Online Learning

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Introduction

Distance education (DE), the predecessor to online learning, began with correspondence courses, though this strategy lacked timely feedback, group interaction, and technology tools to make it a positive experience for many (Anderson, 2008; So & Brush, 2008). The transition to computer-based online learning coincided with greater personal computer use and Internet access, but early distance learning methods remained static, with the learner a passive participant. Distance learning has grown from correspondence courses to those that are delivered primarily over the Internet, or through online learning settings.

According to the International Association of Online learning, the definition of online learning includes instruction by a structured web-based mode of delivery that can be both synchronous, such as video conferencing lectures, or through asynchronous models. Blended learning components offer a combination of both in-person and via the Internet (Watson, 2011).

Online learning can take place in a variety of settings, including both formal and informal, such as Massive Online Open Courses or MOOCs as reported by the 2013 New Media Consortiums Higher Education Report (L Johnson et al., 2013a). Here, individuals with an Internet connection and web-browser can learn from experts on a wide range of academic, college courses, and productivity topics, such as website development, photography, etc.

K-12 schools are taking advantage of the ability to use cloud computing systems to help design online learning programs that cater to the needs of their demographics. According to the 2013 New Media Consortium K-12 Report, students across Wisconsin are taking online courses with teachers adding videos to develop a curriculum based on teaching through specific content driven videos made by teachers in the state (L Johnson et al., 2013b). Many individuals are

using programs similar to the Khan Academy to supplement learning in the classroom. Here, students can view an online repository of videos and work on problems through this online portal.

In most settings, more credence is given to online learning that is supported through teacher delivery of information. This can take place in a variety of settings, including formal college and K-12 courses where individuals can earn credit (Means, Toyama, Murphy, Bakia, & Jones, 2010).

Recently, the online learning expansion includes K-12, university, and self-study opportunities. People worldwide participate in classes for credit, personal edification, and workrelated training. As bandwidth and web-based applications have improved, the Internet became a dynamic and engaging environment (Pea & Maldonado, 2006). Today, online learning primarily embodies web-based delivery with coursework offered fully online or via blended learning.

Its popularity has led to thousands of empirical studies in online learning. The published research provides evidence for online education's importance, particularly blended learning. In addition, informal online learning settings offer additional ways for individuals to learn, including through participatory web settings (L. Johnson, Adams, & Cummins, 2012). A systematic meta-analysis review by the United States Department of Education (USDOE) showed while conditions of time, curriculum, and education were not controlled for; student performance was modestly better in online environments compared with face-to-face classes, with the best outcomes in the hybrid approach (Means et al., 2010).

Online learning and Rapid Change

As more opportunities to learn online occur daily, the potential value and future evolution of online learning will be developed by educators and instructors in a variety of formal and

informal settings. Individuals with Internet access have the opportunity to gain knowledge and learning through the online delivery of material. Dewey (1916) argued that in order for learning to take place, individuals must be interested at the onset and actively engaged. He also felt strongly about the social component. These thoughts and areas should not be ignored by those leading the field of online education. Online learning, still in its infancy, needs to balance the needs of teachers fostering dialogue, discussion and appropriate learning environments. (Anderson, 2008). These learning environments could include interactive and content delivery from students as part of the interaction. As educational contexts continue to change due to the interactive nature of the Internet, online learning will continue to evolve and delivery methods will be developed to help meet the needs of different learners.

Prevalence of Online learning in Colleges

As indicated, colleges nationwide are implementing online courses more frequently. According to a Pew Research Center 2011 report on The Digital Revolution and Higher Education, more than half of four-year college presidents surveyed indicated that the learning educational value was equal to courses taken in person. Moreover, the majority of college presidents and educators continue to tout online learning as equivalent in academic merit and value when compared with face-to-face courses (Parker, Lenhart, & Moore, 2011).

Online learning has gained more acceptance as adult learners continue to learn and take online courses. One advantage that online learning has over distance education is that as technology evolves, it reduces the former problems faced by distance education classes and learners can use the growing participatory nature of web-based sites and courses (Zhao, Lei, Yan, Lai, & Tan, 2005). Online learning in college settings is delivered through a variety of online content modules, such as Blackboard, Banner, Moodle and others. Anytime learning

benefit learners in that they can work at their own pace and at the time that best fits their needs. The availability of online lectures and videos also provides students ample time to review information repeatedly, which may help learners that have more difficulty processing information. Likewise, there is more independence and responsibility placed on the adult learner to self-regulate and monitor activities in order to learn. Blended learning (BL) opportunities offer both in person and online classes, and their benefits include the ability to combine the best of both online and traditional settings for a more valued experience.

Despite a body of literature for online learning and distance education in higher education settings, many other areas require more study. Trends for further study include, online learning for K-12 students, online learning for specific under-represented populations, teaching practices that influence distance learning success, and informal online learning opportunities.

Research in K-12 Distance Education

Self-regulated, mature, motivated, independent and reflective learners stand a greater likelihood of success in DE environments (Sansone, Fraughton, Zachary, Butner, & Heiner, 2011; Sun & Rueda, 2012). These characteristics are typically associated with adult learners, and DE research has typically focused on this group (Barbour & Reeves, 2009; Means et al., 2010). Of ninety-nine studies within the USDOE's meta-analysis review, only seven experimental or controlled quasi-experimental studies compared traditional face-to-face with online or blended learning for K-12 DE.

