

2016

The Use of Online Supplemental Materials in College Courses to Improve Retention

Amy Lynn Hennings
Walden University

Follow this and additional works at: <https://scholarworks.waldenu.edu/dissertations>

 Part of the [Educational Psychology Commons](#), and the [Psychology Commons](#)

This Dissertation is brought to you for free and open access by the Walden Dissertations and Doctoral Studies Collection at ScholarWorks. It has been accepted for inclusion in Walden Dissertations and Doctoral Studies by an authorized administrator of ScholarWorks. For more information, please contact ScholarWorks@waldenu.edu.

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Amy Hennings

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Matthew Fearington, Committee Chairperson, Psychology Faculty

Dr. Thomas Edman, Committee Member, Psychology Faculty

Dr. Rolande Murray, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2016

Abstract

The Use of Online Supplemental Materials in College Courses to Improve Retention

by

Amy Lynn Hennings

MA, Saint Mary's University, 1997

BS, University of Wisconsin, 1993

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

November 2016

Abstract

First-generation college students continue to have lower retention and success rates in colleges and universities, reducing their likelihood of staying above the poverty line. The study tested Bandura and Vygotsky's social cognitive theories of self-efficacy, self-regulation, and student ability to self-pace in the classroom. The purpose of this study was to explore if offering supplemental online materials to traditional class delivery, which can be self-regulated and self-paced, impacted students' success rates in the class and semester-to-semester retention. Using a quasi-experimental method, first-semester college students, in a small private liberal arts college ($N = 678$); were compared on use of supplemental online materials, parental college experience, and class success and the impact of these variables on student second-semester retention. Additional information was gathered on year-to-year retention, to consider if the independent variables had an impact on longer-term retention. Results of the chi-square test indicate a significant relationship between student success and student semester-to-semester and year-to-year retention ($p < .001$). Logistic regression analysis indicates a significant relationship between the number of online supplemental materials available and student retention rates ($p = .033$). These findings demonstrate that increasing students' success in classes and increased online material offerings significantly increase long-term undergraduate student retention. By increasing high-risk students' chance for academic success, this can create social change by increasing their retention and graduation rates and increasing the likelihood they will have higher income and are less at risk for long-term poverty and the challenges associated with it.

The Use of Online Supplemental Materials in College Courses to Improve Retention

by

Amy Lynn Hennings

MA, Saint Mary's University, 1997

BS, University of Wisconsin, 1993

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

November 2016

Acknowledgments

First I would like to thank my husband, sons, and daughter for all of their support and patience as I finished this final educational journey. I would also like to thank my parents, grandparents, dearest friends, and colleagues who have provided inspiration to return to school and achieve my personal goal of graduating with a doctoral degree in psychology. On a final note, a special thanks to my dissertation chair, Dr. Matthew Fearington, my dissertation methodology committee member Dr. Thomas Edman, and my URR committee member Dr. Rolande Murray for their constructive feedback, patience, diligence, understanding, and knowledge throughout this challenging process.

Table of Contents

List of Tables.....	iv
Chapter 1: Introduction.....	1
Background.....	4
Problem Statement.....	10
Purpose of Study.....	12
Theoretical Framework.....	14
Nature of Study.....	17
Scope and Delimitations.....	20
Significance and Social Change.....	24
Chapter 2: Literature Review.....	28
Introduction.....	28
Literature Search and Strategy.....	30
Theoretical Foundations.....	32
Connectionism.....	32
Social Cognitive.....	33
Social Cognitive Career Theory.....	36
Assumptions.....	37
Social Cognitive Theory and Current Research.....	38
Connection Between Social Cognitive Theory and Retention.....	40
Key Variables.....	45
Conclusion.....	49
Chapter 3: Research Method.....	52

Research Design.....	53
Research Design and Student Retention.....	53
Methodology Research.....	55
Population.....	56
Sampling.....	56
Archival Data.....	57
Variables.....	58
Research Questions.....	58
Data Analysis Plan.....	60
Threats to Validity.....	62
Ethical Procedures.....	64
Chapter 4: Results.....	66
Introduction.....	66
Sample.....	66
Results.....	71
Summary.....	78
Chapter 5: Discussion, Recommendations, and Conclusion.....	80
Interpretation of Findings.....	81
Limitations.....	83
Recommendations.....	84
Implications for Social Change.....	86
Conclusions.....	87
References.....	89

Appendix A- Permission Letters to Access Data.....99

List of Tables

Table 1. Participant and National Descriptive Data.....68

Table 2. Participant Descriptive Data for Parental College Experience.....70

Table 3. Participant Descriptive Data for Parental Academic Background.....70

Table 4. Participant Descriptive Data for Online Supplemental Material Access.....71

Table 5. Participant Descriptive Data for Use of Online Supplemental Material.....71

Table 6. Participant Descriptive Data for Retention.....72

Table 7. Class Success and Semester-to-Semester Retention Cross Tabulation.....72

Table 8. Class Success and Semester-to-Semester Retention Chi-square Results.....73

Table 9. Parent Academic Background and Semester-to-Semester Retention Cross
Tabulation.....74

Table 10. Parent Academic Background and Semester-to-Semester Retention Chi-square
Results.....75

Table 11. Access to Online Materials and Semester-to-Semester Retention Cross
Tabulation.....76

Table 12. Access to Online Materials and Semester-to-Semester Retention Chi-square
Results.....76

Table 13. Class Success and Year-to-Year Retention Cross Tabulation.....77

Table 14. Class Success and Year-to-Year Retention Chi-Square Results.....78

Table 15. Parent Academic Background and Semester-to-Semester Retention Cross
Tabulation

Table 16. Parent Academic Background and Semester-to-Semester Retention Chi-
Square.....79

Table 17. Access to Online Materials and Year-to-Year Retention Cross Tabulation.....80

Table 18. Access to Online Materials and Year-to-Year Retention Chi-Square.....80

Chapter 1: Introduction to the Study

Introduction

Undergraduate college student retention is an issue at many colleges and universities. Currently 73% of students return for their second year of college at private universities, which also means that over a quarter of students do not return (ACT, 2010). According to the U.S. Department of Education National Center for Educational Statistics (2011), which is the primary government educational data collection entity in the United States, the four-year undergraduate rates of graduation from not-for-profit college institutions are approximately 52%. For those attending for-profit colleges and universities, the four-year undergraduate graduation rate is only 20% to 22% (U.S. Department of Education National Center for Education Statistics, [NCES] 2011; Verschoor, 2011). The NCES (2011) found a combined undergraduate graduation rate of 37.9% within four years. When expanding the timeframe to graduation to six years, undergraduate rates of graduation climbed to approximately 55% to 58% (NCES, 2011; National Center for Higher Education Management Systems, 2009). Thus, almost two-thirds of college students do not graduate within four years and a little more than half are graduating with an undergraduate degree in six years. This raises significant concerns related to student preparedness, delivery of college education, identifying high-risk students, and developing intervention strategies to improve student retention and success rates.

Going forward, higher education administrators will need to identify variables that increase the risk of students dropping out of college and to develop intervention

strategies to improve student retention and success rates for those at high-risk. By doing this, it is possible to improve college student retention rates, reduce the risk of lower wages, and individuals falling below the poverty level. One intervention strategy to consider is curriculum delivery methods in traditional classes and ways to make information more accessible to high-risk students. Fike and Fike (2008) found that having flexible methods of delivery with multiple modes of access increased the likelihood of retention in high-risk community college student populations.

Failure to assist students with college retention and success, negatively affects the financial well-being of a university, as it is much more costly to find new students than to retain existing ones (Ackerman & Schibrowsky, 2007). Also, low retention and success rates may reduce institutions' eligibility to receive government student loans and financial assistance, due to the increased scrutiny of retention and graduation rates for all colleges and universities by the federal government (DesJardins, Ahlburg, & McCall, 2006). College and university budgets rely heavily on government subsidized student loans. Failure to be eligible could result in institutions of higher learning closing due to lack of funds (NCES, 2012).

Individuals who do not complete a college education are projected to earn \$1.2 million over a lifetime compared to \$2.1 million for those who have completed college, and as first-generation students are at particular risk, it will be important to research this population further to seek ways to increase their likelihood of success (United States Census Bureau, 2002). Many of these students are likely to be working while attending school. It will be important to identify retention and success strategies that will assist

with a working student population, such as providing additional ways to access course materials outside of the traditional classroom (Merritt, 2010). This will allow first-generation students who do not come from a culture of higher education, increased time to gain an understanding of course materials, further interaction with peers and the instructor, increased review time, and the ability to self-pace materials outside of the lecture hour (Crozier & Reay, 2011; Francis & Miller, 2008; Merritt, 2010).

In the upcoming sections, high-risk student populations, specifically first-generation students as part of the high-risk population, retention issues, and curriculum intervention strategies will be explored. One curriculum intervention considered was the use of online supplemental resources in conjunction with traditional face-to-face delivery of courses in an effort to improve the retention of first-generation college students and first-year college students as a whole. Specific problems related to this topic, as well as the purpose of conducting this research will be reviewed. Social cognitive theory based upon Bandura's, and Vygotsky's theories of applied knowledge, self-pacing, and self-regulation related to student success will be applied when considering variables to use and hypotheses to review (Bandura, 2001; Gredler, 2009; Watras, 2009).

Background

Researchers have explored various factors that can influence student retention and success. These elements can include student preparedness, student transfers from two-year to four-year colleges, student's home proximity to campus, curriculum, mode of educational delivery, and other student risk factors (Fike & Fike, 2008; Williams & Luo, 2010; Xueli, 2009). In an effort to improve students' ability to succeed at college, much

of the research has focused on identifying high-risk student populations. Several key categories of college students have been recognized as high-risk. Some factors include students with low high school GPA scores, low entrance exam scores and low GPA scores once entering college (Williams & Luo, 2010). Students who may have psychological problems are more likely to dropout or struggle academically (Hollingsworth, Dunkle, & Douce, 2009). According to Williams and Luo (2010), students who live farther away from home are also less likely to be successful at college and instead return home. Other high-risk college students include nontraditional female students, who may have increased financial challenges and greater time constraints (Reay, 2003). First-generation college students are also considered high-risk college students (Otero, Rivas, & Rivera, 2007).

The high-risk population of first-generation college students was studied. The population of first-generation college students is varied demographically and carries with it a vast array of variables that influence each student's ability to succeed and fail in the academic arena (Hand & Payne, 2008). According to Otero et al. (2007), they are clearly at high-risk for dropping out of classes and not completing degrees. Similar to other high-risk populations, first-generation college students have reported communication apprehension or a fear of being unable to communicate effectively with classmates and instructors when starting out at school (Francis & Miller, 2008). It is important to find successful intervention methods for this first-generation population in order to reduce communication barriers and to enhance their understanding of the education culture (Crozier & Reay, 2011; Francis & Miller, 2008).

Several researchers have explored the issue of student retention and success in order to evaluate which interventions are statistically significant in helping both high and low risk students remain in undergraduate education and reach graduation (Fike & Fike, 2008; Hand & Payne, 2008, Morales, 2010; Otero et al., 2007). Researchers have also found a number of factors that improve student retention and success rates even if they are facing some of these obstacles. Francis and Miller (2008) found that first-generation students who had increased skills training, increased preparation, and increased practice were found to be more successful. Students who believed that being considered intelligent was socially acceptable and reported intrinsic motivation were more likely to succeed at school even if they were in a high-risk population (Morales, 2010). Fike and Fike (2008) found that whether a student took an online class predicts student success and retention. If a student had taken an online class while at the community college in the study, he or she was much more likely to continue at their current college (Fike & Fike, 2008).

Additionally, Otero et al. (2007) found that students who have a perceived sense of integration and acceptance within the classroom and educational environment have higher rates of retention and success. Students who have higher rates of self-awareness and self-regulation also experience stronger positive educational outcomes (Bandura, 2001; Svinicki & McKeachie, 2011). High-risk students who had the ability to self-pace their coursework and class information had higher retention and success outcomes than those with little to no control (Bandura, 2001; Gredler, 2009; Heaton-Shrestha, May, & Burke, 2009). Finally, students who attended a college that was closer to home were

more likely to stay on from semester to semester (Williams & Luo, 2010). From these previous studies, it is clear that high-risk students' ability to control the pace of their course, as well as those with stronger self-regulation skills opportunities, experience a higher level of success in higher education.

From an applied or practical perspective, several key improvements could be incorporated into higher education. First, the assessment and training of faculty in regards to the instructor's ability to prepare and deliver curriculum content in a multimodal fashion. One manner to do this could be to use the Technological Pedagogical Content Knowledge (TPACK) as a way to understand an instructor's technological ability to prepare and deliver curriculum content (Harris & Hofer, 2011). Through TPACK, content changes and development are integrated or enhanced with the use of technology (Harris, Mishra, & Koehler, 2009). The goal of TPACK to use technology as a tool to become more conscientious and deliberate in regards to curriculum development and delivery. Harris and Hofer (2011) found that when expanding TPACK, teachers recognized that their previous thinking on curriculum development and delivery had been somewhat limited or restricted. Through TPACK teachers were able to gain a greater pedagogical and technological education and that they were able to recognize new ways to develop and present information to students (Harris & Hoffer, 2011). By using this tool or other means, universities can move forward in practice and implementation of increase technological use of online supplemental materials and eliminate faculty use barriers of lack of investment or knowledge on how to use technology to do this.

Additionally, the practical use of providing online materials for self-pacing may be beneficial to not only first-generation high-risk college students, but may be of assistance to all student populations. Students who have increased classroom flexibility frequently report higher perceived knowledge of classroom content and satisfaction (King & Fricker, 2002). Specifically, nontraditional students felt technology and virtual learning environments (VLE) contributed to their overall success (Heaton-Shrestha et al., 2009). Additionally, King and Fricker (2002) reported that students appreciated the greater flexibility of online materials as it increased access to students who may have not otherwise been able to attend school or review class materials. Increasing responsibilities and demands need to be balanced with educational pursuits and career opportunities. There is a growing demand for a flexible classroom and learning environment. Technology provides this by allowing multiple means of access to a classroom.

In addition to allowing the student the opportunity to self-pace materials, it is also important to explore curriculums that result in higher retention and success rates. Researchers have shown that curricula and schools that offer flexibility in enrollment, different options of coursework, and curriculum delivery methods increased student retention (Chao, Saj, & Hamilton, 2010; Fike & Fike, 2008; Heaton-Shrestha et al., 2009). Consideration for the credit load that students enroll in during their first year of college should also be considered, as too high of a credit load increases risk of dropping courses, and lowers retention rates (Fike & Fike, 2008). Curriculum that allowed more individualization of programming also increases the likelihood of student retention, particularly in nontraditional female students (Reay, 2003). Additionally, curriculum

design and delivery including a cognitive based approach combining content and cognitive application processes has been found to be one of the more successful models in regards to student learning and application of knowledge amongst a diverse background of students (Feuerstein & Falik, 2010).

Many students with learning disabilities, busy schedules, or other challenges have a greater risk of withdrawing from classes and college institutions (Otero, Rivas, & Rivera, 2007) However, by using technology, students have the ability to self-regulate and pace their academic experience, this increases the likelihood of remaining at a specific school or college (Bandura, 2001; Heaton-Shrestha et al., 2009). Students who also participated in the online discussion, were able to digest the material at their own rate, and increase their applied knowledge of course content via processing the information through writing and interaction in online forums (Ng, Cheung, & Hew, 2009).

There is very little research on intervention methods that include the successful use of technology or online supplemental materials in conjunction with traditional college classroom delivery in regards to high-risk students. Fike and Fike (2008) found that online classes and flexible delivery of classroom materials was beneficial to high-risk students, but they did not go on to study whether the combination of course delivery methods or materials was further beneficial. Specifically, little literature exists on how the use of online supplementary materials and classrooms may benefit the high-risk population of first-generation students. There are many studies on online coursework and traditional coursework, but not traditional coursework with online supplementary

materials serving this specific population. Some of this may be due to the challenge to find colleges and universities with a high enough number of this demographic or that many colleges and universities do not track this population. Leopold (2010) found that about 5% of college students at elite or private colleges are first-generation college students. However, at the college in this research study approximately 41% of students are first-generation students (Leopold, 2010).

