Graduate Research Papers   Graduate College

2014

To complete or not complete : Student persistence in post-secondary education online courses

Amy Christian
University of Northern Iowa

Recommended Citation

Christian, Amy, "To complete or not complete : Student persistence in post-secondary education online courses" (2014). *Graduate Research Papers*. 155.
https://scholarworks.uni.edu/grp/155

To complete or not complete : Student persistence in post-secondary education online courses

Abstract

Many factors influence learners' decisions to complete or drop out of online learning courses in higher education where learners' persistence is considered critical to the success of the higher education institutions. This review examines recent literature on the relationship between learners' perceived Sense of Community (SOC), Social Presence, Satisfaction, and Participation and Interactions in distance education courses and learner persistence. Over 30 peer-reviewed studies published in academic journals within the past ten years were selected for critical analysis. Results are mixed and while many studies imply relationships between various learner and institution characteristics and student persistence, significant correlations are often lacking. Given the increasing popularity of on line education in higher education, identifying the characteristics of both successful students and of successful online learning environments warrants further investigation.

TO COMPLETE OR NOT COMPLETE: STUDENT PERSISTENCE IN

POST-SECONDARY EDUCATION ONLINE COURSES

A Graduate Review

Submitted to the

Division of Instructional Technology

Department of Curriculum and Instruction

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

UNIVERSITY OF NORTHERN IOWA

by

Amy Christian

May 2014

This Review by: Amy Christian

Titled: To complete or not to complete: Student persistence in post-secondary education

online courses

has been approved as meeting the research requirement for the

Degree of Master of Arts.

Ping Gao

4/30/14
Date Approved
Graduate Faculty Reader

Leigh E. Zeitz

4/30/14
Date Approved
Graduate/Faculty Reader

Jill M. Uhlenberg

5-2-14
Date Approved
Head, Department of Curriculum and Instruction

Abstract

Many factors influence learners' decisions to complete or drop out of online learning courses in higher education where learners' persistence is considered critical to the success of the higher education institutions. This review examines recent literature on the relationship between learners' perceived Sense of Community (SOC), Social Presence, Satisfaction, and Participation and Interactions in distance education courses and learner persistence. Over 30 peer-reviewed studies published in academic journals within the past ten years were selected for critical analysis. Results are mixed and while many studies imply relationships between various learner and institution characteristics and student persistence, significant correlations are often lacking. Given the increasing popularity of online education in higher education, identifying the characteristics of both successful students and of successful online learning environments warrants further investigation.

Table of Contents

List of Tables

Introduction

In today's increasingly technological and global world, learners are demanding greater access and more flexibility in their learning opportunities. In response to this demand, distance education and online course offerings within higher education have increased exponentially over the past couple of decades, and that upward trend does not appear to be subsiding anytime soon (J. Brown, 2012; Joo, Joung, & Sim, 2011; Kruger-Ross & Waters, 2013; Park & Choi, 2009; Sun, Tsai, Finger, Chen, & Yeh, 2008). While adult students continue to flock to online courses and institutions of higher education continue to roll out more online offerings, failures do exist (Sun, et al., 2008). Despite the growing number of students taking online learning courses, high dropout rates have begun to raise concerns within many higher education institutions, as many colleges and universities continue to report high attrition rates among distance education students (R. Brown, 2011; Nash, 2005; Smith-Jaggars & Bailey, 2010). While there are many factors leading to students' decisions to drop out or persist in online courses, this review will focus exclusively on literature sources that examine the effects of specific elements and characteristics of online learners and institutions on student retention in post-secondary education. By examining current research of online learning in higher education, more effective online learning environments and opportunities can be created in hopes of better meeting the educational needs of the increasing online student population, thereby increasing online students' completion rates.

The analysis of this topic is important as discovering the attributes of effective online learners and online environments, specifically those that can be controlled by the institution, instructional designers, or instructors, can lead to improved online course designs and

implementation. This will, in turn, lead to higher retention rates among post-secondary online education courses. With the ever increasing numbers of online courses available and the increasing popularity of online learning, the analysis of this topic is a critical step towards ensuring the current and future success of both the online programs in higher education as well as the success of the post-secondary learners. Identifying successful strategies in online education course design and course implementation is crucial in developing learning environments that not only meet the needs of diverse learners, but also provide the best possible educational experience for those learners.

The intent of this literature review is to highlight current research based on fully online education courses in post-secondary education and examine the effects of learner characteristics, course design, strategies, and implementation on student retention. By identifying theories that explain the successful completion of online courses, higher education institutions can focus on specific areas of course design and implementation that have been shown to be effective. Attributes of successful online learners as well as various aspects of fully online courses will be discussed in an effort to identify successful and effective strategies for creating and providing online learning environments that will best meet the needs of post-secondary learners, ultimately improving completion rates. The results of this review will be used to explore and expand upon online course strategies that best support higher retention rates among online higher education students. The results will also help identify areas where research is lacking or insufficient. The focus of this review is on fully online courses in higher education. Hybrid, blended learning, or web-blended courses will not be included in this review, although these are areas that also warrant further research and should be incorporated into future studies as well.

While colleges and universities realize the potential value of online education, they are also well aware of the growing research pointing towards higher dropout and attrition rates among online students compared to traditional face-to-face students. Therefore, the review of current research along with future research is critical for ensuring the future success of online learning as a viable educational paradigm. College and university administrators must rely on research as they move forward with online education and continue to make critical decisions regarding the future of online courses. The completion rate of students will play a major role in such decision making.

The following questions will be considered in this review:

- What factors influence students to dropout or to persist in online education?

- What are the effects of students' perceived sense of community and social presence on student completion rates in online classes in higher education?

- How does student level of satisfaction in online courses affect completion rates?

- What are the effects of learner participation and interaction on student completion rates?

Methodology

Locating and identifying reliable sources of information on the topic of online education in higher education was a challenge for the researcher in that an abundance of results were returned in the initial searches, many of which did not meet the criteria for this specific review. Additional searches including more specific qualifiers returned fewer and more relevant results. To locate resources for this literature review, various electronic databases as well as the Google search engine, Google Scholar, were used. The main electronic databases used were OneSearch through the University of Northern Iowa's Rod Library and Academic Search Premier through Des Moines Area Community College's Online Library. While searching for resources, several keywords combinations of descriptors were used including *online learning, distance education, higher education, completion rate, persistence, e-learning, student interaction,* and *satisfaction*. The searches were also limited by specifying NOT *hybrid, blended learning,* or *web-blended*. Several hundred results were returned in the refined search using these keywords.

