

December 2001

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Recommended Citation

Papp, Raymond, "Learning Style and Distance Learning: Can We Predict Student Success?" (2001). *AMCIS 2001 Proceedings*. 38.
<http://aisel.aisnet.org/amcis2001/38>

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LEARNING STYLE AND DISTANCE LEARNING: CAN WE PREDICT STUDENT SUCCESS?

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Abstract

As more colleges and universities join the growing ranks of institutions offering distance learning, many educators and administrators are struggling with the issue of how to assess student success in this new and largely untested environment. Many distance learning providers, and even some institutions, have developed short surveys that are designed to gauge whether a student is prepared to undertake distance learning. These tests, however, may not accurately assess a student's predisposition and learning style. This paper highlights and compares the use of different learning style inventories as a means to formally and empirically assess learning styles. Students in both distance learning and traditional classroom courses were given several of these inventories and their progress was tracked. Initial results indicate that some of these can be used as a successful predictor of student performance and may be useful for students and administrators in determining whether or not the student should undertake a distance learning course or program. The paper concludes with some suggestions and implications for educators on distance learning.

Introduction

As traditional college and university populations decrease, the use of distance learning in higher education has grown and educators are struggling with decisions concerning the assessment of student success in this new environment. Distance learning has the potential to play a very significant role in academic content delivery in the coming decade. As the non-traditional student population grows, the need for life-long learning that caters to today's busy lifestyle becomes increasingly clear. Even many traditional students (those who are 18-24 and attend full-time) are taking part-time jobs to pay the bills and/or gain work experience. Thus, institutions have recognized that distance learning is an effective way of reaching these populations and allowing students to take courses and complete degree programs at their convenience.

Notwithstanding the need for distance education, many institutions are struggling with the task of how to assess whether a student should undertake a distance learning program. This becomes a concern especially if the student has been out of the classroom for a number of years and is now returning to continue a course of study or re-tool in a new area. This paper begins with an exploration of some of the ways in which students are currently tested, highlights and compares several different learning style inventories, and presents initial findings from both on-campus and on-line classes with respect to student learning styles. It concludes with general suggestions for educators and administrators on how to assess student readiness for this new environment.

Assessment of Student Readiness

A number of distance learning providers have developed their own self-assessment surveys or questionnaires to assist students in deciding whether or not to undertake a distance learning course or program. Some are very short, others are more comprehensive and thorough. For example, one of the providers, eCollege™, uses a short 10-question quiz to assess potential student success (<http://www.onlinecsu.ctstateu.edu/index.real?action=IsOnline>). The results of the exam, given a "middle of the road" set of responses, are:

Results

You scored: **21**

20 points or higher- an online course is a real possibility for you.

Between 11 and 20 points- an online course may work for you, but you may need to make a few adjustments in your schedule and study habits to succeed.

Less than 10 points- an online course may not currently be the best alternative for you; talk to your counselor.

No matter what you scored, remember that online learning is not easy. Your professor will demand at least the same quality of work as they would receive from you in a face-to-face classroom. A similar number of hours will need to be committed throughout the course of a semester for an online course as to a face-to-face course.

Remember that your course may include deadlines and instructions on assignments, but there will not be anyone telling you to "turn in your assignment." Online learning is convenient- you do not have to commute to campus, and you can attend class at your convenience- either early in the morning, late at night, or anytime in-between.

Just remember, no matter when you decide to study, your professor will hold you accountable- so study hard, and have a great term!

(<http://www.onlinecsu.ctstateu.edu/index.real?action=IsOnline>)

While the results may be helpful to a student, the point system is vague and a variation on only one or two answers could result in a recommendation against distance learning. While the eCollege™ survey is easy to take, the accuracy of the results might be questionable in that students are not asked specific questions about their learning styles but rather more about the environment (e.g. their level of comfort with technology, ability to visit campus, and/or need for contact with the instructor).

It is interesting to note that national institutions such as University of Phoenix™ and Jones International University™ and Western Governors University™ do not offer any type of pre-assessment. They encourage the student to enroll and work with a counselor and/or technical support personnel to bring them up to speed in their environment. This is a common approach, but one that may subject the student to unnecessary stress as they attempt to work out their difficulties and determine the suitability of a distributed learning environment.