Much focus continues to move towards evaluating the effectiveness of online classroom delivery versus traditional classroom delivery. It is very important to sort out the specifics of what works based on the different types of college populations. This is even more important when considering the special needs of high-risk college student populations, who are at much greater risk of dropping out of classes and not completing their college degrees. First-generation students and working class students fall into the category of high-risk; therefore, it is necessary to find classroom delivery modes that empower these students to effectively learn in today's modern college classroom (Crozier & Reay, 2011). Failure to do so will only continue to widen the gap between those above and those below the poverty line resulting in further financial marginalization of the U.S. population, particularly for those with little to no post college education. As Dhillon (2011) stated, education should be a human right as a way to prevent poverty and to help with the personal development and fulfillment that every human deserves.

Despite the knowledge of these risk factors and researched intervention strategies, many colleges and universities still do not put collective effort into considering the procedures, design, and implementation of curriculum, but instead have individual

faculty choose classes and develop class outlines with little to no consultation or input (Chao, Saj, & Hamilton, 2010). Recognizing key elements and their importance, college administrators must then keep student retention risk factors in mind when developing college curriculum and implementation.

Problem Statement

First-generation college students continue to have lower retention and success rates in colleges and universities and experience higher dropout rates, reducing their likelihood of earning higher-level income and staying above the poverty line.

According to Forbus, Newbold, and Mehta (2011), first-generation students are at a much higher-risk of leaving a university setting before graduation than their continuing generation counterparts. In a longitudinal study conducted by Pell Institute researchers Engle and Tinto (2008), the graduation rates of first-generation college students within six years was found to be 11% compared to continuing generation college students who had a 55% graduation rate. They also had significantly higher first-year dropout rates compared to other populations (Engle & Tinto, 2008). Considering this significantly lower rate of success, first-generation students have been gaining more focus in the research literature (Forbus, 2011; Mamiseishvili, 2010; Woosley & Schepler, 2011).

In recent years, there have been many studies focusing on intervention methods that may be successful at helping this population and examining mitigating factors. Mamiseishvili (2010) conducted a study focusing on first-generation students working when attending college and the importance that colleges focus on making this population's educational experience as important and rewarding as their work experience.

Woosley and Shepper (2011) explored the importance of first-generation college students being successfully integrated into the college environment. While other studies have focused on the differences in student motivation of first-generation students, early academic interventions, and student services that can provide support to this population, few studies have focused on the opportunity to use online supplemental resources as an impact on first-generation retention (Forbus et al., 2011; Hand, 2008; Hollingsworth et al., 2009). Despite the increase in research, much of the focus has been on the student or student services, but minimal focus has been made in terms of curriculum delivery methods for this population. A specific gap in the literature is in providing alternative or additional curriculum delivery methods beyond the traditional face-to-face delivery, for example, providing class materials in online forums to allow students the ability to self-pace the information in the classroom.

First-generation college students continue to be a high-risk population in terms of both college success and retention. Not completing college places first-generation college students at higher risk for poverty and all the challenges faced with this status. Other studies have noted that the other high-risk students' ability to use an online classroom and self-pacing materials increases the rates of retention and success (Fike & Fike, 2008; Heaton-Shrestha, 2009). Building upon this premise, this researcher examined whether success and retention rates of first-generation college students were improved with the use of supplemental online materials in conjunction with traditional classroom delivery.

Purpose of Study

This quantitative study compared how the use of online supplemental materials in traditional classes, parental academic experience or student first-generation status, and class success may be associated with first-year students' second-semester retention. This was accomplished by providing these students additional flexibility in terms of course material access and the ability to self-pace the material after traditional class hours. Online supplemental forums and materials included Moodle online classroom software, uploaded class materials including PowerPoint Presentations, online articles, electronic grade books with feedback, and videos as a supplement to traditional classroom educational delivery. Students had access to these materials 24 hours a day and seven days a week.

Research Questions and Hypotheses

For the purpose of this study, three research questions were asked:

Research Question 1: Is second-semester retention associated with first semester academic success?

H_01 : There is no relationship between second-semester retention and first semester academic success.

H_11 : Second-semester student retention is affected by student class success.

Research Question 2: Is second-semester retention associated with parental academic background?

H_02 : There is no relationship between second-semester retention and parental academic background.

H₂: Second-semester student retention is affected by parental academic background.

Research Question 3: Is second-semester retention associated with the availability and use of supplemental online materials or the lack of availability and use of supplemental materials?

H₀₃: There is no relationship between second-semester retention and the availability and use of supplemental online materials.

H₁₃: Second-semester student retention is affected by availability and use of supplemental online materials.

Second-semester student retention was defined as students enrolled in spring semester course after completion of the previous fall semester. Student academic success was defined as students with a C or greater and a lack of success included students who earn a C- or lower in the course being used for this research. Parental academic background was defined as students whose parents have had some college experience versus students whose parents have had no college experience, and are identified as first-generation college students by the university. Supplemental online materials were defined as class articles, class PowerPoint presentations related to text chapters, use of the electronic grade book, and class videos uploaded to the Moodle software.

Theoretical Framework for the Study

Curriculum design and delivery has heavily influenced student success and retention over the year. Early in the 1900s the fields of education and educational psychology were transitioning from the philosophical to the empirical (Ash, 2005). Two

key educational theorists emerged recognizing the importance of research and study in the classroom. John Dewey had a large impact on the early development of the field of educational psychology (Berliner, 1993). Dewey encouraged a more philosophical approach with students encouraging them to explore the why behind behavior and to consider motivations (Berliner, 1993). He was very supportive of critical thinking skills versus strictly learning by using drills (Berliner, 1993).

Similar to Dewey, Edward Thorndike began his approach by working with teachers in terms of how they structured their classroom and on what principles teaching practices were based on (Berliner, 1993). As a behaviorist, Thorndike was interested in how behavior in the learning environment could be conditioned and shaped to elicit specific results (Ornstein & Hunkins, 2009). His focus tied together the importance of considering cognitive psychological principles and behavioral results when teaching in the classroom (Berliner, 2009). Thorndike's emphasis on habits formed his theory of connectionism in which learning a skill or trade may transfer into a stronger ability or skill in a related task (Watras, 2009). His perspective was considered to be more mechanistic and structured based on a belief that intelligence and learning was pre-determined at birth (Tomlinson, 1997). Many of the ideas of both men were considered to be revolutionary at the time and were met with some skepticism (Walberg & Haertel, 1992).

Modern day curriculum theory continues to build upon these earlier ideas. Today psychological theoretical foundations and social theoretical foundations are used to implement curriculum design and development (Ornstein & Hunkins, 2009). The

behavioral psychological theory continues to be applied when developing and designing curriculum. Focusing on Thorndike's original behavioral theory, connectionism helps faculty and administrators in their quest to develop classrooms that support connections and associations in the learning environment (Ornstein & Hunkins, 2009). Thorndike's applied approach to knowledge continues to resonate with universities as they design curriculum and its implementation (Watras, 2009). Additionally, the employment sector supports Thorndike's behavioral approach to teaching students applied skills versus strictly theoretical concepts as well (de Guzman & de Castro, 2008).

Combining both psychological and social curriculum theories, Bandura (2002) has focused on the social cognitive theory, which recognizes learning environments are dependent upon the person's individual thoughts and behaviors in relation to the social interaction with environment or culture. He continued to develop his theories on social learning by now focusing on the impact of technology on the fields of education and psychology (Bandura, 2001). Specifically in terms of educational self-regulations, Bandura (2001) believed technology is becoming a tool that is increasingly used to enhance, pace, and control the educational environment on the part of the learner. This social cognitive theory continues to be an emerging foundation for curriculum design today.

Similar to Bandura, Vygotsky focused on social and cognitive interaction that take place in order to develop a strong learning environment or what he called the sociocultural learning theory (Ornstein & Hunkins, 2009). Despite his work being done in the early 1900s, it was not discovered or implemented until much later and is still used

today (Ornstein & Hunkins, 2009). Vygotsky emphasized the importance of speech and language as it relates to learning (Gredler, 2009). He believed that language was integral to the higher thinking processes, and that social context helped support this higher order of learning and understanding (Ornstein & Hunkins, 2009). Combining these two concepts, Vygotsky went on to present his idea of student self-regulation in which students are able to use their cognitive ability of language to apply concepts and regulate the pace of information, as well as incorporating social environment in which to learn application and reinforcement of new ideas (Gredler, 2009).

It is clear that cognitive and behavioral considerations must be at the forefront of curriculum design and development. Integrating the importance of self-regulation from Vygotsky's theory, the application of knowledge in Dewey's and Thorndike's concepts, and Bandura's emphasis on self-pacing in the learning environment, what becomes clear is that technology may be used as an instrument conducive to integrating all of these ideas together (Bandura, 2001; Gredler, 2009; Watras, 2009). Recognizing technology's strength as a tool, it is important to first consider the students or audience for which this tool may be used, as well as the options it provides in regards to curriculum design and implementation. For the purposes of this study, the student audience was traditional undergraduate college students, which included first-generation students, and the technological tool was online supplemental materials in conjunction with traditional face-to-face lecture and discussion classes. By providing the online supplemental materials, this theoretically allowed first-generation students the ability to review and practice studying techniques further with the materials, and allowed the students the benefit of

self-pacing the review of the materials, which is not always possible during the traditional class. Further information on how these theoretical approaches applied to the study is provided in Chapter 2.

Nature of the Study

As a large first-generation student population was available for the study, a quantitative design was used. This should increase the generalizability to other schools serving first-generation students. Additionally, it is a convenience sample as students at the private, liberal arts university enrolled themselves in courses and thus could not be randomly assigned to classrooms or coursework. Also, faculty had academic freedom on this campus which means the faculty chose how to deliver class materials, so faculty are unable to be randomly assigned to include or exclude supplemental online materials. The first-generation population was chosen as it represents approximately 41% of the student population on this campus, which is significantly higher than the national average of 28% amongst all students who earned a bachelor's degree (United States Department of Education, 2003).

Archival data were retrieved from first-year, first-semester introductory courses, for first-year freshman at a small Midwestern private liberal arts university. The information gathered included whether or not faculty provided online supplemental materials, in conjunction with traditional face-to-face delivery, students' parent academic experience or first-generation college student information, and class success or grade information identifying students as having a C or higher for success. Incoming freshman students who took the course were tracked to see if they subsequently enrolled in spring

courses after the fall term. Data were gathered from the Fall 2011, 2012, and 2013 academic semesters. Faculty use of supplemental online materials and student data on whether they accessed the materials, their success in the class, and their parental academic background was obtained retroactively as it is archived by the university. This information was gathered and evaluated using a Pearson' chi-square and logistic regression analysis to see if there is any significant impact by any of these variables. Further detail on methodology is provided in Chapter 3.

Definitions

Continuing generation students: Students who have had previous generations of family members who have either attended or graduated from college (Forbus, Newbold, & Mehta, 2011).

First-generation students: First-generation students are students whose parents never attended college or educational coursework beyond high school (Choy, 2001).

Online supplemental material: These are materials that are provided in an online forum or classroom as a supplement to face-to-face college classroom instruction. These materials may include PowerPoint presentations related to the text and the class, articles discussed in the class, optional discussion forums, and videos related to class materials. According to Skelly (2007) supplemental materials include all of the aforementioned in addition to online assessments, interactive learning tools, and online homework.

Self-Efficacy: A person's beliefs in terms of their ability to function and succeed at a given task through cognitive, social, and motivational processes (Aguayo et. al, 2011; Bandura, 2002).

Self-Pacing: Self-pacing is a student's ability to access, process, and review class material at his or her own rate of speed (Tatum & Lenel, 2012; Tullis & Benjamin, 2011).

Self-Regulation: -Self-regulation is a student's ability to access class materials when time permits in his or her schedule or the ability of the student to schedule time to study course materials based on his or her time and to set the speed at which materials will be reviewed. Self-regulation includes a student's ability to self-observe, self-judge, and self-react in an effort to be successful (Bandura, 2001; Schunk, 2008).

Student semester-to-semester retention: Student semester-to-semester retention is students who continue to enroll in spring courses after completing the fall semester. According to Oja (2012) student retention also known as persistence is considered to be continuing enrollment.

Student success: Student success is defined as students who earn a passing grade in a course. For the purposes of this study, a C or higher in *ENG105 – Expository Writing* will be considered success, as this grade is considered acceptable by Marian University standards. Any grade below a C may contribute to an overall GPA of less than 2.0, which places a student on academic probation. Per Oja (2012) student success is defined as earning passing grades and student performance in courses.

Traditional undergraduate classes: This is defined as classes that are delivered in a face-to-face format during specific scheduled days and times. These classes are primarily comprised of in-person lecture and discussion formats. According to Reeves (2010) traditional classes involve face-to-face communication within physical buildings or settings located on a college campus.

Assumptions

There were several assumptions that existed in this study. The first assumption was that the supplementary material faculty uploaded to the online forums related to overall course learning objectives, the course textbook, classroom lectures, and discussion. The second assumption was that students knew how to access the online supplementary materials. The third assumption was that the students who were provided online supplementary materials actually read and reviewed them in addition to attending the face-to-face portion of the class. The final assumption was that first-generation students were striving to earn passing grades in college courses and were striving to graduate from college with a degree. These assumptions were necessary in order to support the hypothesis that online supplementary materials, parental academic background, and/or student class success (independent variables) impacted the second-semester retention of the first-year college students (dependent variable).

Scope and Delimitations

This research study addressed three key aspects of factors influencing retention. The first is whether class success affected student second-semester retention. The second independent variable evaluated the relationship in retention rates between first-generation students and students with parents who have attended college. The third variable compared two ways in which to deliver classroom content, strictly face-to-face classroom content delivery versus face-to-face classroom delivery supplemented by online class content access, and which delivery style had the higher retention rates.

These specific areas were chosen as the first-generation student population on this university campus was significantly higher than averages at other universities (Leopold, 2010; United States Department of Education, 2003). Additionally, this population was identified as high-risk with lower than average retention and success rates within the educational environment (Crozier & Reay, 2011). On a final note, there were few studies that have been conducted on first-year students and on the first-generation population, that have evaluated the possible improvement of first-generation student success and retention by providing online supplemental materials in conjunction with traditional classroom content delivery methods of lecture and discussion.

The boundaries related to this study included first-year, undergraduate students who were taking one of their first general education courses, specifically *ENG105-Expository Writing*. This population included both first-generation college students, as well as continuing generation students whose parents attended some college. The population size was 678 students over three years. According to George and Mallory (2009) a population size of over 100 would be sufficient to provide reasonable validity and generalizability.

For the purpose of this study, a combination of Thorndike, Vygotsky, and Bandura's social cognitive and social learning theories was applied. There are many other social cognitive and curriculum development theoretical frameworks that could be considered. Two primary examples of this are the technical-scientific approach and the non-technical non-scientific approach (Ornstein & Hunkins, 2009). Within the technical – scientific approach, the primary focus is on mapped-out content development, cognitive

processes of students and faculty, as well as curriculum being managed or organized into steps (Ornstein & Hunkins, 2009). Content-based curriculums focus on students' acquisition of knowledge and ability to reproduce the knowledge when questioned (Feuerstein & Falik, 2010). The other curriculum development theory, non-technical non-scientific approach proceeds by viewing curriculum development as a conversation (Ornstein & Hunkins, 2009). Within this model, more research is being done on the use of a team-based approach to integrating technology into the curriculum (Waddoups, Wentworth, & Earle, 2004). Waddoups et al. (2004) found that by working closely together and collaborating on the use of technology as a curriculum development tool, curriculum development and educational success were greatly improved.

These two theoretical frameworks were not considered due to their focus on the content of the course, which was not being evaluated, as faculty for this course had spent the several years developing a consistent curriculum and content and would not be open at this time to discuss changes. For the non-technological theory, even though collaboration on technology and implementation are sound theories, the ability to control for other variables such as content and instructor participation would have been minimal. The purpose of this study was to evaluate student semester-to-semester retention. These other areas would be potential means of future exploration in regards to the first-generation college student population.

