



Balancing pedagogy, student readiness and accessibility: A case study in collaborative online course development



Shahron Williams van Rooij^{a,*}, Kara Zirkle^b

^a Learning Technologies, College of Education and Human Development, George Mason University, 4400 University Drive, MSN 5D6, Fairfax, VA 22030, USA

^b Assistive Technology Initiative, Office of Compliance, Diversity and Ethics, George Mason University, 4400 University Drive, MSN 6A11, Fairfax, VA 22030, USA

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ABSTRACT

As institutions of higher education continue to roll out online courses and programs, issues of undergraduate student readiness on the one hand, and the challenges surrounding the design and development of pedagogically-sound online experiences that are also accessible to students with disabilities on the other, remain of concern. This paper describes the results of a case study of collaboration between the Instructional Design and Technology faculty and the Assistive Technology Initiative (ATI) group at a 4-year public institution to address both of these issues simultaneously during the development of an online course designed to teach undergraduates to cultivate the self-discipline and self-direction required to become successful online learners. The authors of this paper discuss project challenges, particularly concerning accessibility, along with lessons learned from both a process and a student outcome perspective. The authors also share insights into creating sustainable collaborative processes for successful online initiatives.

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1. Introduction

When Sir Tim Berners-Lee invented the World Wide Web back in 1989 (W3C20 Anniversary Symposium, 2014 October 29), few could have imagined how the Web, coupled with an increase in high-speed computing power, would impact online learning opportunities in higher education. Studies conducted within the last decade have documented the growth in online learning. For instance, the percentage of undergraduates enrolled in at least one distance education class – defined as a class offered live via interactive audio or videoconferencing, pre-recorded instructional videos, webcasts, CD-ROM or DVD, or computer-based systems delivered over the Internet – expanded from 8% in 2000 to 20% in 2008, and the percentage enrolled in a distance education degree program increased from 2% to 4% in that same time period (Radford & Weko, 2011). A similar rate of growth was reported in the 2013 ECAR study of e-learning in higher education, in which more than 80% of institutions surveyed were offering several courses online and more than half were offering a significant number of programs online (Bischel, 2013). Further, the results of the most recent implementation of an annual survey of 2800+ higher education institutions conducted by Babson College's Arthur M. Blank Center for Entrepreneurship (Allen & Seaman, 2014) indicate that since 2013, the number of students taking at least one online course has increased by 411 thousand to a new total of 7.1 million, with the proportion of all students taking at least one online

course at an all-time high of 33.5%. In that same survey, the proportion of chief academic officers reporting online education as critical to their long-term strategy was 70.8%, the highest it has been in the 10 years since the survey's inception.

Despite these trends, concern about attrition and retention rates in online courses versus face-to-face courses continues. The reasons offered vary, including lack of: student engagement online; sound online pedagogy; faculty preparedness for online teaching; student preparedness for online learning; and institutional technology infrastructure and policy gaps (Angelino, Williams, & Natvig, 2007; Betts, 2008; Russo-Gleicher, 2014–2015; Waugh & Su-Searle, 2014). Further, accessibility of online courses for students with disabilities remains a challenge that must be addressed, particularly since students with disabilities are more likely to enroll in these courses than students who do not have disabilities (Bastedo & Vargas, 2014; Edmonds, 2004; Radford & Weko, 2011).

This paper reports the results of a collaborative course development project at George Mason University (GMU), a large four-year public university in the mid-Atlantic region of the U.S., designed to address the problem of undergraduate student preparation for online learning while simultaneously addressing sound online pedagogy, design and accessibility. The paper begins with a review of the literature related to online learning success factors and on accessibility, followed by an overview of the institutional context. The paper then discusses project challenges, along with lessons learned from both a process and a student outcome perspective that may be useful to other institutions seeking to enhance their ability to offer successful online courses and programs.

* Corresponding author.

E-mail addresses: swilliae@gmu.edu (S.W. van Rooij), kzirkle1@gmu.edu (K. Zirkle).

2. Literature review

The research related to online learning success has largely focused on two perspectives: a macro perspective that outlines the collection of individual and institutional factors that determine the success of online learning courses and programs, and a micro perspective involving in-depth exploration of one or more components within the macro perspective. In this section, the authors of this paper explore each of these perspectives, as well as the application of universal design principles to addressing accessibility challenges.

2.1. Success factors for any online course or program

The macro perspective tends to identify “success” in terms of either increasing retention or reducing attrition in online courses and programs through policies, processes and procedures. One of the earliest studies exploring the factors that drive the success of online courses and programs (Volery & Lord, 2000) identified three critical success factors in online delivery: technology, the instructor, and the previous use of the technology from a student perspective. In their review of the literature from 2000 to 2008, Menchaca and Bekele (2008) identified five broad categories of success factors for online learning: (a) human factors, such as technology competency and motivation; (b) course factors, such as structure/organization and quality content; (c) leadership factors, such as technology provision and student/staff training; (d) pedagogic factors, such as collaboration, interactivity and learner feedback, and (e) presentation factors, such as synchronous, asynchronous, and the use of multimedia. Further, they noted a variety of success measures, including achievement of learning outcomes, student satisfaction survey scores, and online student retention rates. Similarly, McGill, Klobas and Renzi's (2014) review of the literature for that same 2000–2008 period identified a mix of critical success factors related to the success of e-learning initiatives, such as institutional support, technology, course development, faculty, and student learning and experiences. There have also been some institution-based case studies that appear to affirm institutional support, technology, course design, faculty online teaching, and student readiness as critical success factors in online learning (McPherson & Baptista Nunes, 2006; Puri, 2012; Selim, 2007). Conspicuously absent from much of the literature, however, is an explicit reference to accessibility as a contributor to online learning success.

