An Exploration of Students’ Participation, Learning Process, and Learning Outcomes in Web 2.0 Computer Supported Collaborative Learning

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ABSTRACT

Many researchers indicate that collaborative learning is an effective strategy to improve students’ learning. Collaborative learning is no longer confined to face-to-face classrooms with the advancement of technology. The concept of computer supported collaborative learning (CSCL) matches web 2.0 which emphasize learner centeredness, social interactions, and mutual sharing. The concept of CSCL matches E-Learning 2.0 which focus on learner centeredness, social interactions, and mutual sharing. This study investigates the effects of computer supported collaborative learning with web 2.0 technology on students’ participation, learning process, and learning outcomes. During a 14-week collaborative writing course, thirty participants were asked to use Google Docs to finish their assignments collaboratively. Results showed that computer supported collaborative learning with web 2.0 technology have positive effects on students’ participation, learning process, and learning outcomes. Implications and suggestions are also provided in this study.

Keywords: Collaborative Learning, Computer Supported Collaborative Learning, E-Learning 2.0, Learning Strategy, Web 2.0

INTRODUCTION

Collaborative learning is a strategy that can aid learners to achieve effective learning (Dewiyanti, Brand-Gruwel, Jochems, & Broers, 2007; Hilke, 1990). It is not a new instructional concept or method. From as early as 1920, many researchers have proposed to use collaborative learning to enhance learning effectiveness (Diler, 2008; McConnell, 2005). Collaborative learning refers to a pre-designed learning situation where students are divided into multiple groups, with each group consisting of members with heterogeneous attributes, and then assigned tasks that they need to accomplish through mutual cooperation, assistance, dependence, and
sharing of resources (Slavin, 1990). Through group cooperation, students can develop not only a closer relationship but also better communication skills and high-level reflective capabilities (Johnson & Johnson, 1994). With the advancement of computer technologies and increasing prevalence of the Internet, collaborative learning is no longer confined to face-to-face classrooms (Georgia & Symeon, 2010). According to McConnell (2005), the place of identity, control, ontological security, and guilt in e-learning groups were the four critical factors for effective learning among networked learning groups and communities. Now, it can be performed in a virtual environment built on a global network. This extension of collaborative learning, realized through integration of technologies, is called Computer Supported Collaborative Learning (CSCL).

In addition to learner-centeredness, CSCL stresses that learners play an active role in the cognitive process, while teachers are only supporters (Francesca, Stefania, & Donatella, 2007). Hence, learners should be equipped with prerequisite knowledge before engaging in learning, and their metacognition is important in the learning process (Hanna, 2005). In CSCL, teachers should switch their role from a deliverer of knowledge to a promoter of knowledge construction and monitoring. They do not give answers directly. Instead, they guide learners to interact with members in the group to jointly accomplish given tasks and finally assess the performance of each group or member (Georgia & Symeon, 2010). Through rapid development of the Internet, the interactive models on the Internet have evolved from one-way delivery of information to multi-way communications where user centeredness, sharing, and participation are emphasized (Diler, 2008).

Many existing studies on CSCL hold a positive view of its value, suggesting that CSCL can help learners to (a) construct knowledge, (b) develop creativity, (c) judge messages, (d) reorganize independent thinking, (e) enhance problem-solving skills, and (f) expand learning methods and domains through observation of peers’ opinions and brainstorming with them (Johnson, Johnson, & Holubec, 1993). However, some researchers have also pointed out that because group achievement equals individual achievement in CSCL, some learners may be unproductive in the collaborative learning process and simply take advantage of others’ efforts like taking a free ride (Tomlinson & Henderson, 1995). In such occasions, the load of learning will fall on more competent members or those whose parents can lend a hand. If any member feels that their sharing of the load is unfair and has reduced motivation for learning, the performance of the entire group may be reduced. There are always shy members in any group. Their inability to cope with pressure may result in a fear for speaking up in class and inactivity in group interactions, which will indirectly make it hard for teachers to objectively assess students’ individual performance (Johnson, Johnson, & Holubec, 1993).

According to Swigger and Brazile (1997), a web-based collaboration environment allows students to develop problem-solving abilities, support each other in learning, and share resources. It is thus good for students’ research. To ensure effectiveness of collaborative learning, Chiu, Chen, Wei, and Hu (1999) identified five elements of an effective collaborative learning activity or system, including (a) cooperative group structure, which means the group size, quantity, heterogeneity across group members, group cohesion, and group composition (b) cooperative task structure, which means design of the task may take the division of labor (for team members separately completed) or collaboration (for team members to complete co-operation) two ways, (c) cooperative incentive structure, which can be adopted by individual members of the performance or results to group common themes award (d) cooperative environment structure, which means the environment of the arrangements, including group of the space to conduct group meetings, discussion, and study and work, and (e) individual accountability, which can make group understand each individual’s the degree of contribution.

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