In searching for and selecting materials, relevance to the specific topic and content quality were considered. Therefore, along with the aforementioned keywords, the database searches were limited to only scholarly, peer-reviewed journal articles. Furthermore, to ensure inclusion of the most recent literature, searches were limited to publication dates ranging from the year 2004 to the current year. Finally, after scanning the abstracts and conclusion sections of potential sources, only articles addressing both online education and higher education were included.

After identifying multiple relevant sources, the researcher continued to search for other viable sources using a recursive process. Using the already identified sources, a

cursory search of journal articles in which these articles were frequently cited was conducted and any additional potential sources were identified and further researched for relevance and validity. Each of the additional sources was catalogued for further, more in-depth, review. A total 34 articles were initially identified and marked for more in-depth review.

Analyzing and evaluating sources and information was a crucial step in identifying and limiting the information to be included in the literature review. Credibility, reliability, and validity were all taken in to account when identifying relevant information. In an effort to narrow the scope of the topic and assure the reliability and validity of the identified sources, several criteria for evaluating the information were set by the researcher:

1. Has the information been peer-reviewed and published in a reputable scholarly journal?

2. Is the publication date within the past ten years?

3. Has the information been cited in other research?

4. Does the information pertain only to online learning in higher education?

After examining the selected article more closely, two sources that included hybrid or web-blended environments were eliminated. Two articles, one by Tinto published in 1975 and another by Rovai published in 2002, were included despite older publication dates as the studies are relevant, cited often by current research, and help to establish a theoretical background for this review. One additional article published in 2013 by Rostaminezhad, Mozayani, Norozi, and Iziy was also included although it lacked being cited in other research. A lack of the citation may be due to the recent publication. The research was relevant to this review and, therefore, the source was included. In all, 32 sources were

identified for inclusion, with 14 of those identified specifically for review of the relevant research, while the remaining were included for background and supplementary information.

In an effort to organize the content, the 14 studies were then grouped by factors having possible effects on learners' persistence in online courses in higher education. As there are differing definitions and ways of measuring "persistence" and "retention," a column was added to include each study's definition of persistence.

Table 1

Factors Relating to Persistence

Factors	Author/s/	Date	Dropout definition
Sense of Community	Rovai	2002	None given
	Liu, Magjuka, Bonk, & Seung-hee	2007	Learners' intention or thoughts of dropping the program
	Drouin	2008	Retention measured by intent to take more online courses
Social Presence	Liu, Gomez, Yen	2009	Retention measured by learners enrolled after course census date and successfully complete with grade of A to C at end of course
	Dow	2008	Dropout-learners who voluntarily withdraw from online course
	Joo, Lim, & Kim	2011	Learner intention of continuing and will to complete the course
	Garrison & Cleveland-Innes	2005	None given
Satisfaction	Levy	2007	Dropout students defined as students that voluntarily withdraw from e-learning course while acquiring financial penalties
	Herbert	2006	Learners that did not complete the online course
	Park & Choi	2009	Dropouts are those learners that dropped out of the course prior to completion
	Rostaminezhad, Moayani, Norozi, I Iziy	2013	Dropout learner is defined as a student who is not qualified in the course and is excluded (dropped) voluntarily or forcibly.
	Rovai, 2002; Drouin, 2008; Dow, 2008; Liu, et al., 2007; Joo, Lim, et al., 2011		
Participation & Interaction	Morris, Finnegan, & Wu	2005	Successful completers: completed course with C or higher; unsuccessful completer: completed course with D, F, or I; withdrawer: formally withdrew prior to course completion

Nistor & Neubauer	2010	Non-persisters – those who officially dropped out of the online course	
Tello	2007	Non-persisters - learners who filed paperwork to withdraw from the online course prior to the final grading period	
Rostaminezhad, et al.	2013	Dropout learner is defined as a student who is not qualified in the course and is excluded (dropped) voluntarily or forcibly.	

Analysis and Discussion

Retention in online education is currently a hot topic in higher education. In analyzing online education retention for this review, first, the concept of retention will be reviewed. Following will be an examination of students' perceived sense of community, social presence, satisfaction, and participation and interaction in online education and the possible effects on student retention. Finally, this review will conclude with a summary.

Background

According to a 2012 survey of online education conducted by the Babson Survey Research Group, during the fall term in 2011 over 6.7 million higher education students were taking at least one online course. This number reflects one third of all higher education students. This is an increase of over 500,000 over the previous year and the numbers are still climbing. While the popularity of distance education is on the rise, so are the concerns of low student completion rates in higher education online courses.

While actual dropout figures remain unclear due to the multitude of reporting methods employed by higher education institutions, many colleges and universities continue to report high attrition rates among distance education students. For instance, the rates of students either failing or dropping out of online courses are reported by higher education institutions to be higher than the rates of students taking traditional, face-to-face courses (R. Brown, 2011; Nash, 2005; Smith-Jaggars & Bailey, 2010). Marc Parry, in a 2010 article published in *The Chronicle of Higher Education,* concurs citing a Keneasaw State University study which found that online students drop out at rates of 15 to 20 percent higher than their traditional student counterparts.

These reports of high dropout rates in online courses have become an increasingly

significant concern for higher education. According to Jenkins (2012), President Obama has weighed in on the matter and identified college completion as being central to his economic agenda. Therefore, state educational leaders have initiated dialog hinting that future funding for colleges and universities may soon be tied to graduation rates and not just to overall enrollment rates, which has traditionally been the case. Because of this, many colleges and universities are rushing to include a completion agenda to their strategic plans. Even so, Education Secretary Arne Duncan has noted that completion rates remain disappointing (Jenkins, 2012). While there are many reports of high attrition rates among distance education students, lack of research and concrete information regarding online retention is problematic (Liu, Gomez, & Yen, 2009). Therefore, current and future research examining methods for institutions of higher education to increase online student retention is warranted and crucial for the success of both higher education students, as well as higher education institutions themselves.

In this review, online education will be considered as any class or course that is taken completely online. Although online education often includes hybrid, blended learning, or web-blended classes or courses, these formats will not be included in the review. The research studies within this review refer to online education as distance education, online learning, and e-learning. In the following sections, first, the concept of retention will be reviewed, followed by the examination of students' perceived sense of community, social presence, satisfaction, and participation and interaction in online education and the possible effects on student retention.

Retention in Distance Education

Completion agenda. In higher education today, "completion" is the new buzzword (Jenkins, 2012). Completion is the concept of enrolling students in college courses, and retaining those students until they graduate, receive a certificate or diploma, or transfer on to a four year college if they are currently attending a two-year institution. In a 2010 interview, Education Secretary Arne Duncan pointed out that completion rates for higher education in the United States have stagnated over the last two decades. This comes at the same time that college enrollments increased almost fifty percent (Jenkins, 2012). Retention—basically meaning staying in school until completion of a degree—is a more familiar term and something that those in higher education are extremely concerned about (Hagedorn, 2005). Student persistence is another buzzword in higher education. Persistence and retention are often used interchangeably. When speaking of student completion, "retention" often tends towards an institutional measure of students completing a degree while "persistence" is more a student measure. In other words, students who stay in school until they finish their degree are considered persisters (Hagedorn) and the institutions refer to the measure of students who complete their degrees as retention. Whatever the term being used, getting students to first enroll in courses, and then encouraging them to complete the courses and/or programs, is a major goal for most higher education institutions.

