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College Retention Connections With Multiple Influencing Factors

Jamie Esther McCracken
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral dissertation by

Jamie McCracken

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Review Committee
Dr. Mohammad Sharifzadeh, Committee Chairperson, Management Faculty
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Dr. Raghu Korrapati, University Reviewer, Management Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

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Abstract

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Jamie E. McCracken

MBA, Baker College, 2006

BS, Saint Mary-of-the-Woods College, 2000

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

There are many challenges associated with student retention. Saint Mary-of-the-Woods College (SMWC) has focused on determining the factors affecting student retention across its campus and distance course delivery formats in order to improve student retention. The purpose in this study was to explore the extent to which age, course delivery, technical ability, and financial background determine retention at SMWC. Retention and attrition models of Tinto and Walleri laid the foundation of this study. Qualitative data on technical ability were collected from 69 students who responded to the survey instrument on Survey Monkey. Quantitative data on retention, age, course delivery, and financial background on students who had graduated over the past 10 years were gathered from the offices of financial aid and the registrar. For quantitative data analysis, the influences of age and financial background on student retention were examined through multiple regression; the influence of course delivery on student retention was examined through 2-tailed *t* tests for comparing the 2 population means. Qualitative data were analyzed through a narrative approach. The findings of quantitative data analysis were that student age and financial standing were not significant predictors of student retention and that retention for distance course delivery was significantly lower than that of online delivery. The finding for qualitative analysis was that students with higher technical ability showed higher retention across both course deliveries. The social change implications include a better understanding by SMWC's administrators and faculty of course delivery and design in order to improve student retention, thus benefitting the local economy and community by creating a more skilled and employable workforce and a stronger reputation for SMWC.

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Dedication

I dedicate this research to my Mom and Dad who are the two most important people in my life. Without their love and support, this would have been an impossible task for me. I also dedicate this to my great niece Parker, whose strength and bravery through her battle with cancer at just 3 years old taught me that quitting is never an option.

Acknowledgments

First and foremost I want to thank my Mom and Dad who have supported me not only while I was growing up, but everyday of my adult life through their loving encouragement. They are the reason I have completed this work. I thank God for allowing me this opportunity and giving me the will to complete it. Also, thank you to my entire family, my friends, and my coworkers, who have encouraged me every step of the way.

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Chapter 1: Introduction to the Study

In 2009, only 55.5% of college students in bachelor's programs in the United States graduated within six years (The National Center for Higher Education Management, (2009), www.higheredinfo.org). Many studies have been conducted to examine the causes of retention problems and high attrition rates. Private, 4-year colleges had an average goal of retaining 80.3% of their students in ACT's 2010 What Works in Retention Study (Burkum, Habley, McClanahan, & Valiga, 2010). "The departure risk of students is typically the highest in the first year, which requires an understanding of which factors are likely to elevate that risk and at what point during the freshmen year" (Herzog, 2005, p. 883).

Students must have excellent study skills in college. Terrion and Daoust (2012) concluded that getting students set up for proper studying skills, such as reading, writing, and study skills, were a critical component of their first year experience. At Saint Mary-of-the-Woods College (SMWC), establishing this atmosphere that studying is crucial is emphasized in every classroom.

At a small college, retention is important. Slight fluctuations in retention rates can cause effects in many different departments. This study offers the potential for positive social change on the campus of SMWC. With only around 250 campus students and a total of around 1,500 full time equivalent students, retention is important. It is less costly to retain students than to recruit new students to fill that void. The positive social change affects everyone at the college. When student retention rates remain high additional

students in the classroom impacts group project possibilities, and overall morale is increased.

There is a large gap of knowledge regarding retention at SMWC. With multiple program formats and a high rate of faculty retirement and staff turnover, student retention has never been thoroughly analyzed.

In the first chapter of this dissertation, the following elements were examined: (a) problems created by financial aid in association with retention, (b) impact of student age on retention, (c) retention comparisons between traditionally taught and distance courses, and (d) the technological knowledge of the student impacting retention.

Problem Statement

Student retention is important to all colleges and universities. According to Turner and Thompson (2014) on average, 58% of undergraduate students in the United States complete college within a 6-year period. According to the SMWC VPAA, “it is cheaper to retain students than to recruit new ones” (Janet Clark, 2014). When data does not get analyzed, it is difficult to determine what is affecting a college’s retention rates. United States President Barack Obama referred to the declining proportion of young people with college degrees, stating that it "represents a threat to our position as the world's leading economy” (American Institutes for Research, 2010).

Retention can be difficult to analyze because there are many factors that influence it. Saint Mary-of-the-Woods College was interested in determining what similarities and differences there were in retention across all three program offerings: campus, distance,

and graduate. The main question surrounding this study was: What are the common factors influencing retention in all programs at Saint Mary-of-the-Woods College? Exploratory research questions include:

1. To what extent does financial aid cause retention problems in all programs at Saint Mary-of-the-Woods College?
2. To what extent do grades cause problems in all programs at Saint Mary-of-the-Woods College?
3. What are the differences in retention between traditionally taught courses and courses taught with more online resources and technology?
4. How does the student's technological ability effect retention in all programs at Saint Mary-of-the-Woods College?.

The four exploratory questions answered the question: What are the common factors influencing retention in all programs at Saint Mary-of-the-Woods College?

There has never been an extensive study of student retention at SMWC. This case study filled those gaps, and supported a finding surrounding common retention problems. Data were collected from the different program formats regarding retention cross-referenced with financial aid, technology scores in the introductory computer software (CS101) course, age of student at enrollment, and delivery format of course. Administrative staff was interviewed in the offices of admissions, financial aid, program heads, the vice president of academic affairs, and the president of SMWC. Retention rates of 1^{st} to 6^{th} year for campus, 1^{st} to 7^{th} years in graduate, and 1^{st} to 12^{th} years in distance were studied.

Purpose of the Study

Several retention studies have focused on various aspects that affect retention. However, research appears to be contradictory in many cases. In terms of retention, Tinto stated that "there were still many difficulties with focusing on retention with low income student, and the results of that were till unknown". (2005, p. 1). According to Leu (2010) more research needs to be conducted in the area of race, gender, and financial aid.

Saint Mary-of-the-Woods College is a very small private college. While there have not been huge changes in retention statistics over the years, any improvement can help the college's financial status. With several programs and very diverse learners, it was important to examine the central causes of retention problems. Statistics have remained similar over the years. The work of Creedon & Pantages (1978) gave substantial insight to retention problems from 1950 through 1975. One crucial fact verified was that for every ten students who enter college in the United States, only four will graduate from that college four years later (Creedon & Pantages, 1978).

This was a mixed methods study, primarily quantitative in nature. The purpose of this study was to: (a) collect and analyze retention data, (b) examine the effect of age on retention, (c) examine the effect of course delivery format on retention, (d) examine the effect of student's technical ability on retention, and (e) examine the effect of financial factors on retention. The four exploratory questions answered the question: What are the common factors influencing retention in all programs at Saint Mary-of-the-Woods College?

Two dependent variables will be studied: (a) retention, and (b) attrition. Four independent variables were studied: (a) financial background of student, (b) student age, (c) course delivery format, and (d) technological ability of student.

Research Questions and Hypotheses

The main question surrounding this study was: What are the common factors influencing retention in all programs at Saint Mary-of-the-Woods College?

Exploratory research questions include:

1. To what extent does the student's financial background cause retention problems in all programs at Saint Mary-of-the-Woods College?
2. To what extent does age cause problems in all programs at Saint Mary-of-the-Woods College?
3. What are the differences in retention between traditionally taught courses and courses taught with more online resources and technology?
4. How does the student's technological ability effect retention in all programs at Saint Mary-of-the-Woods College?

Hypotheses include:

Hypothesis 1

H_0: There is no relationship between students' financial background and ability to graduate within 6 years

H_1: Students' financial backgrounds affect their ability to graduate within 6 years

Hypothesis 1 was measured by analyzing the comparison between the dependent variable of retention and the independent variable of student expected family contribution.

Hypothesis 2

H_0: There is no relationship between students' age and ability to graduate within 6 years

H_1: The age of the student impacts whether they are able to graduate within 6 years.

Hypothesis 2 was measured by analyzing the comparison between the dependent variable of retention and the independent variable of student age at the start of the program.

Hypothesis 3

H_0: There is no relationship between the delivery format of the course a student is enrolled in and their ability to graduate within 6 years.

H_1: The course delivery format of course a student is enrolled in impacts whether they are able to graduate within 6 years.

Hypothesis 3 was measured by analyzing the comparison between the dependent variable of retention and the independent variable of program format (campus, distance, graduate).

Theoretical and Conceptual Framework

The theory behind this mixed model case study was that there are multiple causes of low retention in higher education. Each college or university is unique, and with four program formats at SMWC, it was believed there may be one or two common factors affecting retention in all programs. Many retention studies have been done over the past several years. The work of Creedon and Pantages (1978) provided foundational data findings of college attrition between 1950 and 1975. This research has built a foundation that is still be studied and expanded on today, posing questions that are still to be fully answered. Much research has been conducted in the area of college retention but many

institutions have yet to develop these studies into measureable results in student achievement (National Study of Student Engagement, 2010; Tinto 1996). I have included a more detailed explanation of this theoretical framework in Chapter 2. The following four sections outline the theoretical categories of the study.

Financial Factors and Retention

"One of the most obvious causes of attrition is economic – students drop out if they cannot afford to continue in college" (Creedon & Pantages, 1978, p. 49). Over thirty years later, economic conditions continue to play a role in student retention. "The need for financial assistance, given the stress placed on students and their families by the economy, plays an important role in the recruitment and enrollment of desired student populations" (Harris & Holley, 2010, p. 16). "As the costs and price of higher education continue to outpace inflation, the public is scrutinizing the financial decisions of institutional leaders more closely" (Schuh & Topf, 2006, p. 613). According to Schuh and Topf (2006), although the public considers a college education a smart investment for students (The Institute for Higher Education Policy [IHEP], 1998), parents and legislatures are placing higher expectations on institutions to verify that they are using their resources effectively and efficiently (Alexander, 2000). "While economic factors, student demographics and employment opportunities temper institutional growth, undergraduate enrollment at public four-year institutions over the past decade has remained remarkably consistent" (Harris & Holley, 2010, p. 16). According to Harris and Holley (2010), as the U.S. economic recession continues to threaten state funding, federal

support, and financial aid allocations, colleges and universities increasingly rely on student enrollment and tuition as a revenue source.

Schuh and Topf (2006) found that there was a direct relationship between expenditures and retention and graduation rates. Schuh and Topf further stated the higher the amount or percentage of expenditures an institution could dedicate to a specific function, the higher the retention and graduation rates. Herzog (2005) found that although financial aid helps equalize the departure odds of students from different income background in the first semester—except for middle income students with higher levels of remaining need—aid does not overcome the effect of income background in the second semester.

Student Age and Retention

Changes in federal policy and public attitudes since the mid-1960s have opened up higher education to women, minorities, and nontraditional students and also shifted the higher education away from traditional four-year colleges toward nonselective community colleges. Students at two-year colleges, however, are far less likely than those at four-year institutions to complete a degree (Brock, 2010). Most of the research data in the area of student age and retention suggests rates of attrition are similar for students who are either younger or older than the average age of the entering college student (Bragg, 1956; Suddarth, 1957; Thompson, 1953). However, several studies found that older freshmen are less likely to graduate than freshmen of the usual age (Sexton, 1965; Summerskill & Darling, 1955). Studies done in the past suggest age is not a primary factor affecting attrition (Creedon & Pantages, 1978).

Technology has changed the modern world. Students now use laptops, pagers, instant messaging, and cell phones to connect to friends, family, experts, and others in their community and around the globe (Beyers, 2009). “Teachers in the classrooms of today are facing an educational dilemma. The world that they grew up in and were trained in is also rapidly evolving around them” (Beyers, 2009, p. 218). The question concerning whether a student’s age at the time of beginning college affects retention rates may change with every new generation.

Retention Comparisons Between Traditional Versus Distance Courses

“Whilst distance education is probably the fastest growing area of education internationally, it still suffers one fundamental weakness – the high drop-out rate experienced by its students as compared with the drop-out rate of students in conventional education” (Boyle, Kwon, Ross, & Simpson, 2010, p. 115). “There is a general consensus that the number of students receiving an education through distance education has continued to grow steadily” (Hall, 2009; Instructional Technology Council, 2007; National Center for Education Statistics, 2004; Saba, 2005). “Computer-based instruction, including distance learning, is fast becoming an integral part of higher education” (Ignash & Zavarella, 2009, p. 2). “Whilst distance education is probably the fastest growing area of education internationally, it still suffers one fundamental weakness – the high drop-out rate experienced by its students as compared with the drop-out rate of students in conventional education” (Boyle et al., 2010, p. 115). “Although the evidence supports that students enrolled in computer-based instruction perform equally well compared to their lecture-based counterparts, there is a well-documented high

dropout rate in courses delivered via computer-based instruction in general and distance learning courses and programs in particular" (Carr, 2000; Diaz, 2002; Ignash & Zavarella, 2009; Kozeracki, 1999; Parker, 2003; Phipps & Merisotis, 1999). According to researchers, the high dropout rate has prompted critics of computer-based instruction to question whether it is an appropriate delivery method for every student or for every subject area (Ignash & Zavarella, 2009, p. 2).

The Impact Of Technological Knowledge On Retention

Distance education is often examined with regard to current technology (Anderson, 2009). Hall (2009) found that the "rising use of the Internet for instructional delivery, coupled with the desire to improve student retention, continues to generate a need for a viable prediction instrument for advising students considering distance education courses" (P. 344). A student's technological ability will need to align with the professor's own technological ability. Some students today are very advanced in the area of technology. In a study done about educational podcasts, Greensmith and Robson (2009) found that institutions looking to adopt podcast technology for educational use need to be aware that staff may be reluctant to engage with this e-learning tool. Further, they found a number of factors fostering staff unease: limited time, unfamiliarity with the technology, worries regarding possible misuse and the possible adverse effect on attendance. Technologies of the current day have the ability to increase student comfort and ability in their coursework. Campbell and Ellingson (2010) found that when using wikis for cooperative learning, "the obstacles are minimal, but the potential benefits for students may be substantial". "These benefits include developing a sense of community,

participating in peer-to-peer learning and using critical thinking and communication skills while still enjoying the convenience of working asynchronously in disparate locations". . Anderson (2009) and Hall provided the foundational theories that the technological research in this study stems from.

Nature of Study

Mixed Methods, Primarily Quantitative

This was a primarily quantitative mixed methods case study. Mixed methods is defined as a research procedure involving the collection, analysis, and integration (or combination) of both quantitative and qualitative data to answer research questions (Creswell & Plano Clark, 2007). In this case study there were qualitative and quantitative factors involved. Qualitative data came from research participants' interviews and the survey results from students who have taken CS101 Introduction to Computer Software. Quantitative data came from raw retention data tracked over the years. This data was collected from the WOL office, financial aid office, and the registrar's office.

There was a need for a mixed methods approach to this study. The research question regarding students' technical ability used a primarily qualitative survey because it focused on a students' perception of how technically savvy they were. Retention was thought to be in part something quantifiable and in every instance a part of human nature, just depending on how the student perceived their own college experience.

This approach has aligned with the research questions. Of the four research questions, the one pertaining to technical ability dealt with qualitative factors and the

questions pertaining to age, course delivery format, and financial background focused on quantitative data.

All of the quantitative data consisted of starting and ending dates of students, age, expected family contribution (EIC) from financial aid, and type of courses. The survey had two quantitative questions referring to student midterm and final grades in CS101, making it a mixed methods survey.

Data was collected from the designated offices of WOL office, financial aid office, and the registrar's office. The data was then sorted and analyzed using regression and correlation analyses and chi-square tests. Data was analyzed using Excel and by hand.

