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# Using Early Alert Data to Increase Success Rates Among U.S.

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COLLEGE OF EDUCATION

This is to certify that the doctoral study by

Donald Michael Ball

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2016

Abstract

Using Early Alert Data to Increase Success Rates Among U.S.

Community College Students

by

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MBA, Ashland University, 2001

BS, Kent State University, 1998

AAS, Stark State College, 1995

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

More U.S. students are attending college than at any time in history, but many of these students are poorly prepared for college coursework. Higher education institutions are challenged to increase the overall student success rate. The study community college implemented an early alert system to identify students with potential course performance concerns, but it is not known whether other student data might also predict academic performance at the study site. Guided by Tinto's and Astin's respective works on student persistence, the purpose of this correlational study was to investigate the relationships between students' demographic, background, and environmental variables and course success, for students identified by the early alert system. Stratified random sampling of 4 academic years of student data using 50% of the early alert students in the top 25 courses with the highest number of early alert students yielded a sample of 3,873 students. Predictor variables were gender, race/ethnicity, age, income status, campus, faculty status, first generation to college, and course times. The dependent variable was the course outcome. A regression analysis examined the predictive ability of each variable, and race/ethnicity was the only predictor found to be statistically significant. African-American students were the highest risk students for failing a course. A white paper was developed to share the study findings with the administration at the study college regarding the early alert system and other factors related to course success. Increasing student success may produce an overall positive social impact on society by increasing students' job prospects and ability to contribute economically in their communities.

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Dedication

This doctoral journey is dedicated to my family. It is in recognition for the countless hours taken from my wife, Randi; twin daughters, Miranda & Ashlie; and my youngest daughter Veronica. I am grateful for their understanding of the time, effort, and persistence I took to complete this journey. I hope this educational achievement inspires my children to achieve their hopes and dreams wherever they may lead.

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I want to thank some of the individuals who were most inspirational in helping me to achieve this goal: Mom and Dad, for their love and support throughout my long educational journey, and my wife and children for enduring the process with grace and beauty; Dr. Peter Kropp, former supervisor and mentor, who always believed in me; and Dr. Don Jones, my chair who pushed me to achieve and motivated me.

Table of Contents

.

iii

List of Tables

List of Figures

Section 1: The Problem

In the U.S. community college system, less than 40% of students on average pass their entry-level classes and persist to their next grade level (U.S. Department of Education [DOE], 2011). Community colleges in the United States are generally locally accessible and have a higher number of nontraditional, minority, and socioeconomically disadvantaged students (Rendon, 2013). Community college students are also generally older than traditional college students (Jepsen, C., Troske, K., & Coomes, P. 2014). They also often have fewer core academic skills, and they tend to be first-generation students with responsibilities outside of academics (Jepsen, Troske, & Coomes, 2014; Rendon, 2013).

Failing entry-level classes often prompts community college students to drop out of college, which often has long term negative socioeconomic effects for the students themselves as well as their communities (Tinto, 1987). The individual student as well as communities as a whole reap long-term rewards from education and are more prepared to compete in a global economy (Brooks, 2010). In the United States, college enrollment rose by 37% from 2000-2010 (National Center for Education Statistics [NCES], 2011). Many students are choosing to attend local community colleges (Belfield & Bailey, 2011).

According to the American Association of Community Colleges ([AACC], 2010), community colleges in the United States differ significantly by region, typically reflecting programmatic needs of their local communities. Typically, community college students are typically older than university students (Jepsen, C., Troske, K., & Coomes, P.

2014). They often have lower standardized test scores and academic skills (Jepsen, C., Troske, K., & Coomes, P. 2014). The student populations in general tend to be more diverse, nontraditional, and socioeconomically challenged than university student populations (AAC, 2010).

XYZ County Community College is a large community college in the Midwestern United States with a student enrollment of approximately 15,500 (XYZ County Community College website, 2012). The college is accredited by the North Central Association of Colleges and Schools. Approximately 65% of the student enrollment is part-time (P. Trumpower, personal communication, December 6, 2012). The college offers 44 associate degree programs and certificates in business, engineering, health, education, and information technology (P. Trumpower, personal communication, December 6, 2012).

In 2010, the U.S. Department of Education named XYZ County Community College as the fastest growing public two-year college in the nation in its large college size category. In Spring 2003, the college had a credit student enrollment of approximately 4,300, and, in Spring 2013, the college had an enrollment of approximately 15,500 (P. Trumpower, personal communication, June 6, 2016). The enrollment boom was the largest in the college history. Because the enrollment growth trend declined in 2013 and is now flat or declining, the college administration has emphasized student retention. Student retention is defined as continuing semester to semester student enrollment.

Administrators decided to refocus on achieving student success. Only 13.9% of XYZ County residents have a college degree as compared to 24.5% in the state and 28.2% in the United States (U.S. Census, 2012). The lower level of degree attainment is a serious problem in the county. The lack of education has a deep impact on both the community at large as well as the student with regard to preparation for a skilled workforce (Tinto, 1987). Competition in today's economy for good jobs is fierce. To better compete, many individuals have chosen to upgrade their skills (NCES, 2011). As a result, community and technical college enrollment nationwide surged from 2005-2009 and is expected to continue grow at a similar pace (NCES, 2011). Between 1997-2007, enrollment increased by 26%, from 14.5 million to 18.2 million, which is a larger percentage increase than in the previous decade (U.S. DOE, 2010).

A community that has less education than national averages can potentially negatively impact the larger community as companies may decide not to relocate to or maintain their operation in the area. Potential employees often take a workforce and educational survey to assure that an appropriate match exists for needed employer skills (XYZ County Community College, 2012). The match of skill needs to skill levels is very important for regional economic competitiveness.

The unsuccessful student and his or her family will most likely have a lower overall earning potential and standard of living (Jepsen, Troske, & Coomes, 2014). According to the United States Department of Education in 2014, an individual with an associate degree earned a median income of $35,700, while an individual with a high school diploma earned a median income of $29,000 (NCES, 2014). These data mean that

an individual who has at least an associate's degree makes 20% more than a person without a degree earns. This percentage increases an additional 22% for those who earn a bachelor's degree.

There is a clear demand for skilled workers in the growing category of nontraditional or nontypical college aged undergraduate students, which accounts for approximately 75% of the U.S. adult population (NCES, 2007). College graduates can expect to earn approximately $1 million more in personal income over the span of their career than those workers without a college degree (Belfield & Bailey, 2011). Greater financial stability drives larger numbers of students who potentially may have lower academic and study skills to pursue degrees according to the U.S. Department of Education (2011).

Early educational theorists often described the college environment as a complex structure of practices, policies, and influences that affects students' advancement and fulfill predetermined educational goals (Pace, & Stern, 1958). I believe this description is valid today, but the difference is that technology provides current detailed student data to institutions (Goldrick-Rab, 2010). Using this data to aid in student success is the challenge (Etwell, 2010). I sought to aid XYZ College in its efforts to better serve students who are struggling academically. In this study, I analyzed relationships that existed between students' input characteristics and student early alert success outcomes to investigate any potential correlations to improve student success. The full use and analysis of such student data is pivotal, I believe, for increasing student success rates.

**Local Problem**

More students in the U.S. are deciding to go to college in the hope of finding jobs and careers that achieving a higher standard of living. As a result of the student swell, more students who are not properly prepared to succeed in the college are now pursuing education (Rendon, 2013). Because of changes in enrollment different ways of handling challenges are needed. Institutions are beginning to understand the economics of student retention and that it is more expensive to continue to recruit new students to replace those who have left (Eagle & Brennan, 2007). Both student success and finance are important in long term institutional viability. Higher education experts view the criticality that students and institutions have simple tools, such as an effective academic early alert system, to help gauge students' performance, support students' needs for success, and help students meet educational goals (Rendon, 2013). An early-alert program is a formal institutional mechanism designed to alert students of their academic progress or position in a specific class or section (Hobson, 2008).

Institutions' data collection and notification systems in general are becoming more sophisticated with expanded data query capabilities. Because of these advances in information technology, both administrators and faculty have more overall data readily available to them than they are able to use (Etwell, 2010). At XYZ Community College, 4 weeks into each semester instructors were required, at the time of this study, to evaluate each student's performance and identify those students who were performing below a "C" grade level. The early alert grade notification minimums are based on Federal Financial Aid Standards of Academic Progress guidelines. After the students are identified as

receiving an early alert in the college computer system by their instructor they are officially notified using a standard form early alert notification letter as well as an email. In this letter, students are notified that they are performing at less than an acceptable level, encouraged to work with their instructor, and contact their advisor for assistance. The early alert letter also informs students that, unless their performance improves, they are not likely to succeed in their specific class. At the time of this study, the alert was the only notification students received during the course regarding an early alert at XYZ Community College.

While staffers identified and alerted students of potential issues with their performance, they did not make use of additional data available to them. Colleges need to maximize their available data use as other businesses and marketers have done. Every piece of data from everyday life is being collected, analyzed, trended, and used to a high degree by government entities, marketers, and many others to improve and maximize many aspects of individuals' daily lives (Sheldon, Dix, Flynn, & Metcalfe, 2013). The data is linked to any demographic data that can be obtained to form patterns and trends.

Why not use additional data to help increase student success rates with the early alert system as well? I analyzed independent variables from the study site's student mainframe Banner system for early alert students. The variables analyzed were those supported directly or indirectly by the literature review to influence student persistence and retention. In seeking to clarify what contributed to the eventual success of some students who had received early alert notifications, I conducted a correlational analysis of early alert student data. This method may provide guidance to institutions in their efforts

to increase student success. According to Faulconer, Geissler, Majewski, & Trifilo, (2014) the early alert system is a very important method of intervention to increase student success, which is why it was the main focus of my study.

Based on my review of the literature, there has also been no official evaluation of the early alert system to date. Thus, further research was warranted. As an example, once a specific student had been identified as performing below standard, the full institutional bank of data on the student could be used to help in the success effort by focusing on data correlations of successful students. Examples of data contained within the institutional bank of data were gender, race/ethnicity, age, income status, campus, faculty status, first generation to college, and course times. Understanding the important data to a specific challenge is core to making progress. The early alert process can be very complex when combined with a student-support system that can involve a combination of counselors, tutors, and student peers (Chappel, 2010). The early alert process had many input independent variables within its specific data set.

The purpose of this correlational study was to investigate the relationships between students' demographic, background, and environmental variables and course success, for students identified by the early alert system. In conducting this study, I sought to learn more about what contributes to student success. The population studied was those students who received an early alert. Early alert example variables such as race/ethnicity and gender were classified as independent variables because they do not change. The single dependent variable in this study was the pass or fail outcome in a course for a student who had been identified in the early alert system. The pass or fail dependent

variable was the most important dependent variable because it was a gatekeeper variable for students' educational advancement as well as a core purpose of the early alert process—student success (P. Trumpower, personal communication, June 6, 2016). Core independent variables used in this study were gender, race/ethnicity, age, income status, campus, faculty status, first generation to college, and course times.

The study results may help provide insight to faculty, staff, and administrators in their efforts to increase student success rates. The improvement may be accomplished by helping the institution focus and invest in areas that can further influence student success in some collective manner with efficiency that aids student success. This focus may help XYZ improve overall success rates of students as well as help individual students meet their educational goals. Utilizing a data driven analysis may give XYZ Community College an opportunity to increase student success.

## Rationale

Student persistence has been a longstanding issue at XYZ County Community College. Only 60% or so of new students receive a "D" or better in their initial courses taken at the college (XYZ Community College, 2012). The fall 2011 to spring 2011 persistence rate of 77.1% from first to second semester was lower than the U.S. average higher education national rate at 79.3% (NCHES, 2011). Student learning progress has historically been a factor in, and indicator of, student success generally for institutions (Jenkins, 2011).

Student success is now even more important because it is linked to higher education funding in some areas. State funding models for institutions are also changing

to reward those institutions with high levels of graduates in Ohio (Ohio Board of Regents, 2010). As the scarcity of financial resources in higher education escalates, there is a growing emphasis on achieving greater efficiency and overall effectiveness of higher education systems (Rendon, 2013). As the trend of higher education funding dwindles, the value of any tool or data that helps to accomplish the goal of student retention and/or completion becomes valuable to institutions. The reason is that use of these tools may enable teachers, staffers, and administrators help students who are academically challenged which, in turn, might result in more revenue for institutions.

One such tool that has been in use for many years at U.S. colleges is early alert systems (Center for Enrollment Research, Policy and Practice, 2011). At XYZ Community College, the early alert system is often the first and only official student warning from administration regarding performance in a class (before final grades are issued). Early alerts are issued during the 4th week for students who are receiving a "C" or below.

The warning is in the form of a letter mailed to the home address and an email sent to the student's college email address that contains a digital copy of the warning letter that was mailed (P. Trumpower, personal communication, December 6, 2012). The warning letter urges the student to contact his or her advisor or student services. The overarching logic is that providing a warning early in the semester gives students ample time to potentially change behavior and/or seek help. The early alert is in addition to direct communication from faculty to student regarding course progress (P. Trumpower, personal communication, December 6, 2012). It is the student's responsibility to take the

next step and seek help. No additional formal institutional outreach to students regarding their performance is provided the remainder of the semester.

Thirty-eight percent of XYZ students who were issued early alerts ultimately pass their course (P. Trumpower, personal communication, December 6, 2012). This begged the question as to what influenced the change in performance. According to Etwell (2010), all stakeholders at the community college need to evaluate the effectiveness of tools as potential predictors of student success, such as the early alert system. New programs focused on student success may become less costly for institutions because of potential increased student success and initiatives from high profile entities such as The Bill & Melinda Gates Foundation. One of the core Gates Foundation goals under postsecondary success is to increase student success. The Gates Foundation champions student success initiatives by funding institutions on innovative student success based initiatives (www.gatesfoundation.org/What-We-Do/US-Program/Postsecondary-Success, 2014). XYZ Community College has benefited from the Gates Foundation from funding for a remedial mathematics programming redesign for increased student success.