Student retention has been an issue in the United States since the late 1800s with formal research beginning as early as the 1920s (Boston, Ice, & Gibson, 2011). While the issue of retention has been around for quite some time, the research has focused on traditional, brick-and-mortar institutions and not on distance education. Research of distance

education retention began in the 1990s; therefore, current research studying the variables of effective online course design and implementation is still in its infancy stage.

Why online students dropout. There are many reasons put forth as to why students may or may not drop out of online courses (Cole & Kritzer, 2009; Lorenzetti, 2004; Palloff & Pratt, 2007; Pierrakeas, Xenos, Panagiotakopoulos, & Vergidis, 2004), and also multiple theories regarding student retention, many of which are based on Vincent Tinto's 1975 theoretical model of student persistence or retention (Jensen, 2011). In a 1975 article entitled "Dropout from Higher Education: A Theoretical Synthesis of Recent Research," Tinto reviewed previous research regarding dropout in higher education and presented his analysis of the findings regarding student retention. His findings sparked much dialog within the educational community. In his synthesis of the research regarding students' decision to drop out or persist in higher education, Tinto (1975) propounds that student persistence occurs when a student successfully integrates into the institution socially as well as academically. While there is often more than one factor at play when students decide to dropout, this review will focus on aspects often associated with Tinto's theory of student retention, related to individual and institutional characteristics and interactions, and the effects that they may have on student retention in online education.

A study at a Greek distance education university (Pierrakeas, et al., 2004) sought to examine the main reasons for student dropouts. While this study is somewhat dated, it reflects many of the same findings of other studies conducted on this topic. The Greek study cites these reasons for students dropping the courses: (a) unexpected or emergency situations uncontrolled by the student; (b) students' underestimating the time and effort needed to sufficiently complete the coursework required; (c) underestimation of time required to

balance professional obligations with academic obligations; (d) various family and/or personal reasons such as marriage, birth, and health reasons; (e) lack of assistance from institution; (f) inadequate learning materials; and (g) a basic lack of understanding of course materials. Some of these factors can be addressed by institutions; others will be present regardless of any potential attempts by the institution to intervene. While higher education should focus on factors that can be controlled, at least to some extent, they must also be aware of factors they cannot control and work to identify strategies that can help reduce the impact of those factors.

Barriers to online student persistence. Moreover, many barriers to persistence in online courses can be found. These can be broken down into four areas: situational, institutional, dispositional, and epistemological (Lorenzetti, 2004). Situational refers to certain changes in a student's life that have an impact on his or her ability to stay enrolled. This could be related to family situations, health, job, or any other situation that has an effect on the student's life. These barriers will always be present and often out of the hands of the institutions. Institutional barriers to student persistence arise from difficulties inside the college or university. The third barrier to persistence is dispositional, relating to student attitudes regarding their own online studies and learning (Lorenzetti, 2004; Pierrakeas et al., 2004). Finally, epistemological barriers relate to issues with course material and content, such as an instructor assigning too much material to be thoroughly covered in the allotted amount of time. Many of these barriers could be lessened and some possibly eliminated through good and thoughtful course design and implementation (Lorenzetti). It is the institutional and epistemological barriers that institutions of higher education must pay special attention to in an effort to retain online students. Likewise, factors that may affect

online student persistence, such as perceived sense of community, social presence, learners' satisfaction, and learner participation and interaction, are integral aspects that warrant further investigation by higher education. While these factors are often interrelated, each one will be discussed separately.

Perceived Sense of Community Online

Palloff and Pratt (2007) have written extensively on the role of creating online communities for successful online education. According to them, there is great power in community and the power of a learning community is even greater. Rovai (2002), who drew from previous work by Tinto, concurs that one strategy to increase retention is to provide students with support by fostering a strong sense of community. In a study of volunteer students (n=314) enrolled in 26 online courses, Rovai found positive and statistically significant correlations between classroom community and the connectedness subscale (.92), the learning subscale (.89), and perceived cognitive learning (.63). Rovai suggested that students with a stronger sense of community have greater perceived satisfaction and therefore, fewer students will dropout. Learners' perceived sense of community can help to diminish the learners' feelings of isolation, allowing learners to develop a stronger connection with the online course content as well as with the instructor and other classmates. This often leads to a greater satisfaction with their learning experience, leading to greater motivation to persist and complete the course. Based on previous research such as that conducted by Tinto, Rovai implies that creating an online environment that embraces a sense of community will translate to higher persistence of online learners. Nevertheless, the relationships are merely inferred, as a direct relationship between sense of community and online learner persistence was not specifically identified. Although this study only included

online learners who completed the online course with no data collected on those who dropped out, it is relevant in that it identifies and supports a strong, positive link between sense of community and learner connectedness and perceived learning, leading to higher learner satisfaction and possibly fewer dropouts.

Partially supporting Rovai's theory, Liu, Magjuka, Bonk, and Lee (2007) noted a significant relationship between sense of community and several areas relating to positive online experiences. In a case study of MBA students (N=102) conducted at a reputable business school located at a Midwestern university, Liu, et al. found evidence of a significant relationship between sense of community and perceived learning engagement (r=.62, p<.01); perceived learning outcomes (r=.60, p<.01); and student satisfaction with quality of the course (r=.61, p<.01). The study also identified a relationship between students' sense of community and several other areas related to social presence such as lowered feelings of isolation (r=.41). Additionally, of the surveyed participants, only 9% indicated they ever had thoughts of dropping out. Interestingly, the study found a negative correlation ($r = -.47$) between the students' intention to drop out and the students' sense of community. According to Liu, et al., strategies that appear to have positive effects on feelings of sense of community and learning include regular course announcements and feedback and virtual team activities, although the researchers acknowledge that group work experiences did promote a stronger sense of community within the working group, but not necessarily at the whole class level. While this study found a positive correlation between sense of community and several areas relating to positive online experiences, a direct correlation between sense of community and learner persistence was not specifically addressed. In addition, the study was limited to one

online program and only a small number of participants were selected for interviews. Therefore, generalizations of these findings to other online programs should be cautious.

