

## Web based Learning: Implications for Learning and Motivation

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**Abstract** Over the past decade there have been a number of studies examining student persistence and achievement among adult distance learners. Financial cost, disruption to family life, and a lack of employer support were reported by Merisotis and Phipps (1999) as contributors to higher distance education dropout rates. These results are consistent with previous research that identifies monetary costs and family problems as deterrents to adult participation in education. There are an increasing number of Web-based learning environments ('Webworlds') created for software engineering education. The term 'Webworlds' is suggested in Chalk (1999), based on Seymour Papert's concept of a microworld which "can be manipulated by the learner, providing an environment for active learning". This paper investigates implications of web based learning on learning and motivation.

**Keywords:** Web based Learning, Learning, Motivation

### Introduction

Online and Web based learning has exploded onto the distance education scene in the last ten years. Most major institutions of higher learning are devoting large amounts of resources and money to developing online classes and even entire degree plans. Many articles and books have been written covering a wide variety of aspects related to implementation, development, and administration of online courses. According to Picciano (2001), it will continue to grow in response to student needs and requirement, not to mention demand. Students now expect most larger institutions of higher learning to offer Web-based classes. There are many reasons that students take Web based classes including flexible scheduling and geographic concerns (the student lives too far from campus to attend traditional classroom based courses.) However, online learning can also be very beneficial for students with disabilities (Picciano, 2001).

Picciano (2001) suggests those

designing Web based courses must think about design considerations from both the students' and instructors' points of view in for the course to be successful.

According to Clark (2003), Web pages with heavy text or those that separate visual elements from their text-based explanations tend to overload students' working memory, which is an even larger problem for students with learning disabilities. In 2001, Mayer found that adding audio narration to printed text on the screen also caused a working memory overload for students. Craig (2002) and colleagues replicated Mayer's findings in 2002, including the discovery that students learn information better when it is presented in narrated form without pictures or text than when it is presented as a printed version of the narration.

Students are also entitled to a form of assessment that allows them to present their knowledge in a way that is not adversely affected by their disabilities (Powell, 2003). Van Dusen (2000)

summarized the need for equitable accommodations with the following quote:

Continued disengagement from the new information technologies based on one's age, income, race, gender, education, location, household, or physical or cognitive disabilities will have profound societal consequence from which no one will be exempt. Higher education, to no less a degree than other major American institutions, must remove barriers to access- in this case, for non traditional students and lifelong learners –without sacrificing quality. The solutions will be costly and complicated, but the alternatives will be catastrophic (p.40).

#### **Literature review**

Technology and distance learning has made education, especially higher education, an affordable, attainable goal to many people. But it is not the same as traditional classroom instruction and should not be treated as such. Distance learning brings with it its own set of challenges that must be acknowledged. Obviously, the operational aspects of the technology can pose a barrier to some, but we also need to observe and address the issues of participant motivation and retention. Online education suffers from a high drop-out rate, estimated to be 13.5% compared to a 7.2% drop-out rate for traditional students. This has been attributed to several factors, including isolation, a lack of self-discipline and the idea that online courses will be easier than traditional ones. It is a common misconception that distance learning programs will be less demanding and require less time to complete (Bocchi, 2004). Students

may actively withdraw from a course, fail the given assignments or simply quit participating in the work - at the expense of the significant amount of time, energy and money required to develop quality online programs (Hughes, 2007).

Motivation can be either intrinsically or extrinsically generated (Davidson-Shivers, 2006). The manager who takes attends certification classes to get a promotion might be externally motivated by career aspirations and financial gains. The hobby gardener is probably motivated internally by personal interests. With the assumption that the learners we discuss in this paper are adults, online learners tend to be more responsible, serious and self-driven (Bocchi, 2004). They take pride in their work, they want to be appreciated and they want to have a degree of control over the studies that they pursue.

However, learning essentially a social activity, a philosophy most notably championed by Malcolm Knowles (Reio, Jr., 2006). As mentioned earlier, the feelings of isolation and lack of interaction can play a significant role in the low retention rates. Thomas Reio, Jr. argues that although distance education may be considered an independent learning environment, it is not an isolated learning environment (2006). It is important that program designers and faculty strive to create an environment in which community support and interaction play a central role. Reio, Jr. recommends incorporating group activities, discussions and chats to help bridge this gap. Open feedback and discourse between the students and the

instructor build relationships and can mimic the face-to-face intimacy of traditional instruction (2006). Some even argue that online classes may have a higher degree of interactivity because it better incorporates learners who are shy or prefer a longer response time (Bocchi, 2004). Reio, Jr. differentiates the components of a relationship between intimacy, immediacy and interactivity – intimacy is the connection one feels in a relationship, immediacy is psychological distance between the communicator and the recipient, and interactivity describes the way in which the participants engage with each other and with the material (2006).