Practical problems of research in K12 education include additional steps necessary to protect children participating in research, teacher reluctance, and insufficient DE expertise necessary to fully integrate online/BL research (Kennedy & Archambault, 2012). Large-scale projects researching multiple schools/districts are particularly challenging without additional

funding and an organizing group. Increasing collaborations between university and primary schools in designing K-12 settings may help overcome research-related barriers. This partnership would benefit both parties because academic members contribute methodological expertise and school teachers provide the content, feasibility, and educational expertise. Studies examining the cost-effectiveness of online or blended learning may contribute to K-12 adaptation of online educational components with follow-up quality and evaluation measurement.

Research for Underserved Populations

Students who come from underserved populations and/or students with learning difficulties may have different online learning outcomes, but there is a lack of rigorous research directed at these groups (Means et al., 2010). Comprehension problems with dense course material and/or inadequate appropriate skills for self-study may lead to dissatisfaction with DE environments (Levy, 2007). High school students with low rates of success in school sometimes enroll in alternative online learning courses, though there are high failure rates (Staker, 2011). Since student boredom and isolation are common within online settings, this may place these students at higher risk of failure in alternative online learning courses (Anderson, 2008). There is a need for more research evaluating online or blended educational usefulness for specific populations, such as high school dropouts seeking alternative educational settings.

Practical problems for exploring research targeted at these groups include developing strategies for a variety of learning styles. The research examines comparative effective strategies for making course content more engaging, personal, and supportive would help increase understanding of what may work better for certain groups. However, logistics make it difficult to apply in real-life settings due to various student needs. A plan for engaging high-risk students may include taking advantage of student strengths and delivering engaging courses appropriate

for many learning styles (Shear & Lasseter; Watson, 2011). Students have more online choices that may help them succeed. An online community of practice where learning is situated in appropriate context is another avenue to examine in under-represented students (Hoadley, 2012).

There are other tactics to support disenfranchised, bored and isolated students. Collaboration and or Computer Support Collaborative Learning (CSCL) approaches tied with blending learning and the exploration of video and multimedia are areas that can be explored (Caladine R., 2010; Graham & Dziuban, 2008). A flexible/personal learning environment may also help serve this group of students, particularly due to the wide-range of students' competencies prior to class onset. Personal learning may include additional instructional support in blended and fully online settings, where outlined plans may lead to success (Couros, 2010). Comparative effectiveness studies of these approaches with certain populations will evaluate the feasibility and efficacy in practice.

Emerging Informal Online Learning Environments

MOOCs are another area for informal learning to take place through the learner choosing what and when to learn and the primary benefit for completion is learning and not a grade. Other types of online learning similar to MOOCs are portals, such as CourseEra and Udemy, which offer both free and fee-based learning opportunities on topics ranging from college level courses to more specific, such as developing apps for mobile devices. Here, the opportunities are for specific, task-oriented learning situations. The original intent of MOOCs was to develop content that could be remixed and shared for individuals to use. However, there is disagreement about MOOC delivery. .

According to the 2013 New Media Consortium Higher Education Report, informal learning can be defined as "learning that it is self-directed and aligns with the student's own

personal learning goals" (L Johnson et al., 2013a). The ability for individuals to learn through an online medium will help them complete specific tasks whether it is for personal edification or to learn a new skill for a job.

Other emerging online learning environments include online video and supplementary training cloud computing portals, such as Mediacore.com and Khan Academy. Here individuals can learn through the development of their own personal learning program. Mediacore.com is a program where teachers and students can customize their set of online videos for learning. Thought this component primarily relates to online video learning, the ability to learn with one another and through multimedia offer new opportunities for learning. Students who experienced collaborative learning as part of their online courses were more satisfied with their online learning experience (So & Brush, 2008). Online learning will continue to change as the pace of web-based applications support increase storage, processing speed, and more collaborative opportunities. Online learning covers all age groups and it takes on many different forms. With the ability for individuals to customize learning experiences, online learning environments will take on a variety of forms but all must be tailored and clearly defined to meet the needs of their participants or customers.

Teaching Practices that Influence Success

Current trends in the increase of online learning also underscore the need for teacher education in online teaching. Teachers rarely employ participatory web-based, participatory tools that may be helpful (Reich, Murnane, & Willett, 2012). While the 2010 USDOE's metaanalysis findings are mixed regarding various online instructional design practices, efficacy has been shown for including learner controlled interactions with media, student reflections, as well as building collaborative learning environments. Future research should continue to examine

emerging themes despite the inherent difficulty in a fast-changing field due to technological advances. New technologies also make it difficult for teachers to keep pace with online instructional design. Problems with online learning courses arise when an instructor replicates teaching in a manner consistent with the way she/he teaches in a physical room or putting their entire course alone.

A strategy for improving teacher practices includes providing appropriate training for increased knowledge of educational technology theory and practices for online and blended environments. To establish online social collaborative systems with an online class, teachers should develop ways to communicate and benefit from computer supported collaborative learning tools, such as a wiki or other similar applications (Heafner & Friedman, 2008; Kop, 2010; van Tryon & Bishop, 2009). For example, a cross-sectional study of existing classes that are implementing CSCL and communication tools would provide information about teacher application and student outcomes, including motivation, achievement, engagement, and class satisfaction. With the expected continued growth in both formal and informal online learning settings, this research area will benefit from current and ongoing studies conducted by educational practitioners.

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