

Developing an Online Learning Style Instrument

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ONLINE LEARNING

Distance learning was begun in the 19th Century with correspondence education (Klesius, Homan, & Thompson, 1997). It has evolved from the correspondence delivery method, through radio methods, to today's computer and interactive video and Internet techniques. With the explosive growth in the World Wide Web (WWW) in the early 1990s, an increasing number of courses have migrated to the Web—namely Web-based education or online education. In 2001, International WHERE + HOW (<http://www.dlcoursefinder.com/US/index.htm>) listed more than 55,000 online courses that are provided by higher educational institutions and training corporations. According to Peterson's Distance Learning Guide (<http://iiswinprd03.petersons.com/distancelearning/default.asp>), about 3,600 degrees and certificate programs are available from universities all over the world. Many higher education institutions offer a wide variety of online courses and provide the opportunity for students to enroll in certain online courses as part of a degree. Other institutions offer complete undergraduate and graduate degrees through an online education program.

As online education is gaining more and more popularity, increasing attention has been focused on the learners' adaptation to the new learning environment. Although more classes are being offered via online education (Tucker, 2000), the findings regarding the effectiveness of the courses are mixed. Some researchers have contended that differences in online and traditional students are not due to mode of instruction or distance, but rather to the differences in the populations (DiBiase, 2000) or that instructional design, not delivery mode, impacts learning (Carnevale, 2001). Parson (1998) and Alexander

(1995) suggested that in order to help with curriculum and instructional designs, educators and researchers should evaluate how students learn in the new environment. Identifying a student's learning style and determining which learning styles perform better in the online environment can help instructors understand how their students perceive and process information in different ways.

Learning Style

Learning style refers to the way a learner perceives, organizes, processes, and understands information. Historically, the most widely used theoretic model of learning style has been Kolb's experiential model (Henson & Hwang, 2002). Kolb's theory was operationalized by the Learning Style Inventory (LSI) in 1976 as a means of classifying individuals into one of four dominant styles defined by two dimensions: Concrete/Abstract and Reflective Observation/Active Experimentation (Loo, 2002). Because the initial version of the LSI (1976) lacked psychometric evidence of reliability, Kolb revised the instrument in 1986. “In spite of apparent face validity and frequency of use, both versions of the LSI have been attacked ...” as to the validity and reliability of scores produced (Henson & Hwang, 2002, p.714).

During the last few decades, various categories have been introduced from different theoretical approaches. Currently the most well-known classifications are: field-dependent or field-independent (Ramirez & Castenada, 1974); concrete-abstract and random-sequential (Gregorc, 1979); conditions for learning, area of interest, mode of learning, and expectation of course grade (Canfield & Knight, 1983); and concrete-abstract and reflective-active

(Kolb, 1984). According to Matthews (1994), the existence of individual learning styles is not debated, however, the term “learning style” is defined differently. Matthews states that Gregorc envisioned distinctive behaviors, while Kolb emphasized heredity, environment, and experience. Canfield and Knight, on the other hand, were concerned with instructional preferences. Although these models appear to differ (Dunn, DeBello, Brennan, Krimsky, & Murrain, 1981), these models overlap in many areas. All of these frameworks, however, are supposed to measure how an individual learns (Gregorc, 1979) or an individual’s predisposition in a learning situation (Kolb, 1984).

With the advent of Web-based instruction (WBI), the traditional educational setting has changed. Although Verduin and Clark (1991) indicate that distance education is as effective as traditional instruction, there are conditions needed for this effectiveness to occur. One of these required conditions is student interaction. Yet in Web-based classes, students may only interact online. This raises a number of questions. Does a “chat” room adequately replace the face-to-face classroom interaction? Can we adequately determine who should or should not take Web-based classes based on their preferred “learning style”? Or could we provide suggestions to help Web students adapt their preferred style to an online environment? And, can we accurately measure “learning style”? Further, because we are using new technological methods in teaching, do instruments created in the 1980s include items that measure the new environmental conditions?

We were also troubled about the use of instruments without establishing psychometric evidence of the scores produced. If scores produced by the instrument do not measure the construct of interest (validity) or what the researcher thinks it does, results produced have no meaning. If scores produced by the instrument do not consistently measure (reliability) the construct, readers cannot rely on the results. These concerns led to development of this study.

The purpose of this study was to develop and assess a new instrument that measured students’ learning styles in the online learning environment. Although the instrument developed was based, in part, upon previous learning style instruments, we were very concerned about the socialization/isola-

tion aspect of online classes, as well as the self-discipline to organize activities to meet course requirements and the ability to communicate needs to others via written communiqué. Consequently, we added questions to the instrument to specifically address those issues.

DEVELOPMENT AND TESTING THE INSTRUMENT

The current instrument was developed to examine student’s learning preferences in several areas: Sociability (face-to-face with other students), Student Organization (set schedule study), Authority Dependence (need instructor feedback), Avoidance (class boring), Communication (good written communication), Reading/Listening (prefer reading), Concrete/Abstract (like concrete examples), Recognition (teacher recognize work), Reflection/Action (participate in course), and Instructor Organization (need clear instructions). For each item, respondents were asked to indicate their preference using a 4-point Likert scale using “Strongly Disagree,” “Disagree,” “Agree,” and “Strongly Agree.” No neutral selection was provided because we wanted respondents to make a decision. Education professionals reviewed and suggested revisions for our initial questionnaire. Following the initial revision cycle and removal of approximately 30 questions, professionals in education again evaluated the questionnaire.

After the second revision, the 49-item questionnaire was placed online at a southern university and linked to the homepage of two online graduate classes. Students enrolled in these classes were asked to complete the questionnaire (see Appendix). In addition, a pencil-and-paper version of the questionnaire was presented to students in the same graduate classes but in a traditional (face-to-face) environment. A total of 141 students participated in this study. Of the 141 students participating, 96 (68%) students were enrolled in the online classes. The remaining 45 (32%) students completed the pencil-and-paper survey. The survey data were collected by the researcher and were entered into SPSS. All questions negatively related to other factor questions or containing negative phrases were

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