Equally important, Drouin (2008) found similar results regarding the effects of sense of community on persistence and retention in a 2005 – 2006 study including three online undergraduate psychology courses at a medium-sized Midwestern U.S. university. Seventy-one of the 77 students (92%) completed the survey. This study did find that sense of community was significantly related to student satisfaction ($r = .36$, $p < .05$). However, the correlation between the learners' self-reported sense of community and retention (measured by intention of taking another online class) was weak and not significant ($r = .002$ and $r = -.078$). The researcher suggests that if retention in online courses is an important goal of higher education institutions, these findings indicate that sense of community is not necessarily an important component of online education courses. Interestingly, further analysis of students' comments showed that some students wanted social interaction such as that found in face-to-face classes. In contrast, other students stated they found sense of community to be unexpected and unnecessary in the online format. Drouin asserts that while sense of community is not a necessary component in online classes, some students desire it, while other students find sense of community equally undesirable. These finding simply highlight the difficulties of educators and higher education institutions in identifying factors relating to persistence and retention. Therefore, Drouin suggests future research be conducted to focus on determining the "ideal amount" of social interaction.

Social Presence Online

Social presence and sense of community often go hand in hand. Liu, Gomez, and Yen (2009) cite earlier research by Tu and McIsaac (2002) suggesting that while social

presence is a complicated construct, the greater the perception of social presence, the greater the ability to substitute online course environments for face-to-face environments while still achieving the desired collaborative outcome. Social presence is described as the degree of one's feelings, perception and reaction to another person in an online community. Liu, et al. contend that when the degree of social presence is high, interaction will be high, leading to better learning outcomes, learner satisfaction, and retention. In a study including participants (n=108) enrolled in one or more online classes at a community college in Maryland, social presence scores ranging between 105 and 336 with a mean of 242.5 and standard deviation of 8.98 were reported. Of the participants, 20 (18.5%) dropped out of the course while 88 (81.5%) successfully completed the course. The study used the Social Presence and Privacy Questionnaire, with total scores ranging from 0 to 351 to indicate level of social presence. According to a binary logistic regression model used to answer the question regarding relationship between students' social presence and course retention, the log of the odds of successful retention positively related to social presence. From the data derived from the study, Liu, Gomez, et al. concluded that online students with a positive perception of social presence will maintain high levels of both interaction and collaboration with their online peers, resulting in a greater likelihood of successfully completing the online course.

Furthermore, Dow (2008) contends that social presence is a strong predictor of satisfaction in online learning which translates to fewer dropouts. In a grounded theory case study of library and information science graduate students, 34% of the case study participants (n=102) responded that effective dialogue was a factor affecting social presence in online courses. Well-structured interactions (15.05%), ease of use of media tools (30.10%), and transparency of computer-mediated communications (20.85%) were other factors affecting

social presence. Dow concluded that fostering online social behavior within the online instructional framework is useful for online instructors and helps to create a culture of social presence among the learners in the online environment. While this is a case study primarily using qualitative research methods, it supports the idea of social presence in online environments as a way to increase both student satisfaction and student persistence.

By the same token, some studies (Joo, Lim, & Kim, 2011; Garrison & Cleveland-Innes, 2005) do not find direct correlations between social presence and online student retention. Instead, the studies found the effect of social presence on retention to be insignificant. Even so, they suggest that there may be links to other factors that may affect online learner persistence. For example, a 2009 study including participants (n=709) taking an introductory computer skill course in an online university in Korea focused on different aspects of presence such as teaching presence and cognitive presence as well as social presence (Joo, Lim, & Kim, 2011). Interestingly, the researchers found that the effect of teaching presence on social presence was statistically significant (β=.812; t=21.634, p=.000); the effect of social presence on cognitive presence was statistically significant (β=.309; t=4.894, p=.000); and the effects of teaching presence (β=.267, t=2.260, p=.024) and cognitive presence (β=.370, t=2.840, p=.005) on learner satisfaction were statistically significant. Equally important, the effect of learner satisfaction on persistence was found to be statistically significant (β=.697, t=20.031, p=.000). However, the direct effect of social presence on persistence was insignificant (β=.504, t=.650, p=.516). Joo, Lim, et al. conclude that due to the direct and indirect relationships of social presence with teaching presence, cognitive presence, learner satisfaction, and therefore, persistence, more research is

warranted to broaden the understanding of the role of social presence in various contexts within distance education and to further address the limitations of the current study.

Similarly, Garrison and Cleveland-Innes (2005) believe that perceived social presence and social interaction is necessary in online environments in order to establish relationships and create a climate conducive for deep and meaningful learning. However, they also add that high levels of learning may be more dependent on the quality of social interaction than on the quantity. While social presence is necessary, it alone is not enough to create a community of inquiry or encourage deep approaches for learning. Garrison and Cleveland-Innes conducted a study from 2003 to 2004 in which they administered a Study Process Questionnaire to online course graduate students. Seventy-five students participated and were divided into four treatment groups. Each treatment varied in instructor involvement, level of overall interaction, and reflective assignment requirements (low, medium, or high). From the results, it was apparent that how students approached their learning was strongly influenced by course design and teaching approach. The findings are consistent with prior literature asserting that quality of interaction and indirectly, social presence, are more important than quantity (Pierrakeas, et al, 2004; Woo & Reeves, 2007). While this study did not directly address student persistence in online courses, it complements other studies that assert social presence alone may not be a predictor of student success or persistence in online courses, but may be an indirect factor, and therefore warrants further study.

Perceived Satisfaction

Along with sense of community and social presence, students' perceived satisfaction in the online courses has been positively connected with learner persistence and completion of online courses. Studies by Rovai (2002), Liu, Magjuka, et al. (2007), Drouin (2008), Dow

(2008), and Joo, Lim, and Kim (2011) all found a positive correlation between online learner satisfaction and persistence. In like manner, Levy (2007) contends that students' satisfaction with their online course is a key indicator when making the decision to drop out or complete the course. In a large scale study including 18 undergraduate and graduate online courses at a state university in the U.S., 453 students were enrolled in online courses of which 372 completed the course and 82 dropped out. Email surveys consisting of two Likert-type scale instruments and general student demographics information sheets were sent to each group (completers, non-completers) resulting in 25 dropout (31%) and 108 completer (29%) students returning the survey. Regarding student satisfaction, total scores ranged from 7 (very low satisfaction level) to 35 (very high satisfaction level). Results from the data analysis found that students' satisfaction was significantly different (at $p < .01$) between the completer and non-completer groups (p=0.001). Results from this study suggest that student satisfaction with online courses is a major factor in guiding students' decision whether to drop or complete the course. However, due to the low sample size for the non-completer group (n =25), caution is warranted and future studies should include larger sample sizes.