The dependent variable of retention referred to how many students SMWC retains and are able to graduate within 6 years on campus, 7 years in graduate, or 12 years in distance. The independent variables were as follows: expected family contribution from the financial aid office (from FAFSA), student age at program start, and type of program format (campus, graduate, or distance). The quantitative component of technical ability focused on student midterm and final grades in CS101, Introduction to Computer Software.

The College this Study is Focused On

Every college is unique. Saint Mary-of-the-Woods College (SMWC) is a small, liberal arts, all-women's, catholic college in southern Indiana.

It is important to give a timeline of events important to the college. SMWC was founded in 1840 by Saint Mother Theodore Guerin. Guerin was granted the title of *Blessed* in 1998 by Pope John Paul II. On October 15, 2006 Guerin became the 9th saint ever named in the United States. In 1899 SMWC conferred its first bachelor's degree. In 1973 The Women's External Degree (WED) program was launched. This program was renamed Woods External Degree (WED) when it went coed in 2005. Graduate programs were introduced in 1984. The Woods Online Program began in 2010. In 2011 the WED program was renamed 16-week distance, and Woods Online was renamed 8-week distance (SMWC, n.d.), all under the name of Woods Online. Since then, the 8-week program has been converted to 8-week course options within the 16-week program.

Program formats today include traditional campus, 16-week distance semesters, 8-week course options in the 16-week program, and graduate. This is a large number of formats for a small college. Total enrollment is around 1,500 students in all programs combined.

The traditional campus program is similar to most campus programs. Students have the option of living on campus or staying home and commuting. There are 2-year associates programs and the majority of what remains are 4-year bachelor's programs. In the 16-week distance program students have a very flexible delivery option. The 16-week distance program makes up a very large portion of SMWC's enrollment, and is one thing that makes SMWC stand out from others. Students have the option of taking as many courses as they can handle in a semester. A student may take one course per semester or as many as five or six courses per semester. The majority of these courses are distance,

either traditional distance or online. Some courses are offered as alternative format, which means it is a hybrid distance course that blends in a small amount of days with face-to-face contact in the classroom. SMWC's newest program format, an 8-week distance program that was an accelerated distance program, was rolled into the 16-week program in 2013. All courses are online and students take two courses every eight weeks. SMWC's graduate programs offer hybrid formats with partially distance and partially face-to-face residency courses. These courses are 8 week courses with face-to-face interaction the first and last day of class.

Definition of Terms

Retention can have various definitions, but for the purpose of this study can be defined in terms of program completion (Walleri, 1981).

Attrition rate has been variously defined as the percentage of students lost to a particular division within a college, lost to the college as a whole, or lost to higher education as a whole (Summerskill, 1962).

SMWC stands for Saint Mary-of-the-Woods College

WED stands for Woods External Degree Program

WOL stands for Woods Online

Assumptions

This case study was based on the following assumptions:

1. The data used have been unaltered and fairly and honestly represent the student population at SMWC. This is believed to be true but there is always the possibility that some data were unintentionally omitted.
2. The information collected from any interviews is honest and accurate, and doesn't include any biased opinions. There was no reason for anyone involved to be dishonest. Everyone involved wanted nothing but accurate and honest results from this study.

Scope, Limitations, Delimitations

The scope of the study is SMWC students in selected courses over varying timeframes. The limitations of the study basically consisted of a small college being used for the data gathering process. The 8-week accelerated program was begun three years ago, so data was limited in that program. That program has since then been rolled into the 16 week program. 8-week courses are an option within the 16-week program. A potential threat to validity was potentially the small sample size and the participant's interpretation of the questions presented (Creswell, 2003). Delimitations were using only SMWC students for the case study. Certain courses were used to track some of the research questions. The results were not necessarily representative of the general population, but were specific for SMWC and may represent similar colleges.

Significance of the Study

Even though the case study looked at a small college, findings of this study can lay the ground work for similar studies at other institutions across the United States. As stated earlier, a small improvement in student withdrawal and incompletion rates could substantially improve the outlook for SMWC's retention rates and financial well-being. Low retention affects many areas of a college. For example, if retention causes the number of majors on campus in one selected area to drop too low, there may not be enough students to have a class offered. Fewer classes offered may lead to fewer faculty needed to teach. Fewer faculty teaching causes the student to faculty ratio to reflect more students to each faculty member. That would not be as favorable as a low student to faculty ratio.

Determining the causes behind low retention could help improve retention by offering more tutoring programs, helping students find more financial aid opportunities, educating the students up front on what to expect in college, and providing more technology training to students. Any of those things would create positive social change.

Summary

"Although access to higher education has increased substantially over the past forty years, student success in college—as measured by persistence and degree attainment—has not improved at all" (Brock, 2010, p. 109). Retention is a subject of concern at Saint Mary-of-the-Woods College. With three types of program formats, it was difficult to determine what the major causes of low retention are. It was important to examine if one thing influences retention across all three programs, or whether each

program had a unique retention pattern. The areas of age, delivery format, financial aspects, and student technological background were explored in this case study. Prior research was somewhat contradictory at times in terms of retention. Every college or university is unique. No extensive retention study has been completed since Saint Mary-of-the-Woods College was founded in 1840.

Chapter 2 will contain a review of the literature relating to retention in higher education. Chapter 3 will present the research design and type of study, including time period of data collected, data collection procedure, setting and sample size, and discussion of data analysis for each question being researched.

Chapter 2: Literature Review

This section provides an in-depth overview of the literature that was foundational in this study. Electronic databases, such as ERIC, EBSCO, ProQuest, Education Research Complete, and PsycINFO, were the main sources of research for this review. The NCHEMS Information Center website was also very useful. After exploring many keywords, the most effective included: *retention, attrition, graduation rates, adult learners, college, age, technological background, tech ability, technology, student confidence, distance learning, hybrid course offerings, traditional courses, graduate programs, money,* and *financial aid*. Most of those keywords were used in combination. For example, *college, retention,* and *financial aid* were all searched together. A very useful resource in addition to the journals and articles found were the bibliographies of them.

This chapter is organized into five main categories: (a) an overview of retention, (b) financial factors affecting retention, (c) student age and retention, (d) course delivery format and retention, and (e) technology effects on retention.

An Overview of Retention and Attrition

"With growing concerns over higher education accountability and diminishing resources, student retention rates and the reasons why students remain at a post-secondary institution continue to persist" (Brown, 2012). Retention can be defined in terms of program completion (Walleri, 1981). It is difficult to speak about retention without also defining another term, attrition. Attrition has been variously defined as the percentage of students lost to a particular division within a college, lost to the college as a

whole, or lost to higher education as a whole (Summerskill, 1962). Many studies have been done to determine the causes of low retention and high attrition. From the findings of Eckland, Iffert, for every ten students who enter college in the United States, only four will graduate from that college four years later. One more will eventually graduate from that college at some point after those four years. Of the five students who dropped out of the college altogether, four will reenroll at a different college, and of those four re-enrollees, only two will graduate. Of the six students who dropped out, three did so during the first year. Two more dropped out during the second year, and the last one dropped out at some point after the second year. Three of the ten students who originally entered college will never obtain a college degree. This means that of the estimated 7.6 million undergraduate students enrolled in the U.S. in 1971, roughly 2.3 million students will drop out of higher education completely.

(1964, 1957, 1974)

Many studies have been done looking for the main causes of the low retention rates as well as the high attrition rate. Watching for different a makeup of types of students is going to become very important. As the economy is changing, so is the makeup of the college campus. More and more first generation students are attending college. The number of first-generation students pursuing four-year degrees will likely continue to increase in the future (Soria & Stebleton, 2012).

According to Tinto (1996), seven main reasons for student departure include: (a) academic difficulties, (b) difficulties adjusting to college, (c) uncertain goal, (d) external and/or weak commitment levels, (e) difficulty paying for college, (f) lack of social and/or

academic belonging, and (g) the inability to connect with classmates, faculty members, and administrators.

Only 55.5% of college students beginning in bachelor's programs in 2003 in the United States graduated within six years (The National Center for Higher Education Management,2004). Some states had graduation rates as low as 26.9% (see Figure 1). Figure 2 shows transition and completion rates from 9th grade to college.

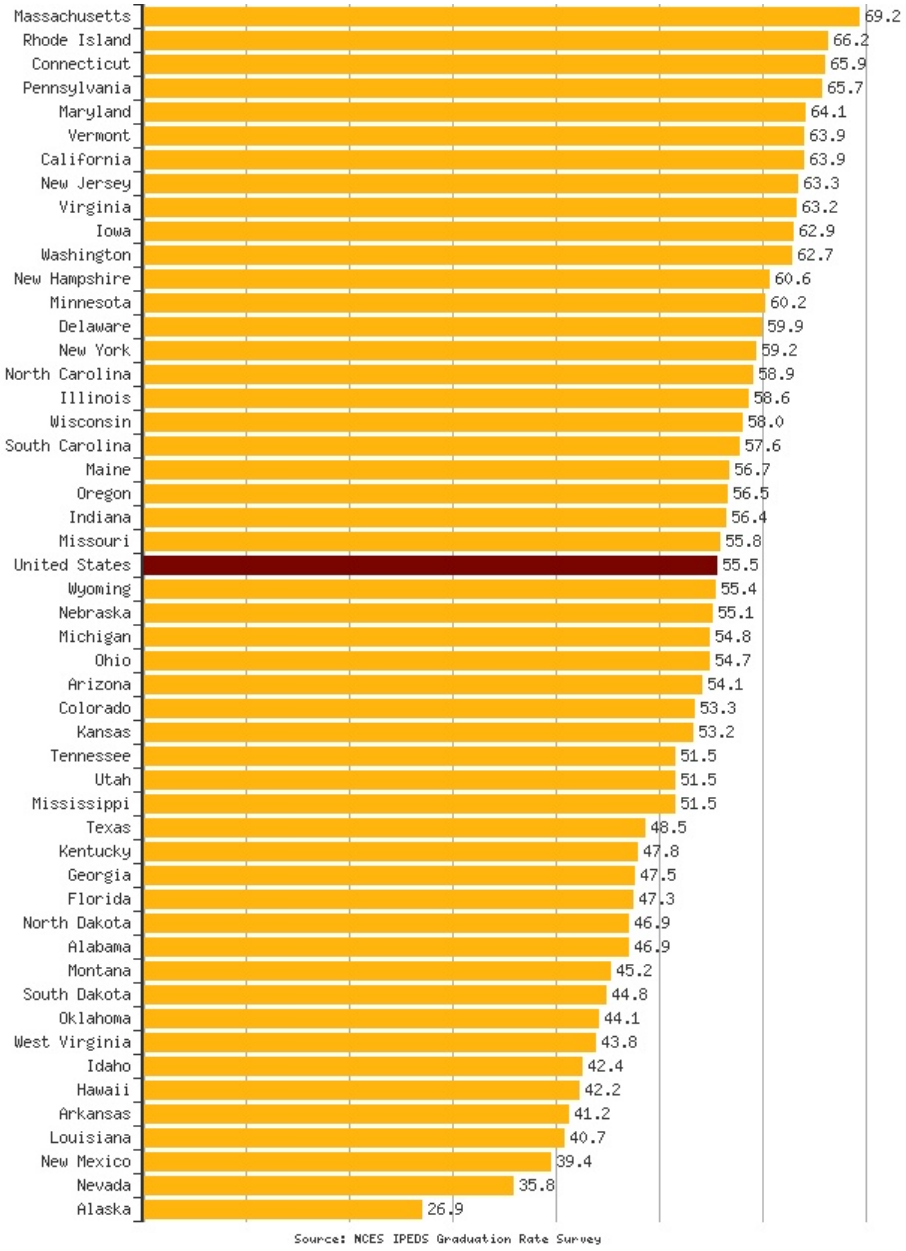

Figure 1. 2009 State ranking of graduation rates for the United States. NCHEMS Information Center http://higheredinfo.org/dbrowser/index.php?submeasure=27&year=2009&level=nation&mode=graph&state=0.

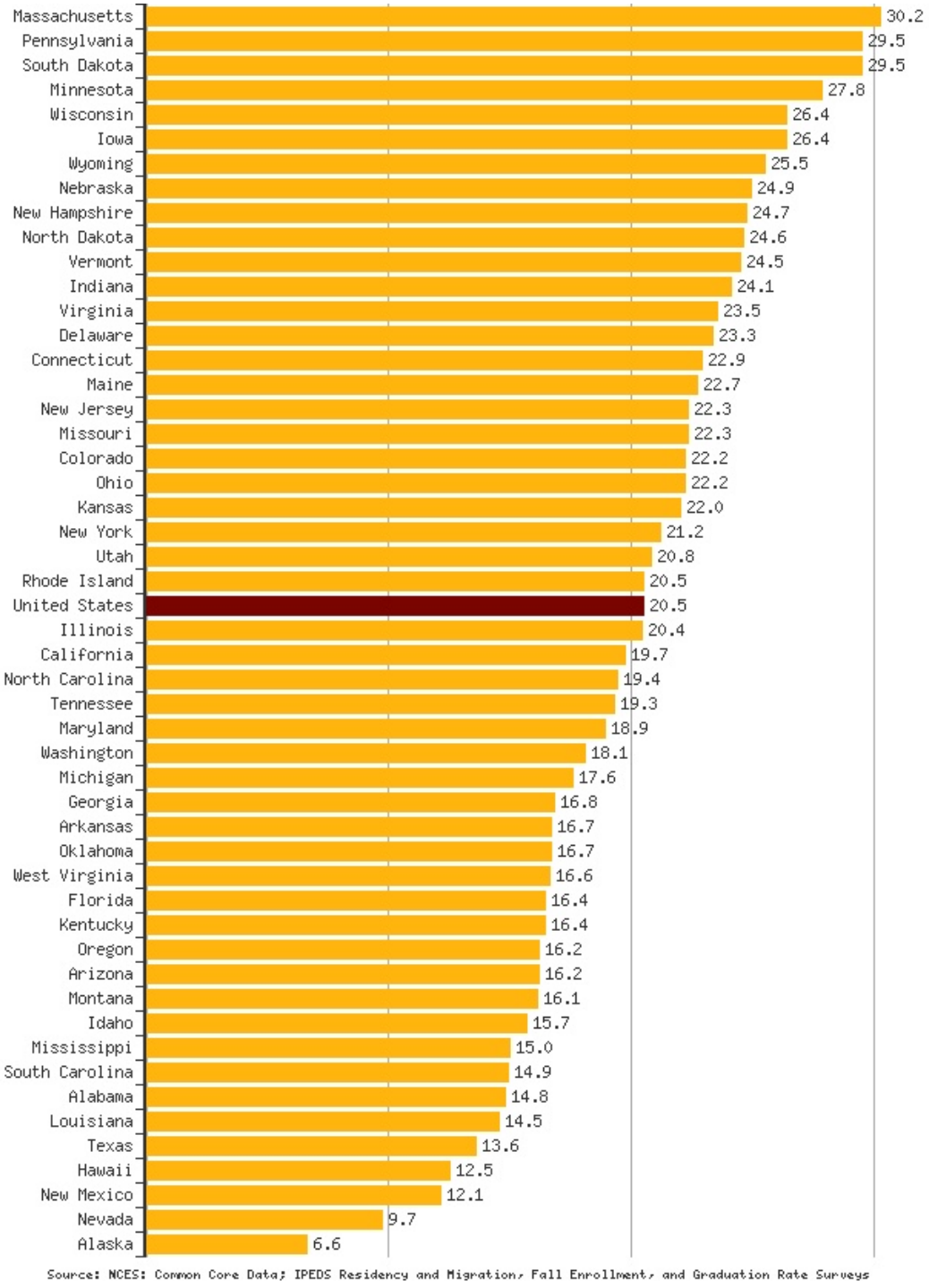

Figure 2. 2008 Student Pipeline - Transition and Completion Rates from 9th Grade to College
NCHEMS Information Center.
http://higheredinfo.org/dbrowser/index.php?submeasure=119&year=2008&level=nation&mode=graph&state=0

The millennial generation entering the college setting poses a different environment for higher education. Seven core characteristics and traits described the millennial generation: sheltered, team-players, conventional behavior, confident attitude, achievers, special, and pressured (Monaco & Marti, 2007; Rickes, 2009).