XYZ Community College utilized an early alert system for students, which notified students in writing early in each semester that their performance in a specific class or classes was subpar but had no data to validate its effectiveness. Historical precedence was the main reason an early alert system exists (P. Trumpower, personal communication, December 6, 2012). This precedence combined with the lack of any other type of simple cost effective system that effectively alerts students to their academic challenges did not currently exist for XYZ Community College or other institutions (P.

Trumpower, personal communication, December 6, 2012). The continued use of an early alert system to aid at-risk students without utilizing and analyzing all available system data or studying it for potential improvements for maximum impact on student success appeared to be a gap in practice. The purpose of this study was to investigate if there is a relationship between student input characteristics associated with student early alert outcomes at XYZ Community College to utilize the results to ultimately increase overall student success.

Flat or decreasing enrollment is a great motivator for institutions to find additional ways to increase effectiveness of a simple tool to aid students in their academic success. Data driven improvements in the process may yield increased student success rates in courses leading to overall increased skill and education level (Ohio Board of Regents, 2010). By analyzing the potential relationship between students input characteristics associated with student early alert outcomes, institutions can focus on those identified variables that propose a positive relationship with student success to ultimately improve student retention within the early alert model. Giving institutions data to help direct additional resources towards student success allows the institution the ability to invest in areas that will maximize student success and should result in more students meeting their educational goals. When XYZ students achieve their educational goals, it provides the broader community with a more educated and employable workforce. Ultimately, the entire region benefits when XYZ provides future workers with higher level skills and/or an academic credential.

**Definition of Terms**

The following terms are used throughout the study:

*Academic persistence*: College student decisions to remain enrolled in successive semesters within the same institution and program without interruption (Chappel, 2010; Tinto, 1975).

*At-risk student*: An underprepared student who is at a disadvantage due to their socioeconomic circumstances (Walsh, 2003).

*Early alert*: A formal institutional mechanism to alert a student of their academic progress or position in a specific class or section (Hobson, 2008).

*Intervention*: A specific effort made by an individual(s) to alter another person's behavior and/or attitude (Garcia & Tierney, 2011).

*Multiple regression analysis*: Statistical analysis method that enables predictions of values of a specific variable with the input of multiple variables (McClendon, 2002).

*Nontraditional students*: College-aged undergraduate students who are older than students right out of high school (National Center for Education Statistics, 2007).

*Retention*: The ability to maintain students enrolled in an academic institution until their chosen program completion (Keck, 2007; Tinto, 1975).

*Student success*: An indicator whose definition varies from institution to institution based on the metrics they use. One institution may define is as a high level by graduation while another might define it in terms of course completion rates. Persistence is also often used synonymously as success by institutions (Kinzie, 2014).

*Satisfactory academic progress* (SAP): standard used to measure a student's successful completion of coursework toward a degree or certificate (U.S. DOE, 2012).

## Significance of the Study

Findings from this study may provide the basis for potential discovery of correlated variables within early alert student data that show positive results on course completion. The study results allowed for better focus of XYZ institutional resources where the greatest impact on student success could be made. There is a negative financial impact on institutions from students who fail a course and do not persist to the next semester. The larger issue is one of long-term socioeconomic impact for the student and economy. Competition for jobs that pay well in the U.S. is fierce, and because of this factor, students are more willing to juggle their responsibilities and stretch their personal limits by attending college for the long-term rewards of higher salaries and better standards of living (Autor, 2010).

Because of the growing significance of having a college degree, the rate of non-traditional students who have jobs, families, and other pressing commitments is a rising major distraction for students (Wohlgemuth, Whalen, Sullivan, Nading, Shelley, & Wang, 2007). To help combat failures most colleges and universities have some form of student retention plans or processes in place that vary in size and scope (Hobson, 2008). Because of the importance of student persistence, retention is a frequently studied area in higher education (Tinto, 2007). Colleges across the nation have systems to alert students of their progress when they are in danger of failing courses that leads to increased attrition (Hobson, 2008). A common name at community colleges for such a system is an early

alert system. Similar systems have been in place for decades to alert parents of students in elementary, middle, and high schools of potential failure. Common terms for this type of early alert systems are midterm grades or midterm reports (Adams, 2011).

Many reasons exist why students are not successful in college: underprepared, family challenges, and poor academic advising (Goldrick-Rab, 2010). The findings from Hardin's (2008) study indicate that it is necessary for students to be informed of their progress and the students' grade awareness shows significant added value to the early alert process (Hardin, 2008). Institutions must find a way to better understand and embrace adult students' overall needs to increase student success (Hardin, 2008). At community and technical colleges an early grade alert warning is used to identify and notify those students who are performing at a less than "C" level (Brier, Hirschy, & Braxton, 2008). At many other community colleges attendance and assignments completed are core elements (Aguilar, Lonn, & Teasley 2014). With the increased need for more students to be successful in college courses, XYZ Community College needs to examine the processes and mechanisms currently in place to aid student success for effectiveness and efficiency to better serve students' needs (Etwell, 2010).

It was presumed that the faculty and the student potentially had some form of informal communication regarding the student's lack of progress in the class prior to or at the time of early alert. The only institutional documented communication is the faculty initiated early alert issued from the registrar's office directly to the student. Although there was no current data at XYZ College that the early alert process influences students' behavior. The fact remains that 38% of the students who had been identified and

officially notified of less than adequate performance in the early alert process ultimately pass the course (XYZ, 2012). It is unknown what the student success rate would be without the early alert process in place.

## Research Questions and Hypotheses

I focused on answering one guiding research question, what is the relationship between early alert outcomes and student characteristics? I also sought to answer two corresponding hypotheses:

$H_0 1$: There is no relationship between students' input characteristics and with student early alert outcomes.

$H_a 1$: There is a relationship between students' input characteristics and student early alert outcomes.

## Review of the Literature

The theoretical framework foundation for this study was based on the principles of student success tools and theories within the XYZ Community College's early alert framework. Bean's Student Attrition Model (1985) and Tinto's Student Integration Model (1993) are often utilized for the basis of college student persistence models. Bean's model clearly identifies four types of categories of variables: organizational variables, background variables, environmental variables, and attitude. The above variables have an indirect or direct influence on whether a student decides to stay at an institution. Vincent Tinto's Student Integration Model identifies three main reasons why students leave college before they graduate: lack of ability to connect socially, difficulties with

coursework, and lack of clear and concise goals with a corresponding academic plan to reach a career goal (1975).

Bean's framework for this theory determined 23 variables that are key predictors of students who drop out based on his multiple regression analysis (1985). Many of these variables in Bean's framework are also present in Abraham Maslow's Hierarchy of Needs model. Maslow believed that a person needs to satisfy the basic human needs such as food, shelter, safety, security, etc., before someone can be successful with higher level of needs such as higher education (1970). Many of the classic theorists have focused their research on student success due to the long reaching impact of student failure.

Tinto (2007) suggested that the general psychological and institutional thought process regarding student success has evolved over the past 40 years. Student persistence was originally thought to be directly dependent on the student's individual motivation, basic skills, and general abilities (Tinto, 2007). Astin (1993) believed that students who dropped out were just not serious about college or simply lacked the skill or ability to complete a degree. A lack of congruence either academically or socially was offered as a main reason students leave college before goal completion (Astin, 1993). Tinto's integration model reinforced the potential relationship with student retention and the importance and influence of the overall institutional systems and social pathways and techniques of the institution with the student with regard to retention (Tinto, 1993).

Both Bean's and Tinto's theories relate to this study due to the fact the early alert system contains student core data variables quantifying basic skills, background variables, and environmental variables. Furthermore, the independent variables that were

examined in this study are all rooted in Bean's categories listed above. Additionally, there may be factors within the data set that are common among those students who were issued an early alert and did ultimately pass the class. While I was not specifically searching for predictors in the study as Bean did, I was interested in correlating data of students who have passed the course. A potential outcome connection of this study is a shift in XYZ college resource focus within the early alert system to better support variables with a relationship to student success based on data from this study.

**Classic Theorists**

The review of the related literature for this project presented in this section includes both empirical and theoretical studies that expanded the necessity, background, and understanding of community college early alerts. Multiple scholarly research sources of both primary and secondary sources were reviewed ranging from physical library texts, scholarly journals, and peer reviewed scholarly digital media publications. Online scholarly databases such as Educational Resources Information Center (ERIC), Education Research Database (ERD), Ohio Link Database (O Link), and many other qualified databases were scoured for literature related to the proposed study. The Walden digital library produced a wide variety of valuable research; also, some of the scholarly databases accessed were Ohiolink, EBSCOhost, ERIC, ProQuest, and many more. These sources yielded a vast amount of research.

Relevant higher education early alert key terms searched were student success, retention, early alert, higher education success rates, access, and student persistence. Theories related directly to collegiate level student success have been sought, developed,

and refined over the last fifty years of higher education history. Some of the heavily examined areas are student social engagement, demographics of the student's home life, environment of the institution, student engagement, student success, and student persistence. There is an overriding theme in the research that student success has become even more important than before because of the increased numbers of individuals going to college and the resources being spent by a myriad of funding sources to support this effort. Many of the heavily researched areas are focused on factors associated with success.

Few scholarly direct studies on early alerts are available (Fletcher, 2012). In the overall review of the literature for this potential project, the growing need for an effective early alert system became clear. A need to better understand the early alert process and the specific variables that positively impact student success at XYZ Community College was also evident. The increasing number of students entering community colleges who are underprepared for college course expectations and the desire of colleges and students for student success supported this.

According to the Ohio Board of Regents (OBR) the percentage of Ohio's public college students retained from the first to second year in 2008 – 2009 was 55% at the same Ohio institutions and 59% statewide (OBR, 2010). Little documentation was written regarding the exact history of early alerts and mid-term grades, but one thing was certain. As stated by the U.S. Department of Education, many versions of early alert programs exist at the college level, but not all institutions of higher education have one. Various U.S. state DOE records state that this practice has varied from state to state over

the past one-hundred years. XYZ Community also had no official record of when their early alert process began at the college or what prompted its start (P. Trumpower, personal communication, December 6, 2012).

In the post-World War II years the United States of America began building community and technical colleges across the nation with open enrollment and financial aid with the distinct purpose of ensuring access to college for all citizens who desired to enroll (Thelin, 2011). The community and technical college system allowed access for non-traditional students to finally go to college. According to the U.S. Department of Education approximately 22% of first time community college students who start college actually finish their intended goal of completing their degree within the typical degree completion time frame (U.S. DOE, 2010). Institutions must be successful in both student enrollment and retention efforts to thrive, not just one (Harris, 2010).

According to the Department of Labor 37 million U.S. students drop out permanently and 4.5 million (or 12%) of these students take a hiatus and return to education some time later (Nitecki, 2011). Students who feel like an outsider or do not feel like they are a part of the college community have a higher propensity to leave (Kuh, Kinzie, Schuh, & Whitt, 2011). Non-profit community colleges have much tougher competition than they did several decades ago and some for profit colleges have adopted a more customer driven focus. Over the last several years, due to a downturn in economic conditions, community and technical colleges have seen a shift in students. There has been an influx of displaced workers returning to college to retrain or upgrade their skills (Jebsen, Troske, & Coombes, 2014).

Community colleges are especially at risk because by nature they attract students with weaker academic backgrounds than their university counterparts (Hagedorn, 2010). Students who take remedial classes require additional support efforts due to the fact that they are twice as likely not to succeed compared with students who don't require any remedial classes (Schreiner, Noel, & Cantwell, 2011). Some of the current success and retention challenges faced by students at community colleges stem from the institutions' major focus over the past several decades on building infrastructure, creating meaningful academic programs, erecting buildings, networking with businesses and political leaders, and increasing enrollment. Student success suffered during this building and expansion phase due to lack of academic focus (Rendon, 2013). Institutions need to re-examine the classic theories and research on student success and retention to make sure their related processes are aligned with the research to maximize their efforts.

Over the last forty years' literature from many of the seminal theorists on student retention have produced theories and research to help examine the challenges to student retention and students' departure from college. Astin (1977) believed that a student's involvement and connection with the institution was directly related to their propensity to succeed and continue at that institution. Bean & Metzner (1985) stated that non-traditional students are more likely to not complete or leave college completely because of environmental factors than any academic variables within the institution. Tinto (1993) outlined core reasons that students are not effectively retained or leave the institution completely: students who are unable to become or remain part of the college's social life or academic process of the institution, students who are uncertain of their long-term goals

career and/or collegiate, and students' with overall challenges with general academic tasks. Terenzini (1987) proposed a model that considers the complexity and dynamics of how students, faculty, and other influential pressures interact and impact a student's college success. This conceptual framework supports the other mainstream theorist's ideas on student success and retention such as Tinto (1993), Astin (1993), and Bean (1985). Many of these theories are forces within or directly related to the variables this study and were examined for their relationship with student success in the context of the early alert system.

**Exploration of the Methods Used to Improve Student Retention**

Retention is measured in several methods from institution to institution and is often used synonymously with the term persistence, which can mean to complete a course, degree, or academic goal (Svanum & Bigatti, 2009). It has been strongly suggested that until the burden for student success and retention is shared equally amongst lawmakers, educational administrators, and faculty, the problem will persist (Braxton, Doyle, Hartley, Hirschy, Jones, & McLendon, 2013). Student success is the responsibility of all stakeholders and the way to improvement is through collaborative efforts both in and outside the institution (Habley, Bloom, Robbins, & Robbins, 2012). Because student success and retention are very important, institutions have spent large sums of time and money developing complex enrollment management or student success plans designed to aid students in success from one semester to the next (Miller, 2009). According to the research, institutions have developed several core strategies to help with student retention and success.

