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Collaboration, connectedness, and community: An examination of the factors influencing student persistence in virtual communities

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ABSTRACT

Institutions of higher education are being called upon to provide a more robust pathway to a college degree and improve upon the advanced workforce for the needs of the 21st century. While active collaborative learning environments have been encouraged in higher education to improve student engagement, there is a gap in the literature when it comes to connecting the two research areas of collaborative learning and student intention to persist. This research fills this gap by creating and conducting research to examine a model that measures the factors that significantly influence a student's persistence in a virtual collaborative learning environment. The model examines how collaborative learning, campus connectedness, sense of community, organizational commitment, and turnover intention influence student persistence. The model was tested using a sample of students who participated in a virtual learning community (VLC) and the results suggest that all but one of the factors were found to significantly influence student persistence, with the final factor dependent on the number of hours of system usage. We discuss the implications of the research and the model for team-based theory and organizational practice in education and teamwork.

1. Introduction

Higher education institutions are being called upon to provide more robust pathways to a college degree and thereby improve the workforce for the needs of the 21st century. Nevertheless, there are challenges that these institutions face in achieving these objectives. For example, the demographic makeup of the student population is increasingly varied in age, enrollment status (full-time versus part-time), and institution type (2 year or 4 year) (U.S. Department of Education, National Center for Education Statistics, 2013). To compound the situation, there is a lower degree attainment rate for non-traditional students (Ross et al., 2012), and despite prior efforts to improve retention rates (Bean & Metzner, 1985), the trend is not in the desired direction (Snyder & Dillow, 2012). Thus, a commitment to a more highly educated workforce will require a more supportive environment for student success. This becomes ever more important as educational programs move more courses to online settings, where students have few or no physical connections with the university campus and other students. Our objective in this research is to help researchers and educators better understand the factors that influence student success in online settings by proposing and testing a model of student retention.

The modern workplace incorporates technology, predominately information technology, to support organizations in their efforts to become more agile and to acquire knowledge about their operations and competitive environment. In doing so, they have to evolve to become *learning organizations*, which implies that knowledge is captured, managed and used to foster organizational success (Senge & Suzuki, 1994). Structuring the workplace to achieve these outcomes requires that organizations leverage not only individual employee skills and knowledge, but also employees' willingness and ability to work with others though effective collaboration. As a result, employers are increasingly demanding that employees possess a larger and more diverse set of skills and knowledge. The challenge for many firms is in finding employees who possess the requisite skills and this is particularly problematic as the path to a degree in higher education has become more challenging. Because of factors like increasing costs of higher education and fewer sources of funding, students often need to pursue their education in

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non-traditional settings, such as from a distance or while working full time. Thus, time and distance are now important factors as students seek out degrees. Traditionally, the academic response has been to focus on building and maintaining improved curriculum; however, this often does not address the unique needs of non-traditional students. Thus, to be sustainable, higher educational institutions must create environments that will encourage student retention.

We suggest that sense of community and connectedness with the educational institution will help improve retention. We base this supposition on research by Tinto (2005), who suggests that the following factors will influence student retention:

1. A commitment to success must include monetary resources and not just words.
2. A high expectation of student performance begins with the first year.
3. Develop support programs for navigating the new college environment.
4. Utilize student feedback and assessments of the learning environment.
5. Foster student involvement both academically and socially.
6. Focus on the development of a setting that encourages learning.

These conditions are all attainable based on the characteristics of community and are not discipline specific. With a strong community, the results will include increased involvement in learning, promotion of social and academic involvement, and academic support for the student's motivation to persist (Stefanou & Salisbury-Glennon, 2002; Tinto, 1997, 1998, 2003; Zhao & Kuh, 2004).