So how does a student determine if he/she will be successful in a distance learning environment? They could enroll in one of these national or local institutions and “learn the ropes” and hope that they will be able to handle the rigors of learning without the benefit of an actual classroom setting. For older students and those who already have substantial work experience and/or a previous degree, this may not be a difficult adaptation. Students who will potentially require more assistance are those whose learning styles may not be amenable to a non-classroom setting. Local and regional institutions in particular may target their own students or those in the local area rather than a national or international clientele. It is for these institutions that a more comprehensive assessment of learning style is beneficial (Sternberg, & Grigorenko, 1997).

Comparison of Learning Inventories

One of the most well known ways of assigning students to a given learning style is that of Kolb's (1984) Learning Style Inventory (LSI). This inventory consists of 36 words in 9 groupings of 4 each. The student is asked to rank each of the sets of words on a 1 to 4 scale, with 1 equating to least like the person, 4 being the most like the person. The four columns of words correspond to four learning style scales: concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE). Kolb uses Jung's (1977) typologies as the main foundation in the development of these learning styles. For example, the abstract conceptualization (AC) style “focuses on using logic, ideas, and concepts. It emphasizes thinking as opposed to feeling” while the concrete experimentation (CE) style “focuses on being involved in experiences and dealing with human situations in a personal way. It emphasizes feeling as opposed to thinking” (Kolb, 1984, 68-69).

Kolb's LSI has been criticized for its low reliability and validity measures (Freeman & Stumpf, 1978; Holman, Pavlice & Thorpe, 1997; Lamb & Certo, 1978; West, 1982), yet it has received equal support as a way of illustrating the different approaches to learning (Abbey et al, 1985; Kruzich et al, 1986; Nulty & Barrett, 1996; Raschick et al, 1998). As a result of the diverse opinions and findings, other methodologies are needed to provide a more stable platform with respect to validity and reliability of such an assessment.

Other methodologies which will be included in this investigation include Tait and Entwistle's ASSIST (1996), Solomon and Felder's (1996) Index of Learning Styles (ILS), Honey and Mumford's (1992) Learning Styles Questionnaire (LSQ) and the Academic Self-Efficacy Scale (Eachus, 1993).

The ASSIST (Approaches and Study Skills Inventory for Students) instrument developed by Tait and Entwistle (1996) is a 38-item inventory which attempts to identify students with weak study strategies. It has four subscales which measure four approaches of studying and academic aptitude. The scales are deep (intention to understand, relation of ideas, active learning), surface (intention to reproduce, unrelated memorizing, passive learning), strategic (study organization, time management, intention to excel), and apathetic (lack of direction and interest). Students respond to items relating to each of these approaches along a five-point likert scale from "agree" to "disagree". A score for each of the approaches is determined by summing the scores from each of the items corresponding to each subscale.

Solomon and Felder's (1996) Index of Learning Styles (ILS), originally developed for engineering students, focuses on four bi-polar preference for learning scales. These include Active-Reflective, Sensing-Intuitive, Visual-Verbal, and Sequential-Global (Felder & Silverman, 1988). Active learners are those who learn by trying things and working with others. Reflective learners prefer to think things through and work alone. Sensing learners are oriented toward facts and procedures while Intuitive learners are more conceptual, innovative and focus on theories and meanings. Visual learners prefer visual representations of material such as pictures, diagrams and charts while verbal learners prefer written or spoken explanations. Sequential learners are linear and orderly in their thinking and learn in small incremental steps while Global learners are holistic thinkers who learn in large leaps. These bi-polar scales offer a good basis for comparison of learning types.

The Learning Styles Questionnaire (LSQ) developed by Honey and Mumford (1992) identifies four types of learners, Activists (e.g. enjoy new experiences, make intuitive decisions, dislike structure), Theorists (e.g. focus on ideas, logic and systematic planning, mistrust intuition), Pragmatists (e.g. favor practical approaches, group work, debate, risk-taking), and Reflectors (e.g. observe and describe, try to predict outcomes, try to understand meaning). According to the authors, individuals tend to rely on one of these approaches when they are engaged in learning.