This study was conducted at a private, not-for-profit, four-year university with a sample population of approximately 678 students. The information gathered was generalizable to other similar types of private universities. Additionally, most

universities have at least some portion of their students as first-generation students, which would allow these universities to use this curriculum and content delivery strategy at their own educational settings.

Limitations

As with any study, there are some limitations to this research topic. From an internal validity standpoint, there is no way to control for whether or not faculty provides online supplemental materials to their students in the identified course. In the end, 57% of the faculty did provide online supplemental materials and 43% did not. Additionally, there is no way to control for whether or not the first-generation college students will use the materials for self-pacing of content. Of those students offered supplemental online materials, 98.5% used them. Also, from year-to-year there may have been a significant variable that impacted one particular class over other incoming classes. Areas for further consideration were confidentiality due to small campus size and conflict of interest as research was being conducted by an instructor on campus. Ways to control for these issues were to assign numbers to the students and faculty, so identifiable markers were avoided and to exclude any courses taught by the researcher. Different courses that were offered were evaluated, and it was found that the English faculty were very diverse in whether or not they used supplement materials. So an English course was selected that all freshman had taken in the first-year, in order to have data on both classes that offered supplemental materials and those that did not. In regards to the student year-to-year incoming class differences, three years of *ENG105-Expository Writing* information was collected and analyzed in order to try and control for any one year influences.

Despite the clear benefits to answering these questions and exploring further use of technology in curriculum design, development, and implementation, barriers still exist. From an external validity standpoint, some college and university faculty are resistant to using technology as a method to develop curriculum or as a tool to deliver additional information for their course (Harris & Hofer, 2011). Some of the faculty members do not understand the technological options available to them, or exactly how to use it (Harris & Hofer, 2011). Institutions also struggle to find the financial means in which to purchase technology or software, as well as the funds to train students, faculty members, and administrative staff (Waddoups et al., 2004).

Significance and Social Change

Student retention continues to be a challenge to the high-risk college student population, including first-generation students (Fike & Fike, 2008; Forbus et al., 2011; Hand & Payne, 2008). Statistically, those people who do not complete college are significantly more at risk to remain below the poverty level. According to the most recently released United States Bureau of Labor Statistics report (2013), the average rate of weekly pay in the United States with only a high school education is an average of \$651 a week, which equates to \$33,852 annually. In comparison, the median salary in the United States in 2013, according to the U.S. Census Bureau, was \$51,939 for those with a college education (DeNavas-Walt & Proctor, 2014).

Due to the clear correlation between achieving a higher level of education and higher income, a focus on increased enrollment and graduation beyond high school may assist with individuals and families moving above the poverty level. However, educating

people beyond the high school level is not as easy as it appears, due to the number of variables contributing to educational success (Raffo, Dyson, Gunter, Hall, Jones, & Kalambouka, 2009). Enrolling students into college is only the first step to securing a degree and higher income wages. Identifying high-risk students who are at greater risk of quitting or leaving college is equally important (Fike & Fike, 2008). One specific high-risk population for consideration is first-generation college students as they have lower retention and graduate rates compared to their peers (Engle & Tento, 2008; Forbus, Newbold, & Mehta, 2011).

In order to address this, a number of strategies will need to be developed including recognizing specific traits of the student population being targeted, focused curriculum development, and curriculum delivery. The research in this study should help provide the higher education field with additional knowledge and suggestions for future practice as it relates to creating successful interventions for first-generation college students.

The role of technology as a tool for student retention continues to be an area of great interest in the educational field (Heaton-Shrestha et al., 2009). This researcher examined the relationship between utilizing technology, specifically online supplemental materials, in conjunction with traditional content delivery in order to increase retention and student success. In the higher education realm of colleges and universities, the use of technology is significantly on the rise by administrators, researchers, faculty, and students (Chao, Saj, & Hamilton, 2010). Current teacher education programs are now requiring technology training as an element of their curriculum (Waddoups, Wentworth, & Earle, 2004). Yet the question still remains what technology is most effective at meeting

educational goals and objectives? Additionally, how can the use of this technology be maximized in an effort to strengthen curriculum design while assisting with retention and success of high-risk students such as first-generation students? The findings from this study may provide universities with further impetus to increase the use of technology by faculty as a way to deliver class content outside of the narrow boxes of an either/or between online and traditional courses as a method to improve student retention and success.

Additionally, providing supplemental online materials would allow students' more time to process knowledge and apply it in real-world circumstances, which are a perceived asset and expectation by employers (de Guzman & de Castro, 2008). In terms of practice, undergraduate college students of all demographics find it beneficial when they can self-regulate and self-pace the curriculum they are learning (Tullis & Benjamin, 2011).

When implementing classroom strategies that result in first-generation students successfully completing college, this in turn greatly improves both their career and financial outlook for life. Successful completion of higher education means higher pay and fewer social challenges such as lack of education, greater health issues, and multi-generational poverty.

Summary

The use of supplemental materials via technology as an educational tool is becoming increasingly important, as there are large numbers of high-risk students, including first-generation college students failing to persist in college. Many of these

students were from lower socioeconomic backgrounds and a lack of advanced education may propagate the continuation of poverty in these high-risk groups (Fike & Fike, 2008).

As modern day technological options expand into our everyday communication, it would be important to integrate the technological tools to build and design curriculum, and allow educational institutions any number of classroom implementation options, in order to increase the retention and success of current and future students (Skelly, 2007). Technology could be used as a supplemental tool to the traditional college classroom and as a supportive instrument that could improve upon positive factors mentioned above. It leads to the possibility of reaching higher-risk students, improving student satisfaction, increasing learned knowledge, and allows for the flexibility of school attendance in person or online (Reeves, 2010). On a final note, it also has the ability to reach the learner from a variety of methods, which may allow self-pacing of material, and the ability for students to gain, retain, and apply knowledge in a practical setting. This is particularly important for high-risk first-generation students.

Chapter 2: Review of the Literature

Introduction

First-generation college students continue to have lower retention and success rates in colleges and universities, reducing their likelihood of earning higher-level income and staying above the poverty line (Engle & Tinto, 2008; Forbus, Newbold, & Mehta, 2011; Parekh, Killoran, & Crawford, 2011). As such, much research has been conducted to find ways to increase retention of first-generation students. Many retention methods including mentoring, more inclusivity in social aspects on campus, and recognition of social expectations and rules has been evaluated (Crozier & Ray, 2011; Engle & Tinto, 2010; Merritt, 2010). Other strategies have also included allowing students the ability to self-regulate and self-pace classroom information and instruction (Bandura, 2002; Crozier & Reay, 2011; Reay, 2003; Tullis & Benjamin, 2011). Students who fail to complete higher education are linked with greater risk of living below the poverty line (U.S Census Bureau, 2002; United States Census Bureau, 2008). There are several populations that are considered in the high risk group for not completing college and first-generation students are one of them (Crozier & Reay, 2011; Merritt, 2010; Woosley & Schepler, 2011). The NCES (2003) found that 40% of first-generation college students graduated from college compared to 70% of students whose parents attended college.

Recruiting and encouraging first-generation college students can help them earn a degree and prevent potential future poverty. However, as they are a high-risk population in terms of college retention and graduation, strategies need to be researched and implemented to provide the support and tools needed to graduate for this population.

How curriculum and class content are provided to students may be one consideration.

Traditional college courses meet in a face-to-face format and provide instruction through lecture and discussion. However, many first-generation students are parents, work part-time, or do not fully understand college culture, all of which may result in missing more classes or not being prepared for classes (Merritt, 2010; Reay, 2003). One way to increase these students' opportunities to access the classroom information, despite lower attendance rates or not understanding how to prepare for a traditional class, is to provide the materials in multiple or more flexible modes (Fike & Fike, 2008; Merritt, 2010). This also will allow first-generation students who do not come from a culture of higher education, increased time to gain an understanding of materials, further interaction with peers and the instructor, increased review time, and the ability self-pace materials outside of the lecture hour (Crozier & Reay, 2011; Francis & Miller, 2008; Merritt, 2010).

In the upcoming sections, high-risk first-generation students, retention issues, and curriculum intervention strategies will be explored. The primary intervention to be considered will be the use of online resources in conjunction with traditional face-to-face delivery of courses in an effort to improve the retention and success of first-generation college students. Specific problems related to this topic, as well as the purpose of conducting this research will be reviewed. The theoretical basis of Bandura's and Vygotsky's social-cognitive theories of applied knowledge, self-pacing, and self-regulation related to student success will be applied when considering variables to use and hypotheses to review (Bandura, 2001; Gredler, 2009; Watras, 2009). Additionally, the more modern day social cognitive career theory was considered. The combination of

theory with classroom strategy was explored in an effort to determine new ways to increase the retention and success rates of first-generation college students.

Literature Search and Strategy

The literature review conducted for this study focused on the areas of higher education, social cognitive psychology, and educational psychology. The theoretical foundation for this research is based primarily upon the social cognitive theories developed by Vygotsky and Bandura. Additionally, it considers the behaviorist theory of Thorndike. Their focus on the concepts of connectionism, self-efficacy, self-regulation, and self-pacing are used to focus on improving the success of first-generation students in today's classroom (Bandura, 2002; Ornstein & Hunkins, 2009; Skelly, 2007). Specific literature on high-risk students, with a primary focus on the retention and success of first-generation students, was explored, as well as risk factors for this population. Additionally, previously researched retention intervention strategies were reviewed, as well as reasoning for the college retention strategies used in this study. A general summary of themes related to the existing literature were provided in an effort to lay the foundation for the purpose and intent of this study.

This literature review contains research from many different electronic databases that were available. Databases included PsycInfo, PsycArticles, PsychiatryOnline, Psychology: A SAGE Full Text Collection, SOCIndex, Education Resource Information Center (ERIC), Education Research Complete, and Academic Search Complete. The following key terms were found to be the most useful in finding information including ACT, Bandura and self-pacing, U.S. Department of Education, student retention, first-

generation college students, online materials, student retention and online materials, student success, student self-pacing, online materials, Vygotsky and self-regulation, social cognitive career theory and self-efficacy, high-risk students, high-risk students and first-generation students, first-generation students, and retention strategies.

The majority of the searches were from the years 2008 to 2014 with some exceptions in order to gain primary work from theorists and theories used for this research. Specifically, Bandura's work, Thorndike's work, and Vygotsky's work or work related to their theories was from approximately 2001 until present day. The primary literature searched was peer-reviewed journal articles from electronic databases. Some exceptions included government organization databases such as the United States Department of Education – National Center for Educational Statistics, the United States Department of Health and Human Services, and various dissertations that had focused on student retention and online materials.

There has been extensive research conducted in the area of high-risk undergraduate college students and intervention strategies to help improve the retention and success rates of high-risk students. Additionally, the use of technology in the classroom as a retention tool has been thoroughly evaluated in terms of presentation of materials in face-to-face classrooms and for online courses. Therefore, the literature review conducted to support this research focused on successful retention tools, successful interventions for high-risk first-generation students, and the use of technology as an additional tool in the classroom. There were some challenges finding specific studies on high-risk first-generation students and the use of supplemental online materials

combined with face-to-face classroom instruction. However, there was plenty of literature to review in regards to the individual subject areas of self-regulation, self-efficacy, and first-generation retention strategies in the undergraduate classroom. Previous research on these subjects was used in order to build a case for this project.

Theoretical Foundations

Many different theories have influenced the field of higher education in terms of curriculum design, curriculum delivery, and overall success of students with the collegiate system. The theories this study will utilize is connectionism theory, social cognitive theory, and modern day social cognitive career theory, as it relates to a student's ability to self-pace and self-regulate the materials from the classroom (Bandura, 2001; Gredler, 2009; & Garriott et al., 2013). In modern times, several of their key ideas are still applicable as it relates to college students and their experiences or ability to self-regulate and self-pace materials. Social cognitive theory combines the personal ability of one's own cognitive functioning with social factors that may enhance or detract from one's cognitive performance (Bandura, 2001). Social cognitive theory also recognizes the importance of locus of control or attribution in which students perceive whether they have control over their educational environment (Kahn & Nauta, 2001).

Connectionism

As a behaviorist, Edward Thorndike was interested in how behavior in the learning environment could be conditioned and shaped to elicit specific results (Ornstein & Hunkins, 2009). His focus tied together the importance of considering cognitive principles and behavioral results within classroom (Berliner, 2009). Thorndike's

emphasis on habits formed his theory of connectionism in which learning a skill or trade may transfer into a stronger ability or skill in a related task (Watras, 2009).

The application of Thorndike's connectionism helps faculty develop classrooms which help build relationships and connections in regards to social support and learning (Ornstein & Hunkins, 2009). Additionally, the employment sector supports Thorndike's behavioral approach to teaching students applied skills versus strictly theoretical concepts as well (de Guzman & de Castro, 2008).

Social Cognitive Theory

The basic essence of social cognitive theory is simply the interaction of cognitive processes and the social environment. Through repeated experiences, people create symbols in their minds or interpret life events through their thoughts and feelings related to these thoughts (Bandura, 2000). Essentially social factors interact with the cognitive processes of thought, emotion, and self-regulation and this continuous process builds further cognitive processing involving problem-solving and behavioral choices in situations (Bandura, 2000). Schunk (2008) goes on to share that from Vygotsky's point of view, teaching is the external mechanism, which then must be internalized to result in the development of self-regulation. So essentially these different variables must co-occur in order for students to be able to learn and develop educational self-efficacy.

Historically, Vygotsky focused on cognitive theory in social situations and how this resulted in a more effective academic environment for students and teachers (Ornstein & Hunkins, 2009). Vygotsky recognized with proper tools, one could assist students with maximizing their cognitive abilities (Gredler, 2009). Social environment

also influenced a student's ability to gain and retain educational information from Vygotsky's view (Ornstein & Hunkins, 2009). Vygotsky went on to join these ideas and developed his concept of student self-regulation in which students are able to use their cognitive abilities to regulate the pace of information, as well as incorporating social environment in which to further enhance students ability to understand new information in greater depth (Gredler, 2009).

Vygotsky's cognitive theory focuses on the key concepts of self-regulation and mastery. In order to achieve this higher level of cognitive functioning, learners must be able to have voluntary attention, categorical perception, and logical memory (Gredler, 2009). Per Gredler (2009), this means that an adult has the ability to selectively pay attention to information, process and categorize the information, and then organize the information into long-term memory. According to Bodrova, Leong, and Akhutina (2011), Vygotsky believed that one's ability to self-regulate learning was associated with a person's ability to create mental symbols for things in their environment and then are later internalized in a manner to problem-solve and that it is the relations between the objects and functions which results in higher learning. Additionally, Vygotsky's layering or scaffolding theory believes student need the opportunity to gain, retain, and apply knowledge in a practical setting (Gredler, 2009; Schunk, 2008).

Building on Vygotsky's theories, Bandura's social cognitive theory is a three-way interaction between behavior, personal factors and the environment, which all result in the development of a self-regulation system (Gredler, 2009). Bandura's social cognitive theory includes six key elements, which are symbolizing capability, forethought

capability, vicarious capability, self-regulating capability, self-reflective capability, and the nature of human nature (Bandura, 2000). For the purpose of this study, the key areas of self-regulating capability and forethought will be used in regards to social cognitive theory and high-risk first-generation student retention. Per Bandura (2000, 2001) self-regulating capability is the ability to adapt one's behavior, affect, and environment in a way to meet the goals and expectations established and to avoid circumstances in which one would be dissatisfied with the outcome or performance. Additionally according to Bandura (2000), forethought capability is the ability to plan to avoid obstacles or thoughtfully devise arrangements in which one can most successfully reach a desired outcome with the resources and future time available.