Cohorts are a strategy in which a group of students who have a common academic goal and start at the same specific time, often motivate and support each other during their experience (Seidman, 2005). Kuh, Kinzie, Schuh, & Whitt (2011) stated that student clubs are an effective tool to aid in student engagement. Proper student advising into an appropriate program and courses has an overall impact on success (Kinzie, 2014). Grants are an important tool that provide funding for disadvantaged students to provide additional needed support services such as tutoring to aid in student success (Atkins & Ebdon, 2014). Deliberate communications from the faculty and/or institution directly impact the student who is underperforming in a classroom (Miller, 2009). The early alert system is a deliberate communication to underperforming students from faculty and administration regarding their progress.

Institutions with early alert systems in place have seen modest increases in student success in persistence, but no detailed analysis data is available (Adams, 2011). Faculty buy in and commitment of any student process is crucial (Kalsbeek, 2010). The literature states that the use of an early grade alert system is a step in early notification of student's progress in a course (Miller, 2009). The early alert system is of simple design to let those who are performing at a less than acceptable level early in the semester know they need to make a change (Lonzetti, 2009). Campus relationships matter to student persistence and interventions with early alerts are a piece of the relationship puzzle that can aid in student success (Davidson, & Wilson, 2013). Student success rates vary nationwide for various demographic groups of students, and additional student support may be needed to be successful (Torres, Baker, & Robnett, 2012). The data indicated that with a wider

demographic mix of students attending college than ever before, a specialized effort to address student success challenges was needed (Torres, Baker, & Robnett, 2012). I believe this retention effort provides an opportunity to further examine and utilize variables with respect to student success and retention within an early alert system to aid an ever widening at-risk student population.

Current research is being conducted in the area of student retention and its relationship to academic data to aid in assessing academic risk (Lauría, Baron, Devireddy, Sundararaju, & Jayaprakash, 2012). New statistical and regression based models are being developed and refined utilizing overall student data sets to help better predict student success propensity for institutions because of the importance being placed on retention and success (Thammasiri, Delen, Meesad, & Kasap, 2014). A large amount of research has been written in relation to institutional intervention and retention that is the core of what an early alert is based upon. One of the largest areas of research is retention. It is so large that it has an entire journal dedicated to it, *The Journal of College Student Retention*. A dedicated journal is warranted because retention is considered a key indicator by the general public to help judge an institution's overall perceived rank. Factors that potentially influence college student retention are attendance, demographics, and high school achievement (Laskey & Hetzel, 2011). Retaining students from semester to semester is important to institutions to maintain enrollment and completion goals (DeAngelo, 2014).

The question has been pondered regarding the ability to predict which students are at risk and can we categorize them (Astin, 1993). Researchers have studied data outside

the early alert system and have proposed relationships to variables related to student

successes or failures. Tracey, Allen, and Robbins (2012) stated that a low GPA in the first

semesters is a good indicator that the student will not persist to program completion.

Quaye and Harper (2014) stated that a student's age as well as their marital status have an

influence on their overall success in college. Both age and marital status are independent

variables examined in this study. There are many combinations of independent variables

in the student success formula. The combinations include the level of emotional

intelligence a student possesses which often increases with age (Sparkman, Maulding, &

Roberts, 2012). According to Croak (2013) whether a student is a first time full time

college student has an influence on student success. Poverty level also has an influence

on student success that translates into Pell Grant eligibility in higher education, and most

Pell goes to students with a combined family income of less than $20,000 per year (Lee,

Contreras, McGuire, Flores-Ragade, Rawls, Edwards & Menson, 2011).

  A student's race/ethnicity also plays a role in their potential for student success.

Minority students are leaving college at a 21.1% greater rate than Caucasian students

(Braxton, Hirschy, & McClendon, 2011). Institutions often work very hard to engage

students in an effort to raise their interest level. According to Baer, Cook, and Baldi

(2006) there is a correlation between student engagement and learning outcome

achievement progress. McIntosh & Rouse (2009) felt that community college students are

especially at risk because they are often far less academically prepared than their

university counterparts as well as a host of additional socioeconomic challenges. Students

choose to invest in an education to gain skills for employment with the hopes of a better

career and life upon graduation. McIntosh & Rouse agreed with Tinto regarding student integration theory. McIntosh & Rouse (2009) believed that even academically prepared students have a high propensity of leaving a course early if they do not feel the course is returning the value needed for the time and effort commitment expended.

Student engagement also plays an important role in this complex mix of factors and should not be discounted (Christenson, Reschly, & Wylie, 2012). All tools that are available should be utilized. McIntosh & Rouse (2009) agreed that community college students are more likely to have families and jobs at the same time they are going to college, and they are continuously weighing the total costs both psychological and real while making persistence decisions on them. Their theory was based on Gary Becker's model on human capital and the perceived tangible and intangible costs associated with them. Retention and intervention are important to institutions, but long-term student success to achieve the student's overall educational goal is critical (Craig, 2008).

**Use of Early Alerts**

Most institutions of higher learning in the U.S., including XYZ Community College, have a student early alert system (P. Trumpower, personal communication, December 6, 2012). The use of an early alert system is unique in student success and retention efforts because it is a direct communication method originated by the faculty and communicated jointly via the administration directly to the student (Fletcher, 2012). This instrument by design created for communication to the students to make them aware of their subpar academic performance. The early alert also gives the student specific instructions to contact their advisor for intervention actions, but the system has the

propensity to yield additional data for better institutional decision-making. The early alert system has elements of the classic theorists interwoven within the fabric of the system as demonstrated by Bean & Metzner's (1985) theory that outside influences have a major impact on success, and is reflected in independent variables within the early alert system such as marital status, financial aid status, and full-time or part-time status.

In this study I focused on learning more about identified at-risk students and variables related to their success within the early alert data set. There are many students uniformly identified early in the semester performing at a less than acceptable level each semester using the early alert system. We know ultimately that a percentage of students who are identified for early alert pass the course. By better understanding and analyzing the available data on students and variable relationships with student success, XYZ Community College will have the ability to invest resources in areas to further support success. These efforts may lead to increased student success and retention of at-risk students.

### Implications

Data from the results of this study may be used to aid XYZ institutional administrators as well as administrators at other colleges regarding at-risk students' characteristics and their relationship with student success within the early alert system. The study data could be used to allocate resources or increase assets in areas that could support additional at-risk student success. Potential institutional programmatic changes based upon the study's findings may also produce increased at-risk student success. Provided the student success is validated, the study's data could ultimately influence

future funding model changes at the state and federal level for both XYZ Community College and other institutions within the state college system.

Implications of this study could ultimately positively influence the overall area's economic future. The positive influence is directly related to students who have educational success, earn degrees, and greater pay over their lifetime than individuals without college degrees and are better prepared to compete in a global economy (Brooks, 2010). Because more students are successful in their educational achievement, the overall community members become better educated and skilled which results in greater opportunity for the overall citizens and businesses.

## Summary

With the influx of students into higher education over the past decade more students are considering college, particularly community college, because of the long term financial and security benefits than in the past. With this surge of students more at-risk students are part of the population. Institutions have held student success high on the scale of importance, but the stakes have been recently raised. More pressure is on colleges for student success than before, and it is more often linked directly than ever to state funding. Tools that can aid in student success are becoming more valuable. The early alert system is a tool that helps institutions identify students who are struggling academically. There was a gap in both research and process regarding existing data within the early alert system and student success that this study hoped to bridge.

In section 1 of this project study, the following core items were presented: an introduction to the study, problem definition, rationale for undertaking the study,

significance of the study, guiding research questions, purpose of the study, and literature review. In section 2 the research methodology was presented for the proposed project study program evaluation. Details regarding the research design, overall analysis, data, collection methods, participants, instruments, and processes used in this study were also discussed.

Section 2: The Methodology

**Introduction**

In this section, I explain the research design and the approach that I used to examine within my study site's early alert process that might be related to student success. An explanation of the population, setting, and sampling procedure are presented. Procedures for analyzing and substantiating data are addressed. Also included in this section are the procedures for maintaining the integrity of the study along with the rights and protection of the participants. I conclude this section with the assumptions, limitations, and delimitations of the study.

The purpose of this correlational study was to investigate the relationships between students' demographic, background, and environmental variables and course success, for students identified by the early alert system. I tested one or more of the independent variables individually or in combination using a multiple regression analysis to help explain some of the variance in the outcome. The single dependent variable in this study was the outcome, pass or fail, of the course in which the student received the early alert. In this section of the project study, I describe my reasoning for choosing a quantitative research design involving multiple regression analysis. To obtain more information about how student variables within the early alert process are associated with student success, I examined the relationship of a continuous dependent variable from multiple independent variables.

I sought to answer the following question: What is the relationship between early alert outcomes and student characteristics? Core independent variables used in this study were gender, race/ethnicity, age, income status, campus, faculty status, first generation to college, and course times. Data were statistically analyzed using correlation and multiple regression analysis to determine any relationship with multiple independent variables singly or in combination to help explain statistical variance.

Hypotheses:

(*H0*): There is not a relationship between students input characteristics associated with student early alert outcomes.

(H1): There is a relationship between students input characteristics associated with student early alert outcomes.

A correlational quantitative approach involves a systematic examination of the relationships between variables. The correlational quantitative method uses quantitative data that has already occurred and is difficult to manipulate. A multiple regression analysis is a statistical tool for investigating a relationship of two or more independent variables (Creswell, 2008). The goal of quantitative research is to use statistical models to develop theories relating to the event being studied (Creswell, 2008). Assessment and measurement are essential to this process to determine if any relationship truly exists. Correlation specifies both magnitude and direction of a relationship between variables (Cohen, Manion, & Morrison, 2011). The statistical method used the Pearson product-moment coefficient as an accurate measure of linear correlation between two variables. This project study allowed me to identify variables that indicate positive relationships

with success of students who have received early alerts. A graphical model is listed

below.

Population: Students Who Received an Early Alert



*Figure 1*. Model of Correlational Design Utilizing Multiple Independent Variable

Due to the nature of the study a correlational quantitative research design strategy

was selected for data collection. A correlational quantitative research design approach

used standard procedures extracted from concurrent forms of data collection systems and

included current quantitative research methods (see Creswell, 2008). The quantitative

form of data collection and analysis was focused on student data directly related to

students issued early alerts and individual student course success. The data collection and

analysis consisted of key elements of a correlational quantitative research design study:

systematic empirical investigation, mathematical models, theories, and data collection

instruments (Robson, 2011).

Justification for using the correlational quantitative research approach was based

on the potential structure of the project study. The quantitative research design method

selected enabled me to mathematically compare multiple independent variables from a

wide range of student data and assess whether they were associated with certain

outcomes. The research was conducted using existing early alert data that allowed the

students' identity to be protected. Correlational quantitative research permits researchers to correlate a single variable with an additional variable to determine if a relationship exists between them (Robson, 2011). A positive correlation can indicate relationships between two variables but stop short of providing definitive proof of a cause and effect relationship (Robson, 2011). Working with existing data also increased the reliability of the study and helped to factor out any influence by the researcher (Creswell, 2013).

### Research Design and Approach

I explored the relationships that various student data have on student success within the context of a community college's early alert process. Data used consisted of existing archived student data that works well with quantitative methods of research (Creswell, 2013). Using correlational quantitative design allowed me to compare variables for significance.

In this research study, I used both descriptive and inferential statistical analyses. The descriptive analysis helped to reveal patterns within the data set by the use of a multiple regression analysis to aid in answering the research query. The inferential analysis method used probability theory and focused with both reliability and accuracy of the inferences the data has produced. The multiple regression analysis was a good way to help answer the research question, as well as to test one or more of the independent variables individually or in combination to help explain some of the variance in the outcome (Creswell, 2008). These analyses also helped me to test my hypotheses of whether student's characteristics are associated with student early alert outcomes.

Examples of the independent variables were included in the total mainframe system student data of students who were flagged for early alert such as gender, race/rthnicity, age, income status, campus, faculty status, first generation to college, and course times. Additional typical student variables that were not included were due to lack of consistent data or inconsistent data, including time of admission, work status, and hours enrolled. For time of admission, there was a sizeable percentage of students at XYZ Community College who have an unreliable or misleading admit term. The lack of reliability was due to being admitted and not actually registering for classes until one or two terms later. For work status, full- or part-time, neither the mainframe system nor the institution tracks student work status.

The gap applied to XYZ Community College student employees who were also not being tracked. For hours enrolled, the study encompassed six years of data that sampled the alerts, not students. Because I sampled alerts, duplication of the same student in different semesters may have occurred. The student also may have been full time one term and part-time another. ACT testing was also not part of this study for several reasons. The majority of students at XYZ Community College do not take the ACT or SAT tests. Most students take the Compass test upon entry to the college. The Compass test is an ACT product that is designed to aid an institution to evaluate a student's knowledge and skill that provides the institution information to place students into courses at that student's needed level in math, reading, technical comprehension and writing (ACT, 2016). Approximately 82% of all students who enter XYZ Community College are required to take at least one or more remedial level courses. Therefore, the

majority of students take a remedial course making that variable insignificant (P. Trumpower, personal communication, June 6, 2016).

The sole dependent variable of this study was the outcome of the class of the student who was identified for early alert. The definition of passed consisted of a grade greater than F in the traditional A through F grading system. The dependent variable needed to be in interval data form: passed =1, not passed = 0.

The core student independent variables used in the study were typical to modern collegiate mainframe system data collections for records and reporting purposes (Scott-Clayton, 2012). According to multiple studies students' persistence may be related to their financial aid status (McKinney, Novak, 2013). Habley, Bloom, & Robbins believed that culture is potentially a key factor in student success which is directly related to race/ethnicity and first generation to college status. Many years of research support the fact that a student's gender has a major impact on their educational experience and success (Sanders, Koch, & Urso, 2013). Student age or maturity has proven to have an impact on student behavior and ultimately student success (Webber, Krylow, & Zhang 2013).