According to Veesfra (2009), the first year of college is critical to educational persistence and retention. In a study done by Turner and Thompson (2014), six implications for future endeavors were prioritized:

1. Gather campus-wide feedback from instructors, students, and administrators to devise strategies that create a balanced social and academic transitional experience for freshman students. The objective is to generate innovative ideas, concepts, and methods that not only create a holistic first year freshman experience but also fosters a collaborative and interactive relationship of all essential stakeholders.

2. Provide ongoing workshops or integrate courses in the freshmen curricula that strictly focus on the development and practice of the effective study techniques and strategies. The learning could become an integral class component that is attached to the freshmen learning communities, orientation, and academic development process.

3. Identify the best practices, concepts, and activities that promote a collaborative and interactive instructor-student relationship. Incorporate those practices into classroom projects, campus activities, and departmental sponsored events. The interaction could

take place in and out of the classroom in both formal and informal environments. The results of the social and academic interaction could lead to increased student academic success.

4. Perform an assessment of the existing academic advisement practices and techniques used by the institution. Provide ongoing academic advisement training and customer service training to critical academic support units to increase student support and effectiveness. Increase the frequency of freshmen student advisement and make advisors more accessible to freshman students. The institution could explore the use of technology by advising students via Skype.

5. Include more campus social and professional student organizations into the strategic planning, program development, and coordinating of freshman academic and social events. Student organizations can serve as mentors, models, and provide a fresh insight from a student perspective. This approach not only establishes a peer-to-peer support system but also provide both students an opportunity for growth and development.

6. Explore the use of increased civic engagement projects and experiential learning into the class and curriculum experience. Ensure that the projects are a direct link between in-class learning so that students can receive hands on practical experience. Many students attended the institution because of the institutional downtown location and possible

networking opportunities with major business organization. These institutional characteristics and traits can serve as core resource tools for freshmen recruitment and retention efforts.

Turner and Thompson's study revealed:

four core themes that served as either an obstacles and/or enabler that millennial freshman college students encountered that influenced the transition into the college environment. The themes were organized in order by priority: freshmen focused activities, developing effective study skills, instructor-student relationship, and academic advisements-support.

(2014)

Retention and attrition are a worldwide cause for concern. In one study comparing attrition between the United States and Australia, it was stated that student attrition has genuine repercussions: lost revenue for the higher education institution, the subsequent misappropriation of funds from state and federal governments, the weakening of the labour market and potential exclusion of young, low-skilled workers from employment (O'Keeffe, 2013).

Financial Factors Affecting Retention

One of the most obvious causes of attrition is economic – students drop out if they cannot afford to continue in college (Creedon & Pantages, 1978). Finances are frequently cited by college administrators as a top cause of college student stress and drop out (Sages, Britt, & Cumbie, 2013). According to McCormick (2009), an increasing number of financial stressors for individuals and families have been created due to the recession,

such as rising fuel and food prices, mortgage and credit crises, increased unemployment, increased bankruptcy filings, and a reduction in savings. The need for financial assistance, given the stress placed on students and their families by the economy, plays an important role in the recruitment and enrollment of desired student populations (Holley and Harris, 2010).

Previous studies have investigated the effect of financial aid on students' departure behavior (Hochstein & Butler, 1983; Ishitani & Des-Jardins, 2002; Iwai & Churchill, 1982; James, 1988; Stampen & Cabrera, 1986, 1988). Different types of financial aid have had different effects. For example, Hochstein and Butler (1983) identified that loans were negatively associated with college persistence. They also advised that grants, whether awarded alone or in conjunction with a loan, had a positive effect on student retention. Students receiving aid based on academic merit were found to have relatively low attrition rates (Stampen & Cabrera, 1988).

In a study by Tinto, it was stated that the chances of completing a degree doesn't just depend on the institution chosen, but the individual student as well (2004). In terms of income levels of students:

For beginning students from high- income backgrounds (dependent family incomes of $70,000 or greater), 65 percent earned some type of college degree within six years, with 56 percent earning a bachelor's degree. In comparison, only about 50 percent of youth with dependent family incomes of less than $25,000 earned some type of college degree within six years, with 26% earning a bachelor's degree, 14% an associate's degree, and slightly over 10 percent a less than two-year certificate

(NCES, 2003).

The explanations that Tinto discussed for these statistics include four main points, which are outlined below:

1. High-income and low-income youth began their studies at different types of institutions. But even among students beginning at similar types of institutions, students from high-income families earned their degrees more frequently than students from low-income backgrounds did.

2. Youth from low-income backgrounds are, on average, generally not as well prepared academically when they finish high school than are youth from high-income backgrounds.

3. Even with adequate academic preparation, many students who begin in a four-year institution fail to complete their degree, which may reflect social and cultural factors that pose additional barriers for low-income students.

4. Students from low-income families often do not have sufficient resources to pay the bills for higher education.

(2004)

In a recent study by Cochran, Campbell, Baker, and Leeds, receiving academic loans was a significant factor in the student retention findings of a large university. Using a sample of undergraduate students (n = 2,314) from a large state university, results from this study identified prior performance in college classes (cumulative GPA) and class standing (senior vs. non-senior) as significant student characteristics related to student retention in online classes for all students. Other factors significantly related to

retention rates for students with certain characteristics or within certain majors include previous withdrawal from online courses, gender, and receipt of academic loans.

Student Age and Retention

Nontraditional students are defined differently across countries and institutions. According to Kurantowicz and Nizinska (year),

> The concept of a non-traditional student was not an easy one to define transnationally, as its understanding varies across Europe, depending on what holds as the 'traditional' academic track in a particular country. The negotiations in the team concluded with the joint decision to use the term 'non-traditional adult student' descriptively to denote those who are under-represented in higher education and whose participation in HE is constrained by structural factors. This therefore includes first generation students, students from lower socio-economic strata and ethnic minority groups, mature students and students with disabilities. (PAGE NUMBER HERE)

Students of nontraditional age are attending both community college and baccalaureate institutions in large numbers and are doing so at a potentially slower rate than their traditionally aged counterparts (Gibson & Slate, 2010). In 1999–2000, 7.1 million adults age 24 years or older constituted 43% of all undergraduates in U.S. institutions of higher education, compared to 5.73 million adult students enrolled a decade earlier (1989–1990) (Donaldson & Townsend, 2007). There are several factors that could account for differences between traditional versus nontraditional age students. Forty-six percent of adult learners responding to the 2006 National Survey of Student

Engagement reported working at least 30 hours a week. Approximately 75% of respondents at four-year institutions indicated responsibility of caring for a dependent (‘‘National Survey,’’ 2006). Donaldson and Townsend (year) discovered through their research that there hasn’t been very much research or discussion on adult learners specifically. In their 2007 study, Donaldson and Townsend provided the following table as illustrated in table 2.1 classifying discourse about adult learners.

Table 1.
2007 Higher Education Journals' Discourse About Adult Undergraduate Students

TABLE 2
Classification of Scholarly Discourse about Adult Undergraduate Students

I. Invisible	• Adult undergraduate students do not appear in the literature about college students • The experiences of traditional-age students are treated as universal
II. Acknowledged but Devalued	• May document omission of adult undergraduate students in the literature • Behavior of traditional age students is the implicit norm and is the basis for models of retention, academic success, and the collegiate experience • Adult students are viewed as different from traditional students; these differences mean they have special needs or potential difficulties • Adults are viewed as needing to adapt to institutional practices, which are oriented toward traditional-age students, or the institution needs to create programs to fit adult students' problematic needs • Sometimes adult students are seen as problematic because they do not behave like traditional-age students and have different needs or concerns
III. Accepted	• Age is the primary, sometimes the only, demarcation between traditional and adult undergraduates • Traditional-age & adult students are two equal but separate groups • Adult students may be studied by themselves or in comparison to traditional students • Each group is homogeneous although differentiating variables within each group are sometimes noted • Adult students are valued because they increase enrollments • Adult students are not problematic because they are different from traditional age students • Institutions choose to create programs to meet adult needs, but not because they are viewed as problematic • Limitation of existing theories and models of practice when applied to adult students is sometimes noted; no new models or approaches are suggested
IV. Embraced	• Adult students are valued for what they bring to an institution • Intragroup differences (experiential, demographic, and other) are acknowledged • New theories/models of practice are developed due to awareness of "lack of fit" between adult experiences and conventional models/theories

According to Gilardi and Guglielmetti (2011),

Our research on non-traditional students in a non-residential context has shown that employment can represent an external restriction for the continuation of university

studies, especially for temporary jobs. We can assume that a vicious circle is created between job insecurity and the opportunity for integration into university life: fewer objective and subjective (self-legitimation) opportunities to negotiate autonomous arrangements for personal growth with the employer can affect decisions about investing time and energy in building relationships within the university. Nontraditionally aged students naturally make up a different dynamic than the traditional student.

Course Delivery Format and Retention

With changing technology comes different, and at times more advanced, course delivery methods. According to research done by Zavarella and Ignash concerning a developmental mathematics course,

This study attempted to examine the differences in students' withdrawal and completion rates in classes delivered via different instructional formats (distance learning, hybrid, or traditional). The three research questions guiding this study were:

1. Is there a relationship between students' learning styles and their completion or withdrawal from a beginning algebra developmental math course by a particular instructional delivery format (i.e., lecture- based, hybrid, or distance learning)?

2. Is there a relationship between students' reasons for choosing a particular instructional delivery format (i.e., lecture-based, hybrid, or distance learning) and their completion or withdrawal from a beginning algebra developmental math course?

3. Is there a relationship between students' College Placement Test (CPT) mathematics score and their completion or withdrawal from a particular instructional de- livery format

(i.e., lecture-based, hybrid, or distance learning) of a developmental basic algebra math course?

(2009)

Many factors could influence this study. Zavarella and Ignash used data from three sources,

1. The Grasha-Reichmann Student Learning Styles Scales" (Hruska-Riechmann & Grasha, 1982),
2. An institutionally developed survey of students' reasons for selection of delivery format, and
3. College-level institutional data on participants' demographic characteristics and mathematics entry test scores.

(2009)

Through this extensive study, results were reported based on general characteristics, such as age, race, gender, and so on, instructional delivery method, learning styles, reasoning behind choosing course format, and placement scores in relation to completion rates. When focusing strictly on the course delivery method Zavarella and Ignash (2009) outlined their findings in figure 1.4, table 2 below:

Table 2.
2009 Instructional Delivery in Developmental Mathematics: Impact on Retention

Table 2

Completion Status by Instructional Delivery Format

Completion Status	Lecture Format $n=69$		Hybrid Format $n=67$		Distance Learning Format $n=56$		Total All Sections $N=192$	
	n	%	*n*	%	*n*	%	*n*	%
Completed	55	80%	39	58%	34	61%	128	67%
Withdrew	14	20%	28	42%	22	39%	64	33%
Total	69	100%	67	100%	56	100%	192	100%

Note. From "Computer-Based Instruction and Remedial Mathematics: A Study of Retention at a Florida Community College," by C.A. Zavarella, 2008, Doctoral Dissertation, University of South Florida, p. 81. (UMI No. 3326039). Printed with permission.

In terms of the delivery formats presented above, the lecture format yields the best completion results. In an attempt to determine why the success rate for the distance learning format was so low, Zavarella and Ignash made an attempt to further question those students, reporting that "although the response rate was low *(n* = 30, 47% response rate), 55% of those responding (n=11) from the computer- based sections stated that the course presented challenges they did not expect" (2009).

Another study from Howell and Buck yielded somewhat different outcomes. According to a survey completed by faculty and adult learners,

The analysis of the survey data suggests that student satisfaction is not effected by classroom location. In general, being on-campus or off campus makes no difference. While the study did not measure the quality of specific classroom features such as available technology, size, cleanliness, and safety tied to the geographic location, the findings of the study provide support for the appropriate use of off-campus classroom locations.

(2011)

According to a study by Steiner and Hyman (2010):

With continued advances in browser technology and online course management software such as Blackboard, online courses have become an increasingly popular means for teaching university students. According to the Sloan Consortium, approximately 3.9 million students were enrolled in online courses in fall 2007, more than double the number enrolled in fall 2002 (Allen and Seaman 2008). Online design is touted as an effective format for delivering courses to remotely located or severely time-constrained students (Hyman and Conte 2002).

With the increasing amount of students choosing online course delivery methods, there is a shift in the traditional college setting in the twenty first century. Styner and Hyman concluded (2010):

Although some instructors and administrators may view higher student satisfaction as an insufficient reason to initiate this innovation, we suggest otherwise. We posit that the similar between-option grade distributions are attributable to the range of students attracted to each option. For example, students who choose the face-to-face option may prefer personal interaction or experiential learning. Alternatively, they may recognize their need to overcome a lack of self-discipline; they may believe they will fail a course without routine scheduling requirements. In contrast, students who choose the online option may prefer to avoid a regularly scheduled on-campus meeting time. Such students may have physical limitations (due to physical disabilities or remote location) or

conflicting time commitments (due to work or family). Alternatively, they may view online delivery as a quick and easy way to complete a course.

The structure of courses being delivered to students have had to change to fit the millennial generation of students. During the past few decades, education has shifted from instructor centered to student centered (Steiner & Hyman, 2010).

Technology Effects on Retention

Technology is central to the daily routine of university life. Around campus, libraries provide digital versions of scholarly journals and books, artists create with advanced design software, scientists simulate complex environments, and engineers and computer scientists continue to invent technologies that other disciplines will make use of in the future (Goode, 2010). According to the "Learning on Demand: Online Education in the United States, 2009" survey completed by the Babson Research Group (Sloan Consortium, 2010) there were over 4.6 million students taking at least one online course during the fall term of 2008 (Blankenship & Atkinson, 2010). When examined in comparison with overall higher education populations, it shows a significant increase. This represents a growth rate of 17% for online enrollments compared to just a 1.2 percent growth rate for the higher education student population (Blankenship & Atkinson, 2010). Blankenship and Atkinson (2010) did a similar study to Smith (2005), using a questionnaire with questions pertaining to ease and comfort of accessing the internet, amount of weekly usage, online communication, and several different student attributes. The primary differences in the two studies showed that in some respects, especially surrounding background using the Internet impacting the ease of using the

Internet for a student's studies. There isn't an excess of information found on the topic of a student's technical ability on retention.

Members of San Jose State University developed and launched a series of three massive open online courses (MOOCs) in 2013. According to Firmin, Schiorring, Whitmer, Willett, Collins, and Sujitparapitaya,

The significant relationship between MOOC platform use and student achievement provides additional insights into factors underlying achievement. This finding also suggests that early warning systems and learning analytics drawing on MOOC engagement data could be helpful for software development to increase student achievement.

(2014)

Gaps in the Research

Retention studies are typically found to have some uncertain findings. The gaps in the research involve findings pertaining to, and relating to Saint Mary-of-the-Woods College. No retention studies researched gave a reliable indicator of retention issues at SMWC. While this study is not all inclusive of the possible retention issues at SMWC, it is a start, and filled a large gap in the data of the college.

This study will be based on a case study of SMWC and retention data at the college. No other retention study has ever been conducted in the college's 171 years of existence. Just within the 2013-2014 academic year, SMWC hired an institutional researcher. The findings of this study were given to the new institutional researcher.

Summary of Retention and Attrition

In this section, literature was reviewed in five areas: (a) an overview of retention, (b) financial factors affecting retention, (c) student age and retention, (d) course delivery format and retention, and (e) technology effects on retention.

Several different researchers and theorists were examined. The studies of Summerskill (1955), Eckland (1968), Iffert (1957), and Tinto (1976) were reviewed to obtain a general understanding and foundation of retention and attrition. The National Center for higher Education Management website was also very useful.