Bandura (2002) combined psychological and social theories to develop his modern day social cognitive theory in which a person's own thoughts and the environment combine to result in behaviors (Bandura, 2002). His work has expanded into the educational field in which this combination of personal thoughts and social environment impact learning behavior and learning thought processes in a student (Bandura, 2002). This theory has further evolved to evaluate how technology will play a role in terms of social environment (classroom) and cognitive processes (Bandura, 2001). Students' ability to self-regulate classroom information using technology is evident in the opportunity to self-pace materials and regulate the information in the classroom (Bandura, 2001). For instance, Heaton-Shrestha, May, and Burke (2009), found that students who had access to an online classroom or a virtual learning environment (VLE) stated they had a greater sense of control and ownership of the classroom learning

materials. Additionally, the students reported that the virtual learning environment had a positive impact on their success in the class (Heaton-Shrestha et al., 2009). This social cognitive theory continues to be an important foundation for curriculum design today.

In recent years, educational psychology theorists have taken Bandura's social cognitive theory one step further by developing what is known as the Social Cognitive Career Theory (Garriott et al., 2013; & Kahn & Nahta, 2009). Social Cognitive Career Theory (SCCT) includes the social and cognitive aspects of Bandura's theory and then builds on it further by adding how a person's self-concept impacts the perception of self-efficacy (Garriott et al., 2013).

Social Cognitive Career Theories

Social cognitive career theory further evaluates how students perception of their academic skills is correlated to their persistence and success in academics (Kahn & Nauta, 2001). When students perceive themselves as having the ability or having ways to be successful in accessing and understanding class materials, essentially academic self-efficacy, they are more likely to successfully use materials in order to complete a course of study and eventually graduate. In a study conducted by Wang (2009), community college students who transferred to four-year colleges were found to be more likely to be successful based upon their community college GPA, the students' related perception to self-efficacy in the college classroom, and the students' perceived locus of control. Students who had a higher positive perception of college course self-efficacy and greater internal locus of control were found to be more successful in the new four-year college setting (Wang, 2009). Similarly, in a study conducted by Reay (2003), working class

women who returned to college and did not feel they fit in or held a perception that they were not academically capable, repeatedly dropped out from college or never finished college despite repeated attempts.

Using Social Cognitive Theory and Social Cognitive Career Theory, this study explored how students who have the opportunity to self-pace and self-regulate classroom materials may increase the likelihood of actual academic self-efficacy via successful coursework and semester-to-semester retention. By providing the online supplemental materials, this theoretically allowed first year students the ability to review and practice studying techniques further with the materials, and allowed the students the benefit of self-pacing the review of the materials, which is not always possible in the traditional class.

Assumptions

In terms of assumptions, these theories assumed that students provided materials or other learning tools would actually use the tools in an effort to self-pace learning and use of materials. In a study conducted by Cohen and Nachmias (2011), one undergraduate class had over 60% of the students accessed the online materials provided. In the campus wide study of 3453 students, the researchers created a point score system for accessing materials and the result was 16,673,957 points based upon students' ability to personally pace the materials (Cohen & Nachmias, 2011). Additionally the assumption was that students would self-regulate themselves in terms of time allowed to study and would be able to intentionally plan to use these items. In related studies, students reported significantly reducing the time it took to complete online assignments and to review

materials due to having access to online materials for the course (Cohen & Nachmias, 2011; Ng et al., 2009). The theories assume that self-efficacy or the perception of ability to succeed was a key variable to the cognitive processes and behavioral academic outcomes (Brown et al., 2008; Heaton-Schrestha, 2009). On a final note, one last assumption was that students have the self-efficacy or ability to study materials provided to them. It also assumes that no major learning or cognitive disabilities exist that would prevent them from being able to understand provided materials or in determining proper coursework to enroll in at a university.

Social Cognitive and Social Cognitive Career Theory in Current Research

Research on high-risk students, including first-generation students has been quite extensive in recent years as the need to improve student retention and success has increased in order to improve the fiscal success of universities (Ackerman & Schibrowsky, 2007). To be fiscally successful, colleges must do their best to retain and graduate students as enrollment numbers and government financial aid depend upon this. The government and accreditation bodies are more carefully studying retention and success rates of colleges and universities in an effort to recognize institutions that have higher retention and graduation rates (DesJardins, Ahlburg, & McCall, 2006).

Due to the increased pressure to perform, universities and colleges have been exploring a variety of theories, interventions, and programs to help increase their student retention and success. Specifically, social cognitive theory and social cognitive career theory in the form of self-pacing, self-regulation, and self-efficacy have been heavily researched as curriculum and school interventions to increase student retention and

success (Bandura, 2001; Fike & Fike, 2008; Heaton-Shrestha et al., 2009; Svinicki & McKeachie, 2011). Students who had the ability to self-pace their coursework and class information had higher retention and success outcomes than those with little to no control (Bandura, 2001; Heaton-Shrestha et al., 2009)

In a study conducted by Close and Solberg (2008), over 400 high-risk Latino high school youth were evaluated to see if retention and success rates were impacted by using Bandura's social cognitive theory and self-determination. Historically, students with higher levels of self-efficacy and self-regulation, based upon Bandura's Social Cognitive theory, experience greater success in academic settings (Bandura, 2001; Close & Solberg, 2008; Kahn & Nauta, 2001). Upon completion of the study, findings were that students who had higher levels of self-efficacy or opportunities to develop self-efficacy in the classroom had significantly higher rates of success and retention than comparable Latino high school youths (Close & Solberg, 2008).

In another study conducted by Heaton-Shrestha et al. (2009), the authors evaluated the impact of virtual learning environments on a student's perception of self-efficacy and the overall class outcome. The authors gathered information from working class students and faculty who taught first-year classes within a college setting and were using virtual learning environments as an intervention (Heaton-Shrestha et al., 2009). The researchers in this study applied social cognitive theory in that they predicted students who perceived themselves to be socially and academically integrated or who felt comfortable in the academic setting, through the use of the virtual learning environment (VLE), would have higher success and retention rates (Heaton-Shrestha et al., 2009). Their results

found that students did indeed have a higher sense or perception of self-efficacy and classroom success due to the ability to self-pace materials through the virtual learning environment; however, faculty did not believe that the virtual learning environment, or the ability to self-pace the materials were helpful to student success (Heaton-Shrestha et al., 2009). This study calls for further investigation as there was a significant discrepancy in the perception between students and faculty.

On a related note, Brown et al. (2008) conducted a study using social cognitive theory predictors as a way to evaluate or predict student academic performance and persistence. This meta-analysis reviewed factors such as cognitive ability based upon ACT or SAT score and past academic achievement as a way to determine the likelihood of student retention (Brown et al., 2008). The general theory was that students with higher cognitive abilities and perceived self-efficacy (previous academic achievement or grades) would obtain higher levels of retention and that conversely those with lower cognitive abilities or lower levels of academic achievement would have lower levels of retention (Brown et al., 2008). Their studies supported these hypotheses in that those students who had higher levels of academic self-efficacy or past experience with academic success and higher cognitive abilities had higher levels of current academic success and retention (Brown et al., 2009). This research supports the focus of this study in terms of evaluating whether or not students who have self-efficacy and access to materials to demonstrate this, would in turn have higher retention and success rates within the college classroom.

The Connection Between Social Cognitive Theory and Student Retention

The purpose of this current study was to explore whether or not providing online supplemental materials in conjunction with face-to-face instruction resulted in higher success and retention rates for first-generation undergraduate college students. Bandura's social cognitive theory of self-pacing was applied by including online supplemental materials in combination with traditional lecture to allow to set the pace of classroom material and potentially increased success and retention of first-generation college (Bandura, 2001; Bandura, 2002). Additionally Vygotsky's scaffolding approach to learning, where students build upon previous ideas and the information is layered, is connected to how supplemental online materials assist students with learning based upon what they have already learned in a face-to-face lecture (Gredler, 2009).

First-generation college students have been identified as high-risk due to having lower retention and graduation rates compared to their peers who are not first-generation college students (Otero et al., 2007). The first-generation college student population has reported concerns that they may not understand teachers or fellow students or be able to understand classroom expectations (Francis & Miller, 2008). By using self-pacing strategies, through offering classroom materials related to lectures and discussions online in addition to face-to-face delivery, may prove to be a successful intervention to help first-generation students gain the ability to be successful in an academic environment that is new to them (Crozier & Reay, 2011; Francis & Miller, 2008).

By allowing students the ability to gain further control of the academic classroom and pace the information being provided, first-generation students can gain an increased

sense of self-efficacy and the ability to understand materials at their own rate of learning. According to Fike and Fike (2008) and Reay (2003), students who have the ability to control or customize their learning experience have increased rates of student success and perseverance. Additionally, online materials that are freely accessible provide the opportunity for increased reflection on materials through increased reading and writing of class concepts (Ng et al., 2009). This researcher attempted to evaluate if providing students online materials they can readily access at any time of day, improves their ability to be successful in traditional face-to-face classes through self-regulation. According to the study conducted by King and Fricker (2002), the multi-modal delivery of classroom content enhanced student learning outcomes and student satisfaction. This is why this study was not simply evaluating an online class or a traditional face-to-face class, but is investigating the impact of offering traditional lecture with online supplemental materials as this may be similar to King and Fricker's findings of student learning outcomes. Additionally, Fike and Fike (2008) found taking online courses at a traditional community college that primarily offered face-to-face classes resulted in increased rates of retention in comparison with students who did not take an online class. In essence, online courses and materials can address many of the curriculum and student challenges universities face in regards to quality learning and student retention outcomes in traditional face-to-face classes. By combining the two options of traditional lecture with online supplemental materials may provide insight into what classroom delivery techniques might be successful with first-generation college students.

Students who have increased classroom flexibility frequently report higher perceived knowledge of classroom content and satisfaction (Heaton-Shrestha et al., 2009; King & Fricker, 2002). Many students with learning disabilities, busy schedules, or other challenges have a greater risk of withdrawing from classes and college institutions when there is no flexibility in classroom delivery (Otero, Rivas, & Rivera, 2007). However, by using technology or online materials, students have the increased flexibility to self-regulate and pace their academic experience, which increases the likelihood of remaining at a specific school or college (Bandura, 2001; Heaton-Shrestha et al., 2009).

In all of these circumstances, technology could be used as a supplemental tool to the traditional college classroom and as a supportive instrument that could improve the retention and success of high-risk students. Allowing students to access materials online, leads to the possibility of reaching higher-risk first-generation students, improving student satisfaction, increasing new knowledge, and allowing for the flexibility of school attendance for those unable to enroll in traditional formats. On a final note, it also has the ability to reach the learner from a variety of methods, which may provide a layering or scaffolding theory opportunity to gain, retain, and apply knowledge in a practical setting based upon Vygotsky's theory (Gredler, 2009; Schunk, 2008).

Within the framework of higher education, the learning environment, school, and the classroom are all part of the social experience for students (Bandura, 2001; Wang, 2008). It has come to the forefront of educational psychology that social environment has a significant impact on a student's cognitive processes and subsequent ability to learn. In turn, once cognitive processes of understanding the collegiate environment

occur, and the student's place in this environment was established, behavioral adaptations were made. For some they begin to adapt how they study based upon their interaction within the educational environment and the successes or perceived self-efficacy in this environment. For others, the social environment of being in the classroom can result in lowered sense of self-efficacy (Kahn & Nauta, 2001). Additionally, the less a student feels in control of the environment and the ability to pace the information in the classroom, the less likely they will achieve or perceive that they are going to be successful in their pursuit of a higher education.

As many first-generation college students face multiple barriers, the ability to demonstrate forethought per Bandura (2000), or plan around these obstacles would be of great benefit to increase classroom success and retention. By providing students additional online supplemental materials, this provides first-generation students the ability to demonstrate forethought when they miss class or need further review of face-to-face class materials. Instead of giving students the excuse to skip class, Skelly (2007) found that faculty who offered supplemental online materials to their traditional courses had lower absence rates. This finding is potentially due to the student's ability to keep up with the materials and students reporting a greater understanding of class materials (Skelly, 2007).

Even though application of Social Cognitive Career Theory (SCCT) are linked to student success, more research needs to be conducted in terms of SCCT and the freshman to sophomore experience in terms of student success and retention (Kahn & Nauta, 2001). Additionally, more research needs to be done in terms of the use of social

cognitive theory and self-pacing through supplemental online materials for high-risk first-generation students, as little research exists on this specific population and the use of this theory in this manner. According to Fetzner (2013) in which unsuccessful college students were contacted to find out why they thought they did not succeed, the top reason was that they had gotten behind or missed too much class and could not catch up. Offering students an alternative means to access classroom materials or to review classroom lecture information may help prevent or reduce this issue as they can catch up on their schoolwork at their own pace through online supplemental materials. In the same vein, Forbes et al. (2011) recommended that additional studies be done on first-generation students and the outcome of offering additional support or adapting to the needs of first-generation students. This study intends to further the application of social cognitive and SCCT theory in an effort to fill this gap evaluating the impact of self-pacing opportunities via online supplemental materials in conjunction with traditional lecture for first-generation college students.

Key Variables Including Student Retention and Student Success

Student retention is the primary focus of many colleges and universities. As the collegiate world becomes more competitive, so does the importance of finding new ways to keep existing students and help these students achieve greater success. Despite this emphasis, retention in the average student population can run as low as 28.3% from first year to completion of a two-year college degree at public colleges (ACT, 2010). According to the National Center for Educational Statistics (2011), the four-year undergraduate rates of graduation from not-for-profit college institutions are

approximately 52%. Several studies have explored the issue of student retention and success in order to evaluate which factors are statistically significant in helping students remain in school and reach graduation (ACT, 2010; Fike & Fike, 2008; Merritt, 2010; Morales, 2010; Otero et al., 2007; Williams, & Luo, 2010). Based on this research, the dependent variables will include student retention during the class, student retention based on the next semester's enrollment, and the students' final course grades. More information about the variables will be provided in Chapter Three.

Within the literature, it is clear there are literally dozens of factors that can influence student retention and success. High-risk populations that have been identified include students of minority ethnicity, first-generation college students, and students with disabilities (ACT, 2010; Crozier & Reay, 2011; Merritt, 2010; Otero et al., 2007; Reay, 2003). Additional risk factors include students with low high school GPA scores, low entrance exam scores, and low GPA scores once entering college (ACT, 2010; Williams & Luo, 2010).

For the purpose of this study, the high-risk population of first-generation college students was evaluated. In several studies, this population has been identified as increasingly high-risk due to a variety of factors such as not being academically prepared to meet college expectations, commuting to school versus staying on campus, not becoming socially or academically integrated, working while attending school, and only enrolling part-time (Crozier & Reay, 2011; Merritt, 2010; O'Toole, Stratton, & Wetzel, 2003; Woosley & Schepler, 2011). The university chosen for this study had approximately 41% of the undergraduate population as first-generation students. Having

such a large first-generation population creates challenges in terms of semester-to-semester retention and overall graduation rates (ACT 2010; O'Toole et al., 2003; Woosley & Schepler, 2011).

Fortunately, a number of factors have been found to improve student retention and success rates, even if they are facing some of the aforementioned obstacles. Students who believe being perceived as intelligent were socially acceptable and reported intrinsic motivation were more likely to succeed at school even if they were in a high-risk population (Morales, 2010). According to Bandura (2002), student success hinges on recognizing that student cognitive processes and the social learning environment are intertwined when it comes to student retention and achievement. Additionally, Otero et al. (2007), found that students who have a perceived sense of integration or who feel they have an understanding of what is expected in the academic environment also have higher rates of retention and success. Furthermore, Fike and Fike (2008) found that one of the elements that predict student success and retention was whether or not a student took an online class. If they had taken an online class, students were much more likely to continue on at the college they attended (Fike & Fike, 2008). Ng et al. (2009) furthered this observation by noting students who participated in the online discussion were able to digest the material at their own rate, and increase their applied knowledge of course content via processing the information through writing and interaction in online forums (Ng, Cheung, & Hew, 2009). As online discussion and access has increased student success in some research, this may explain why Skelly (2007) found that over 60% of faculty at community colleges were now using online supplemental materials in their

traditional college classrooms and that the majority reported greater student success by providing these materials.

