

# Chapter 10

## Enhance Students' Computing Skills via Web-Mediated Self-Regulated Learning with Feedback in Blended Environment

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### ABSTRACT

*The vocational colleges in Taiwan regard professional certifications as a badge of skills achievement. To enhance student learning in this specific context, the authors conducted a quasi-experiment to explore effects of web-mediated self-regulated learning (SRL) with feedback, blended learning (BL) and their combinations on enhancing students' skills of using Microsoft Word. Four classes in successive years, with a total of 190 freshmen, were divided into 2 (SRL with Feedback vs. SRL without Feedback)  $\times$  2 (Blended vs. Traditional) experimental groups. Results were generally positive. The results showed that students in the group of BL and SRL with feedback had better skills and higher pass rate on certification exams than those in the control group. It is hoped that the lesson learned is also useful for those teachers engaged in e-learning, specifically, in vocational colleges.*

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## INTRODUCTION

In Taiwan's vocational schools, students' technical skills and the proportion of students awarded professional certificates before they graduate are the main criteria when evaluating teachers' teaching performance and students' learning outcomes. Students in these schools have low interest and negative attitude toward their learning, and tend to have lower levels of academic achievement (Chen & Tien, 2005). They spend more time on part-time jobs, do not adequately get involved in their schoolwork, and do not care so much about their grades (Shen, Lee, & Tsai, 2007a). Teaching in such a context, particularly teaching a course on application software and targeted on helping students earn certificates, is a great challenge to most educators.

Recently, web-assisted instruction has been advocated by contemporary educators and researchers (Liu & Tsai, 2008). Nevertheless, the policy of web-based learning in Taiwan is relative conservative in contrast with that in the U.S. For instance, earning a bachelor degree entirely through online courses is still prohibited. Moreover, it is suggested by many universities and vocational colleges that a teacher may not deliver over fifty percent of a semester's classes online. In some vocational colleges, a teacher is limited to 35 percent of classes given online. That is, teachers in Taiwan have to adopt blended learning (BL) rather than pure online learning when implementing e-learning.

Through the Internet, learners are free to access new information without restrictions (Li, Tsai & Tsai, 2008). However, implementing e-learning for students with low self-regulatory skills inevitably runs high risks. It is indicated that vocational students are more Internet-addicted than the general students (Yang & Tung, 2007). It is a big challenge for teachers to help vocational students to be involved in an online course in an environment that is full of Internet allure with shopping websites, free online games, and messag-

ing software. Students' lack of time management skills may cause serious problems in learning in such virtual environments. Even worse, many students do not perceive lack of time management skills as a learning problem (Löfström & Nevgi, 2007). Furthermore, the lack of on-the-spot teacher monitoring in web-mediated instruction makes it even more difficult for students to concentrate on online learning.

To respond to the above challenges, we turn to the approach of self-regulated learning (SRL) to help students be more involved in their learning and manage their time better. Recent research examining how students learn complex and challenging tasks has suggested that successful students deploy key self-regulatory strategies and processes (Azevedo & Cromley, 2004; Azevedo, Cromley, & Seibert, 2004; Azevedo, Cromley, Winters, Moos, & Greene, 2005; Azevedo, Moos, Greene, Winters, & Cromley, 2008; Lee, Shen, & Tsai, 2008). In a SRL environment, students take charge of their own learning by choosing and setting goals, using individual strategies to monitor, regulate and control different aspects of the learning process, and evaluate their actions. Eventually, they become less dependent on others and on the contextual features of a learning situation (Järvelä, Näykki, Laru, & Luokkanen, 2007). Students equipped with SRL competence become more responsible for their learning and more intrinsically oriented (Chang, 2005).

Students in Taiwan have generally received a spoon-fed teaching method since they were children, that is, they lack the ability to manage their time and regulate their learning (Shen, Lee, Tsai, & Ting, 2008), particularly in an online course without the teacher's on-the-spot assistance and monitoring. In Niemi, Nevgi and Virtanen's (2003) study, they find that students benefit and become more self-regulatory after receiving feedback from the teacher-tutor and the teaching website. In this regard, we applied SRL with teacher's feedback in this study to help students concentrate on their learning, enhance their computing skills, pass the

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