A more recent contribution to the macro perspective is the e-Learning Maturity Model (eLMM), which seeks to assess the extent to which an institution meets all of the success criteria addressed in the literature. Developed at the Victoria University of Wellington in New Zealand (Marshall, 2014), the model uses a self-assessment instrument in which institution stakeholders rate themselves on a 5-point scale – where “1” means ad hoc/low maturity and “5” means optimized/high maturity – on five process areas: (a) processes that directly impact on pedagogical aspects of e-learning, (b) processes surrounding the creation and maintenance of e-learning resources, (c) processes surrounding the oversight and management of e-learning, (d) processes surrounding the evaluation and quality control of e-learning throughout its entire lifecycle, and (e) processes associated with institutional planning and management. However, the model is relatively new and has not been adopted outside of the Australia–New Zealand region. Moreover, it does not explicitly address accessibility as a contributor to online learning success.

2.2. Individual contributors to online learning success

From a micro perspective, some studies have focused on student services for online learner retention. These include studies relating to institutional contact with and support of online students from enrollment through program completion (Bigatel, Ragan, Kennan, May, & Redmond, 2012; Crawley, 2012; Heyman, 2010; LaPadula, 2003;

Ludwig-Hardman & Dunlap, 2003; Newberry & DeLuca, 2014). The micro perspective also includes issues surrounding instructor preparedness, such as online pedagogy (Goodyear, Salmon, Spector, Steeples, & Tickner, 2001; Rovai, 2004; Schrum, 2000), facilitation and online presence (Keengwe & Kidd, 2010; Travis & Rutherford, 2012–2013; Young, 2006), and addressing faculty resistance to teaching online (Mitchell et al., 2014). Another research focus at the micro level concerns online course design and development, such as the identification of elements of constructivist course design for increased online student engagement (Shelton, Mason, & Cummings, 2014), the application of sound instructional design principles (Stavredes, 2011), and the use of formative evaluation methods for internal quality control and summative evaluation methods to determine how well the final instructional product works in the real world (Lockee, Moore, & Burton, 2002).

There has been considerable research into identifying the characteristics of successful online students. For example, using a combination of document analysis of materials and instruments from some 70 institutions that offer online programs and courses, along with literature reviews and surveys of experienced online educators, Schrum and Hong (2002) identify seven dimensions of online student success:

1. Access to tools
2. Technology experience
3. Learning preferences
4. Study habits and skills
5. Goals/purposes
6. Lifestyle factors
7. Personal traits and characteristics.

Similarly, Boyd's (2004) profile of the successful online student includes appropriate technology and the skills to use that technology effectively; an appropriate management of time and space, including support from family and friends; a healthy balance between autonomy, interactivity, self-motivation, self-discipline, and integrity; and an independent, more self-directed learning orientation with above-average reading and writing skills. The management of time and space has also been linked to participation in specific online activities, such as discussion forums and collaborative activities (Michinov, Brunot, Le Bohec, Jehel, & Delaval, 2011; Parkes, Stein & Reading, in press).

Variations of these dimensions can be found in studies validating questionnaires for assessing student readiness for online learning in U.S. and international institutions of higher education (Bernard, Brauer, Abrami, & Surkes, 2004; Dray, Lowenthal, Miszkiewicz, Araceli Ruiz-Primo, & Marczynski, 2011; Pillay, Irving, & Tones, 2007), with beliefs about online learning, engagement with technology and the personal traits of self-direction and initiative found to be significant predictors of online learner success. In addition, these same factors have been shown to be related to student persistence in online courses (Hart, 2012). Consequently, preparing students with the strategies and techniques for becoming successful online learners can reduce the risks of attrition in higher education online courses and programs (Angelino, Williams, & Natvig, 2007).

2.3. Accessibility and universal design

In the United States, accessibility is governed by federal law. Specifically, Section 508 of the 1998 Rehabilitation Act (Summary of Section 508 Standards, n.d.) states that all federal entities and organizations doing business with or receiving funding from federal entities must make their digital materials accessible to persons with disabilities. Consequently, all educational institutions that are publicly funded or receive public support must comply with Section 508 regulations.

The Universal Design and Universal Design for Learning provisions in the Higher Education Opportunity Act (U.S. Department of Education, 2008 August 14) highlight three principles that are beneficial for online learning: multiple modes of representation, multiple means of expression, and multiple means of engagement. Universal design enables the

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