As many of these at-risk, first-generation students will be working while attending school, it will be important to identify retention and success strategies that will assist with a working student population, such as providing additional ways to access materials outside of the traditional classroom (Merritt, 2010). This will also allow first-generation students who do not come from a culture of higher education, increased time to gain an understanding of materials, further interaction with peers and the instructor, increased review time, and the ability self-pace materials outside of the lecture hour (Crozier & Reay, 2011; Francis & Miller, 2008; Merritt, 2010). This ability to self-pace and self-regulate the learning environment should lead to an increased rate of academic success and retention (Bandura, 2001; 2002).

Combining several of these findings, one of the independent variables will be the use of online supplemental materials in addition to traditional delivery of lecture and discussion in a face-to-face classroom. The intent is to allow first-generation high-risk students' to use supplemental materials in the online classroom, as a way to self-pace the academic environment and experience a higher level of academic integration that may not be found in stand-alone traditional lecture format.

In regards to methodology, some of the studies related to this research were quantitative, while others were qualitative. Several researchers chose to interview first-generation or working-class students using qualitative interviews in order to evaluate risk factors as well as strategies to further increase retention (Crozier & Reay, Merritt; 2010;

2011; Reay, 2003). However, others used a quantitative model to evaluate the variables when studying first-generation students and their retention or success rates (Merritt, 2010; Oja, 2011; Woosley & Shepler, 2011). Oja (2011) used a quantitative method to evaluate if supplemental instruction via peers would improve grades or retention. This study used regression analysis as its statistical method of evaluation and found that supplemental instruction increased grades, but it did not impact student retention. However, Oja (2011) noted that this finding of no improvement on retention rates conflicted with other studies and recommended further research and investigation into this.

Research on the retention of high-risk students studies have varied and had conflicting results. The researchers Otero et al., (2007) evaluated intervention methods for high-risk Hispanic students by examining social and academic integration. Interestingly, they found that academic integration or understanding what is expected in the academic environment did not significantly impact student retention (Otero et al., 2007). However, they only had 134 of the initial 311 research participants complete the research study or participate, which may have impacted the outcomes of the study (Otero et al., 2007). This contradicts several other studies' findings that academic integration is significant in determining student retention and that a student's belief that he/she understood what was expected increased retention and success (Johnson, 2009; Merritt, 2010; Woosley & Shepler, 2011). Skelly (2007) also found that when students had a greater understanding of what was expected in a class, as was provided by supplemental online materials in a math course, they reported enjoying the course more and being more

successful in the course. Fike and Fike (2008) conducted a study on first-year retention, they found that students who participated in an online class had significantly higher retention rates at a community college than those that did not. However, this has not always been the findings in other research studies investigating online courses. In fact, recent studies show student attrition rates in online courses are as much as 10-20% higher than in traditional face-to-face classrooms. (Drouin, 2008; Fetzer, 2013). However, by using online materials as a supplemental tool in conjunction with traditional math courses, 82% of students reported being better prepared for the course and their exams (Skelly, 2007). It is clear that further research and investigation into these concepts is warranted.

Summary and Conclusions

First-generation students have been identified as being high-risk for low student retention and student graduation rates within six years (ACT 2010; Hand & Payne, 2008; National Center for Higher Education Management Systems, 2009; Otero et al., 2007). Many contributing factors place first-generation college students in the high-risk category influencing each student's ability to succeed and fail in the academic arena (Hand & Payne, 2008; Merritt, 2010). Many of these students are coming from lower socioeconomic backgrounds and a lack of advanced education may propagate the continuation of poverty in these high-risk groups (Fike & Fike, 2008). Some of these factors include a lack of understanding of the college academic culture, inability or lack of opportunity to socially connect with students and faculty, and time constraints due to other responsibilities (Merritt, 2010; Reay, 2003).

Based upon social cognitive theory, Bandura (2001, 2002) encourages allowing students to self-pace and self-regulate the classroom in an increased effort to process class information and integrate it into greater understanding. This study will examine whether or not using supplemental online materials, as a self-pacing tool, in conjunction with traditional face-to-face classroom lecture and discussion, will successfully increase first-generation students' retention and success rates. By providing the supplemental materials online, it may increase first-generation students' flexibility to access class materials in a manner that fits their own schedule and can be reached remotely from anywhere with internet access (Reeves, 2009).

Some literature exists on how the use of online supplementary materials in conjunction with traditional face-to-face undergraduate classroom delivery may affect the success and retention rates of the high-risk population of first-generation students. There are many studies about online coursework and traditional coursework, but limited information on traditional coursework with online supplementary materials serving this specific population. Some of this may be due to be challenge to find colleges and universities with a high enough number of this demographic or that many colleges and universities do not track this population. However, several researchers noted the need to further study these concepts in an effort to improve student success and perseverance (Fetzner, 2013; Forbes et al., 2011, & Oja, 2011). This study will intend to go about filling this gap in the literature.

Moving forward, Chapter 3 includes more detail about the population that was included in this research, as well as the rationale for the research. Additionally, it

explored the methodology being used and discussed hypotheses and variables in more detail. Statistical measures and threats to validity were included.

Chapter 3: Research Method

Introduction

This researcher explored how class success, parent academic experience, and the use of online supplemental materials in conjunction with traditional curriculum delivery of face-to-face lecture, impacted first-year students' class retention. Additional flexibility with course material access and the ability to self-pace the material after traditional class hours, has been shown to improve areas of student retention and successful completion of coursework for some students (Tullis & Benjamin, 2011).

It is important to discuss the research design, the population being studied, independent and dependent variables, and how the design built upon knowledge in the discipline. A detailed description of the target population of first-year college students was included as well as sampling procedures and procedures for data collection of first-generation students' information, use of online supplemental materials, retention rates, and course grades. As this was a quasi-experimental design, this section introduces the criterion and predictor variables that exist, how variables were measured, and how the data was analyzed. This included information on whether or not faculty used online supplemental materials in introductory classes, student parent academic experience, and student class success, and how it impacted student second-semester retention. A statistical data analysis using chi-square was used. Finally, threats to validity and ethical procedures and issues in this study were evaluated.

Research Design and Rationale

A quantitative design was used for this study as the research was being conducted on approximately 678 undergraduate students who attended their first year at a four-year university. The research design methods for this study was a quasi-experimental method as the students in the study were a convenience sample and were not randomly assigned to the classrooms nor was there random assignment of instructors. After the course had finished, and faculty had been assigned to the courses, data was collected.

It is important to choose the research design based upon past research models similar in content and focus. Several studies on student retention and first-generation students used this format successfully. When evaluating first-year students' and first-generation college students' experience and success, a quantitative design was most common, as was the use of a quasi-experimental design as most studies were targeting this specific population, so random assignment was not possible. Examples of this included the study by Woosley and Shepler (2011) which focused on first-generation student integration into the campus environment impacted student retention, which was similar to the focus of this study on successful integration into the classroom and first-generation student retention. Swecker, Fifolt, and Searby, (2013) focused on first-generation students and their college retention as well. They used a quantitative and quasi-experimental design to study the relationship between academic advisor meetings and first-generation student retention (Swecker et al, 2013). Soria and Stebleten (2012) also used a quasi-experimental design to evaluate first-generation student retention rates

in comparison with students who were not first-generation students. This was similar to the research methods and population in this study in regards to comparing retention rates of first-generation students and classroom materials provided. Fike and Fike (2008) used a quantitative experimental design to study student retention from fall-to-spring and fall-to-fall of first-year students including students who were first-generation college students. This study also evaluated student retention from fall-to-spring and fall-to-fall using a similar experimental design.

Additionally, this will be a between subjects design as two variables are being examined between two or more groups (Creswell, 2009). Woosley and Shepler (2011) also used a between subjects model in an effort to see how gender, admission test scores, student commitment to education, and involvement in campus organizations influenced student retention for first-generation undergraduate college students. Similarly, this study also used the between subjects model to evaluate retention rates between students who had academic class success or failure, first-generation students versus students whose parents had college experience, and whether they had access to and/or used online supplemental materials or did not have access/use online supplemental materials in conjunction with face-to-face classroom lecture and delivery. In a study conducted by Soria and Stebleton (2012), a between subjects design was used to research the relationship between first-generation undergraduate student retention and a sense of belongingness, GPA, gender, class, and campus climate. Again, the format of this study and the subjects being used were similar to that study's focus on first-generation students and variables impacting retention.

Research Design and Student Retention Research

The causal comparative design helps to advance knowledge in the field of high-risk student retention in several ways. First, the design allows researchers to examine if the availability and use of online supplemental materials impact student retention and student performance (Gravetter & Wallnau, 2013). Additionally, by using inferential statistics, the sample size of approximately 678 students in this study can be used in order to make generalizations about the findings to a larger first-year and first-generation undergraduate student population (Gravetter & Wallnau, 2013). A quasi-experimental quantitative design also allows the researcher to attempt to control for alternative explanations and extraneous variables by linking specific variables with specific outcomes such as access to and use of online supplemental materials and retention and success rates of first-generation undergraduate students (Creswell, 2013). On a final note, the use of a quantitative design creates a research method that can be replicated by others interested in the topic or the findings (Creswell, 2013).

Many studies struggle with time and resources. In regards to time, one challenge can be gaining access to specific years of data and working with several different departments within the university in order to access the data. When working with a number of different people, this can also raise the risk that someone may not understand which data to pull, resulting in additional delays or challenges. Additionally, there may be considerable time to review the gathered data from these sources and then statistically analyze those numbers. There has also been a turnover in staff within the research

department where one portion of the archival data was held, which could have proven to be a time and resource barrier. However, all departments that have the archival data were aware of the data that was used and had agreed to support this research project. Resource constraints could have been the number of staff and their ability to help pull the old archival data for analysis, as well as having the technology staff develop a report to gather data related to faculty use of online materials in their face-to-face. These challenges had been discussed with the various departmental staff and it was understood that these could be overcome if there are any problems. Upon completing the data gathering and analysis, there were no time or personnel resource issues and the data gathered was comprehensive with clearly identifiable variables and information.

Methodology

Population

The target population for this research was first-year students who were attending a small Midwestern private liberal arts college. These students were enrolled full-time in the university and had taken common first-year courses, specifically ENG105 – *Expository Writing*. Both continuing generation students and first-generation students were included in this study.

This project included three years of archival data on first-year students. Data from the academic years 2011-2012, 2012-2013, and 2013-2014 were used. The estimated population size was 678 first year undergraduate students based on the enrollment for those years.

Sampling and Sampling Procedures

For the purpose of this study, a convenience sample was used as the focus of the study was on college students and their actual retention rates. Within the research of student retention, student perseverance, and student success, many research studies use a convenience sample (Fike & Fike, 2008; Heaton-Shrestha et al., 2009; Woosley & Shepler, 2011). The sample for this research was drawn from archival data found in the Office of Institutional Research and from the archived online classrooms for the fall of 2011, 2012, and 2013. The sampling frame included only students who were first-year full-time undergraduate. Additionally, the students were enrolled in the fall semester course *ENG105-Expository Writing*.

Archival Data

The archival data being used was standard data collected as part of ongoing institutional data management (in the institutional ERP – or MIS). It included all data needed for transcripts, including courses, and grades. The data also included the continuing generation student status, first-generation college student status, gender, income, and other general demographics. Additionally, data was used from the university's online class website, specifically on whether or not supplemental materials were offered, the type of supplemental online materials offered, and whether or not the student accessed the materials if they were offered. Only data that was relevant to this project was used. The Office of Institutional Research, which conducts and supervises the ongoing institutional data management on the campus created confidential identifiers

for students in the study. This kept the students' identities confidential, while still allowing for access to the data.

The initial request for this data was an informal request process via email. Exploratory meetings and emails were completed and both the Data Manager for the online classrooms and the Director of Institutional Research approved using this data. As a professional courtesy, the Chair of the English Department was also informed of the study and granted permission as well. Please see the attached signed letters from the appropriate university personnel. The next step was to submit to the university IRB committee, where the data is being retrieved, for approval of the research. This submission was done as soon as the dissertation committee approved this proposal. An IRB application was submitted to Walden University IRB. The IRB approval number for this study was 12-10-15-0150590. Upon receiving approval from both IRB committees, the Director of Institutional Research, and the university online classroom manager assisted with retrieving specific data needed for this study.

Research Questions and Variables

Research Question 1: Is second-semester retention associated with first semester academic success?

H_0 1: There is no relationship between second-semester retention and first semester academic success.

H_1 1: Second-semester student retention is affected by student class success.

Research Question 2: Is second-semester retention associated with parental academic background?

H₀2: There is no relationship between second-semester retention and parental academic background.

H₁2: Second-semester student retention is affected by parental academic background.

Research Question 3: Is second-semester retention associated with the availability and use of supplemental online materials or the lack of availability and use of supplemental materials?

H₀3: There is no relationship between second-semester retention and the availability and use of supplemental online materials.

H₁3: Second-semester student retention is affected by availability and use of supplemental online materials.

The dependent variable was second-semester student retention. This was based on spring semester enrollment of the student after the fall semester and enrollment in ENG105 during the fall semester. Students who continued university enrollment in the spring semester were assigned a “1” and students who do not enroll were assigned a “0”. According to Oja (2012), student retention also known as persistence, was considered to be continuing enrollment.

The first independent variable was student class success. For the purposes of this study, grades that were a “C” or higher in the course were assigned a “1” for success and grades lower than a “C” were assigned a “0” for lack of success. Per Oja (2012) student success is defined as earning passing grades and student performance in courses.

The second independent variable was parental academic background. For the purpose of this study, continuing generation students were students whose parents attended some college and first-generation college students were students whose parents had no college experience. First-generation college students did include siblings whom have attended college. Continuing generation students, who have had either a custodial parent attend some college, were assigned a “0” and students who were first-generation students were assigned a “1”.

The third independent variable was the availability/use or lack of availability/use of supplemental online materials in traditional college classroom delivery. Online supplemental materials were materials that were provided in an online forum or classroom as a supplement to face-to-face college classroom instruction. These materials included PowerPoint presentations related to the text and the class, articles provided to enhance class content, course syllabi and assignment directions, optional discussion forums, and videos related to class materials. Per Skelly (2007) supplemental materials include all of the aforementioned in addition to online assessments, interactive learning tools, and online homework. For students who used available online supplemental materials, they will be assigned a “1”. For those who do not use available or do not have available supplemental online materials, these students will be assigned a “0”.

Data Analysis Plan

For this research project, *IBM SPSS Version 22* software was used in order to analyze all data collected. As noted earlier, the data as retrieved and analyzed from archival data kept by the university. All identifying information was screened out and

each student was given a confidential unique identifier for the purposes of this study.

The Office of Institutional Research eliminated any identifiers before it sent or shared the archival data.

The alpha level is a level of significance which establishes high or low probability in relation to a hypothesis (Gravetter & Wallnau, 2013). The alpha level for this study was set at the .05 level as it is a common level used in quantitative research and separates the 5% most unlikely of sample means (Gravetter & Wallnau, 2013; George & Mallery, 2010). Additionally, several studies on high-risk student retention and success used the alpha or p .05 level as one of their measures of significance (Storia & Stableton, 2012; Swecker et al, 2013; and Woosley & Shepler, 2011).

A chi-square test was used to evaluate the relationship between the dependent and independent variables in all three hypotheses as both the dependent and independent variables are nominal data. According to Gravetter and Wallnau (2013), this test is used to determine if there is a significant relationship between two variables using nominal data. Within the literature on student retention strategies, several studies used the chi-square statistic to determine the significance of the relationship between variables including the study by Fike and Fike (2008) on first-year student retention. A study done on social cognitive factors and student persistence or retention was also conducted using chi-square (Brown et al., 2008). Researchers on this topic have frequently used regression analysis to determine the significance of the relationship between variables by Fike and Fike (2008) study on first-year student retention. A study done on social cognitive factors and student persistence or retention also conducted regression analysis (Brown et

al., 2008). Using Faul, Erdfelder, and Buchner's (2009) G*Power software and an alpha level of .05, a sample size of $N = 220$ would be required with a medium effect size of .3, the critical χ^2 is 3.84 ($df = 1$) for each of the three hypotheses. A logistic regression analysis was also conducted to review the interaction between the variables. Again using Faul, Erdfelder, and Buchner's (2009) G*Power software and an alpha level of .05, a sample size of $N = 119$ would be required with the critical $F = 2.683$ for a regression analysis. This study included 678 first year undergraduate students, so it was well over the required sample size needed to conduct either statistical analysis.