Similarly, Herbert (2006) found a positive correlation between students' overall satisfaction with their online experience and completion of the course. In this study, a Priorities Survey for Online Learners™ was sent twice, first via electronic format and then by paper format, to all students at a Midwestern state university taking an online course during the fall of 2005. A total of 122 surveys were returned (25.1%). Of those returned, 91 (74.6%) reported successfully completing the online course and 31 (25.4%) reported they did not complete the course. Those who reported non-completion of the course comprised 40.1% of the total of all non-completer students in course. Results from an independent t test

on the overall level of satisfaction indicated that there was a statistically significant (t = 2.244, df = 122, p > .05) difference between the means of the students who successfully completed the online course and those students who did not complete the online course. These results indicate a higher level of overall satisfaction of the online learning experience of completers than that of non-completers. Interestingly, of the institutional variables within the survey related to the importance and satisfaction levels, the most important variable selected by the students was faculty responsiveness to student needs (6.62 on a scale of 0 being not important to 7 being very important). This is an important finding that indicates regardless of how the course is delivered, students' expectations of faculty interaction and support is high, and therefore supports other theories of successful online environments such as sense of community, social presence, and high levels of interaction.

While Joo, Lim, and Kim (2011) do not support all of the aforementioned theories of successful online environments, their research does suggest that the direct effect of learner satisfaction on persistence is statistically significant (β=.697, t=20.031, p=.000). In the study, mediating effects of learner satisfaction were also examined using the Sobel test. The hypothesis that teaching, social and cognitive presence, and perceived usefulness and ease of use have indirect, positive effects on learner persistence, mediated by learner satisfaction was examined and determined to be partially supported. By removing social presence from the independent group due to no significant effect of social presence on learner satisfaction, analysis results indicated mediating effects of learner satisfaction between teaching presence and persistence, cognitive presence and persistence, and perceived usefulness and ease of use and persistence were all statistically significant (teaching presence: Z = 2.062, p = .039; cognitive presence: Z = 2.400, p = .016; usefulness and ease of use: Z = 4.308, p = .000).

Therefore, in agreement with other research, Joo, Lim, et al. conclude that higher satisfaction among online learners positively correlates with greater learner persistence leading to higher completion rates. Further research should focus not only on learner satisfaction, but also focus on what variables in course design and implementation support higher levels of learner satisfaction. Specifically, variables involving teaching presence and cognitive presence should be further analyzed as well as the factors that course designers should take into account in an effort to create online courses that are both meaningful and easy to navigate and use.

Additionally, Drouin (2008), in her study regarding sense of community in online courses, found that sense of community was significantly related to student satisfaction ($r = .36, p < .05$). On the other hand, Joo, Lim, and Kim (2011) found no significant effect of social presence on learner satisfaction. This is somewhat surprising as many researchers note that social presence and sense of community often go hand in hand. Nevertheless, Drouin also notes that the correlation between students' sense of community and retention was weak and therefore not significant ($r = -.078$). Although not specifically addressed in the research, results showed a 96% retention rate (measured by intention of taking another course) as well as a 96% student satisfaction rate of medium to high (18% and 78% respectively). Therefore, a positive correlation between high satisfaction and retention could be construed. It should, however, be noted that retention rate in Drouin's study was determined by students' intent on taking another online course, not by counting those that actually dropped or failed the current course within the study. These results, while significant, also identify the often mixed signals of the research results regarding online retention and various factors.

Many of the construed results tend towards contradicting others, making it more difficult for researchers to offer conclusive results or conclusions.

Furthermore, Park and Choi (2009) identified what they categorized as "internal factors" including satisfaction and relevance as characteristics of students who persist in online courses. The purpose of their study, which collected data for online courses offered fall 2005 to summer 2007, was to identify factors related to learners' decisions to either drop an online class or to complete the course. Quantitative data was collected from a survey questionnaire that was emailed on three separate occasions to 234 learners in three online classes at a Midwestern university. Of 149 submitted responses, 147 were deemed usable for the study. Of those, 98(66.7%) learners successfully completed the online course and 49 (46.0%) did not complete the course. In regards to learners' perceived satisfaction, the persistent group ($n = 49$) showed a higher mean (26.2) than dropout group ($n = 49$, 21.57). This study supports other research (e.g., Herbert, 2006; Levy, 2007; Joo, Lim, & Kim, 2011) that perceived learner satisfaction is a factor in students' decision to complete the online course or drop out. Therefore, instructors and course designers should take this into account when creating and delivering online courses. Effective ways to enhance student satisfaction, and therefore, motivation should be incorporated into the course design and implementation.

Contrary to other research (e.g., Drouin, 2008; Herbert, 2006; Levy, 2007; Joo, Lim, & Kim, 2011), Rostaminezhad, Mozayani, Norozi, and Iziy (2013) found that the relationship between online learner completion and satisfaction was insignificant. It should be noted that this study was completed in Iran where higher education regulations may vary significantly from those in other countries. Of the 877 undergraduate online learners enrolled in the online IT and Industrial Engineering courses in the fall of 2011, 250 were randomly

selected for participation in this study. Of those, 27 did not complete or partially completed the questionnaire, leaving a total of 232 participants. The dropout group included 128 (57.4%). Using the Pearson chi-square, results showed a P level of more than 0.25 for the level of significance for satisfaction with the dependent variable dropout and persistent online learner ($p = .74$). This indicates the hypothesis put forth in the study that there will be a relationship between online learners' satisfaction and online learner dropouts was not supported. While this study is useful, there were limitations, with the most important being that the study was conducted in Iran where higher education regulations may be a significant factor in the high dropout rates. Therefore, the results may not be representative of all online learners and online courses found in the United States or other countries.

Participation and Interaction

As other studies have found, student participation and interaction is often closely related to sense of community, social presence, and/or satisfaction. While it might be argued that they are often intricately interrelated, it is worthwhile to look at them individually as well. To some point, the level of both the perceived sense of community and online presence is driven by student participation. Without the participation of students, whether viewing content, participating in discussions, or creating posts, lack of participation from students will result in more feelings of isolation and less feelings of sense of community and presence, often resulting in lower satisfaction which can negatively impact learner persistence and completion.