Creedon and Pantages (1978), along with Stampen and Cabrera (1986) provided useful insight to the financial impact on retention. One of the most obvious causes of attrition is economic – students drop out if they cannot afford to continue in college (Creedon & Pantages, 1978).

Gibson, Slate, Donaldson, and Townsend studied student age and retention. In 1999–2000, 7.1 million adults age 24 or older constituted 43% of all undergraduates in U.S. institutions of higher education, compared to 5.73 million adult students enrolled a decade earlier (1989–1990) (Donaldson & Townsend, 2007).

Zavarella and Ignash conducted an in-depth study of course delivery format of a developmental mathematics course. A very useful finding from their study surrounds the fact that lecture based courses usually yield a higher completion rate; much because computer based courses can cause problems for some students.

Blankenship and Atkinson (2010) conducted a study similar to Smith's 2005 study. Like several other studies researched, the basic premise is that many students

naturally have more exposure to technology today than they have in the past. Chapter 3 will discuss the methodology of this study.

Chapter 3: Research Method

The purpose of this study was to (a) collect and analyze retention data, and (b) examine the effect of students' age on retention, examine the effect of course delivery format on retention, examine the effect of students' technical ability on retention, and examine the effect of students' financial factors on retention at Saint Mary-of-the-Woods College (SMWC). This chapter will describe the research method and methodology of the study.

Setting

The setting of this study was the campus of Saint Mary-of-the-Woods College (SMWC). This was a relevant setting because this was a case study of that particular institution. Retention directly affects revenues, which in turn affect the day to day budget of any college.

SMWC is a small catholic liberal arts women's college in Midwestern Indiana. Founded in 1840, SMWC is one of the oldest remaining women's catholic colleges in the United States. The campus program is all-women, but the graduate and distance programs admit men as well. Of the 1,100 full time equivalent students, nearly 500 of them are distance students. The remaining 600 students are split between campus and graduate fairly evenly, with the graduate programs having a slightly higher proportion of that amount. The graduate courses are hybrid courses, with a set number of days at the beginning and end of the terms and the rest is distance. Distance students have the option to meet with their advisor and instructors at the start of every semester, or returning by

mail. Returning by mail is done through e-mail, phone calls, etc. Distance students are deciding more and more to return by mail, and whether it is just a coincidence or not, enrollment numbers in WOL have been on a steady decline in recent years. The campus program is a traditional campus format. Students take 16 week long semesters and have the option of an 8 week summer term as well.

The Sister's of Providence founded SMWC in 1840. Mother Theodore Guerin, the founding sister was declared a saint in 2006. She was the first ever declared from Indiana, and the 8th person to be declared a saint in the United States. Guerin was an integral part of the success of the college. Guerin, along with 5 other Sisters of Providence, travelled to Saint Mary-of-the-Woods, Indiana from France in 1840. SMWC shares a piece of land with the Sister's of Providence.

The college recently developed an all-new general studies program called the Woods Core. It reduced the number of general study hours from 54 hours down to 39 hours. The number of hours required to graduate has been reduced from 125 hours to 120 hours. Both of these changes occurred in the 2013-2014 academic year. Students no longer have to take certain classes, such as a second math course, physical education, intro to computer software, and a theology elective.

This setting was perfect to perform a case study on. The findings can be generalized to very similar institutions. Many colleges are having retention issues in today's economy. Knowing what the key causes to these problems could drastically improve retention rates. All students in a specific date range will be used for the first 3 research questions pertaining to age, financial background, and course delivery format.

Students who have taken, or were currently in, CS101 Introduction to Computer Software were sent the survey for the fourth research question.

Key members of the organization consist of: Dottie King (President), Janet Clark (Vice President of Academic Affairs), Darla Hopper (Director of Financial Aid), Sara Boyer (Director of Woods Online), Michael King (Director of Institutional Research), Kathi Kortz (Registrar's Office), and Uday Shinde (former CS101 lead instructor).

Research Design and Rationale

Research Questions

1. To what extent does financial aid cause retention problems in all programs at Saint Mary-of-the-Woods College?
2. To what extent does age cause retention problems in all programs at Saint Mary-of-the-Woods College?
3. What are the differences in retention between traditionally taught courses and courses taught with more online resources and technology?
4. How does the student's technological ability effect retention in all programs at Saint Mary-of-the-Woods College?

Variables

Two dependent variables will be studied: (1) retention, and (2) attrition. Four independent variables were studied: (1) financial background of student, (2) student age, (3) course delivery format, and (4) technological ability of student. Retention and attrition

will be measured in accordance to the age of students at time of enrollment, financial need and aid available to students, whether the courses are offered on campus or through the distance (WOL) program, and the students' perception of their technical ability.

Hypotheses

Hypothesis 1

H_0: There is no relationship between students' financial background and ability to graduate within 6 years

H_1: Students' financial backgrounds affect their ability to graduate within 6 years

Hypothesis 2

H_0: There is no relationship between students' age and ability to graduate within 6 years

H_1: The age of the student impacts whether they are able to graduate within 6 years.

Hypothesis 3

H_0: There is no relationship between the delivery format of course a student is enrolled in and their ability to graduate within 6 years.

H_1: The course delivery format of course a student is enrolled in impacts whether they are able to graduate within 6 years.

The central concept of this case study was retention, and if a certain selection of factors affected it. In particular, did age, financial background, course delivery format, or technical ability affect retention at SMWC? It is known that many other factors could

influence retention, and this study developed a strong foundation for continued studies in the near future.

This case study merited a mixed methods research approach. The majority of the study was quantitative. The need for a qualitative element came into play when student perception of their own technical abilities came into play. That small qualitative element helped to seal the quantitative data and make it more relevant. It gave a more meaningful conclusion to the results in the quantitative study.

Data were collected from the past 10 years, where the data was available. The need to collect more data came from the fact that SMWC is smaller than most colleges, and there needed to be enough data to see trends. The survey went out for a two-week period to students who have completed CS101.

Role of the Researcher

The researcher in this case study acted as an observer-participant. Being both an alum and a faculty member at SMWC gave McCracken more than just an observer role. There was a possibility that some of the survey participants had McCracken in a previous course. No pressure was ever placed on anyone to complete the survey, and it was completely anonymous. McCracken knew all of the key participants because they were coworkers. No bias was asserted over any of the students, key participants, or anyone else involved. All guidelines from the IRB contract were followed. The only ethical concern that was raised was conducting the study in the researcher's place of work. McCracken

was also a graduate of SMWC. The highest ethical standards were upheld through a very transparent case study.

Methodology

The population consisted of all SMWC students that have attended SMWC. The sampling strategy was to collect as much of the viable data as possible from population in the past 10 years. For the survey, the sampling strategy was to send the survey to any student who had completed CS101 in the past 4 years. Participants were known to meet the sampling criterion through both the Registrar's office confirmation and through the confirmation of Uday Shinde, former instructor of CS101 .

The number of participants varied based on the research question between 800 to 2,000 participants for the quantitative study and about 175 for the qualitative study. Of the qualitative group, 69 surveys were completed, yielding a 39.4% participation rate on surveys.

Using the Raosoft sample size calculator for a population size of 175 individuals, the recommended sample size at a 95% confidence level was 121 participants. The 69 participants that responded yielded a 9.21% margin of error. 69 participants were much better than the 50 participant goal projected. See figure 3.1 below.

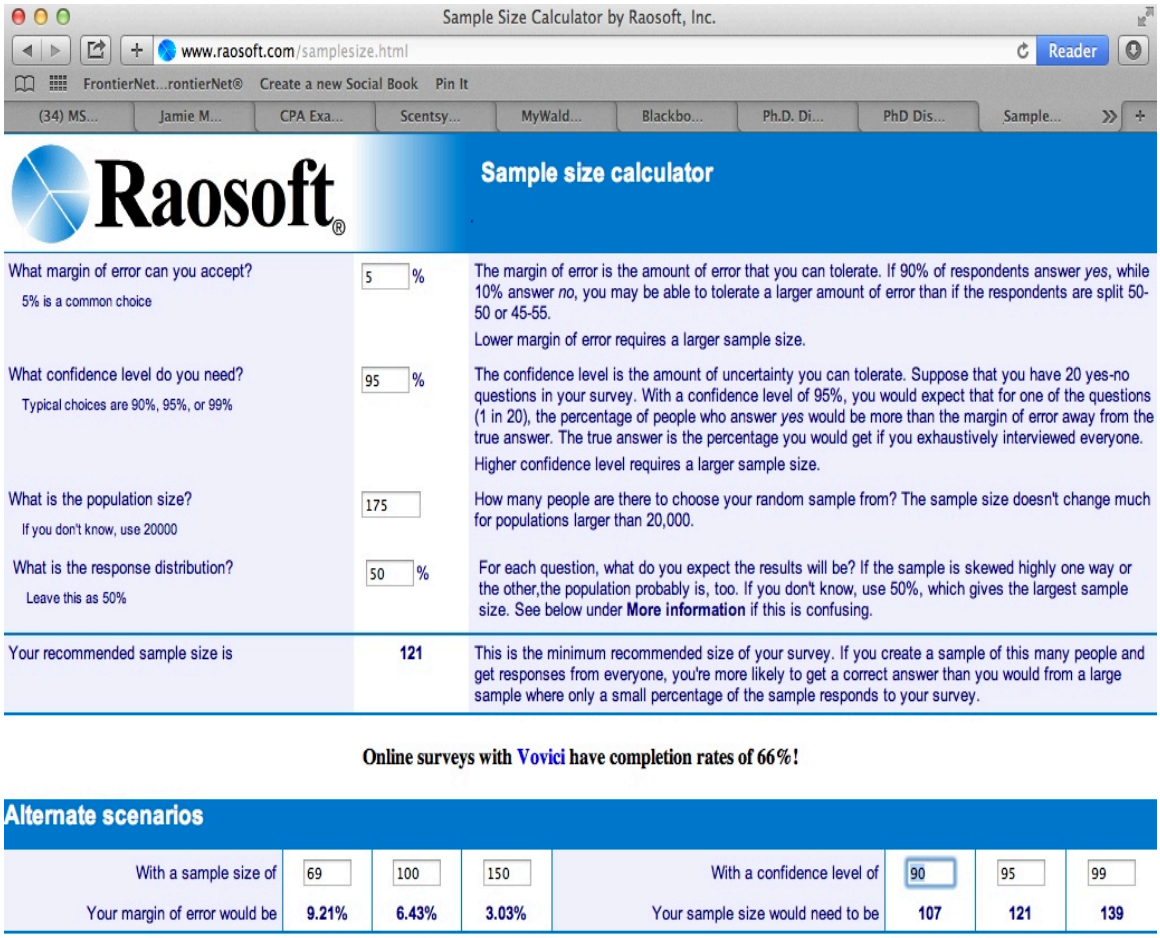

Figure 3. 2014 Raosoft Sample Size Calculator. http://www.raosoft.com/samplesize.html

Most data was already collected and archived through the offices of financial aid, the registrar, and the WOL office. Survey invitations were sent out to the total eligible population of 175 individuals by e-mail. The survey was housed in Survey Monkey. Ideally, thinking about the perfect saturation rate brought up the realization that the total possible population was small. When looking at 175 possible participants, expecting 50 or more responses was the goal. Once it was realized that the actual response rate was higher, the overall confidence level of the survey increased.

Instrumentation

All quantitative data pertaining to student age, financial background, and course delivery method was collected from campus offices. It was archived data from the registrar's office, financial aid office, and Woods Online office.

Pertaining to the question **"**How does the student's technological ability effect retention in all programs at Saint Mary-of-the-Woods College?", data will be collected using a 15-question survey (appendix B). The survey, titled "What Technical Skills Do I Need?" contains questions ranging from availability of computer access, internet skills, general formatting skills, and so on. The survey was developed by Palm Beach State College. Permission to use the instrument was obtained from Ashley (appendix A). Palm Beach State College uses this survey as an online readiness tool on their eLearning website.

This survey has a multiple-choice scale with three options, A, B, and C, for each question. The survey, "What Technical Skills Do I Need?" includes 18 multiple choice and short answer questions as shown below and included in Appendix A of this proposal. The theme of the survey questions is to provide comparable feedback from students enrolled in the Intro to Computer Software course (CS101) regarding the student's feelings about their technology skills and comparing that to the students success rate in the course, defined as a C or better grade.

What Technical Skills Do I Need? Survey

Q1 I have regular access to:

A. A computer and the Internet at home.

B. A computer but not the Internet at home.

C. A computer and the Internet only at school.

Q2 The access speed to the Internet Service Provider (ISP) which I use is:

A. very fast and is through a TV cable or some other high speed line.

B. through a fast modem (56K or higher).

C. through a slow modem (below 56K).

Q3 How often do you send, receive and open email attachments?

A. I use email several times each day.

B. I use it infrequently (one a week or less).

C. I have never used it.

Q4 How often do you use bookmarks (also called Favorites) to manage the sites you visit frequently on the Internet?

A. I use them to manage the sites I visit frequently on the Internet.

B. I use them but infrequently.

C. I never use them.

Q5 How often do you use search engines to locate information on the Internet?

A. I use them frequently and successfully.

B. I use them but before but not often.

C. I have never conducted an Internet search.

Q6 How often do you create attached files in the email messages you that you send?

A. I create, save, and attach files to email frequently.

B. I have emailed attachments but not very often.

C. I never attached a file to an email message.

Q7 When requested to use or save documents in a different file type such as an “RTF” “Rich Text Format” or an HTML file:

A. I would have no difficulty.

B. I have done it but a reminder of the process would help.

C. I am not sure that I would know how to do that.

Q8 If a plug-in or other software were required for a computer:

A. I would be able to download and install it.

B. I have done it before, but some instructions would help.

C. I have no idea what you are talking about or how to do such a thing.

Q9 If the computer system I was using had problems:

A. I would be able to decide how to handle the problem.

B. I think I would call a help line and be able to describe the problem.

C. I would have no idea what to do.

Q10 Do you know how to use bulletin (discussion) boards?

A. I use them with little or no difficulty.

B. I have used them but a refresher on their use would help.

C. I have not used them.

Q11 Do you know how to use chat rooms?

A. I use them with little or no difficulty.

B. I have used them but a refresher on their use would help.

C. I have not used them.

Q12 My keyboarding skills and my ability to use word processing software is:

A. Very good.

B. Okay, but it takes me a while.

C. Nonexistent

Q13 I would access the Internet through a computer:

A. In my home.

B. At school or at work.

C. At another location.

Q14 When asked to print a web page:

A. I would have no difficulty.

B. I have done it but a reminder of the process would help.

C. I am not sure that I would know how to do that.

Q15 How would you describe your ability to work with multiple windows, i.e., resizing, minimizing, closing, etc.?

A. I can successfully manage several windows on my desktop.

B. More than one open application or more than one window confuses me.

C. I am not sure what the question means.

Q16 What was your midterm grade in CS101?

Q17 What was your final grade in CS101?

Q18 Do you believe your technical ability will be an influencing factor of your success at SMWC (being able to graduate within 6 years)?

All retention data that was used in this study was be collected from Saint Mary-of-the-Woods College. The variables of technological ability and retention will be operationalized by comparing the results of this survey to the students' success, or lack thereof, in the course. Comparisons can be analyzed to determine if students' technology skills are adequate if their grades are at least a C or above in the CS101 Introduction to Computer Software course.

Instrument Validity and Reliability

This survey instrument has been validated and used in several studies. The questions included in the instrument match elements in learning outcomes form the course, CS101 Introduction to Computer Software, which results were compared against.

This instrument is reliable because it is similar to the precedents and environment at SMWC that has been used over and over again each semester in the CS101 course achieving the same measurable results. Multiple samples would all yield comparable and reliable results.

This survey has also supplied valuable information to SMWC because the CS101 class has been discontinued as a general studies elective. It is assumed that students come into college already having the technology skills to succeed in college level courses and the workforce.

