Schon (1987) divided reflection into two main processes: reflection on action and reflection in action. Reflection on action means learners’ reflection occurs after action has been implemented. Reflection in action, in contrast, implies that learners’ reflection occurs in the midst of the action. Furthermore, Moon (1999) argued that reflection for action is where learners reflect, based on the previous experience, before the actual action, which then leads them to future action. Following Schon’s discourse, Hatton and Smith (1994) addressed three types of reflection. The first one is the technical reflection which refers to the process of beginning to examine (usually with peers) one’s use of essential skills or generic competencies as often applied in controlled, small scale settings. The second one is the reflection on action...