For instance, Morris, Finnegan, and Wu (2005) conducted research to explore the proposed relationship between online student participation and student persistence. The study included 354 undergraduate students (84% of the 423 after excluding missing data)

enrolled in three fully online classes at a university in the southern United States. Data was collected over three semesters for the three online courses. Participating students were classified as either Completers ($N = 284$) or Withdrawers ($N = 70$). The data collected included four measures: frequency of and time spent viewing content pages; frequency of and time spent viewing discussion posts; frequency of and time spent creating original posts; and frequency of and time spent creating follow-up posts. As for frequency of participation, analysis of the data showed that in all three courses, completers were far more engaged and participated more frequently than withdrawers. T-tests of frequency of participation showed a statistically significant difference in those who completed and those who dropped out. The withdrawers participated far less than the completers in all four of the measures ($p < .01$, $t = 19.12$, $p = .00$; $t = 10.37$, $p = .00$; $t = 10.84$, $p = .00$, $t = 6.57$, $p = .00$ respectively). T-tests of time spent on task also found a statistically significant difference for completers and withdrawers, with far less time spent on task by withdrawers ($p < .01$, $t = 10.40$, $p = .00$; $t = 10.41$, $p = .00$; $t = 9.20$, $p = .00$, $t = 5.78$, $p = .00$ respectively). It can be rationalized that completers, by nature, would spend more time participating because once learners withdraw, they no longer participate, thereby leading to the given results. Moreover, it is interesting to note that while withdrawers were still enrolled, data confirmed little participation to any meaningful degree of either viewing content or participating in any discussions. Therefore, it can be construed that had they participated more in the course, they may have been more motivated to complete the course successfully. This is an important aspect and should be seriously considered when creating and implementing online courses. It also should be an important red flag for online instructors as early identification of learners' that may drop out and could lead to more timely and effective interventions.

Equally important, Morris, et al., (2005) also analyzed the completers' data by breaking it down to two categories: successful completers (received an A, B, or C) and non-successful completers (received a D, F, or incomplete). In comparing the data on both the successful completers and the non-successful completers, the non-successful completers spent far less time and frequency participating in the course. Although they were in the course the same length of time as the successful completers, their lack of meaningful participation implies that active participation is an important key to successfully completing a course. Therefore, lack of participation early on in online courses could be used by instructors as an early warning sign of potential non-successful completers and appropriate interventions could be applied.

Correspondingly, Nistor and Neubauer (2010) investigated the importance of participation for successful online completion. The study was conducted in Germany and explored online student participation patterns and any interrelation with persistence within three fully online courses over the course of two terms (14 weeks each). Like Morris, et al. (2005), participation in online courses was considered to consist of learners' viewing and completion of activities specified within the course. Learner participation can be both diverse and complex (Nistor & Neubauer) depending on the specific online course and instructor. Communication in various forms is an important aspect of online learning environments, which includes various forms of reading, writing, and sending messages (e.g., creating discussion posts, responding to discussion posts). The study differentiated the types of participation as quantitative (number, frequency, length) and qualitative (quality of actions and content), with the focus of the study being on quantitative.

Of the online learners participating in the study ($N = 209$), 159 (76.1%) successfully completed the course and 50 (23.9%) dropped out of the course. After the first two weeks of the course, participation data was measured and resulted in four learner sub-groups: highly committed, minimalist remote, average local, and dropouts (clusters 1 – 4 respectively). After rejecting 143 cases with missing values, 66 cases were used for the cluster analysis: cluster 1 (N = 25); cluster 2 (N = 9); cluster 3 (N = 16); and cluster 4 (N = 16). After the initial two weeks, data showed that cluster 1, consisting of the highly committed learners, participated more than the other subgroups (M = 83.40, DS = 28.69) and with larger message sizes (M = 180,238.68 characters, DS = 144,580.89). Cluster 2 showed communication was below average and their discussion contributions were fewer (M = 57.78, SD = 28.60) and shorter (M = 70,825.56, SD = 42,871.93) than those from both clusters 1 and 3. Cluster 3 fell between cluster 1 and 2 with their discussion contributions (M = 70.00, SD = 28.50) and messages (M = 133,145.38, SD = 107,193.93). As expected, cluster 4, those who dropped out, had the least communication (M = 8.94, SD = 19.29) and shortest messages (M = 8,230.56, SD = 19,982.49). These results, in and of themselves, were not surprising. However, data collected on cluster 4, the identified dropouts, suggests that the data collected early in the course (in this study, during the first two weeks) could be used to help predict potential dropouts. This supports similar conclusions of other studies regarding early identification of potential dropouts (Morris, et al., 2005; Palloff & Pratt, 2007). In this study, a predictive discriminant analysis was conducted and it was found that three variables proved to be predictive: presence in initial face-to-face session; self-introduction online; and e-mails to the instructor within the first two weeks. From the total sample (N = 209), 87 cases were acceptable and a discriminant analysis was performed. Of those 87 cases, 48 were classified

correctly as part of the completers group and 20 were classified correctly as part of the

dropout group resulting in a 78.2% accuracy rate. Although participation is expected to be

higher in learners that complete online courses versus learners that drop out, identifying types

of participation patterns can help predict persistence. Likewise, these patterns can assist in

predicting learners that are more likely to withdraw and therefore, can be extremely useful

for institution of higher education, instructional designers, and instructors. Identifying the

certain patterns of participation early in an online course will allow instructors and

institutions to initiate specific intervention strategies in an effort to encourage the potential

dropout learner to persist.

Like participation, student interaction has also been identified as a key factor in

online learner persistence. According to Palloff and Pratt (2007), the "keys to the learning

process are the interactions among students themselves, the interactions between faculty and

students, and the collaboration in learning that results from these interactions" (p.5).

Accordingly, Steven Tello (2007), citing previous studies, maintains that formal and informal

interactions between learners and instructors in on-campus courses correlates with higher

levels of learner success and satisfaction, which has been shown to lead to higher persistence

rates. Interaction consists of both academic and social and can occur within the classroom as

well as outside of the classroom. While many of the previous studies have focused on face-

to-face classes, there have been more recent studies focused on interaction and how it affects

persistence in online environments. For example, in his non-experimental, correlational

study, Tello examined the relationships between both the frequency of interaction and the

method of interaction and learner persistence in online courses. The population for the study

included 1620 undergraduate and graduate students enrolled in 76 online courses at a public

university. Fifty-two of the online courses met the participation requirements and 714 online

surveys were returned by learners that persisted (64% response rate), while 46 were returned

by non-persisters (45% response rate). While the results of the study did not identify a linear

relationship between the frequency of interactions and online student persistence or between

the method of instructional interactions and persistence, a strong positive correlation was

observed between frequency of instructor-to-student interaction and the frequency of student-

to-student interaction. Increased interactions and types of interaction between both student-

to-instructor and student-to-student affected student attitudes. Tello noted a strong, positive

relationship between specific asynchronous methods of interaction and positive student

attitudes in the online course. A positive correlation, although modest, was found between

student attitudes to interaction and persistence rates ($r_{52} = .30$, p < .05). Of particular

interest, a strong positive correlation between online persistence rates and course discussion

contribution scores ($r_{52} = .42$, p < .01) was identified. A strong relationship between other

forms of interaction was not found. This suggests that the type of interaction found in on line

learning courses may be an important aspect and therefore should be investigated further.