Design

The design to be used for this study will be a mixed methods model, with a component focusing on a qualitative approach. That is the survey on technical ability. The majority of the study will be quantitative. The data will be gathered in traditional (lecture based) courses, and distance (computer) courses. Distance courses have changed substantially over the past decade at SMWC. Students used to email assignments to professors and that was the entire distance course. That was advanced through the usage of WebCT, where resources could be listed online for students in the courses they took and they could download and submit files electronically. Around 2008, SMWC changed

its operating platform to Desire2Learn. Through years of updates and upgrades, online courses are much more advanced now. Students can access a wealth of information and have access to a list of all of their courses in one convenient tab. College resources are available through D2L, and courses have to go through a rigorous quality review process every few years.

Correlation analyses will be done for hypotheses 1 and 2 pertaining to financial background and age:

H_0: There is no relationship between students' financial background and ability to graduate within 6 years

H_1: Students' financial backgrounds affect their ability to graduate within 6 years

H_0: There is no relationship between students' age and ability to graduate within 6 years

H_1: The age of the student impacts whether they are able to graduate within 6 years.

A chi-square test will be used for hypothesis 3 pertaining to course delivery format:

H_0: There is no relationship between the delivery format of course a student is enrolled in and their ability to graduate within 6 years.

H_1: The course delivery format of course a student is enrolled in impacts whether they are able to graduate within 6 years.

A chi-square test will determine if the way a course is delivered, on campus or distance, affects the ability of the student to succeed and graduate within 6 years. These results can be compared to the national average for similar sized colleges.

Confidentiality

All retention data will be anonymous and no individual student's name will be used anywhere. No data is linked to specific students in any part of this study. Survey results are completely anonymous.

Sample

The survey was designed in Survey Monkey, which has a secure website which is password protected and easy to distribute and collect surveys. All survey recipients will remain anonymous.

Surveys were distributed to all students enrolled in CS101, an Introduction to Computer Software at Saint Mary-of-the-Woods College, which is roughly 100 students. CS101 is primarily a freshman course.

This survey is designed to assist the college in determining if students have enough technical ability when enrolling in college. In today's society students are thought to be more prepared technologically for college.

The retention data will come from different areas of the college, including financial aid, the registrar, the WOL office, the Academic Dean, and admissions. In terms of course delivery method, the sample will consist of up to10 years of retention data in the campus and distance programs. All students enrolled in the 10-year period will be included.

For student age and financial background the sample will consist of up to 10 years of retention data in the campus and distance programs. All students enrolled in the 10-year period will be included.

Data Analysis

The first two research questions are (1) To what extent does financial aid cause retention problems in all programs at Saint Mary-of-the-Woods College? And (2) To what extent does age cause retention problems in all programs at Saint Mary-of-the-Woods College? Both questions will were be individually answered using linear regression, $Y=a+bX$, ($Y=a+b_1X$, $Y=a+b_2X$) to examine the relationship between the independent variable (age or financial background) and the dependent variable (student retention). The independent variables of age and financial background would represent the x variable, and student retention would represent the y variable.

The third research question is: What are the differences in retention between traditionally taught courses and courses taught with more online resources and technology? A two-tailed *t* test and chi-squared test will be used for this question. The results would indicate whether a traditionally taught course or a distance course yields a higher retention rate.

All quantitative data was analyzed with Microsoft Excel. Analyses were also computed by hand to double-check the Excel calculations.

The fourth, and final, research question is: How does the student's technological ability effect retention in all programs at Saint Mary-of-the-Woods College? This

research question will blend the qualitative nature of the survey with the quantitative data that is associated with it. A narrative approach will be taken on the survey results, with a linear regression analysis on the quantitative retention data collected. The quantifiable results were analyzed based on the comparison of the survey results and the student's final grades in the CS101 course.

Other Research Designs

There were no other retention studies that symbolized the setting at SMWC. SMWC is a very small private college. Most other retention studies were done at larger institutions. The retention issues faced at SMWC were unique, and the college needed specific answers. Data was not compiled all in one system, and it was difficult for members of the college to pull retention statistics.

No specific research could be found that looked at the four factors studied here: student age, financial background, course delivery format, and student technological ability. No comprehensive retention study has ever been performed at SMWC in the 175 years of its existence.

Threats to Validity

External threats to validity were very slim. Most data was existing, archived information. Internal validity was originally questioned because of the archiving and nonexistent prior analysis of the data. It was extremely raw, and required substantial sorting and organizing. Triangulation was used to assure internal validity and dependability of quantitative data. Each research question used at least two different types of statistical analysis.

IRB approval at Walden University and SMWC was obtained. Documentation can be seen in the appendix.

The analysis of this study differs from other completed studies, because it is specific to the retention data at Saint Mary-of-the-Woods College. Foundational studies relating to this research include Creedon & Pantages (1978) and Tinto (1996). Chapter 4 contains the results of the study.

Chapter 4: Results

Introduction

After IRB approval was granted from Walden University and SMWC, data collection began. The data used in this study came from multiple sources on the Saint Mary-of-the-Woods campus. Data collection began in the Registrar's office, Financial Aid office, and WOL office. This data was archived student data needed for the first 3 research questions pertaining to student age at the start of their program, student financial background, and course delivery format. A survey adapted from Palm Beach State College titled "What Technical Skills Do I Need?" was distributed to students who have had, or were currently finishing, CS101 Introduction to Computer Software. That is a general studies course most students are required to take. The survey served the qualitative question pertaining to student technical ability. All data, quantitative and qualitative, was completely anonymous and confidential.

Data analysis was completed in Excel. The research questions pertaining to student age and financial background used a correlation analysis and a linear regression analysis. The question pertaining to course delivery form used a chi-test and two-tailed t-test. The results of the survey were analyzed qualitatively.

Data Collection

IRB approval for study #09-06-13-0057163 was obtained on September 6, 2013. From the registrar's office 3 spreadsheets were complied, one each for campus, distance, and graduate. Those spreadsheets contained the beginning term, graduation term, date of birth, along with other data that was not needed such as major. The financial aid office

contributed to that spreadsheet the expected family contribution of students when they enrolled at SMWC. No actual identifying names or values were given in the spreadsheets. Data went back up to 16 years, with the main part of the data being within the last 10 years.

A total of 175 surveys were sent via Survey Monkey to students who have taken CS101. Of the 175 surveys, 69 were completed. The participants were a combination of campus and distance undergraduate students. All recipients of the survey received the consent form in the body of the e-mail invitation (in the appendix).

Research Question 1

To what extent does financial aid cause retention problems in all programs at Saint Mary-of-the-Woods College? For the purpose of this dissertation financial aid refers to the students' expected family contribution (EFC).

Retention can have various definitions, but for the purpose of this study can be defined in terms of program completion (Walleri, 1981). Program completion timeframes vary at SMWC. Program completion is defined as graduating within 6 year in the campus program, 12 years in the distance program, and 7 years in the graduate program. A correlation analysis was completed with a linear regression as well for this research question.

Before any analysis could be done on this data, some formatting had to be done. Terms and graduation dates had to be formatted as m/d/yy format in order to get the time from start to finish using the YEARFRAC formula in Excel.

A correlation analysis was completed for each of the three programs using the CORREL function in Excel. In the spreadsheet for each program the data was plotted on the scatterplot, the r^2 line was selected as well as the linear regression line. Below the data the calculations were shown to get the same correlation result, as shown in the appendix. Data was used for students that have graduated.

Results of all three programs showed a very low correlation coefficient (r value): -.051202 for campus, .062283 for Woods Online (distance), and -.0404 for graduate. Therefore, there is no noticeable relationship between the students EFC and there ability to graduate within the allotted time.

A regression analysis revealed an equation of y = -5E-06x + 4.0219 for campus, y = 2E-05x + 5.5441 for distance, and y = -3E-06x + 2.9497 for graduate. Tables 4.1, 4.2, and 4.3 contain the EFC regression analysis output for campus, distance, and graduate, respectively.

Table 3
EFC regression analysis output for campus

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.051202
R Square	0.002622
Adjusted R Square	-0.00071
Standard Error	1.503938
Observations	301

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.777644993	1.777644993	0.78593	0.376045523
Residual	299	676.2873422	2.261830576		
Total	300	678.0649872			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	4.021866	0.104651813	38.43092129	1E-117	3.815918186	4.22781	3.815918186	4.227813002
Earliest EFC	-4.7E-06	5.27201E-06	-0.886528051	0.37605	-1.50487E-05	5.7E-06	-1.50487E-05	5.70116E-06

With a p-value of .37605, the null hypothesis, There is no relationship between students' financial background and ability to graduate within 6 years was not rejected.

Table 4
EFC regression analysis output for distance

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.062283351							
R Square	0.003879216							
Adjusted R Square	0.001599763							
Standard Error	3.026372917							
Observations	439							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	15.58684678	15.58684678	1.701819057	0.192736859			
Residual	437	4002.453735	9.158933031					
Total	438	4018.040581						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	5.544141442	0.17377426	31.90427311	3.3564E-116	5.202604237	5.885679	5.202604237	5.885678646
EFC	1.80727E-05	1.38538E-05	1.304537871	0.192736859	-9.15552E-06	4.53E-05	-9.15552E-06	4.5301E-05

With a *p*-value of .19274 the null hypothesis, There is no relationship between students' financial background and ability to graduate within 6 years was not rejected.

Table 5

EFC regression analysis output for graduate

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.0403975
R Square	0.001631958
Adjusted R Square	-0.002598415
Standard Error	1.055985116
Observations	238

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.430175739	0.430175739	0.385771659	0.535129837
Residual	236	263.1646776	1.115104566		
Total	237	263.5948534			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.949743363	0.083307876	35.40773712	2.13707E-96	2.785621278	3.113865	2.78562128	3.113865447
EFC	-2.75107E-06	4.42931E-06	-0.621105192	0.535129837	-1.1477E-05	5.97E-06	-1.148E-05	5.97497E-06

With a *p*-value of .53513, the null hypothesis, There is no relationship between students' financial background and ability to graduate within 6 years was not rejected.

Figures 4, 5, and 6 contain the scatterplots for campus, distance, and graduate programs, respectively.

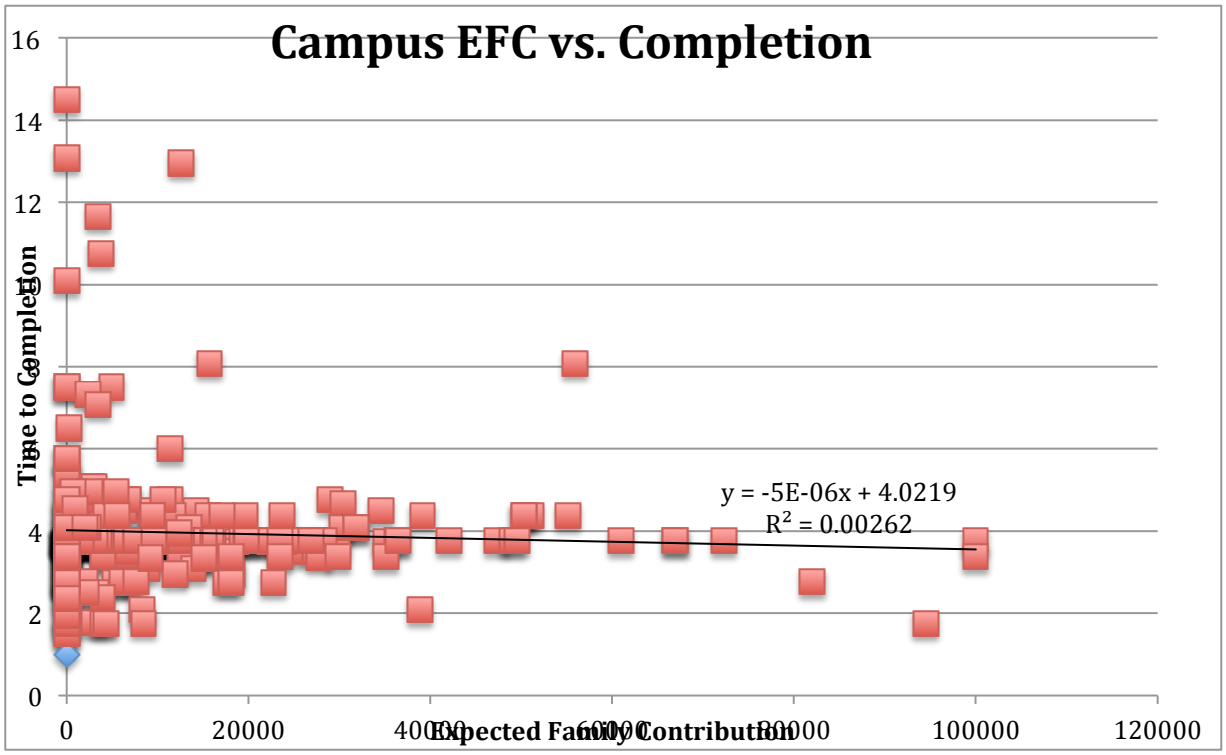

Figure 4. 2014 Campus EFC vs. Completion.

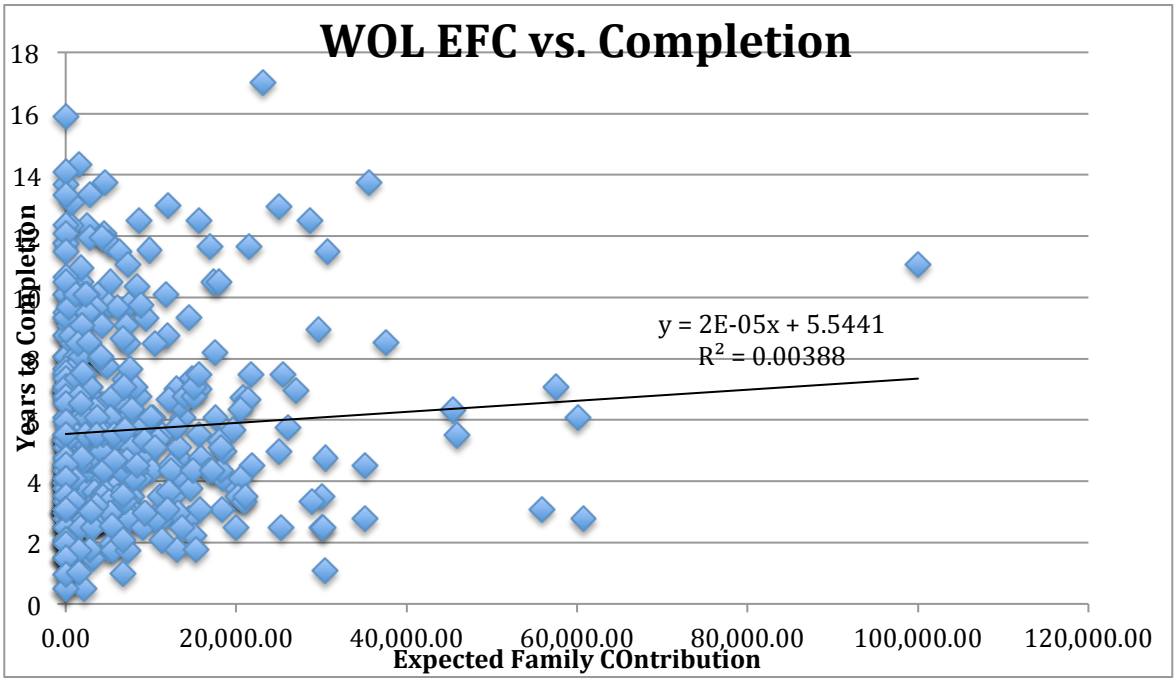

Figure 5. 2014 WOL EFC vs. Completion.