**Setting and Sample**

Based on IPEDS definition, the desired target study location was a large suburban multi-campus mid-western community college with approximately 15,500 credit students that attracts the majority of its enrollment from a six county region (NCES, 2014). It is an open enrollment college located in a historically heavy manufacturing area with 83% of the student base employed at least part-time. The institution has a 60% female to 40%

male student ratio with 282 full-time faculty and 657 part-time faculty. The average student age is 29 years old. The demographic mix of students varies from the US Census county statistics of 11.0% minorities with the college having a 22% minority (non-white) student ratio (U.S. Census Bureau, 2012).

The proposed sample included students in courses from all course typologies and full range of programs across the college. These categories were developmental, introductory general education, introductory technical, and advanced technical typologies. According to the XYZ Community College Office of Research and Planning, approximately 5,000 students received early alerts each semester (P. Trumpower, personal communication, December 6, 2012). Historical data available to me were four complete academic years of student data. Historical data provided a minimum population of 20,000 to take samples from minimizing sampling errors and maximizing confidence levels (Creswell, 2013). The study employed systematic sampling using stratified random sampling utilizing 50% of the early alert students in the top 25 courses with the highest number of early alert students. All data had the specific student identification expunged to protect the participants' privacy rights. The college identity has also been protected with a pseudonym.

### Instrumentation and Materials

In this research study, the early alert that was utilized was already in existence at XYZ Community College and had been applied to every student in credit classes for many years. This instrument was the early alert process and all data studied are historic with no individual student identified. The early alert process is a standardized process

given at a pre-determined time each semester to students who are earning less than a 70%

average in the overall material for a specific class. The data is recorded by the faculty

assigned to each course via a typical institutional Oracle based mainframe system. This

mainframe information system was a Banner higher education institutional system that

meets the minimum requirements for federal financial aid eligibility as well as Higher

Learning Commission mandates. The information technology system coordinates the

early alert information process and notifies the students who have been flagged for early

alert. The system allows for complete historic student data to be used in combination with

early alert data while protecting the identity of the individual students.

I explored the student early alert data indicators that had the greatest probability

of relationships with student success at the time of early alert. A multiple regression

analysis was a best fit for this study because we have a continuous dependent variable

from multiple independent variables (Creswell, 2013). Regression analysis is a reliable

statistical tool that can be utilized with minimal difficulty with valid results (Chatterjee &

Hadi, 2013). Pearson's Correlation was applied using the standard testing methods to

ascertain if a correlation of statistical significant is present between two variables, and to

what level (Bernard, 2012).

**Data Collection and Analysis**

After Walden University's Research Review approval (02-01-16-0055119) of the

proposal submission summary information sheet was presented to XYZ Community

College's Institutional Review Board (IRB), the review board approval was needed prior

to my access to institutional data was permitted. Collaborative Institution Training

Institute (CITI) certification of the researcher must be provided to the institutional review board as well. After receiving official permission from the IRB at Walden University and XYZ College's IRB, I collected the data from the college's Oracle based mainframe information system on students who were issued early alerts from 2009 to 2015. After I compiled and analyzed the data, I presented a numerical representation in the appropriate section of this project evaluation. Included were specific data indicators that may be more accurate than other indicators at proposing relationships with student success within the early alert system. The student data variables are nominal in this study. The complementary data variables are interval; therefore, parametric statistics were utilized. Single and multiple regression analyses were utilized to test each hypothesis (Creswell, 2008).

I used SPSS software as a primary statistical analysis tool to produce a regression analysis. The regression analysis was utilized to determine if any student data variables are a better indicator of student success than others.

<div align="center">**Assumptions, Limitations, and Scope**</div>

**Assumptions**

This study was designed to explore the relationship between data variables of students within the early alert system to determine if there were any variables that better proposed a relationship with student success than others. A quantitative method of research was a best fit for exploring student data indicators in this project study. It was assumed that the student data collected and compiled for this project study of early alert students very comparable to how other community college use early alert information. I

also assumed that each instructor who entered student early alert data was accurate and applied it per XYZ Community college's policy. Finally, I assumed that each student who was identified as an early alert student had the same communication in the same time frame.

**Limitations**

The limitations of this study were that only XYZ Community College early alert students were studied. Therefore, the only data collected was limited to the data set of XYZ Community College's service area. There were also variables that were not collected by XYZ Community College that should have been, such as veteran status and marital. Additional variables such as Grade point average in each semester were wiped out and only cumulative was available. The mainframe system also had no field for work status.

**Scope**

The project study was targeted at students at XYZ Community College who were flagged for early alerts. The data from this project study was drawn from a variety of courses and from freshmen and sophomore students. These courses could be technical, remedial, or general education class. The sample size was large and taken from several years of historical data. All data collected was taken directly from the college's Banner student information system.

<div align="center">

**Protection of Participants' Rights**

</div>

Several levels of protection assured that participants' rights are protected. The Family Educational Rights and Privacy Act of 1974 is at the core. It is a federal law with

the main purpose to protect the privacy of student education records. This study used

institutional archival masked student data. In order to have access to data at XYZ

Community College, the researcher had to submit to the college's institutional review

board (IRB). XYZ's IRB application included the following information: researcher's

name and position, reason for data collection, scope of the study, the exact manner and

type regarding the data to be collected, and how the participants' privacy was protected. A

copy of the researcher's CITI certification was also required. I also had to submit to

Walden University's institutional review board. Both institutional review boards

examined the proposed studies to make sure that participants were protected in every

way. I am also a Collaborative Institutional Training Initiative (CITI) certified researcher.

This certification is benchmarked by the researcher passing a test and is focused on

human subject protection.

## Summary

To summarize, the purpose of section two is the proposed project study's setting,

sample, materials, instrumentation, data collection, method of analysis, assumptions,

limitations, and scope. A correlated, quantitative design is the methodology that was

chosen for this specific project study. After receiving permission from all applicable

institutional review boards, historical data access was granted to me. Careful collection of

the data occurred with participant protection rights at the forefront of the early alert

students at XYZ Community College. Analysis and testing occurred utilizing SPSS

software to determine if any variables were better at showing a relationship with student

success than others.

## Data Analysis Results

**Overview**

The results regarding the analysis of the data process are presented in this section. The system data yield had a time range from Fall 2009 to Fall 2015. The sample was collected in 2016 from 3,873 students out of 60,025 student early alerts representing 26,708 students over the time frame of the study. A random sample of the student historical data from XYZ College's mainframe system of students who were part of the early alert system was created at the 99% confidence level with a +/- 2% as the confidence interval was utilized to assure a proper and valid sample was obtained. Descriptive statistics provided a summary of student variables from the college mainframe system of students who were part of the early alert system. The single dependent variable in this study was the outcome or grade in the class in which the student received the early alert. The independent variables analyzed were race/ethnicity, age, income status, gender, campus, course meeting time, faculty status, and first generation to college. The next step was to focus on answering the research question and hypotheses utilizing Pearson correlation coefficients to examine the relationships between the student variables:

What is the relationship between early alert outcomes and student characteristics?

Hypotheses:

(*H0*): There is not a relationship between students input characteristics associated with student early alert outcomes.

(*H1*): There is a relationship between students input characteristics

associated with student early alert outcomes.

In this study, I used the Statistical Package for the Social Sciences (SPSS), a

professional statistical software program, to analyze the student data to produce valid

data results. Data analysis of several methods described below used in this study are

listed. Descriptive results were presented first, including student dependent variables

(gender, age, race/ethnicity, income status, etcetera.). A Pearson product moment

correlation was used to determine the relationship between independent variables and the

dependent variable, and coefficients determined (Creswell, 2008). A one-way analysis of

variance (ANOVA) was completed to illustrate any associations of the dependent variable

regarding multiple independent variables. Additional methods known as *t* tests were also

utilized to explain two independent variables relationship with the dependent variable

(Creswell, 2008).

**Description of the Sample**

The study involved students identified as part of XYZ Community College's early

alert program. The students who participated in the early alert program had a grade of a

"D" or below in a college credit class at the fourth week during a typical 16 week

semester. The population was obtained from XYZ Community College's Banner

Mainframe database. The sample size was from XYZ Community College's early alert

historical data ranging from Fall 2009 to Fall 2015. The sample size was based on 60,025

total student early alerts representing 26,708 students over the time frame of the study.

Some students had multiple early alerts over several years which is how 26,708 students

had 60,025 total early alerts. IRB permissions were obtained from both Walden University and XYZ Community College. The data set was also de-identified to protect the student participants. I am also CITI certified and conducted the study in a manner according to CITI specifications.

From the total early alert population of 60,025, I developed a sample of 3,873 students. A random sample of the population was drawn to account for any issues within a particular term. The random sample also took into account any minor policy or practice changes across terms. This sample provides for 99% confidence level with 2% confidence interval for a population of this size. Table 2 provides descriptive statistics for the sample of 3,873 early alert students. As depicted in the table, the sample consisted of 2,298 (59.33%) females and 1575 (40.67%) males. In the sample, 2,198 students (56.87%) self-reported their ethnicity as being white. Also in the sample, 1269 students (32.83%) self-reported their ethnicity as being African American; 398 (10.3%) self-reported their ethnicity in the other classification which could be Asian, Pacific Islander, or two or more races.

Students age groupings ranged from 18 to 75 years. In the age group 18 to 24 years there were 1,797 students (46.40%) in the age group 25 to 34 years there were 1160 students (29.95%) in the age group 35 to 44 years there were 528 students (13.63%) in the age group 45 to 54 years there were 284 (7.33%) and in the 55 years and over age group there were 104 (2.69%).

Pell eligible students are students who meet the federal definition of poverty. XYZ Community College identifies low income students as Pell eligible which is defined

by federal financial aid guidelines for student income or expected family contribution (P. Trumpower, personal communication, June 6, 2016). The XYZ Community College early alert sample has 3031 students (78.26%) that are Pell eligible and 842 students that are non-Pell eligible (21.74%). There are two types of campus code designations at XYZ Community College: main and satellite. 3,341 (86.26%) students in the sample took courses on the main campus and 532 (13.74%) in the sample took courses at the satellite. Faculty Status was also part of the sample. There were 1,942 (50.14%) students in the sample who were instructed by full-time faculty and 1,931 (49.86%) students who were instructed by part-time faculty. 1,858 (47.97%) students in the sample were first generation to college and 2,015 (52.03%) were not first generation to college. In the sample 1,180 (30.47%) took their classes in the morning time frame, 1,221 (31.53%) took their classes in the afternoon, 608 (15.70%) took their classes in the evening, 758 (19.57%) took their classes over the web, 22 (0.57%) took their classes in an expedited fashion encompassing complete day sessions, 84 (2.17%) of the sample took their classes on Saturday and/or Sunday. A complete listing of variables in the study are in Table 1 below.

Table 1

*Early Alert Student Variables: Specifying Dependent, Independent and Covariate, and Related DataTtype*

| Variable Number | Description of Items | IV/DV/CV | Data Type/ Level of Measurement |
|---|---|---|---|
| 1 | Pass/Fail | DV | Categorical/Nominal |
| 2 | Gender | IV | Categorical/Nominal |
| 3 | Race/Ethnicity | IV | Categorical/Nominal |
| 4 | Age | IV | Categorical/Nominal |
| 5 | Income status | IV | Categorical/Nominal |

| 6 | Campus | IV | Categorical/Nominal |
|---|---|---|---|
| 7 | Faculty status | IV | Categorical/Nominal |
| 8 | First generation to college | IV | Categorical/Nominal |
| 9 | Course times | IV | Categorical/Nominal |

*Variables*

*Pass/Fail* The independent variable "pass/fail" was the only independent variable in this study. The variable is defined as a categorical variable and has a nominal level of measurement, "1" indicates passing and "0" indicates failure of the student.

*Gender* The dependent variable "gender" is a categorical variable, where "1"indicates male and "0" indicates female.

*Race/Ethnicity* The dependent variable "race" is a categorical variable, where "0"indicates white, "1" indicates African American, "2" indicates two or more races, and "3" indicates other, which includes Asian and Pacific Islander.

*Age* The dependent variable "age" is a categorical variable, where "0"indicates age range of 18 to 24, "1" indicates 25 to 34, "2" indicates 35 to 44, and "3"45 to 54, and "4" 55 and older.

*Income Status* The dependent variable "income status" is a categorical variable, where "0"indicates low income and "1" indicates not low income. Low income parameters are defined as a student being Pell grant eligible.

*Campus* The dependent variable "campus" is a categorical variable, where "0"indicates main campus and "1" indicates satellite campus.

*Faculty Status* The dependent variable "faculty status" is a categorical variable, where "0"indicates full-time faculty status and "1" indicates part-time faculty status.

*First Generation to College* The dependent variable "First Generation to College" is a categorical variable, where "0"indicates first generation to college status and "1" indicates not first generation to college status.

*Course Times* The dependent variable "course times" is a categorical variable, where "0"indicates morning (8AM to 11:59AM) status, "1" indicates afternoon (12:00PM to 4:59PM) status, "2" indicates evening (5:00PM to 10:59PM) status, "3" indicates Weekend status, "4" indicates Web status, and "5" indicates all day (less than typical 16 week fast-track) status.

The background characteristics of the early alert students are identified in Table 2 below. The majority of the early alert students ultimately failed the course. The majority of students were female, not first generation, and were non-traditional aged. The majority of students attended the main campus and took courses during the day. Minority students were over represented in the early alert population (53.6%) versus the total college population. Minorities are more likely statistically to fail (Strayhorn, 2012).