The results of this analysis is provided in Chapter 4 including an evaluation on relationships between student second-semester retention based on the variables of class success, parent academic background, and use of supplemental online materials. Additionally, the logistic regression analysis in particular will provide information on the significance of the interaction between these three independent variables being studied.

Threats to Validity

This project, similar to many others, was challenged by threats to validity, both internal and external. For this study, there were several internal validity risks. One challenge was there is no way to control for whether or not faculty provided online supplemental materials to their students in the identified classes. Some college and university faculty are resistant to using technology as a method to develop curriculum or as a tool to deliver additional information for their course (Harris & Hofer, 2011). It has been shown that some faculty members do not understand the technological options available to them, or exactly how to use it (Harris & Hofer, 2011). Institutions also

struggle to find the financial means to purchase technology or software, as well as the funds to train students, faculty, and administrative staff alike (Waddoups et al., 2004). However, for the purposes of this study, the specific course ENG105 – Expository Writing was specifically chosen, as all incoming first-year freshman must take the course and the instructors’ use of supplemental online materials varied greatly.

There was no way to control for whether or not the first-year college students would use the materials for self-pacing of content, but the information was being tracked by the university and was accessible. Areas for further consideration were confidentiality due to small campus size, as students who do work study in the research offices may see the names of the students in the classes of the archival data being retrieved. However, all students who were work studies were required to adhere to the same confidentiality requirements as employees in areas of research.

In order to control for these risks, the Office of Institutional Research assigned students. Work-study students were not allowed to participate in the data retrieval or assignment of numbers. Additionally, to avoid class subject matter affecting the outcomes, the course *ENG105-Expository Writing* was chosen as the content, curriculum was similar from class to class, and many sections were taught in fall semesters to newly enrolled students who meet the participant criteria for this research project. In addition, a preliminary evaluation of faculty use of supplemental online materials was conducted and found that there were a number of faculty members who both did include or did not include supplemental online materials during the 2011, 2012, and 2013 fall semesters.

External validity may be challenged in several ways as well. Year-to-year there may have been a significant variable that impacted one particular class over other incoming classes. Financial aid for students may also impact student retention rates and was beyond the scope of what this study can control for in terms of outcomes. Some additional external factors can be previous school performance and its impact on student success and retention. Per Williams and Luo (2010), students with low high school GPA scores, low entrance exam scores and low GPA scores once entering college are at higher risk of dropping out of college.

To control for a single variable impacting one year, three years of success and retention data were collected and analyzed (Fall 2011, 2012, and 2013 for *ENG105-Expository Writing*). However, the issue of high school GPA and financial aid was beyond the scope of control for this study.

Ethical Procedures

As with any type of research, it was essential to address potential ethical issues and develop ethical procedures to prevent problems. For this study, signed agreements have been completed with the English Department, Information Technology Department, and the Office of Institutional Research with the private college being used in this research. As this was an archival data study, there was a low risk of ethical issues or risk to participants as their information was completely unidentifiable and their specific data was kept confidential in the Office of Institutional Research. The researcher in this study did not have access to any student identifying information for faculty identifying information. The data shared from this study was strictly in a compiled format and no individual or

identifiable data was used or presented. On a final note, no data was collected from the classes or department of the researcher.

Summary

This study used a quantitative research design to determine the impact of class success, parental college experience had on semester-to-semester retention, and the use of online supplemental materials in conjunction with the traditional curriculum delivery of face-to-face lecture on second semester enrollment. Archival data was reviewed from first-year, students enrolled in the ENG105 – *Expository* Writing course during the fall semesters of 2011, 2012, and 2013 with data from 678 total students. A chi-square analysis and regression analysis was used to investigate the relationship between several different variables and student semester-to-semester retention.

Chapter 4: Results

Introduction

The purpose of this study was to explore ways to improve semester-to-semester retention of first-year undergraduate students including high-risk first-generation students. The students were enrolled the fall semester of either 2011, 2012, or 2013 and were taking *ENGI05 - Expository Writing*, which is the required introductory English course at a small Midwestern liberal arts university. The total number of students enrolled in this course during these semesters was 678 undergraduate students ($N = 678$). Three independent variables were chosen to evaluate if there was any impact on semester-to- semester retention rates at this university for first semester full-time freshman at a four year liberal arts university. The independent variables included were class success meaning students earned a “C” or higher in the course, parent academic background or first-generation status, and availability and use of online supplemental materials in conjunction with traditional undergraduate class delivery. The dependent variable explored was the semester-to-semester retention rates of these first year students.

Three hypotheses were developed based on these variables. The first hypothesis evaluated class success (C or higher) and its impact on semester-to-semester retention. The second hypothesis included parental college experience and its influence on semester-to-semester retention. The final hypothesis researched the availability and use of supplemental online materials in conjunction with traditional face-to-face delivery and its impact semester-to-semester retention.

The first-generation population was chosen as it represents approximately 41% of the student population on this small Midwestern liberal arts campus, which is significantly higher than the national average of 28% amongst all students who earned a bachelor's degree (United States Department of Education, 2003). The supplemental online materials were chosen as a strategy to offer students the ability to self-pace and self-regulate classroom materials at their own pace when outside the traditional classroom. This variable was included due to using Bandura's and Vygotsky's social cognitive theories, which had previously hypothesized that students' abilities to control classroom materials allowed for greater learning success and self-efficacy (Bandura, 2000; Bandura, 2002; Ornstein & Hunkins, 2009). This study was conducted to take it a step further to see if it could also be correlated to semester-to-semester retention. The last independent variable included was class success, to see if a student's performance in a class had a significant impact on the retention rate of the student.

Sample

The sample included 678 first-semester undergraduate students taking *ENG105 Expository Writing* in either fall of 2011, 2012, or 2013 at a small private liberal arts university. Of this population, 223 students were male (32.9%), and 455 were female (67.1%). Other demographic information included ethnicity of which 529 were Caucasian (78%), 74 African American (10.9%), 51 Hispanic (7.5%), 9 Asian American (1.3%), 5 Native American (.7%), one person who identified as multi-racial (.1%) and 9 students who did not complete this question on their registration materials (1.3%).

In regards to the independent variables, the first independent variable class success of a “C” or higher in the course, 563 (83%) students were successful and 115 (17%) students were not successful. This data was tracked by assigning “1” to students who earned a “C” or higher in the class and assigning a “0” to those who earned a lower grade than “C” in the class. The second variable included parental academic background, of which 352 of the students had parents with previous college experience (51.9%), 279 students had parents with no parental college experience (41.2%), and 47 did not include parental academic background on their registration materials (5.9%). This data was tracked by assigning a “1” to students whose parents had previous college experience and were considered continuing-generation students. A “0” was assigned to students whose parents who did not have previous college experience and were considered first-generation students. No code was provided for those who did not provide this information. The last independent variable included was access to online supplemental materials provided in conjunction with face-to-face classes or traditional classroom delivery and 283 (41.7%) of students did not have access to online supplemental materials in this course and 391 (57.7%) of students did have access, and there was no data for 4 students (.6%). Students who had access to supplemental data were assigned a “1” for data analysis and those who did not have access to supplemental data were assigned a “0” for data analysis purposes. Of the 391 students who had access to online supplemental materials 385 (98.5%) used the materials and 6 did not (1.5%). Of the professors who offered online materials, the mean average was 14 supplemental materials and the range was 1 to 102 materials provided.

The independent variable for this study was semester-to-semester retention. Of the 678 students included in this study, 77 were not retained semester-to semester and 601 were retained. Students who were successfully retained were assigned a “1” and students who were not successfully retained semester-to-semester were assigned a “0”.

The students in this study were a convenience sample which is considered a non-probability study. However, a significantly larger number of students ($N = 678$) were included in the study beyond the minimum ($N = 220$) for a chi-square analysis or the minimum ($N = 119$) for a regression analysis per the G*Power software required for statistical validity (Faul, Erdfelder, & Buchner, 2009).

Table 1 demonstrates demographic differences between this study’s participants and traditional undergraduate students nationally. Statistical comparison data was retrieved from the United States Department of Education, National Center for Education Statistics (2003, 2012, 2015). Additional sources consulted were studies by Skelly (2007), Cohen, and Nachmias (2011).

Table 1

Participant and National Descriptive Data

Measure	Participant (%)	National (%)
Men	32.9%	43%
Women	67.1%	57%
First-Generation Student	41.2%	28%
Ethnicity		
Caucasian, non-Hispanic American	78%	59.3%
African American	10.9%	14.7%
Hispanic American	7.5%	15.8%
Asian American	1.3%	6.2%
Native American	.7%	.8%
Other	1.3%	2.9%
Enrollment Status (Full-time)	100%	62.4%
Supplemental Online Materials	57.7%	60%
Students Who Accessed Materials	98.5%	60%
First-Year Retention Rates	68.8%	72%

Participants in this study were above the national average in regards to female gender, Caucasian ethnicity, first-generation status, full-time enrollment, (since full-time enrolled students were studied), and the percentage of students who accessed supplemental online materials if they were available. The sample population is below the

national average in regards to male participants, African American ethnicity, Hispanic American ethnicity, Asian American ethnicity, Native American Ethnicity, and faculty who offer online supplemental materials.

Table 2 presents a summary of the descriptive data for success in class (C or better) for the *ENG105-Expository Writing* course

Table 2

Participant Descriptive Data for Class Success

Measure	Success (%)	No Success (%)
Class Success (C or better)	83%	17%

Table 3 presents a summary of the descriptive data for parental academic background or first-generation status in the *ENG105-Expository Writing* course

Table 3

Participant Descriptive Data for Parental Academic Background

Measure	Parents College Experience (%)	No College (%)	Unknown (%)
Parents Col. Exp.	51.9%	41.2%	6.9%

Table 4 presents a summary of the descriptive data for online supplemental materials offered/used in the *ENG105-Expository Writing* course

Table 4

Participant Descriptive Data for Online Supplemental Material Access

Measure	Access to Online Sup. Materials(%)	No Access(%)	No Information(%)
Materials	57.7%	41.7%	.6%

Table 5 presents a summary of the descriptive data for online supplemental materials used if offered or access to them in the *ENG105-Expository Writing* course

Table 5

Participant Descriptive Data for Use of Online Supplemental Material

Measure	Use of Sup. Materials(%)	Did Not Use(%)	National Avg. (%)
Use of Materials	98.5%	1.5%	60%

The majority of students who had access to the online materials actually accessed and used them throughout the course. Per the data 98.5% of the students with access used the materials. This is a much higher average than the 60% found in a study by Skelly (2007). Additionally, faculty who provided online supplemental materials averaged 14 online supplemental materials with a range from 1 to 102 materials.

Table 6 presents a summary of the descriptive data for students who were retained both semester-to-semester and year-to-year.

Table 6

Participant Descriptive Data for Retention

Measure	Retained(%)	Left the University(%)
SemtoSem	88.64%	11.36%
YeartoYear	70%	30%

Results

This section includes the statistical analyses of the three main hypotheses. Additional analyses were conducted to determine if relationships between other related variables may exist, based on additional data that was collected. Specifically, the impact of the independent variables on year-to-year retention was evaluated. In addition, the number of online supplemental materials available to students and student retention was also considered.

Research Question 1: Is second-semester retention associated with first semester academic success?

The first research question sought to determine if there is a relationship between class success and semester-to-semester retention in first semester undergraduate students taking an introductory English course. Class success for this course was determined as earning a “C” or higher in the course, as having a lower grade was considered a failing grade in some of the majors at the university and having a grade point below a “C” average puts the student on academic probation.

The cross tabulation analysis of class success or no success and semester-to-semester retention or failure to be retained semester-to-semester is noted in Table 7 below.

Table 7

Class Success and Semester-to-Semester Retention Cross Tabulation

	No Enrollment	Sem2SemEnr	Total
No Success	36	79	115
Success in Class	41	522	563
Total	77	601	678

SPSS Version 23 was used to conduct a Pearson chi-square analysis, as displayed in Table 8, the null hypothesis was rejected and there was a strong significant relationship between class success and semester-to-semester retention with $\chi^2(1, n = 678) = 54.738, p = .000$. In regards to effect a phi coefficient was done with the result $\phi .28$ which is considered to be a moderately strong or medium effect.

Table 8

Class Success and Semester-to-Semester Retention Chi-square Results

	Value	df	p value
Pearson Chi-square	54.738	1	.000

Research Question 2: Is second-semester retention associated with parental academic background?

The second research question sought to determine if there is a relationship between parent academic background and semester-to-semester retention in first semester undergraduate students taking an introductory English course. Continuing generation students included at least one or more college courses for either parent and first-generation status was a student whose parents had not taken any college courses.

The cross tabulation analysis of parent academic background or no parent academic background and semester-to-semester retention or failure to be retained semester-to-semester are provided in Table 9 below.

Table 9

Parent Academic Background and Semester-to-Semester Retention Cross Tabulation

	No Enrollment	Sem2SemEnr	Total
ParentswCollege	42	310	352
First-Generation	27	252	279
Total	69	562	631

SPSS Version 23 was used to conduct the Pearson chi-square analysis, as shown in Table 10, the null hypothesis was not rejected and there was not a significant relationship between parent academic background and semester-to-semester retention with $\chi^2 (1, n =$

631) = .812, $p > .05$. In regards to effect a phi coefficient was done with the result $\phi .03$ which is considered to be a small or weak effect.

Table 10

Parent Academic Background and Semester-to-Semester Retention Chi-square Results

	Value	<i>df</i>	<i>p</i> value
Pearson chi-square	.812	1	.367

Research Question 3: Is second-semester retention associated with the availability and use of supplemental online materials or the lack of availability and use of supplemental materials?

The third research question was analyzing if there was a relationship between student's access to online supplement materials and semester-to-semester retention. The online supplemental materials included syllabi, PowerPoints, electronic articles and electronic videos. These were provided in conjunction with traditional face-to-face classroom delivery to first semester undergraduate students in an introductory English course.

The cross tabulation analysis of availability of supplemental online materials or lack of availability and semester-to-semester retention or failure to be retained semester-to-semester can be found in Table 11 below.

Table 11

Access to Supplemental Online Materials and Semester-to-Semester Retention Cross Tabulation

	No Enrollment	Sem2SemEnr	Total
No Supplements	30	256	286
Supplements	46	345	391
Total	76	601	677

SPSS Version 23 was used to conduct a Pearson chi-square analysis, as displayed in Table 12, the null hypothesis was not rejected and there was not a significant relationship between access to online supplemental materials and semester-to-semester retention with $\chi^2 (1, n = 679) = .005, p > .05$. In regards to effect a phi coefficient was done with the result $\phi .02$ which is considered to be a small or weak effect.

Table 12

Access to Supplemental Online Materials and Semester-to-Semester Retention Chi-square Results

	Value	df	p value
Pearson chi-square	.005	1	.946

Binary Logistic Regression on All Three Independent Variables

A logistic regression was performed to ascertain the effects class success, first-generation status, and access to online supplemental materials had on the likelihood students would be retained from semester-to-semester. The positive predictive value was 100%, the negative predictive value was 0%, with an overall predictability of 89.2% accuracy in terms of determining if students would enroll semester-to-semester. The logistic regression model was statistically significant, $\chi^2(3) = 35.296, p = .000$. The model explained 11% (Nagelkerke R^2) of the variance in semester-to-semester enrollment and correctly classified 89% of cases. Students who successfully completed their introductory level English course were more likely to continue semester-to-semester enrollment.

Additional Analysis on Year-to-Year Retention and Number of Online Materials

In addition to data on second semester fall to spring enrollment, year-to-year enrollment data from first academic year to second academic year was also available. Also, the specific number of online supplemental materials available to each student who had access to online supplemental materials was also provided. Within these specific expanded parameters, this additional data was analyzed.

Class Success and Student Year-to-Year Retention

In the original research question, the null hypothesis was rejected, as there was a significant relationship between class success and second semester retention. Evaluating this variable out further, the information on year-to-year retention was also evaluated. The definition for class success remained a “C” or higher in the course. Anything lower was considered unsuccessful.