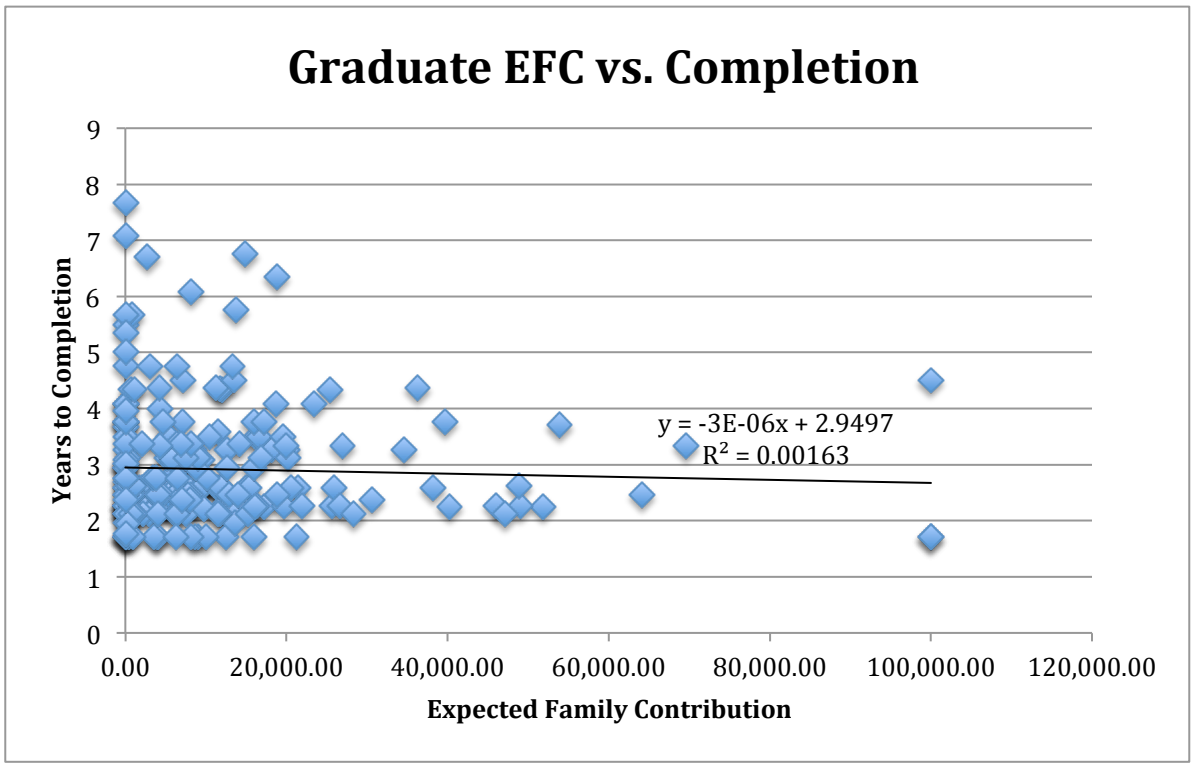

Figure 6. 2014 Graduate EFC vs. Completion.

Research Question 2

To what extent does age cause retention problems in all programs at Saint Mary-of-the-Woods College?

Retention can have various definitions, but for the purpose of this study can be defined in terms of program completion (Walleri, 1981). Program completion timeframes vary at SMWC. Program completion is defined as graduating within 6 year in the campus program, 12 years in the distance program, and 7 years in the graduate program. A correlation analysis was completed with a linear regression as well for this research question.

Before any analysis could be done on this data, some formatting had to be done. Terms and graduation dates had to be formatted as m/d/yy format in order to get the time from start to finish using the YEARFRAC formula in Excel.

A correlation analysis was completed for each of the three programs using the CORREL function in Excel. In the spreadsheet for each program the data was plotted on the scatterplot, the r^2 line was selected as well as the linear regression line. Below the data the calculations were shown to get the same correlation result, as shown in the appendix. Data was used for students that have graduated.

The correlation coefficient (r value) for each of the campus, distance, and graduate programs, respectively are: -.1959574, .064387, and .237791. The campus and graduate programs show a possible weak relationship between student age and program completion. Squaring those two values means there is about 3.8% for campus and 5.7% for the graduate program.

A regression analysis revealed an equation of y= -.07x + 5.238 for campus, y=.0178x + 4.8623 for distance, and y=.032x + 1.9411 for graduate. Tables 6, 7, and 8 contain the age regression analysis output for campus, distance, and graduate, respectively.

Table 6

Age regression analysis output for campus

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.19595742
R Square	0.03839931
Adjusted R Squ	0.03730409
Standard Error	1.32924577
Observations	880

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	61.9489196	61.94892	35.0609082	4.5817E-09
Residual	878	1551.33322	1.7668943		
Total	879	1613.28213			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	5.23799298	0.2384415	21.967623	1.3931E-85	4.77001112	5.70597485	4.77001112	5.705974851
Age	-0.0699561	0.01181447	-5.921225	4.5817E-09	-0.093144	-0.0467682	-0.093144	-0.04676822

With a p-value of 4.5817E-09, the null hypothesis, There is no relationship between students' age and ability to graduate within 6 years was rejected.

Table 7

Age regression analysis output for distance

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.064387438
R Square	0.004145742
Adjusted R Square	0.003239596
Standard Error	2.675691244
Observations	1101

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	32.75489396	32.75489396	4.575138	0.032659
Residual	1099	7868.096674	7.159323634		
Total	1100	7900.851568			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	4.862270202	0.290354134	16.74599955	3.085E-56	4.292559	5.431981	4.292559	5.431981277
Age	0.017760698	0.008303438	2.138957234	0.032659	0.001468	0.034053	0.001468	0.03405308

With a p-value of .032659, the null hypothesis, There is no relationship between students' age and ability to graduate within 6 years was strongly presumed to be rejected.

Table 8
Age regression analysis output for graduate

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.237790931
R Square	0.056544527
Adjusted R Squar	0.054672591
Standard Error	1.441350505
Observations	506

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	62.75363845	62.75363845	30.20645096	6.18E-08
Residual	504	1047.055605	2.077491279		
Total	505	1109.809243			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	1.941080313	0.242009103	8.02069131	7.41272E-15	1.465609	2.416551	1.465609	2.416551243
Age	0.032012438	0.005824637	5.49603957	6.17743E-08	0.020569	0.043456	0.020569	0.043455998

With a *p*-value of 6.17743E-08, the null hypothesis, There is no relationship between students' age and ability to graduate within 6 years was rejected.

Figures 7, 8, and 9 contain the scatterplots for campus, distance, and graduate programs, respectively.

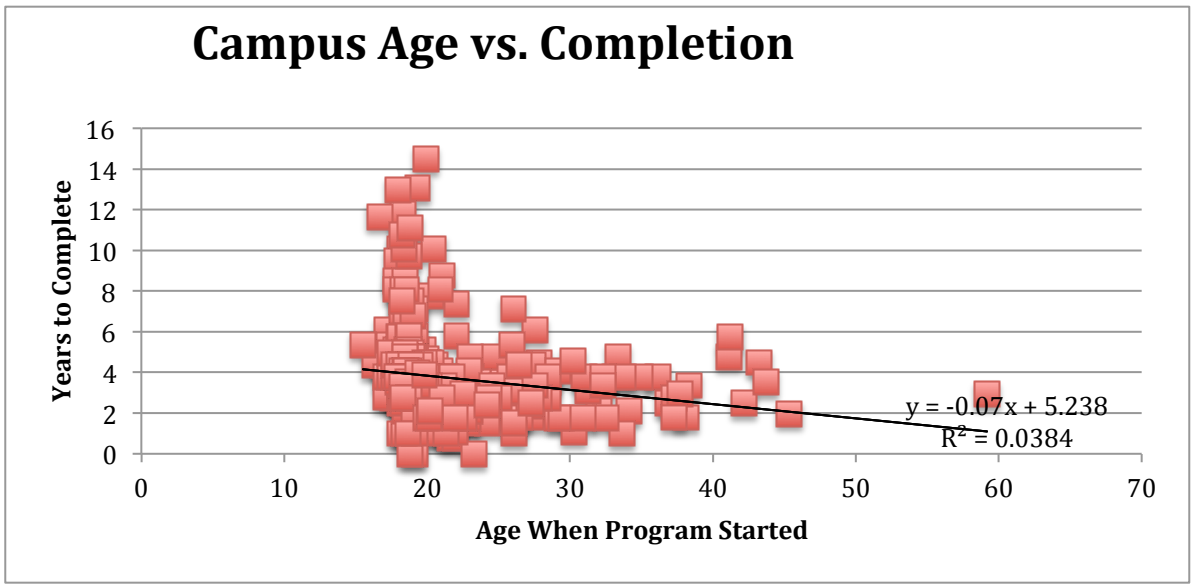

Figure 7. 2014 Campus Age vs. Completion.

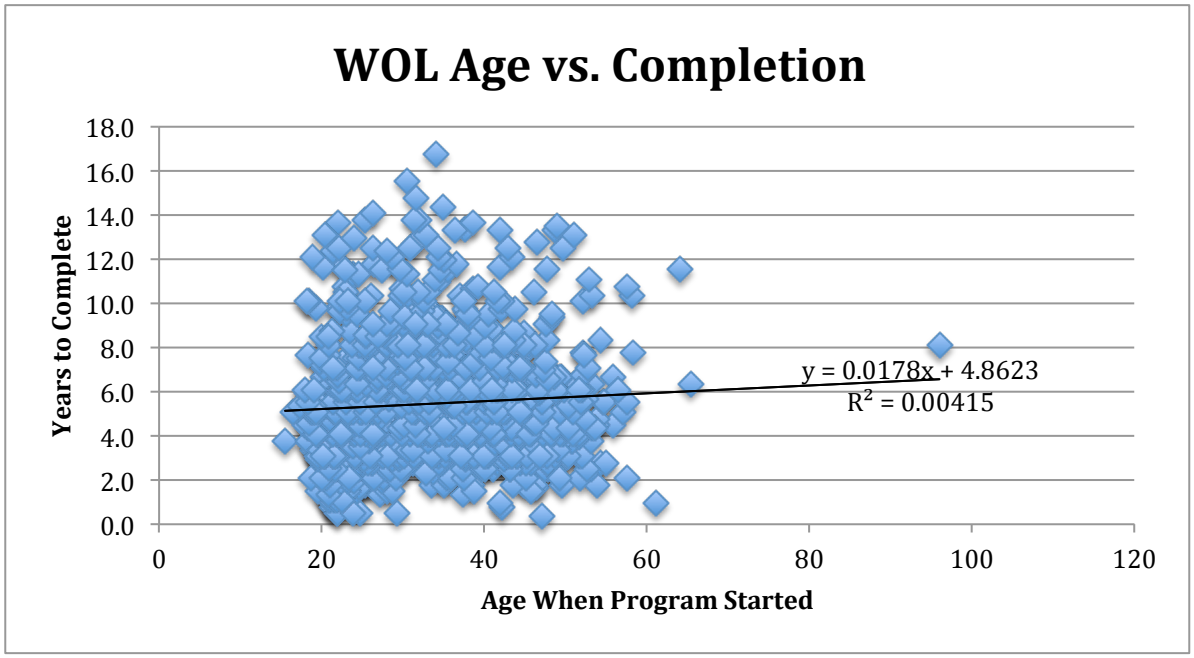

Figure 8. 2014 WOL Age vs. Completion.

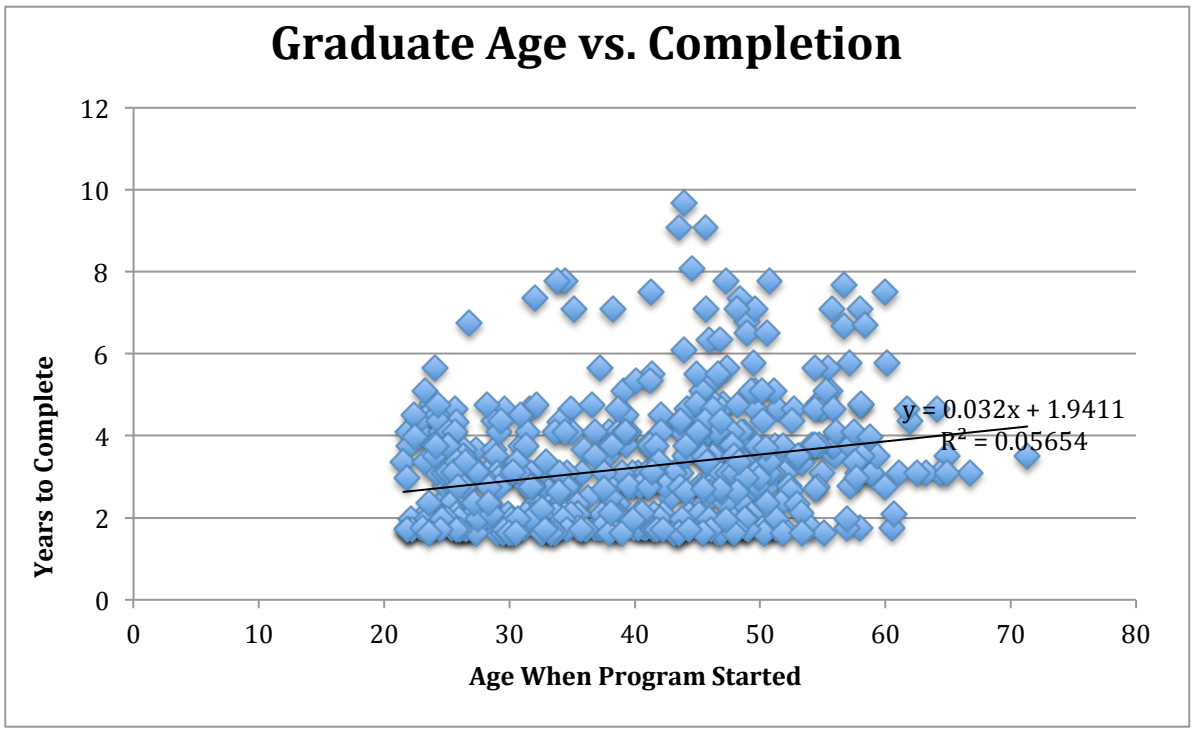

Figure 9. 2014 Graduate Age vs. Completion.

The graduate program was broken down by type of program. At SMWC there is a master of arts in art therapy (MAAT), master of arts in music therapy (MAMT), and master of leadership development (MLD). In the past we also had a masters in earth literacy (ELM), masters in pastoral theology (PT), and a masters in education (MED). Those three programs have recently been discontinued. The data was split between the respective programs an analyzed separately because the time spans are different in each one. They all have a 7-year cap to finish, but in general they are 4-year programs with the exclusion of the MLD and the MED, which are 2-year programs. The specific program correlation coefficients (r values) for the MAAT, ELM, MED, MLD, MAMT, and PT, respectively are: .2916, .108, .0293, .173, .167. and -.0155.

The MAAT shows the highest correlation coefficient between the group with MLD and the MAMT showing an extremely weak correlation coefficient. The specific graduate program scatterplots are in the appendix.

Research Question 3

What are the differences in retention between traditionally taught courses and courses taught with more online resources and technology?

Retention can have various definitions, but for the purpose of this study can be defined in terms of program completion (Walleri, 1981). Program completion timeframes vary at SMWC. Program completion is defined as graduating within 6 year in the campus program, and 12 years in the distance program. Traditionally taught refers to campus courses, and courses with more online resources and technology would refer to distance (WOL). Graduate data was not included. A chi-test and two-tailed t-test were used for this research. 1,520 campus students and 2,265 distance students were included for this question.

Before any analysis could be done on this data, some formatting had to be done. Terms and graduation dates had to be formatted as m/d/yy format in order to get the time from start to finish using the YEARFRAC formula in Excel. The years were coded as yes or no as a result. Yes if they completed the program in the allotted time, and no if they did not. All student data was used for this question.

A 2x2 table chi-test was used, as shown in table 9.

