Chapter 13

Student Personality and Learning Outcomes in E-Learning:
An Introduction to Empirical Research

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ABSTRACT

Web-based courses are a popular format in the e-learning environment. Among students enrolled in Web-based courses, some students learn a lot, while others do not. There are many possible reasons for the differences in learning outcomes (e.g., student's learning style, satisfaction, motivation, etc.). In the last few decades, students' personality has emerged as an important factor influencing the learning outcomes in a traditional classroom environment. Among different personality models, the Big-Five model of personality has been successfully applied to help understand the relationship between personality and learning outcomes. Because Web-based courses are becoming popular, the Big-Five model is applied to find out if students' personality traits play an important role in a Web-based course learning outcomes.

INTRODUCTION

Electronic learning (e-learning) can be implemented using a variety of methods such as computer-based learning, virtual classrooms, Web-based learning, and using other Internet technologies. Even though it is possible to teach an entire course via an email system (Phoha, 1999), most universities and colleges currently offer online courses utilizing Web technologies. Web-based instruction is a "hypermedia based instructional program which utilizes the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported" (Khan, 1997). Web-based courses

provide more convenience, flexibility, currency of material, student retention, individualized learning, and feedback than traditional classrooms while removing geographical barriers (Kiser, 1999). In addition, a variety of teaching tools (instructional options) can be implemented in Web-based courses that are not available in a traditional classroom setting. Students prefer on-line (Web-based) courses if courses are properly structured with a variety of course activities such as a discussion forum (Tello, 2007). Because of this, when Web-based courses are offered at a university, they are generally filled quickly. Satisfaction is a major factor among students taking online courses (Levy, 2007). Students often feel that course formats are compatible between e-learning course and other potential course formats (Allen, Bourhis, Burrell, and Mabry, 2002). Even though Web-based courses have become very popular recently, the effectiveness of Web-based courses might vary among students. For example, a student provided a comment such as "This is my first Web course and my last. I didn't learn a thing." This comment raises the issue of different learning outcomes among students in the same Web-based course. There can be many possible reasons for different learning outcomes such as the student's personality, learning style, satisfaction, motivation, and others. In this chapter, important factors influencing learning outcomes will be reviewed briefly. The Big-Five personality model will be introduced and the relationships between the Big-Five personality traits and learning outcomes will be discussed.

PREVIOUS RESEARCH ON THE EFFECTIVENESS OF ONLINE COURSES

Because online courses are a relatively new method of learning, the first question anyone may have is if online courses are as effective as the traditional classroom courses. The research results of the effectiveness of online courses are inconclusive. Proponents of online courses suggest that a technology-mediated learning environment such as online courses might achieve the following: a) improve students' achievement (Alavi, 1994; Hiltz 1995; Maki et al., 2000; Schutte, 1997; Wetzel, et al., 1994), b) improve the students' evaluation of the learning experience (Alavi, 1994; Hiltz, 1995), c) be more effective in teaching some type of courses (Frailey, McNell, E., & Mould, 2000), d) help to increase teacher/student interaction (Cradler, 1997; Hiltz, 1995; Schutte, 1997), and e) make learning more student-centered (Cradler, 1997). For example, when undergraduate students learned basic information technology skills, students' performance was no different whether they enrolled in a traditional classroom course or an online course (Piccoli, Ahmad, & Ives, 2001). Using a philosophy course for teachers at both the high school and the two-year college level, Pucel and Stertz, (2005) found that the student performance between the Web-based course and the traditional classroom course were mixed.

To investigate the relationships between knowledge types and effectiveness of Web-based instruction, Tracisitzmann, et al. (2006) conducted a meta-analysis of 96 research reports from 1991 to 2005 including employee and college training courses. They found that "Web-based instruction was 6% more effective than classroom instruction for teaching declarative knowledge, the two delivery media were equally effective for teaching procedural knowledge, and trainees were equally satisfied with Web-based instruction and classroom instruction." In the same study, if the same instructional methods were used, they also found that Web-based instruction and classroom instruction were equally effective for teaching declarative knowledge. It implies that there were no media effects in teaching Web-based courses as Clark's theory (1983, 1994) suggested, In other words, delivery media (e.g., the Web) are insignificant in affecting learning outcomes. Instead, he argued that individual differences and instructional meth-

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