This study found that student attitudes to interaction and the perceptions students have

related to the usefulness of a particular interaction are positively related to persistence rates

in online courses. There are multiple factors of interaction that can affect a learner's attitude,

both positively and negatively, toward the online course which in turn can affect the learner's

decision to persist or to drop out.

Additionally, Garrison and Cleveland-Innes (2005) suggest that while learner

interaction is a crucial factor in learner persistence, it is the nature of the interaction and

teaching presence that is most important. It is not necessarily the quantity of these

interactions that is important; rather it is the quality that matters. Therefore, instructional designers and instructors should be aware and work to include strategies and teaching approaches that support deep learning. According to Garrison and Cleveland-Innes, learner interactions must move beyond "serial monologues" towards more meaningful interactions. Simple interactions with no clear purpose or intent that are absent of structure or clear instructions are not enough to create an environment conducive of deep learning experiences and learner satisfaction, which have been shown to be key factors in learners' decision whether to complete the course or to drop out.

Despite other research finding positive relationships between interaction and online learners' persistence, Rostaminezhad, et al. (2013) contend there is little if any correlation between the two. They assert that learners' interaction within the context of the online course is not a key factor in learners' decisions to persist or to withdraw from the course. Similar to their findings regarding satisfaction and persistence, Rostaminezhad, et al., noted the relationship between learner interaction and persistence to be non-significant ($P < .25$, .28). While this study found no relationship between either learner satisfaction or learner interaction with learner persistence, it did identify self-regulation as an important factor in learner persistence. Self-regulation could be construed as motivational, which is closely tied to both satisfaction and positive interaction in terms of learner persistence, again leading to the conclusion that additional research in this area is required.

Retention in higher education is a topic that has always been of concern to colleges and universities. Online education retention adds yet another complex layer to the issue and will continue to be a topic of great interest for researchers as online education continues to

evolve. The topic of online learner persistence is multifaceted and extremely complicated, yet a subject that is an integral part of higher education's success both now and in the future.

Conclusions and Recommendations

In today's increasingly technological world, learners are demanding greater access and more flexibility in their learning opportunities, resulting in the increasing popularity of distance education and online learning opportunities. Therefore, colleges and universities across the nation, and the world, are scrambling to add more distance education and online courses to their offerings, with the number of available online courses increasing exponentially over the past several decades (Brown, 2012; Joo, Joung, & Sim, 2011; Kruger-Ross, et. al., 2013; Park, et. al., 2009; Sun, et al., 2008).

While colleges and universities are offering more online courses and students are enrolling at record rates, online learning does not come without setbacks (Sun, et al., 2008). High dropout rates of online learners are raising concerns within higher education institutions. As higher education leaders, administrators, and faculty, it is imperative to identify not only the reasons online students do not persist, but also what strategies can be applied to online learning course design and implementation to help improve student retention and persistence.

Promoting Learner Persistence: Key Findings

As I examined the various articles contained in this review, I found many studies that implied a strong relationship between certain factors in online environments, specifically learners' sense of community (Drouin, 2008; Liu, Magjuka, et al., 2007; Rovai, 2002;), social presence (Dow, 2008; Liu, Gomez, et al., 2009), satisfaction (Dow, 2008; Drouin, 2008; Herbert, 2006; Joo, Lim, et al., 2011; Levy, 2007; Liu, Magjuka, et al., 2007; Park & Choi, 2009; Rovai, 2002;), participation (Morris, et al., 2005; Nistor & Neubauer, 2010) and interaction (Garrison & Cleveland-Innes, 2005; Tello, 2007) and student persistence in online

courses. Actual research findings definitively identifying a positive significant relationship between these factors and higher persistence rates were somewhat lacking, or at best, only implied, in many of the studies. Albeit, it is my belief as well as other researchers' beliefs, that some or all of these factors in online courses can, and do, positively affect persistence and should be a major consideration when designing and implementing online courses.

In summary, research has overwhelmingly shown that student satisfaction has a positive effect on the decision to drop out or to persist in online classes (Dow, 2008; Drouin, 2008; Herbert, 2006; Joo, et al., 2011; Levy, 2007; Liu, Magjuka, et al., 2007; Park & Choi, 2009; Rovai, 2002). Creating a culture of social presence in online environments helps to increase student satisfaction and therefore increase student persistence (Dow, 2008). When learners feel a sense of community, they have greater perceived learning engagement, perceived learning, and student satisfaction. They also experience lowered feelings of isolation. Due to these feelings and perceptions, students are less likely to drop out (Liu, Magjuka, et al., 2007). Learner participation and interaction appears to be a key factor in predicting learners' intentions to either persist or to drop out (Morris, et al., 2005; Nistor & Neubauer, 2010; Tello, 2007) although further research on the ideal amount of participation and interaction is needed. Early identification of potential dropouts is necessary so that proper intervention strategies can be initiated.

While some of the articles reviewed for this review did not directly support a positive correlation between sense of community, social presence, participation, or interaction, and student persistence, they did support findings of positive relationships between many of these factors and learner satisfaction. Of all the factors discussed, learners' perceived satisfaction with their online learning experience was most closely associated with learner persistence.

Therefore, focus on identifying the most effective strategies to enhance learner satisfaction in online environments warrants much attention and further research. While social presence has been identified as a necessary component of online learning, it alone may not be enough to create a community of inquiry or increase retention rates (Garrison, et. al., 2005). Although some studies suggest there is not a direct link between a sense of community, social presence, participation, or interaction, and student persistence, the researchers offer findings that support certain components relating either directly or indirectly to student persistence. Consequently, it is important to include such articles in this review as they provide important information that should be considered when proposing further research.

Recommendations

This review has identified a need for more extensive research on the effects of various factors and characteristics present in online environments on students' decisions to drop out or persist. Higher education students are enrolling in online courses in masses. With one-third of college students already enrolled in at least one online class, the numbers will only continue to rise. Therefore, designing and implementing online courses that foster student completion is imperative, for both academic and economic reasons.

There are a multitude of factors affecting students' decision to drop out or persist in online classes. There are many variables that must be taken into consideration when studying student persistence in online classes. Many of the factors cannot be controlled by higher education institutions. Factors that can be controlled by educational institutions need to be considered separately in order to identify what strategies can be implemented that most effectively increase student completion rates. Current research, while considering factors such as sense of community, social presence, satisfaction, participation and interaction, does

not adequately address them specifically as to their direct relationship to completion rates. Most studies reviewed employed the survey method to identify factors and measure the relationship among the factors. It is also important to conduct qualitative and/or mixed methods studies to get more in depth insights about these issues. Longitudinal studies would be beneficial to learn more about the long term effects of the various factors on student persistence.