Table 2

*Background Characteristics of Participants (n = 3873)*

| Category | Subcategory | N | Frequencies |
|---|---|---|---|
| Gender | Male | 1575 | 40.7% |
| | Female | 2298 | 59.33% |
| Race/Ethnicity | Caucasian | 1797 | 46.4% |
| | African American | 1160 | 30% |
| | Mixed Race | 528 | 13.6% |
| | *Other minorities | 388 | 10% |
| 1$^{st}$ Generation | Yes | 1858 | 48% |
| to College | No | 2015 | 52% |
| Student who | Pass | 1186 | 30.6% |
| Passed or Failed | Fail | 2687 | 69.4% |
| Age Group | Less than 25 | 1797 | 46.4% |
| | 26 thru 34 | 1160 | 30.0% |
| | 35 thru 44 | 528 | 13.6% |
| | 45 thru 54 | 284 | 7.3% |
| | 55 and up | 104 | 2.7% |
| Traditional & | Traditional | 1797 | 46.6% |
| Non-Traditional | Non-Traditional | 2076 | 53.6% |
| Campus | Main | 3341 | 86.3% |
| | Satellite | 532 | 13.7% |
| Faculty Status | Full-time | 1947 | 50.1% |
| | Part-time | 1931 | 49.9% |
| Course Times | Morning 8 am to 12 | 1180 | 30.5% |
| | Afternoon 12:30 to 5 pm | 1221 | 31.5% |
| | Evening 5:30 pm to 11:30 pm | 608 | 15.7% |
| | Web | 758 | 19.6% |
| | All Day (fast track) | 22 | 0.6% |
| | Weekend (Sat & Sun) | 84 | 2.2% |

Table 3 illustrates the regression analysis results with pass/fail as the dependent variable. The only statistically significant variable in the model is race/ethnicity with a significance of .012 (P less than .05).

Table 3

*Regression Coefficients*

| Model | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|
| | *B* | *Std. Error* | *Beta* | *t* | *Sig.* |
| (Constant) | -.001 | .001 | | -.505 | .614 |
| Gender | -.001 | .001 | -.015 | -.784 | .433 |
| Ethnicity | .001 | .000 | .049 | 2.519 | .012 |
| Income Status | .000 | .001 | -.009 | -.443 | .658 |
| 1st Generation | .001 | .001 | .022 | 1.130 | .258 |
| Campus | -.001 | .001 | -.010 | -.503 | .615 |
| Faculty Status | .001 | .001 | .022 | 1.095 | .274 |
| Age Group | .001 | .001 | .002 | .023 | .982 |
| Traditional/ Non-Traditional | -.001 | .001 | -.026 | -.800 | .424 |
| AM/PM | .000 | .000 | .012 | -.616 | .538 |

The overall model was not statistically significant (F = 1.284, Sig. .240). The lack of overall statistical significance is to be expected given all but one variable was statistically insignificant (see Table 3 above for additional supporting detail).

Table 4

*ANOVA\**

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | .004 | 9 | .000 | 1.284 | .240** |
| Residual | .995 | 2678 | .000 | | |
| Total | 1.0 | 2687 | | | |

*Note.* *Dependent Variable: Pass/fail
**Predictors: (Constant), AM/PM, IncomeSt, FStatus, Generation, Race/Ethnicity, Gender, AgeGroup, CampusCode, TradNon

Most of the demographic variables do not have explanatory power. R squared is expected to approach zero.

Table 4A

*Model Summary\**

| Model | R | R Square Adjusted | R Square Std. | Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .066* | .004 | .001 | .019 | .001 |

*Note.* *Dependent Variable: Pass/fail
**Predictors: (Constant), AM/PM, IncomeSt, FStatus, Generation, Race/Ethnicity, Gender, AgeGroup, CampusCode, TradNon

Most of the demographic variables did not have explanatory power. R squared was expected to approach zero; therefore, the 95% confidence interval for B had a narrow range around .000.

Table 4B

*Coefficients\**

|  | 95.0% Confidence Interval for *B* | |
| Model | Lower Bound | Upper Bound |
| --- | --- | --- |
| 1 (Constant) | -.002 | .001 |
| Gender | -.002 | .001 |
| Race/Ethnicity | .000 | .002 |
| IncomeSt | -.002 | .002 |
| Generation | -.001 | .002 |
| CampusCode | -.003 | .002 |
| FStatus | -.001 | .002 |
| AgeGroup | -.001 | .001 |
| TradNon | -.003 | .001 |
| AM/PM | .000 | .001 |

*Note.* *Dependent Variable: Pass/fail

In Table 5 below the R Squared for the model was very low. The remainder is the residual. The model does not have any explanatory powers because those factors were not directly related to the final grade outcome.

Table 5

*Residuals Statistics\**

|  | Minimum | Maximum | *M* | *SD* | *N* |
|---|---|---|---|---|---|
| Predicted Value | .14 | .58 | .31 | .0713865 | 3865 |
| Residual | -.555 | .859 | .000 | .4563865 | 3865 |
| Std. Predicted Value | -2.403 | 3.889 | .000 | 1.0003865 | 3865 |
| Std. Residual | -1.217 | 1.882 | .000 | .9993865 | 38.65 |

*Note.* \*Dependent Variable: Pass/fail

## **Outcomes**

### **Discussion of the Results**

The posed research question for the study was: What is the relationship between early alert outcomes and student characteristics? A regression analysis for the variables: gender, race/ethnicity, age, income status, campus, faculty status, first generation to college, and course times was completed. The regression analysis indicated that one variable, race, was statistically significant. The regression analysis indicated that the null hypothesis is valid.

(*H1*): There is a relationship between students input characteristics associated with student early alert outcomes.

Finally, standard deviations, reliability coefficients, and mean scores were presented for the student variables (Table 5).

The Statistical Package for the Social Sciences (SPSS), a professional statistical software program, was utilized to analyze the student data to produce valid data results.

Below were the data analysis methods used in this study. Descriptive results are presented

first (Table 1), including student dependent variables (gender, age, race, income status,

etcetera.). A Pearson product moment correlation was utilized to determine the

relationship between independent variables and the dependent variable, and coefficients

determined (Creswell, 2008). A one-way analysis of variance (ANOVA) was also utilized

(Table 4) for the description of the association among the dependent variable on multiple

independent variables. Additional methods known as $t$ tests were also utilized to explain 2

independent variables relationship with the dependent variable (Creswell, 2008).

The area that the analysis indicated as statistically significant was ethnicity. To

further explore this statistically significant area was to answer the question which

ethnicity group is the higher risk with additional statistical cross comparison analysis

(Table 6).

Table 6

*Percentage of Early Alert Students Who Failed by Ethnicity*

| Category | Subcategory | % that failed Early Alert | % of overall XYZ Campus Population |
|---|---|---|---|
| Ethnicity | Caucasian | 53.6% | 79.3% |
| | African American | 36.0% | 17.2% |
| | *Other minorities | 10.3% | 3.5% |

*Note.* *Contains: mixed race, Latino, Asian, American Indian & Pacific Islander

The additional statistical analysis indicated that African-American students were

the highest risk students for the college to serve in terms of academic success of the

overall college student population, and in contrast, white students were the lowest risk.

Minority students have typically been a higher risk student population in higher education

(Quaye, Harper, 2014). The analysis in table 6 is significant because while minorities

represented approximately 21% of XYZ Community College's population, they

represented over 46% of early alert failures (P. Trumpower, personal communication,

May 11, 2016). A large percentage of XYZ Community College's enrollment may not

respond positively to the early alert student notification by earning a passing grade.

Because the overall college African American student population is nearly 20% at XYZ

Community College approximately two out of 10 students were potentially negatively

impacted by less than adequate at-risk student academic success early alert

notification/interventions.

The importance of this data is especially significant in the current higher

education environment defined by intense competition amid declining enrollment.

Further investment by XYZ College in research based strategic resources in the area of

student retention will aid students in both the higher risk category as well as the

remainder of the student population. The results of XYZ Community College's student

success strategic investments may increase at-risk student success of students identified

in the early alert process and ultimately increase student success at XYZ Community

College. In the current state funding model, additional course completers and graduates

equate to additional funding dollars at XYZ Community College which is a return on the

institution's investment.

The only statistically significant variable in this study, ethnicity, often has other

attribute variables associated with it when examining the variables minority component.

It is clearly documented throughout many studies that minority students are frequently

low income as well as first generation to college students (Shaun, 2012). The association is important because income status and first generation are variables that were also statistically tested but were not determined to be statistically significant.

However, I do believe the positive relationship that was found is not exclusively related to race/ethnicity. A disproportionate number of African American students are both low income and first-generation to college with respect to total XYZ Community College overall student enrollment. The factors play an influential role in why African American students have lower early alert pass rates. Race/ethnicity is mitigating factor that often masks underlying descriptors of the students' overall experience (Quaye & Harper, 2014). Lack of financial resources often impedes a student's ability to overcome life's distractions/challenges and impedes/interferes with the ability to focus and succeed at academics.

A first generation to college student is a risk factor because there is no one in your immediate family who has experience in college functionality to help you. Students who are underprepared for college are more likely to be low income and first generation to college. Because I conducted a multiple analysis of variance I accounted for between group variation for first generation and low income students. Both low income status and first-generation to college variables are co-variates to race/ethnicity and are widely known as academic risk factors (McClain, Beasley, Jones, Awosogba, Jackson, & Cokley, 2016). The impact on race/ethnicity may be statistically influenced by other co-related variables such as income status and first-generation to college status.

Section 3: The Project

Study findings indicate that further improvement and refinement of XYZ Community College's student early alert process should help to improve overall student retention. In developing my project, I focused on identifying strategies that are aimed at increasing the only statistically significant variable in the study, ethnicity. I proposed action items in three distinct areas. The first is the proposed implementation of additional technology to enhance the current early alert process. The second is the proposed implementation of a midterm grade process. The third is implementing success coaches for students that are at greatest risk of failing.

In this section, I outline the subproject's rationale, goals, implementation plan, literature review, and evaluation overview. The implications for social change are described as well. The proposed improvement projects are based on the study findings and are meant to support increased student success and retention at XYZ Community College.

**Project Goal**

The findings from this doctoral study indicate that significant relationships exist within the early alert independent variables at XYZ Community College in the category of ethnicity. The goal of the project was to produce a white paper outlining the study, findings, and recommendations for XYZ Community College and other interested entities. A presentation in the form of a PowerPoint was produced specifically for XYZ Community College's administrators, faculty, and staff. The context of this study is rooted in increasing student success via XYZ Community College's early alert system

and student data. If some participants were successful with the existing passive system, the success rate should increase with some improvements in process based on the data from the study. By studying students with a greater risk of failing who were identified in XYZ Community College's current early alert process, variables were examined to determine potential correlations with student success. XYZ Community College's early alert system identifies students 4 weeks into each semester who have less than a "C" at that point in the semester. The early alert system is a faculty driven system with an email and standard mail notification that are sent directly to the student.

## Rationale

Student success in higher education is a key subject at the national, state, and local levels (Martin, Galentino, & Townsend, 2014). XYZ Community College is interested in increasing its student success rates. Although its institutional data system, especially with regard to its early alert process, includes many student variables of interest, faculty, staff, and administrators at the college had not conducted research on my study topic. A gap existed in overall understanding of student variables and their potential relationship to early alert student success at XYZ Community College and in the review of the literature. Students want to be successful and providing improvements in existing processes that produce increased student successes are worthy investments to all stakeholders, especially processes that increase student successes in students with greater risk of failing (Tinto, 2012). At XYZ Community College, it was clear to me that an increase in student success was needed. The increase in student success was needed

because of the large increase in enrollment which increased the overall at-risk non-traditional student segment.

Three major areas of improvement are suggested in this project. The first major area is the addition of technology and software to enhance the existing early alert system and make it similar to the Starfish or Signals Systems that I discussed in the literature review section (STARFish Solutions, www.STARFish.com). The second area is the addition of a midterm grade process. The midterm process may aid in the student awareness and notification of student grades. Studies have shown that student grade awareness is a factor impacting at-risk student's success (Tinto, 2012). The third area is adding a student success coach.

Data gathered and analysis from the XYZ Community College system supported the improvement because the one area that was significant was ethnicity. Further analysis indicated that African American students are at the greatest risk of failing. Researchers have found that minority students are often more successful (Stephens, Hamedani, & Destin, 2014). The success is because of the ability to use a student success coach to help them on a one on one basis to navigate the hurdles of balancing educational logistics and demands as well as life's everyday challenges (Stephens, Hamedani, & Destin, 2014). The project helps to address the need of increasing student success in a multitude of ways listed below.

The project introduced communication redundancy into the existing system with additional contact points with students beyond the current early alert process. Timely and direct communication with students is a requirement for student success, Tinto (2012)

noted. The second major area included introducing a midterm grade process. The introduction of technology into the existing process should enhance and simplify the early alert process for both faculty and students.

Studies have revealed that reinforcement in combination with the introduction of technology for student convenience that is informational and not overly complicated produces positive results (Spada, 2014). The major additions I suggested in the project listed above addresses the need to increase student success rates of early alert students by adding additional student and institutional support resources. The resources will be added and/or improved in the technology area as well as the faculty and student communication areas.

## Review of Literature

In this section, I review literature on the increased effectiveness of early alert process. The literature review examined journals, books, and peer-reviewed articles. My literature search mainly used the databases Academic ProQuest, EBSCO databases, Academic ProQuest, Walden University Library Resources, and ERIC. All research was peer reviewed and no older than 2012 to capture current scholarly thinking. The databases were used to search terms related to increased effectiveness of the early alert process. Related search terms included the following: technology in higher education success, college student success, college student retention, college midterm effectiveness, and technology for college student retention.