To increase student persistence through active involvement, a successful online program will encourage computer supported collaborative learning that brings together technology, interaction, and learning in a manner similar to what is encouraged in learning communities (Stahl, Koschmann, & Suthers, 2006). An active learning environment through collaborative learning techniques has been encouraged in higher education as a means of improving student engagement (Freeman et al., 2014; Prince, 2004; Slavich & Zimbardo, 2012), but there is a gap in the literature when it comes to connecting the two areas of research. Thus, the purpose of this study is to create and test a model that will measure the factors that significantly influence a student's persistence in higher education. The proposed model can be utilized to measure the impact of community and connectedness found in collaborative learning activities on student intentions to persist and can be used to evaluate the effectiveness of online programs and the likelihood of student retention in these programs.

2. Background

In this section we discuss several of the factors that are important in influencing student participation in and success with collaborative learning. We begin by discussing collaborative learning environments. We then discuss several of the factors that are used in our model such as usability, connectedness, sense of community, commitment, and turnover intention. During this discussion, we present the hypotheses that are predicted by our model.

2.1. Computer supported collaborative learning

The expectation that employers have for employees in the workplace is to be able to adapt to change, use critical thinking skills, and collaborate professionally (Jerald, 2009). These skills have been called “21st century skills” and they are defined as “being able to solve complex problems, to think critically about tasks, to effectively communicate with people from a variety of different cultures and using a variety of different techniques, to work in collaboration with others, to adapt to rapidly changing environments and conditions for performing tasks, to effectively manage one's work, and to acquire new skills and information on one's own” (The National Research Council, 2011, p. 1). Collaborative teams are more effective because of the diversity of ideas generated and this is particularly important because many types of jobs are becoming too multifarious for just one person to complete effectively.

Just as the workplace in the 21st century requires effective teamwork, higher education is following suit and is moving to engage with active learning techniques (Freeman et al., 2014). In fact, active learning techniques, such as collaborative learning teams, don't only benefit employees when they graduate and take jobs, they have also been found to improve student persistence in college. For example, collaborative learning has been found to play a significant role in retention of first-year students (Freeman et al., 2014; Tinto, 1997, 1998). Collaborative learning is achieved when individual strengths are combined so that all members of the group participate in the collaborative construction of knowledge (Stahl et al., 2006). Collaborative learning fosters a diversity of thought and allows for others to experience differing ideas for discussion. Each member brings a unique perspective to the group that is based on prior experiences, which can collectively add to the knowledge gained. Collaborative learning also involves a community of learners and teachers that share experiences or knowledge through social interaction (Zhu, 2012). The focus of learning is not limited to the knowledge of just the instructor but, rather, the instructor acts as a facilitator of the interaction among all involved parties. Members of the group control the collaboration process with input from the instructor, and it is the responsibility of the entire group to participate in all aspects of the process, including the diffusion of conflicts, contribution of ideas, and the achievement of learning goals (Dewiyanti, Brand-Gruwel, Jochems, & Broers, 2007).

When collaborative learning is transferred online, it is often referred to as *computer-supported collaborative learning* (CSCL). This domain emerged as a research field in the 1990s in response to new software innovations that were meant to bring students together to learn (Stahl et al., 2006). Kirschner and Erkens (2013) developed a framework for CSCL research that is divided into three main elements: pedagogical, the level of learning, and the unit of learning. The *pedagogical* element pertains to the learning portion of the collaborative learning environment and the tools used to support and guide the individual, team, and/or community through a set of learning goals. The *level of learning* element pertains to the skills that students use to work collaboratively in a team. This element includes the communication process that students navigate when working on a team task, the level of motivation that a student puts forth to be successful and engaged in a task, and the social aspects involved in student-to-student interaction and student-to-teacher interactions. The third element, the *unit of learning* element, pertains to the technological needs of the activity depending on the makeup of the environment. Most CSCL environments have the basic communication, productivity, and support tools for individual, group, and/or community use, but how the CSCL tools are presented and encouraged for use will determine the way the technology is used and the effectiveness of the activity. Kirschner and Erkens (2013) suggest that more research is needed concerning the social aspects of CSCL. Specifically, they identify sense of community and feelings of belonging as two important elements of a solid group structure and factors that need to be examined in collaborative learning environments.