A cross tabulation was conducted on the variables of class success and no success and year-to-year retention and no year-to-year retention. The results can be found on Table 13 below.

Table 13

Class Success and Year-to-Year Retention Cross Tabulation

	No Enrollment	Year2Year	Total
No Success	68	47	115
Success in Class	137	426	563
Total	205	473	678

SPSS Version 23 was used to conduct a Pearson chi-square analysis, as shown in Table 14, there was a significant relationship between class success and year-to-year retention with $\chi^2 (1, n = 678) = 54.814, p = .000$. In regards to effect, a phi coefficient was done with the result $\phi .284$, which is considered a moderately strong or medium effect.

Table 14

Class Success and Year-to-Year Retention Chi-Square Results

	Value	df	p value
Pearson Chi-square	54.814	1	.000

The second research question sought to determine if there is a relationship between parent academic backgrounds, but this time year-to-year retention was evaluated for first

semester undergraduate students taking an introductory English course. Parent academic background still included at least one or more college courses for either parent and first-generation status was a student whose parents had not taken any college courses.

A cross tabulation was conducted on the variables of parent academic background and no parent academic background (first generation status) and year-to-year retention and no year-to-year retention. The results can be found in Table 15 below.

Table 15

Parent Academic Background and Year-to-Year Retention Cross Tabulation

	No Enrollment	Year2Year	Total
ParentwCollege	106	246	352
First-Generation	137	196	279
Total	189	442	631

SPSS Version 23 was used to conduct a Pearson chi-square analysis, as presented in Table 16, there was not a significant relationship between parent academic background and year-to-year retention with $\chi^2(1, n = 631) = .01, p > .05$. In regards to effect, a phi coefficient was done with the result $\phi .004$, which is considered a small or weak effect. The results can be found on Table 16 below.

Table 16

Parent Academic Background and Year-to-Year Retention Chi-Square Results

	Value	<i>df</i>	<i>p</i> value
Pearson chi-square	.01	1	.921

Access to Online Supplemental Materials in Conjunction with Face-to-Face Class and Student Year-to-Year Retention

The third research question analyzed if there was a relationship between student's access to online supplement materials and this time used year-to-year retention as the dependent variable. The online supplemental materials again included syllabi, PowerPoints, electronic articles and electronic videos. These were provided in conjunction with traditional face-to-face classroom delivery to first semester undergraduate students in an introductory English course.

A cross tabulation was conducted on the variables of online supplemental materials available and no supplemental materials available and year-to-year retention and no year-to-year retention. The results can be found on Table 17 below.

Table 17

Access to Supplemental Online Materials and Year-to-Year Retention Cross Tabulation

	No Enrollment	Year2Year	Total
No Supplements	68	201	286
Supplements	119	272	391
Total	204	473	677

SPSS Version 23 was used to conduct a Pearson chi-square analysis, as displayed in Table 18, there was not a significant relationship between access to online supplemental materials and year-to-year retention with $\chi^2 (1, n = 679) = .040, p > .05$. In regards to effect, a phi coefficient was done with the result $\phi = -.008$ which is considered a small or weak effect.

Table 18

Access to Supplemental Online Materials and Year-to-Year Retention Chi-Square Results

	Value	df	p value
Pearson chi-square	.040	1	.841

Binary Logistic Regression on Year-to-Year Retention

A logistic regression was performed to ascertain the effects class success, first-generation status, access to online supplemental materials, and the number of supplemental materials available had on the likelihood students would be retained from year-to-year. The positive predictive value was 100%, the negative predictive value was

0%, with an overall predictability of 70.2% accuracy in terms of determining if students would enroll year-to-year. The logistic regression model was statistically significant, $\chi^2(5) = 47.564, p = .000$. The model explained 10.3% (Nagelkerke R^2) of the variance in year-to-year enrollment and correctly classified 70% of cases. Students who successfully completed their introductory level English course were significantly more likely to continue year-to-year enrollment $p = .000$. The number of online materials students had available as a supplement to face-to-face class was also significant in regards to year-to-year retention at the $p < .05$ level.

Summary

Three key areas were evaluated in regards to undergraduate college student retention for this research study. These included class success (“C” or higher), parent academic background, and access to supplemental online materials in conjunction with traditional college class delivery face-to-face. Another independent variable that was considered was the number of online materials provided, as well as all of these variables impact on year-to-year retention as well.

The main finding in this study was a significant relationship between class success and student semester-to-semester and year-to-year retention. Additionally, there was a significant relationship between the number of online supplement materials offered and year-to-year retention rates. Being a first-generation student or a continuing generation student did not have significant impact on student retention. From strictly a percentage perspective, in regards to semester-to-semester retention, first-generation students (90.3%) actually had a slightly higher retention rate than continuing generation

students (88.1%), which is unusual as first-generation students usually have a lower four-year retention and graduate rate on the national level of 11% compared to the national average of 55% (Heaton-Shrestha, May, & Burke, 2009). However, this small percentage increase is not statistically significant.

In regards to access to supplemental online materials, there was not statistically significant information there either. However, as noted above, the number of online supplemental materials was correlated, but only on the year-to-year retention. One other interesting statistic was that of the 57% percent of students who were offered access to online supplemental materials, 98.5% actually access the materials. All of this information provides the opportunity to evaluate what it may mean in regards to student retention and make recommendations for future studies on this topic.

Chapter 5: Discussion, Recommendations & Conclusion

Introduction

The purpose of this study was to explore how to improve retention rates amongst first semester undergraduate college students and particularly students that were first-generation students due to their being identified as high-risk for dropping out. Specific strategies being considered were classroom performance or success (“C” or higher) in an introductory English class in their first semester, their parents’ academic background, and access to online supplemental materials in conjunction with face-to-face delivery.

Of these independent variables, only class success was found to be significantly related to student semester-to-semester and year-to-year retention. The parent academic background or being a first-generation student versus a continuing generation student did not have a significant impact or relationship to student retention at least on the semester-to-semester or year-to-year retention. A slightly higher percentage of first-generation students had higher rates of semester-to-semester retention than continuing generation, which is unusual as first-generation students are usually identified as high-risk and have lower retention rates. Student access to or use of supplemental online materials was not significantly related to semester-to-semester or year-to-year retention rates. However, number of accessible supplemental online materials was significantly related with year-to-year success. One other statistic of interest was that of the 57% of students offered online supplemental materials, 98.5% of them accessed them, despite no relationship to student retention.

Interpretation of Findings

In the first research question evaluating the relationship of class success and semester-to-semester or second semester retention, the findings are not surprising. Students who had class success of a “C” or higher were significantly more likely to be retained in the second semester. This finding was consistent in both chi-square and regression analysis. Laskey and Hetzell (2011) found that students who had a grade point average of below 2.0 had a higher rate of leaving the college or being dismissed. However, similar to the findings in this study, student class success of a “C” or 2.0 in the class or better was found to have a significant relationship to student semester-to-semester and year-to-year retention. Knowing this, United States universities that are faced with losing 28% of their freshman after the first year, per the U.S Department of Education (NCES, 2012), may need to put forth more effort at ensuring students are successful in their coursework in order to improve retention rates. Additional factors should be explored related to class success first and then expanding the research on other factors that impact retention.

Overall, this small Midwestern liberal arts university’s first-year retention rates are similar to the national average according to the United States Department of Education as the year-to-year first retention rate was 69.8% in comparison to the national average of 72% (U.S. Department of Education, NCES, 2012). However, despite having a higher than average rate of first-generation students at 41.2%, these students did not have the retention issues found in the U.S. Department of Education, NCES (2012)

findings. Instead, this study found that students who were first-generation had approximately the same semester-to-semester or second semester retention rates and they had approximately the same year-to-year retention rates as their continuing generation student counterparts.

There are several potential reasons the first generation students in this study had a higher retention rate than the national average. First, the university in this study has been awarded a TRIO grant from the U.S. Department of Education for several years, which is intended to provide additional support to high-risk students and this includes the first-generation students. This program provides extra mentoring, tutors, and advising in addition to the advising and tutoring offered to all of the students on this campus. According to Schwebel, Walburn, Klyce and Jerrolds (2012), their research showed that increased advising contact resulted in a higher rate of first-year student retention. Swecker, Fifolt, and Searby (2013) found a 13% increase in retention for every time the student met with an advisor. This may explain why no significant effect was found for first generation students in this study, since the high rate of advising contact and support was potentially a strong mitigating factor.

This statistical anomaly could be explored further at this particular university to find out what things are being offered or what strategies are being used to successfully retain this high-risk population. A study could be conducted to evaluate whether or not the high rate of advising was the variable that created higher than average retention in the first-generation population. In addition to being successful in the classroom and advising, types of support should be evaluated within the classroom and a review of other

universities' support strategies would be useful. So more research could be done with these students to find out why this university is actually so successful compared to national averages.

The final research question explored whether or not offering supplemental online materials could be related to student semester-to-semester or second semester retention. The findings were not significant in regards to this variable nor was it significant based on students accessing the materials. However, a few interesting pieces of data were noted. One, 98.5% of students who were offered the materials accessed them. Secondly, the number of materials offered was found to be significant in terms of year-to-year retention rates. Noting there was a relationship between the numbers of materials offered, maybe a closer look could be taken to see what specific number of materials offered increases retention. An additional study could be conducted to determine at what number does retention significantly increase and then do a follow-up study having professors who use materials agree to offer this number amount to confirm that the number was the mitigating factor. Future research could be done on the specific types of materials offered and their impact on retention.

There could be several reasons for the original hypothesis not being significant. This study was unable to clearly demonstrate how online supplemental materials were used and the frequency of use. Additionally, the quality of the materials being offered was beyond the scope of this study, as archived data was used. Future studies could explore or evaluate the quality of the materials and analyze if this is a significant factor in retention.

In regards to theoretical framework, one could argue that Thorndike's theory of connectionism could be at play in these final pieces of data. Thorndike believed the development of a skill could lead to greater and stronger application of that skill, then having students have greater access to more supplemental materials may be the key to developing students critical thinking, research, and studying skills (Watras, 2009).

Another aspect of this study was to evaluate whether or not students would use the online materials and if this ability to have additional access to course information would help, improve their class success and retention. Bandura and Vygotsky's social cognitive theories included the belief that people who have the ability to self-pace their materials experience a higher rate of self-efficacy (Bandura, 2002; Ornstein & Hunkins, 2009). This ability to self-pace and improve self-efficacy through access and use of online materials was evaluated, but no significance was found. One could consider again that since such a high percentage of students access materials offered, this could in turn have allowed them greater ability to self-pace materials resulting in greater self-efficacy. Especially noting that once again the number of materials offered played a role in whether or not there was a significant relationship. So if faculty can offer a variety of supplemental materials this gives first semester freshman the opportunity to practice newfound skills related to a new university, classes, and website and in turn over times increased their perception of self-efficacy and success. There is definitely more that could be done with this information in regards to future research which will be noted later in the chapter.

Limitations of the Study

As with most research, this study had its limitations. As noted earlier, archival data was used, so classes had already concluded before looking at the information. This could be a potential internal validity issue as the decision to offer supplemental materials was completely up to the instructors teaching the introductory English courses. In the end, 57.7% of the faculty who taught the introductory English course provided online supplemental materials and 42.3% did not. In regards to other internal validity, the study had no influence on whether or not faculty included online supplemental materials nor was there the ability to influence students' use of the materials when they were offered. However, after gathering the data, the statistical analysis found that 98.5% of students offered supplemental online materials used them.

In addition, from year-to-year there may have been a significant variable that influenced one particular class over other incoming classes. Some classes may have had higher numbers of males to female ratios, others may have had higher incoming grade point averages, and other variables could be access to technology itself. All of these factors could have affected the results of this study. However, this study chose to combine three different years of data on incoming freshman in an effort to compensate for any individual differences specific to one cohort.

In regards to potential confidentiality issues noted in earlier sections on limitations, this was not an issue. All data was coded in unidentifiable numbers before the researcher had access to the data. Additionally, any conflicts of interest were avoided, as the course chosen to be studied was not in the same department as the

researcher. In addition, as all incoming freshman are required to take this introductory English course, it increased the likelihood of capturing the most data on the incoming freshman class.

One final limitation was the actual semester-to-semester retention rate since it was so high (88%). Since the dependent variable was so successful, this may have suppressed or restricted the ability to clearly see how the independent variables influenced retention. A longer review of the retention rates across multiple semesters and multiple classes might be able to distinguish further if class success, first-generation status, or online supplemental materials have an impact as students continue over the four years of college.

Recommendations

As noted earlier, there are several areas to explore further in regards to this study's findings. As class success was found to be significant in terms of semester-to-semester retention, it would be interesting to see if this study could be replicated choosing a different first semester freshman class. Additionally, a different course may have different findings in regards to supplemental online material access and its impact on first-generation college students who are higher risk.

Additionally, since there was a significant relationship between number of online supplemental materials offered and year-to-year retention, replicating a similar study would be of interest to see if that finding was an outlier or if the number of items provided does impact student retention and class success. Linked to this and the theoretical framework for this study, future research could use a tool to evaluate student

perception of self-efficacy or a pre and post-test of student's perception of efficacy before and after taking a class with or without supplemental online materials.

On a final note, since the semester-to-semester retention rate was so high (88%), it may not have allowed different factors to demonstrate significance and may be why the one statistic was only significant from year-to-year retention. Future explorations could expand or continue this study in order to make a four-year longitudinal study to see if over the course of four years students build both Bandura's self-efficacy and Thorndike's connectionism by using online supplemental materials over several classes and years. Then compare the year-to-year or four-year retention results with the same independent variables to review if time, opportunity, and practice using supplemental online materials have a significant impact on retention.

Implications for Social Change

Completion of a college education is a lifelong goal that many individuals strive for and for some, they may be the first person in their immediate family to attend a college and earn a college degree. This may be a path for an individual or entire family to try to lift not only the person, but also the entire family system out of poverty and to brighten the way for future family generations.

Statistically, those people who do not complete college are significantly more at risk to remain below the poverty level. In 2015, the poverty guideline for a family of four was \$24,250 (U.S. Dept. of Health and Human Services). According to the most recently released United States Bureau of Labor Statistics report (2015), the average rate of weekly pay for women in the United States with only a high school education is an

average of \$561 a week which equates to \$29,172 annually. This is just barely over the poverty guideline and in most major cities, is not a livable wage. In comparison, the median salary for college-educated women in the United States, according to the U.S. Department of Labor (2015), was \$52,052. For a family of four, that almost \$23,000 increase across a mother's lifespan can mean the difference between having a home and being homeless.

Due to the clear correlation between achieving a higher level of education and higher income, a focus on increased enrollment and graduation beyond high school may assist with individuals and families moving above the poverty level. However, educating people beyond the high school level is not as easy as it appears, due to the number of variables contributing to educational success (Raffo, Dyson, Gunter, Hall, Jones, & Kalambouka, 2009). Enrolling students into college is only the first step to securing a degree and higher income wages. Identifying high-risk students who are at greater risk of quitting or leaving college is equally important (Fike & Fike, 2008). One specific high-risk population for consideration is first-generation college students as they have lower retention and graduate rates compared to their peers (Engle & Tinto, 2008; Forbus, Newbold, & Mehta, 2011, U.S. Department of Education, NCES, 2012).

First-generation college students continue to be a high-risk population in terms of both college success and retention. Fortunately in the research conducted at this university, it appears first-generation students are doing as well as their continuous generation peers. However, it will continue to be important to explore ways to help maintain and increase the success of first-generation and all college students since the

graduation rate is only a little over 50% in four years (U.S Department of Education, NCES, 2012). Those who choose to go to college are potentially taking on a large financial burden in student debt. It is imperative that colleges and universities find a way to ensure those that start college are able to successfully graduate.