Table 9
2014 Chi-Test Results

Chi-Test			
	Campus	WOL	Total
Yes	852	1076	1928
No	668	1189	1857
Total	1520	2265	3785
	Campus	WOL	Total
Yes	774	1154	1928
No	746	1111	1857
Total	1520	2265	3785

Using the CHITEST function in Excel yielded a *p* value of .000000252. That extremely low p value indicates that there is a significant difference in program completion between the campus and distance offerings, with a 99.9999748 assurance.

Using the same data, a two-tailed t-test was performed using the TTEST function in Excel, yielding a p value of .000000225538. That confirms the findings from the chi-test, with just a slight difference due to rounding. The null hypothesis, there is no relationship between the delivery format of course a student is enrolled in and their ability to graduate within 6 years(campus)/12 years(Distance), is rejected as a result, with a 99.9999774 assurance. In Table 10 the two-tailed t-test results are shown.

Table 10
2014 P-Value Test Result

Null Hypothesis: There is no relationship between the delivery format of course a student is enrolled in and their ability to graduate within 6 years(campus)/12 years(Distance).					
P-value	0.000000225538				
The P-value is low (less than 0.05)					
The probability that the observed results are due to random chance is low					
Conclusion					
Reject the null hypothesis					
There is a significant difference in program completion between the campus and distance offerings.					
99.99998%	Assurance				

Research Question 4

How does the student's technological ability effect retention in all programs at Saint Mary-of-the-Woods College?

Retention in this research question refers to finishing the course with a C or better. All students who have completed, or were currently finishing, CS101 Intro to Computer Software were sent the survey by e-mail.

This is a mixed methods survey. The midterm and final grade components give a quantitative factor, but for the most part it is qualitative. The survey is used with the permission of Palm Beach State College, and adapted to include grade questions as well as the final question about the students' perception of their technical ability.

The survey results are shown in Figure 10. The data were collected, tallied, verified, graphed, and archived. Of the 18 survey questions, all but the last three are qualitative. The last three questions yield more of a quantitative result.

What Technical Skills Do I Need?		
I have regular access to:		
Answer Options	**Response Percent**	**Response Count**
A computer and the Internet at home.	91.3%	63
A computer but not the Internet at home.	7.2%	5
A computer and the Internet only at school.	1.4%	1
answered question		**69**
skipped question		**0**
The access speed to the Internet Service Provider (ISP) which I use is:		
Answer Options	**Response Percent**	**Response Count**
very fast and is through a TV cable or some other high speed line.	70.6%	48
through a fast modem (56K or higher).	23.5%	16
through a slow modem (below 56K).	5.9%	4
answered question		**68**
skipped question		**1**
How often do you send, receive and open email attachments?		
Answer Options	**Response Percent**	**Response Count**
I use email several times each day.	82.6%	57
I use it infrequently (one a week or less).	17.4%	12
I have never used it.	0.0%	0

answered question		**69**
skipped question		**0**

How often do you use bookmarks (also called Favorites) to manage the sites you visit frequently on the Internet?

Answer Options	**Response Percent**	**Response Count**
I use them to manage the sites I visit frequently on the Internet.	46.4%	32
I use them but infrequently.	37.7%	26
I never use them.	15.9%	11
answered question		**69**
skipped question		**0**

How often do you use search engines to locate information on the Internet?

Answer Options	**Response Percent**	**Response Count**
I use them frequently and successfully.	92.8%	64
I use them but before but not often.	5.8%	4
I have never conducted an Internet search.	1.4%	1
answered question		**69**
skipped question		**0**

How often do you create attached files in the email messages you that you send

Answer Options	**Response Percent**	**Response Count**
I create, save, and attach files to email frequently.	85.3%	58
I have emailed attachments but not very often.	14.7%	10
I never attached a file to an email message.	0.0%	0
answered question		**68**
skipped question		**1**

When requested to use or save documents in a different file type such as an "RTF" "Rich Text Format" or an HTML file:		
Answer Options	**Response Percent**	**Response Count**
I would have no difficulty.	47.1%	32
I have done it but a reminder of the process would help.	30.9%	21
I am not sure that I would know how to do that.	22.1%	15
answered question		**68**
skipped question		**1**

If a plug-in or other software were required for a computer:		
Answer Options	**Response Percent**	**Response Count**
I would be able to download and install it.	69.6%	48
I have done it before, but some instructions would help.	24.6%	17
I have no idea what you are talking about or how to do such a thing.	5.8%	4
answered question		**69**
skipped question		**0**

If the computer system I was using had problems:		
Answer Options	**Response Percent**	**Response Count**
I would be able to decide how to handle the problem.	50.7%	35
I think I would call a help line and be able to describe the problem.	43.5%	30
I would have no idea what to do.	5.8%	4
answered question		**69**
skipped question		**0**

Do you know how to use bulletin (discussion) boards?		
Answer Options	**Response Percent**	**Response Count**
I use them with little or no difficulty.	73.9%	51
I have used them but a refresher on their use would help.	20.3%	14
I have not used them.	5.8%	4
answered question		**69**
skipped question		**0**

Do you know how to use chat rooms?		
Answer Options	**Response Percent**	**Response Count**
I use them with little or no difficulty.	66.7%	46
I have used them but a refresher on their use would help.	10.1%	7
I have not used them.	23.2%	16
answered question		**69**
skipped question		**0**

My keyboarding skills and my ability to use word processing software is:		
Answer Options	**Response Percent**	**Response Count**
Very good.	92.8%	64
Okay, but it takes me a while.	7.2%	5
Nonexistent	0.0%	0
answered question		**69**
skipped question		**0**

I would access the Internet through a computer:		
Answer Options	**Response Percent**	**Response Count**

In my home.	78.3%	54
At school or at work.	20.3%	14
At another location.	1.4%	1
answered question		**69**
skipped question		**0**

When asked to print a web page:

Answer Options	**Response Percent**	**Response Count**
I would have no difficulty.	91.3%	63
I have done it but a reminder of the process would help.	7.2%	5
I am not sure that I would know how to do that.	1.4%	1
answered question		**69**
skipped question		**0**

How would you describe your ability to work with multiple windows, i.e., resizing, minimizing, closing, etc.?

Answer Options	**Response Percent**	**Response Count**
I can successfully manage several windows on my desktop.	98.6%	68
More than one open application or more than one window confuses me.	1.4%	1
I am not sure what the question means.	0.0%	0
answered question		**69**
skipped question		**0**

What was your midterm grade in CS101?

Answer Options	**Response Percent**	**Response Count**
A	62.3%	43
A-	8.7%	6

B+	13.0%	9
B	7.2%	5
B-	2.9%	2
C+	2.9%	2
C	1.4%	1
C-	0.0%	0
D+	0.0%	0
D	1.4%	1
D-	0.0%	0
F	0.0%	0
answered question		**69**
skipped question		**0**

What was your final grade in CS101?

Answer Options	**Response Percent**	**Response Count**
A	63.8%	44
A-	17.4%	12
B+	8.7%	6
B	4.3%	3
B-	1.4%	1
C+	2.9%	2
C	0.0%	0
C-	0.0%	0
D+	0.0%	0
D	1.4%	1
D-	0.0%	0
F	0.0%	0
answered question		**69**
skipped question		**0**

Do you believe your technical ability will be an influencing factor of your success at SMWC

(being able to graduate within 6 years)?		
Answer Options	**Response Percent**	**Response Count**
Yes	94.2%	65
No	5.8%	4
answered question		**69**
skipped question		**0**

Figure 10. 2014 Survey Result Data.

The comparison graph between midterm and final grades is shown in figure 11.

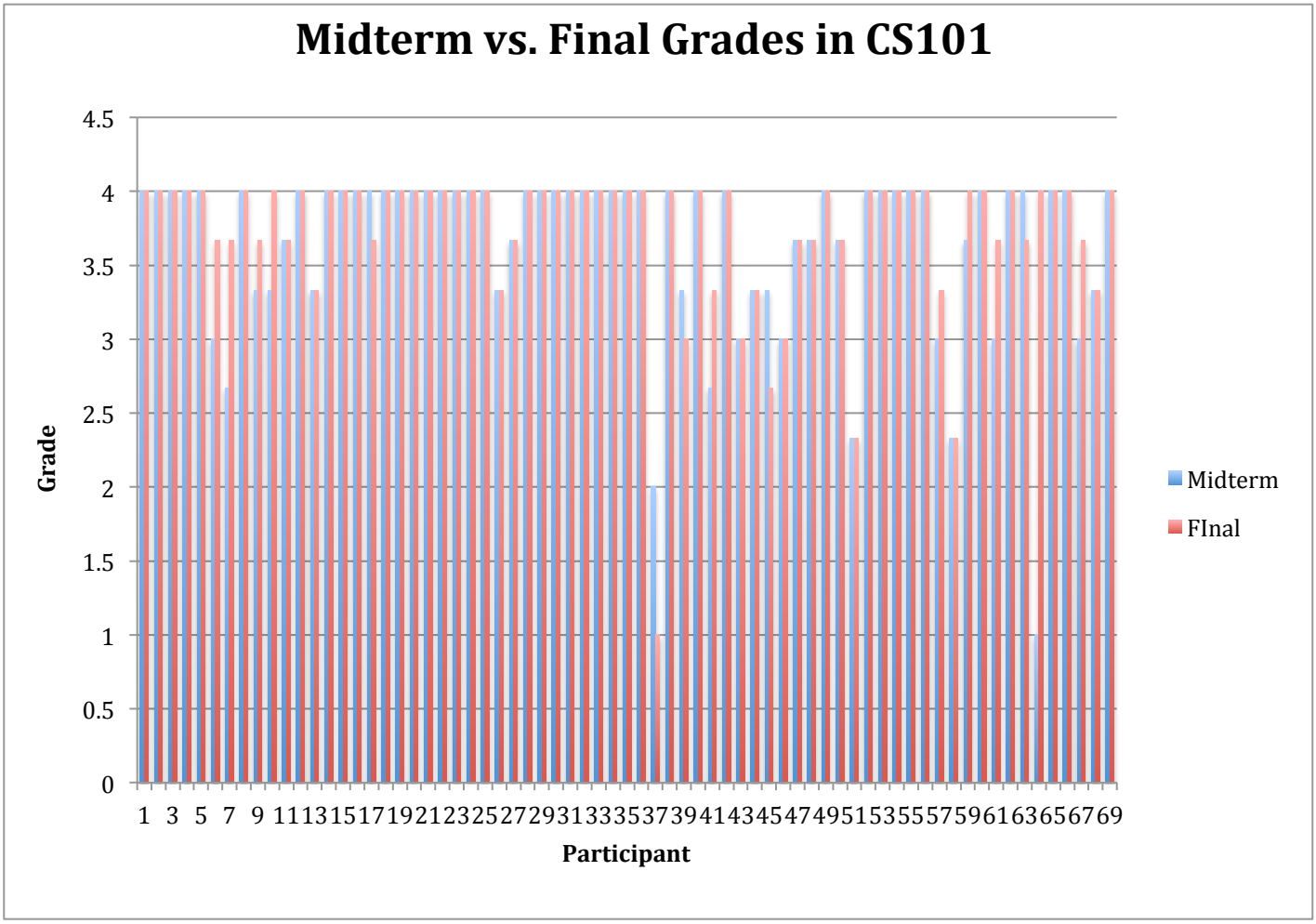

Figure 11. 2014 Midterm vs. Final Grades in CS101.

Over 91% of students have a computer and internet at home and have very good keyboarding skills. There was a split in confidence ability to save files as different file types. About half feel that they could fix a problem that arises with their computer. From the grade data, the midterm versus final grade data stay around 62-63%. Lower grades in the B range were raised to an A-. All but one participant had a C or better at midterm and at the final. That leads to the final question, Do you believe your technical ability will be

an influencing factor of your success at SMWC (being able to graduate within 6 years)? Only 5.8% (4) participants did not think that their technical skills would impact their ability to graduate on time.

In the final chapter, the previous research conducted will be compared to the findings of this study. Foundational theorists and reports from SMWC will be connected with findings from the study. The theories based on retention, age, financial background, course delivery format, and technical ability will be more fully discussed. Recommendations of current results as well as further studies will be given.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

This case study was implemented due to the fact that there were no previous retention studies completed on the SMWC campus. Although access to higher education has increased substantially over the past forty years, student success in college—as measured by persistence and degree attainment—has not improved at all (Brock, 2010). The fact that no retention studies had been done to date created a problem at SMWC. It has been difficult to determine what our loss of students stems from. While this study did not look at every possible indicator, it did look at four prominent theories that have been discussed as possible indicators in the past: age, financial background, course delivery format, and technical ability.

This study was primarily quantitative, with the survey being primarily qualitative. There were four research questions at the start of this study.:

1. To what extent does the student's financial background cause retention problems in all programs at Saint Mary-of-the-Woods College?
2. To what extent does age cause problems in all programs at Saint Mary-of-the-Woods College?
3. What are the differences in retention between traditionally taught courses and courses taught with more online resources and technology?
4. How does the student's technological ability effect retention in all programs at Saint Mary-of-the-Woods College?

The first three questions were purely quantitative, while the fourth question was primarily qualitative. Of the 175 surveys administered, 69 were completed.

Pertaining to student age, and financial background, no strong positive relationships existed. There was a weak correlation between student age and completion within 6 years. There was no correlation at all between students' expected family contribution and completion with 6 years. Survey results pertaining to a student's technological ability showed that the majority of students feel that technology plays an important role in a students' retention. When conducting a chi-test on the course delivery format data, a very strong relationship was demonstrated. Overall, between the four factors studied (student age, financial background, course delivery format, and technological ability), only course delivery format appears to impact student retention. Retention is considered finishing 6 years on campus, 7 years in graduate, or 12 years in distance. Table 11 contains the 2-tailed t-test results that confirm a very secure chi-test result.

Table 11
2014 P-Value Test Result Confirming Chi-Test Results In Chapter 4.

Null Hypothesis: There is no relationship between the delivery format of course a student is enrolled in and their ability to graduate within 6 years(campus)/12 years(Distance).	
P-value	0.000000225538
The P-value is low (less than 0.05)	
The probability that the observed results are due to random chance is low	
Conclusion	
Reject the null hypothesis	
There is a significant difference in program completion between the campus and distance offerings.	
99.99998%	Assurance

This final chapter discusses how the findings compare to the retention research previously gathered. It is obvious from the study that there needs to be many more factors considered that may affect retention. At any institution there are multiple factors affecting retention.

Interpretation of the Findings

The researcher is a graduate of SMWC, and has been around the college for the past 19 years as student, alum, and faculty member. As a faculty member, the researcher has been involved with the students and retention for the past 8 years. Knowing that many colleges were facing low retention rates, it was important to look into retention at

SMWC because it is already a small college. SMWC is a small, private, women's college in Indiana that was founded in 1840. While the campus program is open only to women, the distance and graduate programs are open to men. Studying the four research questions yielded valuable theories about the three program areas at the college.

As this study began, it was aware to the administration at SMWC that this needed to be done. Even if these four factors did not entirely enlighten them on the retention issues faced, it is a starting point. Throughout the entire process, it has been obvious that the data collection could be handled much more efficiently. Most of the data had never been touched or sorted in any way. It was extremely raw data. There were areas where it was believed data was missing and inconclusive. More retention studies need to be completed on a routine basis. The college has hired an institutional researcher in the 2013-2014 academic year, and it is very promising that further research will stem from this study.

In terms of age, there is a very week correlation between student age and retention in the campus and graduate programs. For the campus program there is a slight possibility that as age increases, retention decreases. For graduate, as age increases, there is a slight chance that retention increases. There is even less possibility that student age affects retention in the distance program. There was no correlation between financial background, which was expected family contribution at enrollment, and retention in any program.