Chen and Rada (1996) stress the term "situated action" which emphasizes the interrelationship between an action and its context of performance. Additionally, according to Bruckman et al. (1997) and Koschmann (1996), the success of a computer-supported learning environment depends not just on the software, but on the context in which that software is used. Situated action theory emphasizes a person's responsiveness to the environment and focuses on the improvisory nature of human activity (Nardi, 1996) and the local management of activity as mediated by relevant environmental cues (Agre & Chapman, 1987; Suchman, 1987). The implications for learning are that appropriate actions are generated from recognition of appropriate opportunities given by the context. In addition to situated action theory, Jacobson et al. (1996) also emphasize the meaning of cognitive flexibility theory affecting hypertext-based learning. This theory

was initially formulated to address factors contributing to failures to learn complex knowledge at advanced instructional levels. It proposes that complex knowledge may be better learned for flexible application in new contexts by employing case-based learning environments that include features such as: (a) the use of multiple knowledge representations, (b) linking abstract concepts in cases to depict knowledge-in-use, (c) demonstrating the conceptual interconnectedness or web-like nature of complex knowledge, (d) emphasizing knowledge assembly rather than reproductive memory, (e) introducing both conceptual complexity and domain complexity early, and (f) promoting active student learning.

In the case of a web-based seminar it is useful to discuss the use of the WWW from the perspective of media research. Haythornthwaite (2001) stresses that ties affects the character of web-based communication. According to her, the strong ties between students improve web-based communication and based on this we claim that traditional teaching and learning are also needed as a part of a course. The traditional parts of a course develop the ties in the way that is not possible in totally virtual training.

The majority of the research on the effects of the learning environment on intrinsic motivation has focused on autonomy (Ryan & Deci, 2000). Ponton (1999) defined learner autonomy as "the characteristic of the person who independently exhibits agency in learning activities" (pp. 13-14). Research provides evidence that students whose behavior is mostly internally regulated (or autonomous)

have more interest, confidence, excitement, persistence, better performance, and show a better conceptual understanding of the material than students who are mostly externally controlled (Deci & Ryan, 2000; Grolnick & Ryan, 1987). Studies also show that autonomy-supportive teachers catalyze in their students greater intrinsic motivation, curiosity, and the desire for challenge (Deci, Nezlek, & Sheinman, 1981; Ryan & Grolnick, 1986). Students who are overly controlled lose initiative and do not learn as well, especially when learning is complex or requires conceptual and creative processing (Benware & Deci, 1984; Grolnick & Ryan, 1987). However, there is a dearth of research investigating the relationship between various forms of motivation and the manifestations associated with adult autonomous learning (i.e., resourcefulness, initiative, and persistence; Ponton, Carr, & Derrick, 2004).

### **Conclusion**

Technology has provided the means to extend quality education to many who might not otherwise have had access. People who live in remote locations can attend a university without leaving the house. Soldiers can earn an accredited degree while serving in active duty overseas. A homebound elderly couple who has trouble getting around can now learn a foreign language or explore new indoor gardening techniques to help pass the time. Company employees can participate in a training program without the need to cut into personal time or disrupt operations. A single mother who works forty hours and

raises three children can obtain an MBA while the kids sleep at night. In fact, students who work full-time are the fastest growing segment of distance education participants (Bocchi, 2004). The web-based coursework and seminar worked as well as the traditional coursework and seminar in the sense of a learning method. However, the results of this paper show that the traditional methods are better if we think about the learning goals of the knowledge work course.

Based on our earlier results focusing on the phases of the coursework and from the perspective of constructivism both learning methods are equal. Both methods are equally appropriate for learning by knowledge construction.

As Eccles (1983) argued, both positive and negative factors influence perceived task value, and for online students the positive factors can be substantial. The factors commonly regarded as relevant to the task value of online learning are its importance or relevance, its intrinsic value, and its convenience. Moreover, Bures, Abrami, and Amundsen (2000) found that students who believe that technology will help them learn are more likely to be satisfied and will be more active online.

E-learning students manifested significantly stronger intrinsic motivation than traditional classroom students on all three intrinsic motivation measures: (a) to know, (b) to accomplish things, and (c) to experience stimulation. One possible explanation of these findings is that more intrinsically motivated students self-select online versus traditional classroom courses where self-selection

can apply to both new and continuing students.

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