**Technology Enhancement**

Based on my findings that ethnicity was a statistically significant student success variable, I surmised that infusing additional technology to support the early alert process may achieve positive results. One of the best ways to improve an existing complex process is through the use of new technology (Hornstein, 2015). Given appropriate time and training, both students and instructors are likely to accept its usage (Buabeng-Andoh, 2012). Computers have helped minimize the manual processing of data and communications since their inception (Lajoie, Derry, 2013). The application of technology for ease, usage, and overall efficiency in education is no exception (Thompson, 2013).

Technology utilization in educational processes must be done with common sense. It can be used to reach a much larger approach to at-risk intervention (Tampke, 2013). The use of computers and technology in studies has been found to engage and empower minority students (Shank & Cotten, 2014). When technology simplifies processes for users, it is viewed as very empowering (Tampke, 2013). Technology should be used when it enhances and simplifies the process to the intended audience and not just because it exists (Karp & Fletcher, 2014). Driving forces behind the use of technology in education are factors like accountability and efficiency with respect to simplification of use and understanding by all stakeholders (Lewis, Fretwell, Ryan, & Parham, 2013). Adding an element of technology for the clear benefit of students to simplify and document a process is considered good utilization. Technology should never be a complete replacement for personal interaction (Giebelhausen, Robinson, Sirianni, &

Brady, 2014). I believe humans respond better to someone who can relate to their specific situation, a success coach is an excellent solution to help support student needs beyond just technology.

Purdue University implemented a complementary piece of technology that increases both student success and awareness. It is called the Course Signals Program and works in conjunction with their current learning management system (Arnold & Pistilli, 2012). Course Signals is a simple program to use for faculty and easily understood by students. It uses a typical traffic stoplight color code pattern for student indicators embedded in a faculty initiated student specific email with a simplistic explanation of how the system works. Course signals use factors such as student effort/engagement which is gauged via the learning management system, current grades, academic history, and individual student demographic variables (Arnold & Pistilli, 2012).

The positive results of the use of the course signals program are clear, in that students who were part of the program had increased overall success rates of approximately 10% (Arnold & Pistilli, 2012). Vincent Tinto believes that the course signals program is a key example of the combination of analytics and student communication that is complementary to the traditional early alert process (Tinto interview, 2015). The importance for students to be kept informed of their academic progress cannot be understated (Tinto interview, 2015). The use of technology to enhance an existing process is a great tool, but extreme caution needs to be exercised as to not overly complicate a process for the faculty or students causing avoidance and resistance to an important tool (Essig, 2012).

There are few software packages that will work in conjunction and add student retention value to the college's mainframe system. The software package that has the most potential for this application is called Starfish Retention Solutions. The Starfish software is an additional complementary piece of technology that contains an automated student tracking system, early alert, online appointment scheduling, and assessment system. Starfish CONNECT is a module within the software that facilitates significant interaction of students, faculty, advisors, and academic support staff. The Starfish software allows students and advisors to track their progress towards academic goal completion (STARFish Solutions, www.STARFish.com). The system helps institutions identify at-risk students in real time, based on their daily course work performance along with faculty concerns and also connects the students to the resources designed to help them be successful (STARFish Solutions, www.STARFish.com).

Faculty engagement is key to the implementation of any improved technology solution (Ramano & Connell, 2015). Clear communication regarding the use of new technology implementation and its benefits is extremely important so students will not form a negative opinion at first contact and prior to its utilization (Asby, 2015). Communication regarding the software, ease of use, and demonstrated value will help to increase acceptance for students, faculty, and support staff. The overall importance of any additional technology may increase student success has high value for community college efforts to improve retention.

**Midterm**

The use of mid-terms is another tool by an institution to officially inform students of their progress at the half-way point of the class. The goal of the mid-term is to help students take needed steps to increase their likelihood of course success and is yet another opportunity for faculty to clearly communicate learning expectations and goals (Tampke, 2013). The mid-term is also another snapshot look given to all students, not just students with less than acceptable academic progress. Communicating a student's progress or lack of progress is an important aspect for behavior reinforcement or a needed change in behavior (Tinto Interview, 2015). The mid-term should be used as a tool to improve and expand an existing early alert program.

The relationship of student procrastination combined with a denial of facts regarding their performance in a class is directly correlated with a negative student academic outcome (Kim & Seo, 2015). Many students do not feel that their performance early in a course semester will be reflective of their overall performance, but the mid-term is a hard piece of evidence for them to ignore (Jensen, & Barron, 2014). The mid-term in combination with the existing early alert is reinforcement and measurement of their performance. Mid-Term is another opportunity for intrusive intervention by the institution for students who are academically at risk (Habley, Bloom, & Robbins, 2012). The mid-term is another opportunity for the institution to measure student success and notify the student and a success coach at the halfway point of the course. At the half way point this is a final critical juncture for the students to improve their grade or behavior around to successfully pass the course (Tampke, 2013).

A poor midterm grade can be an institutional trigger for a student intervention. A good intervention method is a mandatory mini course in student core study skills within a course (Cathey, Visio, Whisenhunt, Hudson, & Shoptaugh, 2016). Lorain Community College administrators have reported positive data that mid-term grades combined with multiple disbursements in financial aid equals gains in student success (Sutton, 2015). Instructors have often commented that the early alert took place too early in the semester for accuracy, but the mid-term timing cannot be disputed and typically reinforces the early alert results (Moore-Harrison, McEachnie, Cassidy, & Taylor, 2015). The mid-term is in addition to the early alert notification that the student may have received earlier. The multiple documented points of contact and notification directly with the student regarding their lack of success in the specific course will help to reinforce to the student that additional support is needed and help is available.

**Student Success Coaching**

Success coaching is not a new concept in sports and exercise training and has been used for decades in the form of a personal trainer. The personal trainer was a one-on-one focus with the trainee to maximize efforts, motivation, and success. Its adaptation and application in the educational arena has been a recent development. The definition of student success coach is an experienced and knowledgeable individual who can help motivate and navigate a student through their educational journey to successful completion (Horner, Kincaid, Sugai, Lewis, Eber, Barrett, & Algozzine, 2014). Bettinger & Baker (2013) believed the reason some minority and economically disadvantaged students do not persist in college is directly related to the students not having access to

core examples and basic information regarding how to be successful and/or not properly executing necessary academic or economic actions because they have no role model to follow.

A competent student success coach can guide the student (Bettinger, & Baker, 2013). Students who have utilized their student success coach regularly reported lower overall stress and less conflicts both at school and at home (Johnson, 2015). Students who were assigned a success coach are required to meet with them weekly during the semester. A coach can help students make informed choices up front on a program of study which greatly can impact completion at community colleges which typically graduate only 4 out of 10 students (Scott-Clayton, 2012). The coach has regular contact with their students' faculty to check on course progress and attendance.

When a student missed class or their weekly success coach appointment, the success coach proactively reached out to the student to find out their status. The coach's intrusiveness was necessary to find out the students' challenges and help them overcome any difficulties or barriers to their success (Tinto, 2012). The student success coach is educated in the full complement of social services offered ranging from professional counseling to food banks available to the student. Often the student formed an emotional bond with the success coach.

The success coach was especially helpful with at-risk college students who have no role model with experience in college or successful life habits (Sweat, Jones, Han, & Wolfgram, 2013). Data from multiple studies with students working directly with success coaches have shown improvements in academics in several areas: semester to semester

student retention, persistence to graduation, and overall academic success (Allen& Lester, 2012). The importance of having a success coach for some students to connect to aids in the process of students feeling part of the institution and increases their interest and drive for success (Patton, Renn, Guido, Quaye, Evans, & Forney, 2016). At some institutions personal success coaches are beginning to replace nearly the entire suite of services that were traditionally offered to new or at-risk students (Dalton, & Crosby, 2014).

## Project Description

I completed a study on historical data of early alert student variables available in the college mainframe system: gender, age, financial status, race/ethnicity, campus, faculty status, and course times. The purpose of the study was to determine if there was a relationship between any of the student independent variables and student success of participants in the early alert system. There was only one independent variable, the outcome of the course that the student was identified in as part of the early alert process and ultimately pass or fail. XYZ Community College has an early alert process in place that is executed by each instructor in the 4th week of each semester. Each student's progress in every class was evaluated and all students with less than a "C" average were reported in the college mainframe system.

The report generated a letter to the student alerting them to their lack of appropriate progress. The letter also advised the student to discuss their progress with their instructor and/or advisor. Based on the statistical analysis the only significant independent variable was race/ethnicity. The current process can be enhanced for greater student success based on additional literature review. The number of minority students

receiving early alerts was disproportionately high compared to the overall minority college enrollment percentage. The literature driven solutions to improve early alert student success are student success coaches, mid- term grades, and technology enhancement.

**Success Coaches**

I recommend adding three student success coaches be added to help support the student success efforts of early alert students. Each coach can support up to 200 at risk students. Research has shown that students who work with a success coach on a regular basis are more successful in individual classes and overall regarding their educational goals (Dalton & Crosby, 2014).

**Midterm**

The mid-term is a second chance for students to be officially evaluated and communicated regarding their progress. Another opportunity to measure student progress between the early alert and the mid-term. An additional opportunity for intervention during a course at the half-way point for student improvement.

**Technology Enhancements**

Starfish Retention Solutions software offers a complementary piece of technology that contains an automated student tracking system, early alert, online appointment scheduling and assessment system (STARFish Solutions, www.STARFish.com).

**Costs of Implementation**

Student success coaches cost $195,000.00 total for three student success coaches including benefits. Starfish software purchase and implementation is $46,000.00 with a

student band width of 8,001 to 15,000 students per year. Starfish software has no annual

maintenance cost per year (P. Trumpower, personal communication, June 6, 2016). The

mid-term implementation has no costs associated with its start up because the current

college mainframe system is capable of the function and just needs enabled.

Some of the existing supports within the institution are a technology savvy faculty

base. Being a former technical college helps most of our faculty embrace new

technology. XYZ Community College's open minded student services administrator has a

history of embracing new technology. The institution has also kept up with IT hardware

investments for a great base that supports upgrades. These upgrades include the

Sungard/Banner mainframe system that already has mid-term grade capability.

There may be some resistance within the organization. Humans and organizations

are typically resistant to change, but the resistance can be minimized by educating

employees on the need for organizational change management (Hornstein, 2015). While I

cannot know all the areas of potential resistance, listed below are topics that seemed

obvious. The current advisors may see the student success coaches as threats to them. The

advisors may feel threatened because the student success coaches are new and different

and outside the typical. The advisors may fear they could be replaced by student success

coaches.

There are also pockets of technology and process change resistance by faculty in

some areas that have not needed to keep up with changes in technology on a regular

basis. The resistance can manifest itself by individuals simply not using the technology

and starting negative rumors about its effectiveness. Some administrators as well as

faculty are resistant to changes if they did not initiate the change. Culture change for faculty, students, and staff is always a difficult but not insurmountable obstacle (Stensaker, Välimaa, & Sarrico, 2012). Cost will be a barrier that will be brought forward as well. Cost is often used as a barrier to resist change. The root of the cost argument is typically that the benefit does not outweigh the expense.

Suggestions for overcoming many of the barriers and resistance revolve around clear early communication, which is the first step. The next step is to achieve buy in from all stakeholders. Offering current advisors to advance their skill set and become a new success coach will minimize current advisors' apprehension of being replaced. Sharing the data regarding costs, increased student success rates, and relating it directly to revenue to the college will aid in the buy in process. Student success focused grants can be pursued to cover the costs of Starfish Retention Solutions and student success coaches from entities like the Bill and Melinda Gates Foundation who support student success initiatives (www.gatesfoundation.org/What-We-Do/US-Program/Postsecondary-Success, 2014).

**Implementation and Timeline**

The timeline to have student success coaches in place is by the start of spring semester 2017. The timeline for purchasing and implementing Starfish is the start of summer semester 2017. The sequence will allow for proper system integration with the existing college mainframe system as well as the early alert system. The timeline for implementing a mid-term grading process is a spring 2017 start. The quick turnaround

time is because the current Banner college mainframe system already has the mid-term

feature available and ready for use.

**Roles and Responsibilities**

The core role and responsibility for the overall communication, faculty and

student buy in, software purchase and implementation of Starfish Retention Solutions,

funding and hiring of student success coaches, and implementation of mid-term grading

rests with the administration. The role of the faculty, student services personnel, and

success coach is to help support and reinforce the administration's early alert student

success improvement efforts as well as assisting in the front line communication and

utilization encouragement to students. The student's responsibility is to utilize and

respond to the additional software, student success coaches, and mid-term

communication.

**Project Evaluation Plan**

The project used a goal based evaluation model. The goal of the project was to

increase the early alert student success rate. The benchmark for this goal will utilize the

current early alert student success rate to measure progress the first year. A goal based

evaluation is an appropriate evaluation because it is a method used to determine the

actual outcome of a project compared to a goal or benchmark (Kueng & Kawalek, 1997).

A realistic first year goal is a 5% increase in early alert student pass rate over the previous

year.

The importance of increasing the percentage of students who were identified as an

early alert student who ultimately pass the course should be heralded as a springboard for

additional student success. Students who have overcome their initial designation as an early alert student by passing the course typically have a renewed positive outlook and confidence level regarding additional coursework (Wolters, & Hussain, 2015). The student's carry-over positive attitude and determination, helps motivate them to additional academic progress which leads to improved retention and ultimately higher graduation rates (Wolters, & Hussain, 2015). The stakeholders in this project are the institution as a whole, students, faculty, and staff. The community as a whole will also benefit from more students who are successful in their academic goals by producing a more skilled workforce. Individuals who have skills and credentials have greater potential to earn more throughout their lifetime. More earnings equate to a higher standard of living and tax base for the overall community.