Conclusion

The rate of undergraduate retention is going to continue to be at the forefront of U.S. colleges and universities strategic plans since the current graduation rate for non-profit universities is 52% in four years and the current four-year graduation rate of for-profit universities is 31% (U.S. Dept. of Education, NCES, 2012). Considering the amount of time and money invested by these individuals, to not complete their degree is quite a burden on them. More important than college success rates, is the success rates of the individual families and young people who have factors that decrease the likelihood of their success at earning a degree. Dropping out or not completing college can condemn them to a potential lifetime of poverty, as we know that adults who do not complete college earn significantly less money and are frequently found below the poverty line. It is crucial that colleges and universities continue and increase their efforts at student retention, not only to increase their own statistics, but also to prevent a future generation of people struggling to make ends meet.

References

- ACT. (2010). *National collegiate retention and persistence to degree rates*. Retrieved from <http://www.act.org/path/policy/reports/retain.html>
- Ackerman, R., & Schibrowsky, J. (2007). A business marketing strategy applied to student retention: A higher education initiative. *Journal of College Student Retention, 9*(3), 307-336. doi: 10.2190/CS.9.3.d
- Aguayo, D., Herman, K., Ojeda, L., & Flores, L. Y. (2011). Culture predicts Mexican Americans' college self-efficacy and college performance. *Journal of Diversity in Higher Education, 4*(2), 79-89. doi:10.1037/a0022504
- Ash, M.G. (2005). The uses and usefulness of psychology. *The annals of political and social science, 600*, 99-114.
- Bandura, A. (2000). Social-cognitive theory. In A. E. Kazdin (Ed.) , *Encyclopedia of Psychology, Vol. 7* (pp. 329-332). American Psychological Association. doi:10.1037/10522-140
- Bandura, A. (2001). The changing face of psychology at the dawning of a globalization era. *Canadian Psychology, 42*, 12-24.
- Bandura, A. (2002). Social cognitive theory in a cultural context. *Applied Psychology: An International Review, 51*(2), 269-290.
- Berliner, D. (1993). The 100-year journey of educational psychology: From interest, to disdain, to respect for practice. In T. K. Fagan & G. R. VandenBos (Eds.), *Exploring applied psychology: Origins and critical analysis* (pp. 1–31). Washington, DC: American Psychological Association.

- Bodrova, E., Leong, D. J., & Akhutina, T. V. (2011). When everything new is well-forgotten old: Vygotsky/Luria insights in the development of executive functions. *New Directions For Child & Adolescent Development*, 2011(133), 11-28.
doi:10.1002/cd.301
- Brown, S.D., Tramayne, S. Hoxha, D., Telander, K. Fan, X., Lent, R. (2008). Social cognitive predictors of college students' academic performance and persistence: A meta-analytic path analysis, *Journal of Vocational Behavior*, 72 (3), 298-308.
- Chao, I., Saj, T., & Hamilton, D. (2010). Using collaborative course development to achieve online course quality standards. *International Review of Research in Open and Distance Learning*, 11(3), 106-126. Retrieved from EBSCOhost.
- Chen, X., & Carroll, C. D. (2005). *First-generation students in postsecondary education: A look at their college transcripts*. (U.S. Dept of Education, NCES 2005-171). Washington, DC: National Center for Educational Statistics.
- Choy, S. (2001). *Students whose parents did not go to college: Postsecondary access, persistence, and attainment* (NCES Rep. No. 2001-126). Washington, DC: National Center for Educational Statistics.
- Close, W. & Solberg, S. (2008). Predicting achievement, distress, and retention among lower-income latino youth. *Journal of Vocational Behavior*, 72, 31-42.
- Cohen, A. & Nachmias, R. (2011). What can instructors and policy makers learn about web-supported learning through web-usage mining. *The Internet and Higher Education*, 14,(2), 67-76.

- Creswell, J. W. (2013). *Research design: Qualitative, quantitative and mixed methods approaches (3rd ed)*. Thousand Oaks, CA: Sage Publications, Inc.
- Crozier, G., & Reay, D. (2011). Capital accumulation: working-class students learning how to learn in HE. *Teaching In Higher Education*, 16(2), 145-155.
doi:10.1080/13562517.2010.515021
- de Guzman, A. B., & de Castro, B. V. (2008). Employment and employability profile of a select group of Filipino college graduates. *KEDI Journal of Educational Policy*, 5(1), 63-81. Retrieved from EBSCOhost.
- DeLotell, P., Millam, L. A., & Reinhardt, M. M. (2010). The use of deep learning strategies in online business courses to impact student retention. *American Journal of Business Education*, 3(12), 49-55.
- DesJardins, S. L., Ahlburg, D. A., & McCall, B. P. (2006). An Integrated Model of Application, Admission, Enrollment, and Financial Aid. *Journal Of Higher Education*, 77(3), 381-429.
- DeNavas-Walt, Carmen, Bernadette D. Proctor, and Jessica C. Smith (2012). *U.S. Census Bureau, Current Population Reports, P60-245, Income, Poverty, and Health Insurance Coverage in the United States*. U.S. Government Printing Office: Washington, DC.
- Dhillon, P. (2011). The Role of Education in Freedom from Poverty as a Human Right. *Educational Philosophy & Theory*, 43(3), 249-259. doi:10.1111/j.1469-5812.2009.00595.x

- Drouin, M. A. (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.
- Engle, J., & Tinto, V. (2008). Moving beyond access: College success for low-income, first-generation students. Retrieved from the Pell Institute for the Study of Opportunity in Higher Education website: http://www.pellinstitute.org/files/COE_MovingBeyondReport_Final.pdf
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160.
- Fetzner, M. (2013). What do unsuccessful online students want us to know? *Journal of Asynchronous Learning Networks, 17*(1), 13-27.
- Feuerstein, R., & Falik, L. H. (2010). Learning to think, thinking to learn: A comparative analysis of three approaches to instruction. *Journal of Cognitive Education and Psychology, 9*(1), 3-20. doi: 10.1177/0002716205277063
- Fike, D. S., & Fike, R. (2008). Predictors of first-year student retention in the community college. *Community College Review, 36*, 68-88. doi: 10.1177/0091552108320222.
- Forbus, P. R., Newbold, J. J., & Mehta, S. S. (2011). First-generation university students: Motivation, academic success, and satisfaction with the university experience. *International Journal of Education Research, 6*(2), 34-55.

- Francis, T. A., & Miller, M. T. (2008). Communication apprehension: Levels of first-generation college students at 2-year institutions. *Community College Journal of Research & Practice*, 32(1), 38-55. doi:10.1080/10668920701746688
- Garriott, P.O., Flores, L.Y., & Martens, M.P. (2013). Predicting the math/science career goals of low-income prospective first-generation college students. *Journal of Counseling Psychology*, 60(2), 200-209. doi: 10.1037/a0032074
- George, D., & Mallery, O. (2010). *SPSS for windows step by step: A simple guide and reference. 17.0 Update (10th ed.)*. Boston, MA: Pearson.
- Gravetter, F. J., & Wallnau, L. B. (2013). *Statistics for the behavioral sciences (9th ed.)*. Stamford, CT: Wadsworth.
- Gredler, M.E. (2009). Hiding in plain sight: The stages of mastery/self-regulation in vygotsky's cultural-historical theory. *Educational Psychologist*, 44(1), 1-19. doi: 10.1080/00461520802616259
- Hand, C., & Payne, E. (2008). First-generation college students: A study of appalachian student success. *Journal of Developmental Education*, 32(1), 4-15.
- Harris, J. B., & Hofer, M. J. (2011). Technological pedagogical content knowledge (TPACK) in action: A descriptive study of secondary teachers' curriculum-based, technology-related instructional planning. *Journal of Research on Technology in Education*, 43(3), 211-229. Retrieved from EBSCOhost.
- Heaton-Shrestha, C., May, S., & Burke, L. (2009). Student retention in higher education: What role for virtual learning environments? *Journal of Further & Higher Education*, 33(1), 83-92. doi: 10.1080/03098770802645189

- Hollingsworth, K. R., Dunkle, J. H., & Douce, L. (2009). The high-risk (disturbed and disturbing) college student. *New Directions For Student Services*, (128), 37-54.
doi:10.1002/ss.340
- Johnson, L.S. (2009). School contexts and student belonging: A mixed methods study of an innovative high school. *The School Community Journal*, 19, 99-118.
- Kahn, J. H., & Nauta, M. M. (2001). Social-Cognitive Predictors of First-Year College Persistence: The Importance of Proximal Assessment. *Research in Higher Education*, 42(6), 633-652.
- King, & Fricker (2002). Multimodal curriculum delivery in distance education. *Journal of Distance Education*, 17(2), 102-111.
- Laskey, M. L. & Hetzel, C.J. (2001). Investigating factors related to retention of at-risk college students. *Learning Assistance Review*, 16(1), 31-43.
- Lenth, R. V. (2006-9). Java Applets for Power and Sample Size [Computer software]. Retrieved August 24, 2014, from <http://www.stat.uiowa.edu/~rlenth/Power>.
- Leopold, N. (2010). Colleges Can Do More to Find 'Strivers'. *Chronicle of Higher Education*, 57(5), B23.
- Mamiseishvili, K. (2010). Effects of employment on persistence of low-income, first-generation college students. *College Student Affairs Journal*, 29(1), 65-74.
- McGhie, V. (2009). The role of the lecturer in the learning process: Towards a learning-centred approach. *International Journal of Learning*, 15(11), 1-10.
- Merritt, C. R. (2010). Accommodating the First-Generation College Student. *National Social Science Journal*, 33(2), 121-125.

- Morales, E. E. (2010). Linking strengths: Identifying and exploring protective factor clusters in academically resilient low-socioeconomic urban students of color. *Roepers Review*, 32,164–175. doi:10.1080/02783193.2010.485302.
- National Center for Higher Education Management Systems (2009). *Six-year graduation rate of bachelor's students*.
- Ng, C.S.L., Cheung, W.S., & Hew, K.F. (2009). Sustaining asynchronous online discussions: contributing factors and peer facilitation techniques. *Educational Computing Research*, 41(4), 477-511.
- Oja, M. (2012). Supplemental instruction improves grades but not persistence. *College Student Journal*, 46(2), 344.
- Ornstein A. C., & Hunkins F. P. (2009). *Curriculum: Foundations, principles, and issues* (5th ed.). Boston: Allyn & Bacon Publishers.
- Otero, R., Rivas, O., & Rivera, R. (2007). Predicting persistence of hispanic students in their 1st year of college. *Journal of Hispanic Higher Education*, 6, 163-173.
- O'Toole, D.M., Stratton, L. & Wetzel, J.N. (2003). A longitudinal analysis of the frequency of part-time enrollment and the persistence of students who enroll part time. *Research in Higher Education*, 44, 519-537.
- Parekh, G., Killoran, I., & Crawford, C. (2011). The toronto connection: Poverty, perceived ability, and access to education equity. *Canadian Journal of Education*, 34(3), 249-279.
- Raffo, C., Dyson, A., Gunter, H., Hall, D., Jones, L., & Kalambouka, A. (2009). Education and poverty: Mapping the terrain and making the links to educational

policy. *International Journal of Inclusive Education*, 13(4), 341-358.

doi:10.1080/13603110802124462

Reay, D. (2003). Risky business? Mature working-class women students and access to higher education. *Gender and Education*, 15 (3), 301-316.

Reeves, T., & Osho, G. (2010). The satisfaction of community college students regarding distance education versus traditional education. *National Forum of Applied Educational Research Journal*, 23(3), 1-18.

Schunk, D. (2008). Metacognition, self-regulation, and self-regulated learning: research recommendations. *Educational Psychology Review*, 20(4), 463-467.

doi:10.1007/s10648-008-9086-3

Schwebel, D.S., Walburn, N.C., Klyce, K., & Jerrolds, K. L. (2012). Efficacy of advising outreach on student retention, academic progress, and achievement, and frequency of advising contacts: A longitudinal randomized trial. *NACADA Journal*, 32(2), 36-43.

Skelly, S. S. (2007). Beyond paper, ink, & cardboard. *Community College Journal*, 77(5), 44-48.

Soria, K. M., & Stebleton, M. J. (2012). First-generation students' academic engagement and retention. *Teaching In Higher Education*, 17(6), 673-685.

doi:10.1080/13562517.2012.666735

- Svinicki, M., & McKeachie, W. (2011). *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers (13th ed.)*. Boston, MA: Houghton Mifflin.
- Swecker, H.K., Fifolt, M. & Searby, L. (2013). Academic advising and first-generation college students: A quantitative study on student retention. *National Academic Advising Association Journal*, 33(1), 46-53.
- Tatum, B., & Lenel, J. C. (2012). A Comparison of Self-Paced and Lecture/Discussion Methods in an Accelerate Learning Format. *Journal of Research in Innovative Teaching*, 5(1), 139-156.
- Tomlinson, S. (1997). Edward lee thorndike and john dewey on the science of education. *Oxford Review of Education*, 23(3), 365-384. doi: 10.1080/0954025032000103213
- Tullis, J. G. & Benjamin, A.S. (2011). On the effectiveness of self-paced learning. *Journal of Memory and Language*, 64(2), 109–118. doi: 10.1016/j.jml.2010.11.002
- United States Bureau of Labor Statistics (2014). *Earnings and unemployment rates by educational attainment*. U.S. Government Printing Office: Washington, DC
- United States Census Bureau (2002). *The big payoff: Educational attainment and synthetic estimates of work-life earnings*. U.S. Government Printing Office: Washington, DC.
- United States Department of Education, National Center for Education Statistics (2003). *A descriptive summary of 1999–2000 bachelor's degree recipients 1 year later*.

United States Department of Education, National Center for Education Statistics (2011).

Integrated postsecondary education data system (IPEDS), fall 2001 and spring 2002 through spring 2011, graduation rates.

United States Department of Education, National Center for Education Statistics (2012).

First look: Enrollment in postsecondary institutions, fall 2010; financial statistics, fiscal year 2010; and graduation rates, selected cohorts, 2002-7 (NCES 2012-280).

United States Department of Education, National Center for Education Statistics (2015).

Back to school statistics. Retrieved from
<http://nces.ed.gov/fastfacts/display.asp?id=372>

United States Department of Health and Human Services (2008). *Indicators of welfare*

dependence: Annual report to congress. Retrieved from <https://aspe.hhs.gov/basic-report/indicators-welfare-dependence-annual-report-congress>

United States Department of Health and Human Services (2015). *U.S. federal poverty*

guidelines used to determine financial eligibility for certain federal programs.

Retrieved from <https://aspe.hhs.gov/2015-poverty-guidelines#thresholds>

Verschoor, C. C. (2011). Do for-profit colleges deserve taxpayer support? *Strategic*

Finance, 92(10), 17-25.

Waddoups, G. L., Wentworth, N., & Earle, R. (2004). Principles of technology

integration and curriculum development: A faculty design team approach.

Computers in the Schools, 21(1/2), 15-23. doi:10.1300/J025v21n01_02

- Walberg, H.J., & Haertel, G.D. (1992). Educational psychology's first century. *Journal of Educational Psychology, 84*(1), 6-19.
- Watras, J. (2009). Academic studies, science, and democracy: Conceptions of subject matter from harris to thorndike. *Philosophical Studies in Education, 40*, 113-124.
- Williams, J. E., & Luo, M. (2010). Understanding first-year persistence at a micropolitan university: Do geographic characteristics of students' home city matter? *College Student Journal, 44*(2), 362-376.
- Wosley, S. A., & Shepler, D. K. (2011). Understanding the early integration experiences of first-generation college students. *College Student Journal, 45*(4), 700-714.
- Xueli, W. (2009). Baccalaureate attainment and college persistence of community college transfer students at four-year institutions. *Research in Higher Education, 50*(6), 570-588. doi:10.1007/s11162-009-9133-z

August 27, 2014

RE: Provision of Data to Support Hennings Research

The purpose of this letter is to provide assurance that the Office of Institutional Research at Marian University has met with faculty member Amy Hennings to discuss her proposed dissertation research. We have assured Ms. Hennings that this office is able and willing to provide her with the data she has requested. This data will be without identifying information, and only such demographic or personal information as is needed to address the research hypotheses specified in the IRB. The data will be connected to that information provided by the IT department prior to removal of identifying fields.

Sincerely,

A handwritten signature in cursive script that reads "Sylvia K. Reed".

Sylvia K. Reed, PhD