Lastly, the Academic Self-Efficacy Scale (Eachus, 1993) is a 23-item scale which assesses the extent to which students believe they have the ability to exert control over their academic environment. By totaling the scores from the items, a self-efficacy score can be determined.

Methodology

Each of the assessment inventories highlighted above were administered to students in an on-campus sophomore level computer class focusing on hardware, software and networking. The same inventories will be administered to students in a distance-learning course conducted this summer (June 2001). The course will cover the same content as the on-campus course, but will be delivered entirely over the Internet. Statistical analysis including t-tests, ANOVA, and Factor Analysis will be conducted on the data. Where possible, validity and reliability tests will also be done. Comparative results will be presented at the conference in August. It is hoped that the resulting analysis of these instruments will shed some light on their suitability as a measurement of distributed learning styles. The use of one or more of these assessment instruments to evaluate a student's readiness and suitability for distance learning will be explored. It is the author's intention to devise and undertake a more comprehensive study to empirically validate the results of the pilot study.

Implications for Educators

Given the sheer number of students who anticipate taking or are currently taking distance learning courses, the need to be able to quickly and easily assess their potential level of success in these courses is paramount. Simply because it is an available alternative to the traditional classroom does not make it a viable option for everyone. Students have specialized needs and skills and not every student may be suited to a distance learning environment. It is the responsibility of educators to make sure that students know and understand the risks and potential drawbacks to this environment. The last thing we want is for a student to be "lost in cyberspace" when a simple assessment early on might have identified the student as a poor candidate for distance learning. Regardless of the attractiveness and profitability of this new pedagogy, we must still be available for our students and provide them with every opportunity to further their education as they go forward on their journey in today's fast paced digital world.

References

- Abbey, D.S., Hunt, D.E. & Weiser, J.C. Variations on a theme: a new perspective for understanding counselling and supervision, *The Counselling Psychologist*, 13 (1985), pp. 477-501.
- Eachus, P. Development of the Health Student Self-efficacy Scale, *Perceptual and Motor Skills*, 77, (1993), pp. 670.
- Felder, R.M. & Silverman, L.K. Learning styles and teaching styles in engineering education, *Engineering Education*, 78, (1988), pp. 674-681.
- Freeman, R. & Stumpf, S. Learning style inventory: less than meets the eye, *Academy of Management Journal*, 5, 445-47.
- Holman, D., Pavlice, K. & Thorpe, R. Re-thinking Kolb's theory of experiential learning in management education-the contribution of social constructionism and activity theory, *Management Learning*, 28, (1997), pp. 135-148.
- Honey, P. & Mumford, A. *The Manual of Learning Styles*, 3rd Ed. (Maidenhead, Honey), 1992.
- Kolb, D. *Experiential Learning: experience as the source of learning and development* (Englewood Cliffs, NJ, Prentice-Hall), 1984.
- Kruzich, J.M., Friesen, B.J. & Van Soest, D. Assessment of student and faculty learning styles: research and application, *Journal of Social Work and Education*, 3, (1986), pp. 22-30.
- Lamb, S.W. & Certo, S.C. The learning style inventory (LSI) and instrument bias, *Academy of Management Proceedings*, 1, (1978), pp. 28-32.
- Nulty, D. & Barrett, M. Transitions in students' learning styles, *Studies in Higher Education*, 21, Part 3, (1996), pp. 333-345.
- Raschick, M., Maypole, D.E. & Day, P.A. Improving education through Kolb's learning theory, *Journal of Social Work Education*, 34, (1998), pp. 31-42.
- Soloman, B.A. & Felder, R.M. *Index of Learning Styles*, North Carolina State University, www2.ncsu.edu/unity/lockers/users/f/felder/public/LSpage.html (1996).
- Sternberg, R.J. & Grigorenko, E.L. Are cognitive styles still in style? *American Psychologist*, 52, (1997), pp. 700-712.
- Tait, H. & Entwistle, N. Identifying students at risk through ineffective study strategies, *Higher Education*, 31, (1996), pp. 97-116.
- West, R.F. A construct validity study of Kolb's learning style types in medical education, *Journal of Medical Education*, 57, (1982), pp. 794-796.