Section 4: Reflections and Conclusions

## Introduction

In this study, I conducted a correlational study of the early alert process success variables at XYZ Community College. The purpose of this study was to examine whether there is a relationship between students' characteristics and early alert outcomes. Such insight might be useful to XYZ faculty, staff, and administrators in their efforts to increase student success. The variables studied were student independent variables from the institutional mainframe data system. The single dependent variable in this study was the pass or fail outcome of a student in the course that has been identified in the early alert system. Section four offers reflections I discovered with respect to the study's limitations, recommendations for remediation of scholarship, strengths, evaluation, and project development. This section also contains self-reflections, implications for social change, and directions for future research.

## Project Strengths

I completed a correlational research study to examine whether an association existed among student variables and early alert outcomes (specifically, whether a student was ultimately successful in the course). Increasing student success of participants with greater risk of failing is both a local and national systemic problem affecting thousands of students (CITE). The project should provide additional support to the existing early alert system with a focus on the variable that was discovered to be statistically significant, race/ethnicity. The three areas are additional technology, midterm grades, and student success coaches.

Additional project strengths to help address the problem include: increased opportunity for faculty to student engagement and communication for academically at-risk students, additional student evaluation and communication points with the implementation of mid-term grades, technological innovation allowing for increased efficiency and communication with at-risk students, and increased student engagement using success coaches.

## Project Limitations

All studies have their limitations. Identifying them is necessary to provide perspective for the researcher and readers (Creswell, 2008). This project had limitations as well. The first is that only one institution was studied. Another limitation was that some variables were not able to be a part of the study such as marital status, veteran status, and others because the institution did not collect them or include complete information on them in its mainframe system.

## Recommendations for Alternative Approaches

Alternative approaches to this study might have been to use a mixed methods approach. The quantitative portion would have remained the same. The qualitative side would have required the use of surveys of students and faculty to gather information and opinions. A mixed methods approach using both qualitative and quantitative methods was another option.

## Scholarship, and Leadership and Change

My interest in earning a doctoral degree began about a decade ago. I had spent 10 years in industry in operations, engineering, and sales before I came to higher education.

After several years in higher education, I had an epiphany and realized that education can be the gateway to a much better life for most people. Student achievement was a little more complex than just being highly motivated. The realization that a vast number of students simply do not understand how to succeed in college because no one in their family has ever completed their degree. I saw how many students (especially, those at risk of failing) started and simply vanished after a relatively short period of time.

I wanted to help as many students as I could become successful to help them have a career that would provide a quality wage to support a family. In order for more students to become successful, I knew something had to change. As I completed my courses in the doctoral program, I began to form my idea to investigate why some students who are at greatest risk, who receive an early alert, ultimately succeed in their courses.

I knew a research project was a great way to investigate the possibility of the significance of variables. Scholarship to me is having an idea that could potentially influence or help students in an academic environment, then bringing all research, statistical, and transparent procedure methods into play on the problem. A scholarly project is one with an element related to positive social development with potentially sweeping results. Objectivity is a key with a scholarly project as is having the integrity to go where data and research send you. Having the courage to break new ground and being open to new concepts and methods are also examples of scholarship for me.

## Project Development and Evaluation

Both my knowledgebase and experience regarding project development and evaluation was refined during my doctoral education experience. In order to be able to

choose a doctoral project, and for it to have the necessary elements to make it through the Walden University Research Review process, considerable evaluation regarding the subject matter on the researcher's part had to be undertaken up front. I had several potential projects ideas as I neared the completion of my coursework, but, with careful evaluation based on need and resources available as well as the guidance of my advisor, I decided to propose this project. Another reason that I opted to undertake this research is that I thought I would be able to provide institutions with data that they could use help more students achieve academic success. Project development and evaluation were key during the initial research and development at the project proposal stage.

Next in the development process was the often iterative but structured submission process of gaining permissions from Walden University's Institutional Research Board as well as XYZ Community College's IRB. Being able to follow very prescriptive directions and timelines were key to success. Working within the specifications of participant protections and maintaining ethical standards with regard to a variety of institutional standards was key. Data acquisition analysis and reporting with the ability to learn, understand, and use the specific statistical analysis software was necessary to properly calculate and analyze all data. Understanding items such as appropriate sample size was a necessity in the process. Summative descriptions with each chart in the project helps the reader understand each one. Keeping the research question at the forefront of the writing to make sure each section kept its relevance and focus.

During my doctoral journey, I have further evolved as a leader in the sense that I have developed a broader understanding of how scholarly research and data can lead

change without preconceived notions. My personal definition of leadership has evolved

into the desire to help drive forward a result to achieve a goal. Persistence was a part of

the overall process, which is often part of anything that is both worthy and difficult to

achieve.

## Leadership and Change

I now have a much more global view concerning the long lasting impact that

positive social change has on students. My view extends to students who have become

graduates and their families who are able to have richer fuller lives by completing their

educational goals and entering the workforce at higher rates of pay. I believe students

who achieve their educational goals can potentially break the generational cycle of

poverty for their families. Scholarly evaluation played a major role in my project choice.

I developed two other potential projects before I realized the merits of this project. I had

to take the lead on all aspects of completing this project. There was no team of

individuals to help me make decisions or direction along the path. It took both leadership

and determination to successfully navigate the project to completion. I have changed and

evolved as a leader and educator along the path of my doctoral journey and will be able

to utilize and apply what was learned to other aspects the remainder of my career and life

to continue to make an impact.

## Reflection on the Importance of the Work

The importance of the study was always rooted in increasing student success. As

jobs and careers become increasingly complex, the level of education required increases.

Employers are demanding education beyond a high school education for jobs and careers

that provide an income that will support a family. The pressure of increased educational requirements by employers and fierce competition by job seekers are driving individuals who are underprepared to college. Providing institutions additional valid statistical data to aid them in allocating their resources for maximum effectiveness to increase at-risk student success is a valuable effort.

**Implications, Applications, and Directions for Future Research**

In the research that was the basis for the project the statistical results indicated that the only significant variable was race/ethnicity. Additional analysis indicated that minority students have the greatest opportunity for increased student success. An important implication of the proposed study was that it provides additional insight on at-risk students. The student success coach's logs may contain additional statistically relevant information that may allow for further refinement of processes that enable more at-risk students to be successful in their academic goals. The applications for data and academic potential process improvements that create additional student success are sought out by all institutions. This is especially focused in times of declining enrollment.

Further research could be conducted at other community colleges in locations across the United States to determine if the variable race/ethnicity was consistently significant. This concept could be taken to an international level as well. Further studies based -on the expanded scope study. In addition, expanded research studies could result based -on the data from the student success coaches, mid-term grades, and student success increases.

**Conclusion**

In conclusion, the aforementioned section contained my reflections and perceptions from the research and project. In this section project strengths and limitations were presented. Recommendations for alternative approaches were explored as well as scholarship, project development, and leadership and change. A reflection of the importance of the work and implications applications were presented and directions for future research were offered. The section ended with my conclusion.

My career began in industry and I was able to see first-hand what education could do to positively impact an individual and their family's standard of living. I watched employees climb the corporate ladder with the help of their educational attainment. There were also those who were able to leave for better opportunities at other companies because they completed their college degree and had some experience. I also was witness to those were not afforded promotions because they did not have the appropriate educational level. I was inspired to raise my educational level and completed my degree ladder in two year increments part-time while I worked up to my master's degree. My promotions and opportunities followed. I understood the power of education or the absence of education had on people's lives. For those who were willing to put forth the effort, the reward should be attainable.

As the demand increases for college educated employees in today's competitive job market for jobs with premium pay so does the demand for a college education. The demand is driving more individuals, regardless of academic preparedness, to enroll in college. The importance of each student to have the ability to achieve their educational

goals is paramount for both the student as well as the community. Academic achievement is especially significant to at-risk students who are often minorities. This project is about better understanding data so that resources can be allocated effectively to more effectively positively influence early alert student's success rates.

The research has pointed me in several core areas: utilization of additional technology, student success coaches, and mid-term grades. By the institution making some investments in the resource areas listed above more early alert students will pass courses they would not have before. Although it is yet to be seen as to exactly what the increase will be, each additional student that is successful will positively impact entire families and communities. The student's success has the ability to be intergenerational and could be a catalyst for the next generation to go to college. Helping to make students successful and positively impacting lives is the main reason I am in education. It is my way of giving back and helping to contribute to the American dream.

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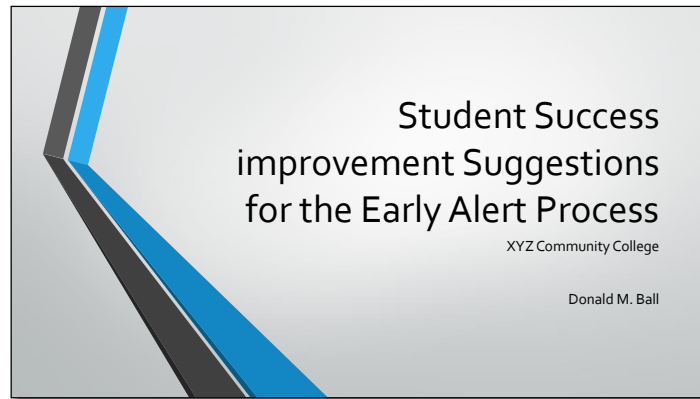Thelin, J. R. (2011). A history of American higher education. JHU Press.

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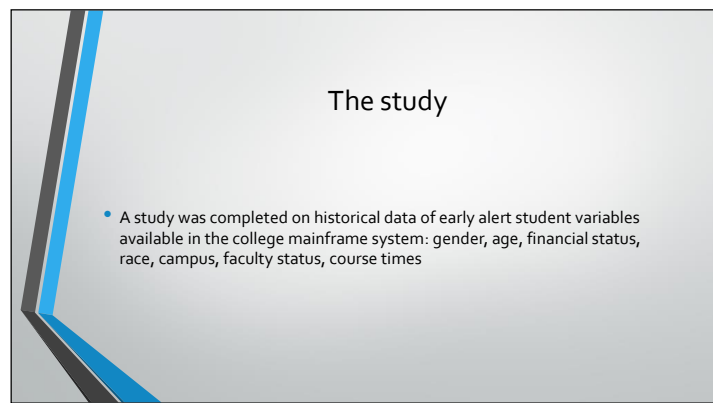
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Appendix A: The Project and White Paper
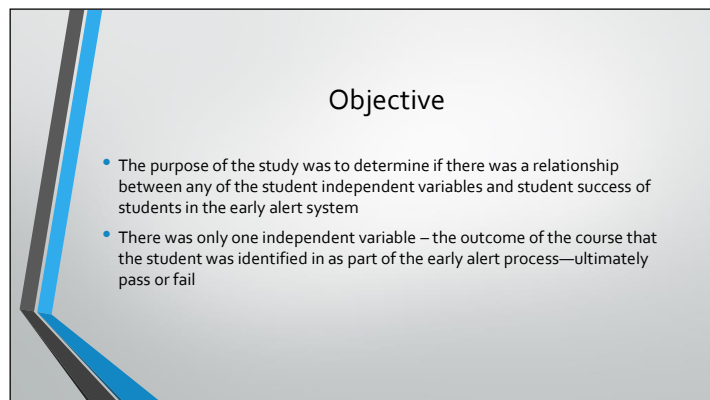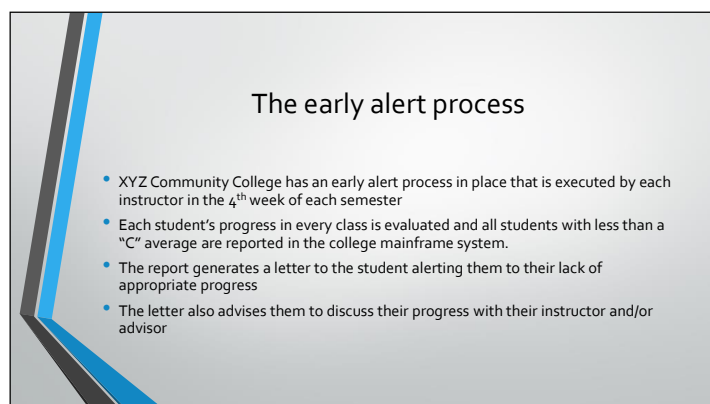
Slide 1

Student Success
improvement Suggestions
for the Early Alert Process

XYZ Community College

Donald M. Ball

Slide 2

The study

- A study was completed on historical data of early alert student variables available in the college mainframe system: gender, age, financial status, race, campus, faculty status, course times

Slide 3

## Objective

- The purpose of the study was to determine if there was a relationship between any of the student independent variables and student success of students in the early alert system
- There was only one independent variable – the outcome of the course that the student was identified in as part of the early alert process—ultimately pass or fail

Slide 4

## The early alert process

- XYZ Community College has an early alert process in place that is executed by each instructor in the 4th week of each semester
- Each student's progress in every class is evaluated and all students with less than a "C" average are reported in the college mainframe system.
- The report generates a letter to the student alerting them to their lack of appropriate progress
- The letter also advises them to discuss their progress with their instructor and/or advisor
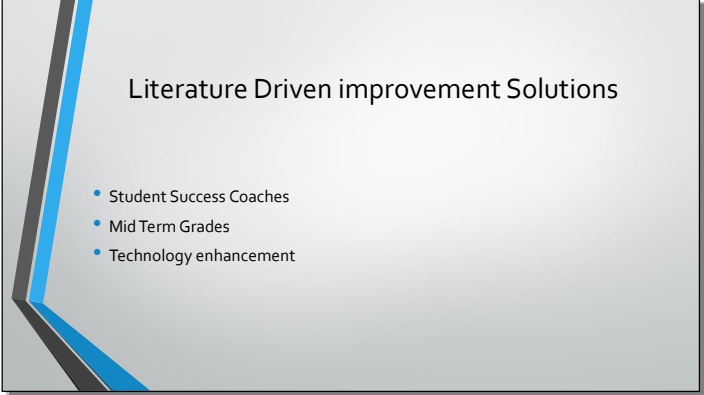
Slide 5