There was nearly a 100% assurance that there is a relationship between retention rates between the campus and distance programs as shown in table 5.1 above. This

seemed to contradict the findings of some previous studies, as the study from Howell and Buck, which yielded somewhat different outcomes. According to a survey completed by faculty and adult learners,

The analysis of the survey data suggests that student satisfaction is not effected by classroom location. In general, being on-campus or off campus makes no difference. While the study did not measure the quality of specific classroom features such as available technology, size, cleanliness, and safety tied to the geographic location, the findings of the study provide support for the appropriate use of off-campus classroom locations.

(2011)

In terms of technology, the vast majority of students believe technology plays an important role in a students' retention. More and more students are taking online courses, and online courses require more of a technological background for a student to feel comfortable. According to the "Learning on Demand: Online Education in the United States, 2009" survey completed by the Babson Research Group (Sloan Consortium, 2010) there were over 4.6 million students taking at least one online course during the fall term of 2008 (Blankenship & Atkinson, 2010). Figure 12 contains the quantitative components of the survey.

	What was your midterm grade in CS101?		
	Answer Options	**Response Percent**	**Response Count**
	A	62.3%	43
	A-	8.7%	6

B+	13.0%	9
B	7.2%	5
B-	2.9%	2
C+	2.9%	2
C	1.4%	1
C-	0.0%	0
D+	0.0%	0
D	1.4%	1
D-	0.0%	0
F	0.0%	0
answered question		**69**
skipped question		**0**

What was your final grade in CS101?

Answer Options	**Response Percent**	**Response Count**
A	63.8%	44
A-	17.4%	12
B+	8.7%	6
B	4.3%	3
B-	1.4%	1
C+	2.9%	2
C	0.0%	0
C-	0.0%	0
D+	0.0%	0
D	1.4%	1
D-	0.0%	0
F	0.0%	0
answered question		**69**
skipped question		**0**

Do you believe your technical ability will be an influencing factor of your success at SMWC

(being able to graduate within 6 years)?		
Answer Options	**Response Percent**	**Response Count**
Yes	94.2%	65
No	5.8%	4
answered question		**69**
skipped question		**0**

Figure 12. 2014 Quantitative Survey Result Data.

Implications for Social Change

This study began with one powerful statement, in 2009, only 55.5% of college students in bachelor's programs in the United States graduated within six years (The National Center for Higher Education Management, (2009) www.higheredinfo.org). From the February 2013 Board of Trustee report from SMWC reported a freshman to sophomore persistence rate of 78%. On average, about 82% of SMWC graduate students were retained. In the timespan between 2009-2013 first year retention has dropped from 78% to 65%. By the third year retention mark that percent drops to around 50% (Janet Clark, 2014).

From a foundational retention study that began this study, one of the most obvious causes of attrition is economic – students drop out if they cannot afford to continue in college (Creedon & Pantages, 1978).

In terms of age, there has seemed to be a mixed thought process regarding the affects of age on retention. Most of the research done in the area of student age and retention has concluded that rates of attrition are similar for students who are either

younger or older than the average age of the entering college student (Bragg, 1956; Suddarth, 1957; Thompson, 1953). However, several studies found that older freshmen are less likely to graduate than freshmen of the usual age (Sexton, 1965; Summerskill & Darling, 1955).

With a new general studies being implemented at SMWC in the fall of 2013, the one technology course, CS101 Intro to Computer Software was removed from the general studies requirements. Technology is becoming more prominent in education. One question that has arose from the researcher pertains to technology. Why did SMWC eliminate the one technology course offered when technology is so important to our students? According to the "Learning on Demand: Online Education in the United States, 2009" survey completed by the Babson Research Group (Sloan Consortium, 2010) there were over 4.6 million students taking at least one online course during the fall term of 2008 (Blankenship & Atkinson, 2010). If students are not technologically savvy, they will not succeed in online courses that depend on their technical skills.

Limitations of the Study

The limitations of the study basically consisted of a small college being used for the data gathering process. It was known up front that SMWC would have a smaller amount of data than larger public institutions. The 8-week accelerated program was begun three years ago, so data was limited in that program. That program has since then been rolled into the 16 week program. 8-week courses are an option within the 16-week program. When the study began, the 8 week program was separate. Since starting, and the 8 week program changing, there is just one distance program now. A potential threat to

validity was potentially the small sample size and the participant's interpretation of the questions presented (Creswell, 2003). There was sufficient data collected, even through the survey section to represent a fair sample of SMWC.

Recommendations for Action

This case study has provided valuable data to use as a foundation to carry forward with. With new systems becoming available on the SMWC campus, it is important to start engaging everyone in the value of knowing retention info. Many factors can affect retention, and having everyone that is involved with the students become more involved with the retention studies, progress will occur.

If student enrollment were higher at SMWC, a stronger pattern may have been able to be seen between student age and retention. From the data analyzed, it was just overwhelmingly clear that the huge majority of students entering college are the traditional age, and that skews any other kind of patterns. This was obvious in the student age research question. To review the campus age versus completion graph from chapter 4, it is obvious that the data is heavily skewed to the 18-20 year old range.

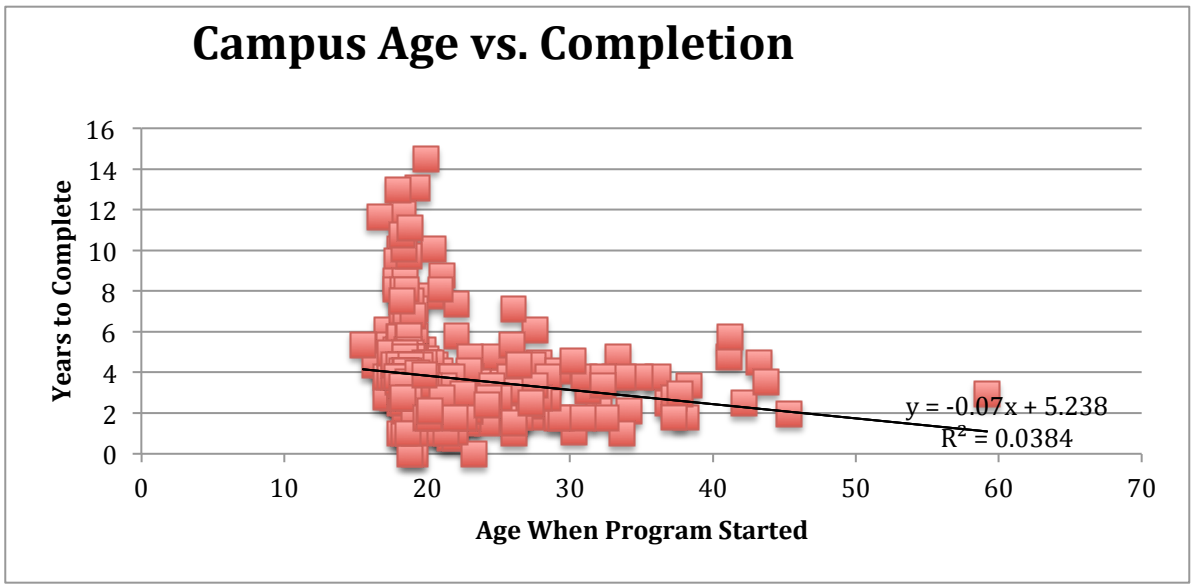

Figure 13. 2014 Campus Age vs. Completion.

Definitely look more into the financial background piece of this study. Why is there no strong relationship there? Perhaps other types of financial pieces of data need to be collected for future studies. A survey asking students about their financial background could give valuable data.

It is recommended that SMWC coordinates more student technology training in the curriculum. Students believe that technology is an important factor in their retention. Teaching more technology to students begin with the administration and faculty. Implement more training for faculty and staff. Require faculty to use technology in every course. The current online learning system used at SMWC is Desire2Learn's Brightspace platform. Faculty are required to use it in distance and graduate courses, but not on campus. A suggestion has been made to require Brightspace to be used in campus courses as well. An analytics system is needed to track data in Brightspace.

A relationship between course delivery format and retention means SMWC should be tracking that data more closely. What makes this relationship so strong, and how can we improve retention from it. What are the differences between campus and distance type delivery formats, and how could SMWC equalize those two formats?

Recommendation for Further Study

Many needed actions have become obvious to the researcher. Some things can be integrated quickly, and others may take more time.

1. Find a better way to track retention data. Develop a system to integrate all departments into one data collection. Trying to combine huge database files from multiple departments leaves too many opportunities for mistakes.

2. Look more deeply into specific campus and online courses for retention connections between them based on delivery format. Choose pilot course to start, and then expand out to departments and the entire school.

3. Look into more qualitative aspects of retention, such as happiness with advisor or instructors. Advising at SMWC is one of the most important thing students choose on surveys and evaluations.

4. Integrate more technology into every general studies course to supplement for no technology course being required. Students embrace technology. Find ways to use it more.

5. Make the retention study a process that involves everyone at the college that deal with students. Make use of the institutional researcher. Perhaps he could coordinate an effort to collect data more efficiently.

Reflections

The findings of this study supplied valuable data on four questionable areas that may impact retention at SMWC. This study was challenging, especially at the data collection stage. The researcher has never came across very much data against the importance of retention, and this study reinforced that retention is important.

As stated earlier, retention has been studied as long as there has been a higher education system. Research appears to be contradictory in many cases, having several studies prove one thing, and then several other studies disproving the very same thing.

With the fierce competition in the realm of higher education, there has never been a more important time to focus on retention.

Conclusion

This study was completed at the request of the SMWC administration and the interest of the researcher. SMWC was founded over 170 years ago. To think that retention has never been thoroughly studied made many people uneasy about the future of the college. Being a very small college to begin with, losing one student is a hardship. Not only to the college, but what must the student be going through?

While there was a small correlation between age and retention, it was surprising that there was virtually no correlation between financial background and retention. The way courses are delivered was believed to be a retention factor, and it will definitely be studied further in the future. The technology survey gave to resulting finding that students do believe that understanding technology is an important factor in their success. The interesting factor her is looking at the final picture. Of these four questions, technology

and delivery format are showing a relationship with retention. In courses that have less technical ability or technology supplements, students struggle.

This study can reassure the administration at SMWC that further research needs to be done in the area. The best interest of the students is always the goal of the college.

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Appendix A: Consent

CONSENT FORM You are invited to take part in a research study of student perception of technical ability survey. The researcher is inviting students who have completed CS101 to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Jamie McCracken, who is a doctoral student at Walden University. This survey does not affect your grades and no confidential information of yours will be given to anyone. You may already know the researcher as a faculty member, but this study is separate from that role.

Background Information: The purpose of this study is to determine if students' perceptions of their technical abilities change over the course of taking CS101, and if that is demonstrated in student retention.

Procedures: If you agree to be in this study, you will be asked to:

- Complete a 10 minute survey in Survey Monkey online

Here are some sample questions:

Q5 How often do you use search engines to locate information on the Internet?

A. I use them frequently and successfully.
B. I use them but before but not often.
C. I have never conducted an Internet search.

Q6 How often do you create attached files in the email messages you that you send?

A. I create, save, and attach files to email frequently.
B. I have emailed attachments but not very often.
C. I never attached a file to an email message.

Voluntary Nature of the Study: This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Saint Mary-of-the-Woods College will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study: Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as just simply using 10 minutes of your time. Being in this study would not pose risk to your safety or wellbeing.

This study will potentially help improve student success rates in CS101. A knowledge of how students perceive their technical ability and whether that plays a part in the students overall ability to succeed in college will help prepare future students entering the college.

Payment: No payment.

Privacy: Any information you provide will be kept anonymous The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by password protected files. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions: You may ask any questions you have now. Or if you have questions later, you may contact the researcher via phone at 812-535-5260, or e-mail at Jamie.mccracken@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is 09-06-13-0057163 and it expires on September 5, 2014.

Please keep this consent form for your records.

Statement of Consent: I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By completing a survey, I understand that I am agreeing to the terms described above.

Please click this link to be directed to the online survey
https://www.surveymonkey.com/s/smwctech

To: arshts@palmbeachstate.edu

Sent Items Friday, August 17, 2012 1:35 PM

Hi, we just spoke about the questionnaire, "What Technical Skills Do I Need" on the phone. I would like to request permission to use it in my dissertation. I am an accounting professor at Saint Mary-of-the-Woods College My dissertation is looking at retention issues at my college, with technological ability being one of the components researched.

Please let me know if I can obtain permission to use this questionnaire and I would definitely cite in my dissertation where it came from.

Feel free to e-mail me or call me at 812-208-8610.

Thanks,
Jamie McCracken

Arsht, Stephanie H [arshts@palmbeachstate.edu]

Friday, August 17, 2012 2:47 PM

Hi Jamie,

You have permission to use the instrument. Good luck with your dissertation.

Best regards,
Stephanie

Dr. Stephanie Arsht
eLearning Student Success Specialist
Palm Beach State College
4200 Congress Avenue, MS #46
Lake Worth, FL 33461
561-868-3769

eLearning Website: http://www.palmbeachstate.edu/eLearning.xml
Faculty Homepage: http://www.palmbeachstate.edu/x461.xml?id=arshts

Blackboard Login: https://palmbeachstate.blackboard.com/
Email: ArshtS@palmbeachstate.edu

Appendix B: Survey

What Technical Skills Do I Need? Survey

Q1 I have regular access to:

A. A computer and the Internet at home.

B. A computer but not the Internet at home.

C. A computer and the Internet only at school.

Q2 The access speed to the Internet Service Provider (ISP) which I use is:

A. very fast and is through a TV cable or some other high speed line.

B. through a fast modem (56K or higher).

C. through a slow modem (below 56K).

Q3 How often do you send, receive and open email attachments?

A. I use email several times each day.

B. I use it infrequently (one a week or less).

C. I have never used it.

Q4 How often do you use bookmarks (also called Favorites) to manage the sites you visit frequently on the Internet?

A. I use them to manage the sites I visit frequently on the Internet.

B. I use them but infrequently.

C. I never use them.

Q5 How often do you use search engines to locate information on the Internet?

A. I use them frequently and successfully.

B. I use them but before but not often.

C. I have never conducted an Internet search.

Q6 How often do you create attached files in the email messages you that you send?

A. I create, save, and attach files to email frequently.

B. I have emailed attachments but not very often.

C. I never attached a file to an email message.

Q7 When requested to use or save documents in a different file type such as an "RTF" "Rich Text Format" or an HTML file:

A. I would have no difficulty.

B. I have done it but a reminder of the process would help.

C. I am not sure that I would know how to do that.

Q8 If a plug-in or other software were required for a computer:

A. I would be able to download and install it.

B. I have done it before, but some instructions would help.

C. I have no idea what you are talking about or how to do such a thing.

Q9 If the computer system I was using had problems:

A. I would be able to decide how to handle the problem.

B. I think I would call a help line and be able to describe the problem.

C. I would have no idea what to do.

Q10 Do you know how to use bulletin (discussion) boards?

A. I use them with little or no difficulty.

B. I have used them but a refresher on their use would help.

C. I have not used them.

Q11 Do you know how to use chat rooms?

A. I use them with little or no difficulty.

B. I have used them but a refresher on their use would help.

C. I have not used them.

Q12 My keyboarding skills and my ability to use word processing software is:

A. Very good.

B. Okay, but it takes me a while.

C. Nonexistent

Q13 I would access the Internet through a computer:

A. In my home.

B. At school or at work.

C. At another location.

Q14 When asked to print a web page:

A. I would have no difficulty.

B. I have done it but a reminder of the process would help.

C. I am not sure that I would know how to do that.

Q15 How would you describe your ability to work with multiple windows, i.e., resizing, minimizing, closing, etc.?

A. I can successfully manage several windows on my desktop.

B. More than one open application or more than one window confuses me.

C. I am not sure what the question means.

Q16 What was your midterm grade in CS101?

Q17 What was your final grade in CS101?

Q18 Do you believe your technical ability will be an influencing factor of your success at SMWC (being able to graduate within 6 years)?

Appendix C: Survey Validation

RespondentID	CollectorID	StartDate	EndDate	IP Address
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