There is also a need to expand research to include both fully online environments and blended learning environments and the affects various factors have on each type. More research in these areas will help to identify specific strategies that work best in each environment. Such research may find that the various factors play different roles dependent upon the learning environment. Future research should also focus more on the amount of sense of community, social presence, interaction, and participation required to positively affect student persistence. What is enough? Can too much create an opposite and negative effect? These are questions that still require further research.

While some research has indicated sense of community, social presence, learner satisfaction, and participation and interaction do not play a significant role in whether or not a student drops out or persists, there is ample research that supports a positive relationship between many of them. When students are satisfied, feel included, are engaged both academically and socially, and are active members of the learning community, they will be encouraged and inspired to persist. Any time that higher education institutions can effectively promote and foster online sense of community, social presence, and a sense of belonging, retention rates are bound increase. With more and more students turning to online as their preferred choice for furthering their education, it is imperative that institutions of

higher education offer quality online environments that employ the best strategies possible to help encourage student completion and student success.

References

Allen, E., & Seaman, J. (2011). *Going the distance: Online education in the United States, 2011* [PDF]. Retrieved from http://www.onlinelearningsurvey.com/reports/goingthedistance.pdf

Boston, W., Ice, P., & Gibson, A (2011). Comprehensive assessment of student retention in online learning environments. *Online Journal of Distance Learning Administration, 14*(4), 1-14.

Brown, J. (2012). Online learning: A comparison of web-based and land-based courses. *Quarterly Review of Distance Education, 13*(1), 39-42.

Brown, R. (2011, July 18). Community-college students perform worse online than face to face. Retrieved from The Chronicle of Higher Education website: http://chronical.com/article/Community-College-Students/128281/.

Cole, J.., & Kritzer, J. B. (2009). Strategies for success: Teaching an online course. *Rural Special Education Quarterly, 28*(4), 36-40.

Dow, M. (2008). Implications of social presence for online learning: A case study of MLS students. *Journal of Education for Library and Information Science, 49*(4), 231-242.

Drouin, M. (2008). The relationship between students' perceived sense of community and satisfaction, achievement, and retention in an online course. *Quarterly Review of Distance Education, 9*(3), 267-284.

Garrison, D., & Cleveland-Innes, M. (2005). Facilitating cognitive presence in online learning: Interaction is not enough. *American Journal of Distance Education, 19*(3), 133-148.

Hagedorn, L. S. (2005). How to define retention. *College student retention formula for student success*, 90-105.

Herbert, M. (2006). Staying the course: A study in online student satisfaction and retention. *Online Journal of Distance Learning Administration, 9*(4).

Jenkins, R. (2012, March 13). Online classes and college completion. Retrieved from The Chronicle of Higher Education website: http://chronicle.com/article/Online-ClassesCollege/131133/

Jensen, U. (2011, February). Factors influencing student retention in higher education. *Research and Evaluation,* 1-4.

Joo, Y. J., Joung, S., & Sim, W. J. (2011). Structural relationships among internal locus of control, institutional support, flow, and learner persistence in cyber universities. *Computers in Human Behavior, 27*(2), 714-722.

Joo, Y. J., Lim, K. Y., & Kim, E. K. (2011). Online university students' satisfaction and persistence: Examining perceived level of presence, usefulness and ease of use as predictors in a structural model. *Computers & Education 57*(2), 1654-1664.

Kim, J., Kwon, Y., & Cho, D. (2011). Investigating factors that influence social presence and learning outcomes in distance higher education. *Computers & Education, 57*(2), 1512-1520.

Kruger-Ross, M., & Waters, R. (2013). Predicting online learning success: Applying the situational theory of publics to the virtual classroom. *Computers & Education. 61,* 176-184.

Levy, Y. (2007). Comparing dropouts and persistence in e-learning courses. *Computers & Education, 48*(2), 185-204.

Liu, S., Gomez, J., & Yen, C. (2009). Community college online course retention and final grade: Predictability of social presence. *Journal of Interactive Online* Learning. *8*(2), 165-182.

Liu, X., Magjuka, R. J., Bonk, C. J., & Seung-hee, L. (2007). Does sense of community matter? An examination of participants' perceptions of building learning communities in online courses. *Quarterly Review of Distance Education, 8*(1), 9-24.

Lorenzetti, J. (2004). To drop or not to drop: Findings from West Texas A&M University. *Distance Education Report*, *8*(8), 5-6.

Morris, L. V., Finnegan, C., & Wu, S. S. (2005). Tracking student behavior, persistence, and achievement in online courses. *The Internet and Higher Education*, *8*(3), 221-231.

Nash, R. (2005). Course completion rates among distance learners: Identifying possible methods to improve retention. *Online Journal of Distance Learning Administration*, *8*(4).

Nistor, N., & Neubauer, K. (2010). From participation to dropout: Quantitative participation patterns in online university courses. *Computers & Education*, *55*(2), 663-672.

Palloff, R., & Pratt, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom* (2nd ed.). San Francisco, CA: Jossey-Bass.

Park, J. H., & Choi, H.J. (2009). Factors influencing adult learners' decision to drop out or persist in online learning. *Educational Technology & Society, 12*(4), 207-217.

Parry, M. (2010, September 22). Preventing online dropouts: Does anything work? Retrieved from The Chronicle of Higher Education website: http://chronicle.com/blogs/wiredcampus/preventing-online-dropouts-does-anything-work/27108.

Pierrakeas, C., Xenos, M., Panagiotakopoulos, C., & Vergidis, D. (2004). A comparative study of dropout rates and causes for two different distance education courses. *The International Review of Research in Open and Distance Learning*, 5(2), 1-15.

Rostaminezhad, M. A., Mozayani, N., Norozi, D., & Iziy, M. (2013). Factors Related to E-learner Dropout: Case Study of IUST Elearning Center. *Procedia-Social and Behavioral Sciences*, 83, 522-527.

Rovai, A. (2002). Sense of community, perceived cognitive learning, and persistence in asynchronous learning networks. *The Internet and Higher Education*, 5(4), 319-332.

Smith-Jaggars, S., & Bailey, T. (2010). Effectiveness of fully online courses for college students: Response to a Department of Education meta-analysis. *Community College Research Center, Columbia University*.

Sun, P., Tsai, R. J., Finger, G., Chen, Y., & Yeh, D. (2008). What drives a successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. (Report). *Computers & Education*, 4, 1183-1202.

Tello, S. F. (2007). An analysis of student persistence in online education. *International Journal of Information and Communication Technology Education (IJICTE)*, 3(3), 47-62.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of educational research*, 45(1), 89-125.

Woo, Y., & Reeves, T. C. (2007). Meaningful interaction in web-based learning: A social constructivist interpretation. *The Internet and Higher Education*, 10(1), 15-25.