Chapter 17
The Role of Learning Styles and Technology

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ABSTRACT

Learning style research has informed effective classroom teaching strategies for decades. Technology has allowed faculty and students to move the learning environment from the four-walled classroom to a fluid global virtual space. Knowledge gained through the application of learning style research to online instruction has enhanced practice; however, research demonstrating the alignment of learning styles with current technological resources has been limited. Learning styles and their interrelationship with technology and adult learners is as important today as initial learning style research was in the six decades after its beginnings in the 1940s. Education today must meet the needs of students who are more comfortable in electronic environments, as well as those who need the four-walled classroom. The ability to use learning style research to accomplish both will lead to enhanced student learning and a more productive experience.

INTRODUCTION

New technology has changed the way adults receive and solicit information. No longer do adults have to go to a book, journal or newspaper to gain information on a topic; they just "Google it." To think a few years ago, that phrase was nonexistent. The irony of the situation is that this article is for a book (static) about technology (fluid).

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Wireless connections and mobile technologies have changed the flow of information. The new learning spaces on the Internet and online course delivery systems have created a fluid nature to learning. Have these devices and new ways of processing changed our learning styles? What is the impact of technology on the way adults absorb and process information?

Online and face-to-face courses can incorporate a variety of technological approaches to education. Some face-to-face courses have

become Web-enhanced, meaning course items are placed in an online environment. These items could include the syllabus, PowerPoint slides, links to Web sites, or group presentations. The hybrid or blended learning format was developed by combining the face-to-face with 30% to 79% of the course time in the online environment (Allen & Seaman, 2007). Entirely online learning is making a significant impact on U.S. colleges and universities with just the number of courses offered in this format. The number of students enrolling in online courses has steadily increased over the past few years according to the Sloan Consortium series on online learning (Allen & Seaman, 2007). In the fall 2007 semester, more than 20% of students were enrolled in an online course (Allen & Seaman, 2008). Technology is here to stay.

To offer more convenient, flexible course options to adult students, instructors engage in converting their courses to an electronic environment, examining how they teach, researching the technological capabilities available, implementing the best possible tools for the learning objectives and re-thinking how they approach the educational setting. What is the effectiveness of using CD-ROM, videotapes, Internet, discussion forums, Web 2.0 technologies in higher educational courses? "The challenge for educators is to utilize this technology in ways that facilitate the highest level of learning outcomes" (Cox, 2008, p. 1). While some institutions may give assistance to the faculty to enhance courses with the aid of an instructional designer, other institutions may not provide such assistance, and it is up to the individual instructor to create the learning situation with more technological opportunities. How does an instructor create an online learning experience that uses technology appropriately and enhances the learning possibilities for students?

One way in which education has historically been enhanced is through application of learning style research. This research and the development of assessment inventories have been influencing the entire education system since the 1940s. An online search for "learning styles" using Google Scholar received 1,480,000 hits. Numerous studies concerning learning styles have been conducted on K-12 students as well as undergraduate and graduate students (Butler & Pinto-Zipp, 2006). Kolb (1984) found that students' learning styles made a significant impact on their learning preferences and choices; however, "individual styles of learning are complex and not easily reducible into simple typologies" (Kolb, 1984, p. 66). This is important to note while reading this article, which includes several different learning style inventories and research. Although researchers may distill their ideas down to a simple model to grasp the complex reality of learning, this phenomenon is multi-faceted. Each learning style author has his or her own lens for examining learning styles and it is too complex to expect that one instrument can assess all aspects.

As early as 1991, Verduin and Clark stated that "those designing distance education should, moreover, pay attention to differences among adults—in individual learning styles, preferences for acquiring new knowledge and skills, and levels of maturity or ways of responding to new learning situations" (p. 32). While learning styles complicate the course design process, they must be taken into consideration if an instructor truly desires to create an environment that will enhance the learning for each student (DuCharme-Hansen & Dupin-Bryant, 2004).

In this article, we discuss learning styles first to give the reader a brief background of several instruments. The research on learning styles and online courses is aligned with the learning style instruments discussed previously. Finally, the interrelationship of learning styles and technology is discussed, including instructional strategies that coincide with the learning styles described by the Gregorc Style Delineator and the VARK instruments.