## Statistical Significance

- The current process can be enhanced for greater student success.
- The number of minority students receiving early alerts is disproportionately high compared to the overall minority college enrollment percentage.
- Based upon the statistical analysis the only significant independent variable is race/ethnicity
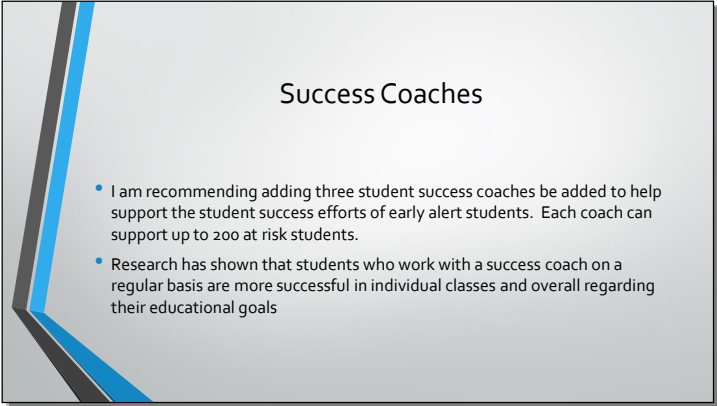
Slide 6

## Literature Driven improvement Solutions

- Student Success Coaches
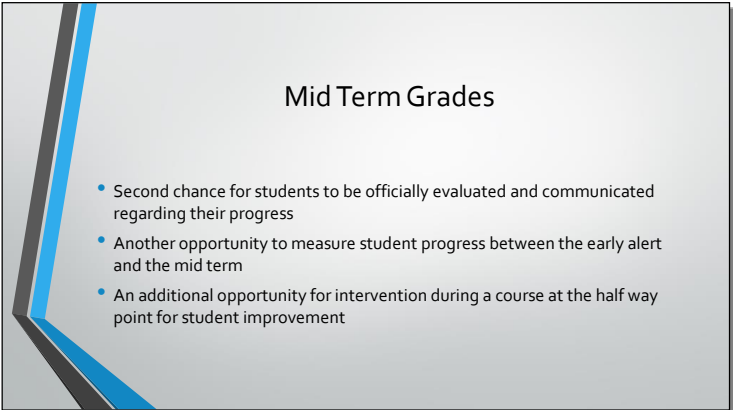- Mid Term Grades
- Technology enhancement

Slide 7

## Success Coaches

- I am recommending adding three student success coaches be added to help support the student success efforts of early alert students. Each coach can support up to 200 at risk students.
- Research has shown that students who work with a success coach on a regular basis are more successful in individual classes and overall regarding their educational goals
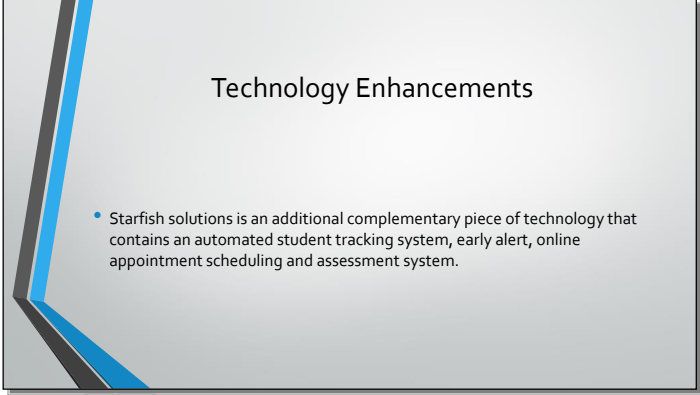
Slide 8

## Mid Term Grades

- Second chance for students to be officially evaluated and communicated regarding their progress
- Another opportunity to measure student progress between the early alert and the mid term
- An additional opportunity for intervention during a course at the half way point for student improvement
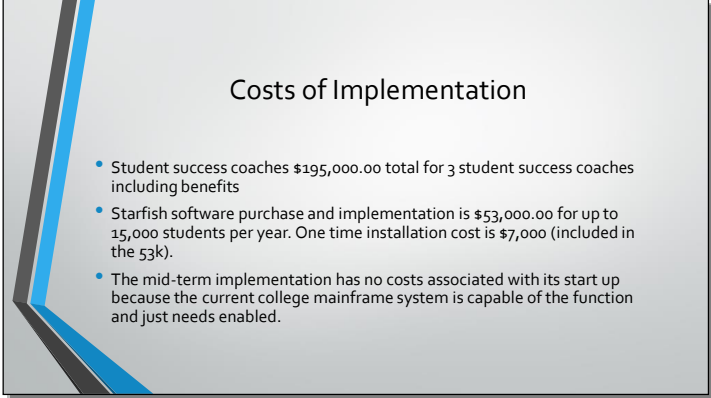
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## Technology Enhancements

- Starfish solutions is an additional complementary piece of technology that contains an automated student tracking system, early alert, online appointment scheduling and assessment system.
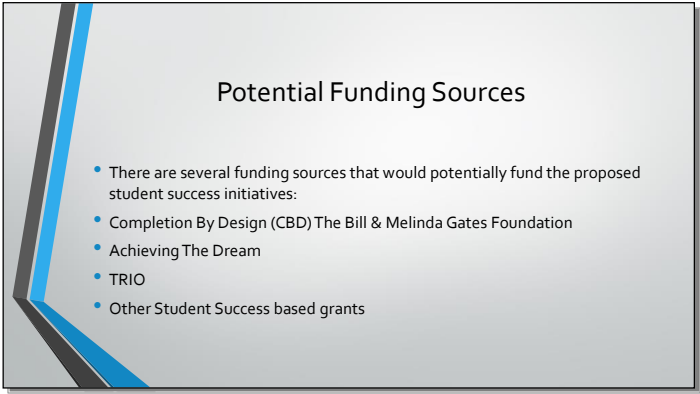
Slide 10

## Costs of Implementation

- Student success coaches $195,000.00 total for 3 student success coaches including benefits
- Starfish software purchase and implementation is $53,000.00 for up to 15,000 students per year. One time installation cost is $7,000 (included in the 53k).
- The mid-term implementation has no costs associated with its start up because the current college mainframe system is capable of the function and just needs enabled.

Slide 11

## Potential Funding Sources

- There are several funding sources that would potentially fund the proposed student success initiatives:
- Completion By Design (CBD) The Bill & Melinda Gates Foundation
- Achieving The Dream
- TRIO
- Other Student Success based grants

Slide 12

### Timelines for Implementation

- The timeline for hiring the student success coaches is to have them hired by the start of spring semester 2017.

- The timeline for purchasing and implementing Starfish is the start of summer semester 2017. This will allow for proper system integration with the existing college mainframe system as well as the early alert system.

- The timeline for implementing a mid-term grading process is a spring 2017 start. The quick turnaround time is because the current Banner college mainframe system already has the mid-term feature available and ready for use

Slide 13

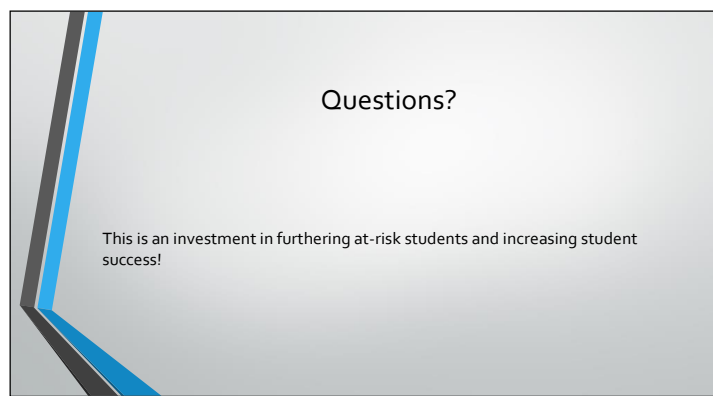### Additional Student Success = More State Funding for the college

- Under the new state funding formula 25% of the state share of instruction is based on successful course completion. This equates to @ $26.00/student loss or gain per 3 credit hour class.

- If we are able to increase the early alert student success rate by a total of 10% per semester that is an increase in SSI of instruction of $6,620.00 for students taking an average of 6 credit hours per semester. This does not include the increase in success points for students who achieve a certificate or degree.

- The ROI for the initial

Slide 14

### Evaluation

- The evaluation of

Slide 15

Questions?

This is an investment in furthering at-risk students and increasing student success!

**A Correlational Study of the Early Alert Process Success Variables at**

**XYZ County Community College**

**Introduction**

A research project was completed as the capstone of my Walden University doctoral program during the spring semester of 2016. The study was to explore potential relationships various student data have on student success within the context of a community college early alert. As a requirement of the doctoral study a white paper emerged as an effective way of communicating the results of the study with the institution and other interested stakeholders.

**The Problem**

No question remains that increased student success in higher education is a key subject at the national, state, and local levels (Martin, Galentino, & Townsend, 2014). XYZ Community College is interested in increasing the student success rates. Much raw institutional data exists within the institutional data system on student variables of early alert, but no actual study has been conducted. A gap exists in overall understanding of student variables and their potential relationship to early alert student success. Students want to be successful and providing improvements in existing processes that produce increased student successes are worthy investments to all stakeholders, especially processes that increase student successes in at-risk students (Tinto, 2012). It was clear to me that at XYZ Community College an increase in student success was needed, especially with the large increase in enrollment which increased the overall at-risk non-traditional student segment.

The findings from this doctoral study indicated that significant relationships exist within the early alert independent variables at XYZ Community College in the category of ethnicity. The background of this study is rooted in increasing student success via XYZ Community College's early alert system and student data. Currently 38% of the early alert students were successful with the existing passive system, the success rate should increase with some improvements in process based on the data from the study. By studying at-risk students that were identified in XYZ Community College's current early alert process, variables were examined to determine potential correlations with student success. The most efficient way of communication of the results with literature based recommendations is by producing a white paper.

**Overview of a White Paper**

A white paper is mainly utilized as a method of communication of research to convince an intended audience (White Paper Format, 2013). Elements that a white paper must include are: the documented core problem, challenges related to or additional challenges from the core problem, appropriate literature review/references, suggested answer or answers to the problem, and any additional related information needed to support or address the core problem (White Paper Format, 2013). The white paper will not only aid in the communication of all stakeholders at XYZ Community College, but to other institutions as well.

**Truncated Literature Review**

The theoretical framework foundation for this study is based on the principles of student success tools and theories from classic theorists. Bean's Student Attrition Model

(1985) and Tinto's Student Integration Model (1993) are often utilized for the basis of college student persistence models and have an influence on the early alert model as well. Astin (1993) believed that students who dropped out were just not serious about college or simply lacked the skill or ability to complete a degree. A lack of congruence either academically or socially was offered as a main reason students leave college before goal completion (Astin, 1993). Tinto's integration model reinforced the potential relationship with student retention and the importance and influence of the overall institutional systems and social pathways and techniques of the institution with the student with regard to retention (Tinto, 1993).

Both Bean's and Tinto's theories as discussed in the preceding paragraph relate to this study due to the fact the early alert system contains student core data variables quantifying background variables, and environmental variables. The number of at-risk students entering community college is growing and becoming a part of the early alert system. Few scholarly direct studies on early alerts are available (Fletcher, 2012). In the overall review of the literature for this potential project, the growing need for a more effective early alert system became clear. A need to better understand the early alert process and the specific variables that positively impact student success at XYZ Community College was also evident.

The utilization of computers and technology in studies is shown to engage and empower minority students (Shank & Cotten, 2014). When technology actually simplifies processes for users it can be viewed as very empowering (Tampke, 2013). Research has shown that institutional use of a mid-term increases students' likelihood of course success

and is yet another opportunity for faculty to clearly communicate learning expectations and goals (Tampke, 2013). Mid-Term is another opportunity for intrusive intervention by the institution for students who are academically at risk (Habley, Bloom, & Robbins, 2012). Help for students who need it is best given by those who have the knowledge and experience to do so. A competent student success coach can guide the student (Bettinger, & Baker, 2013). Research has shown that students who have utilized their student success coach regularly reported lower overall stress and less conflicts both at school and at home (Johnson, 2015).

**Project Description**

As demand for a college education increase more students are compelled to go college regardless of their overall academic readiness. This frequently causes a challenge for both the institution and student. At XYZ College typically only 38% of students who have been identified in a course as early alert students pass the course. There is a clear need for statistically based direction and tools to help increase at-risk student success. A study was completed on historical data of early alert student variables available in the college mainframe system: gender, age, financial status, race, campus, faculty status, and course times. The purpose of the study was to determine if there was a relationship between any of the student independent variables and student success of students in the early alert system. There was only one independent variable, the outcome of the course that the student was identified in as part of the early alert process and ultimately pass or fail. XYZ Community College has an early alert process in place that is executed by each instructor in the 4th week of each semester. Each student's progress in every class is

evaluated and all students with less than a "C" average are reported in the college mainframe system.

The report generates a letter to the student alerting them to their lack of appropriate progress. The letter also advises them to discuss their progress with their instructor and/or advisor. Based on the statistical analysis the only significant independent variable is race/ethnicity. The current process can be enhanced for greater student success based on additional literature review. The number of minority students receiving early alerts is disproportionately high compared to the overall minority college enrollment percentage. Scholarly research directed the study in several core areas for solutions to aid the core problem. The literature driven solutions to improve early alert student success are: student success coaches, mid- term grades, and technology enhancement.

**Recommendations**

The recommendations presented below are a direct product of the results from the study and research encompassing the topic. The recommendations are designed to aid institutional administrators, faculty, and staff to help more at-risk students be successful in college. The recommendations were developed from the exploration and discoveries made in the literature review.

**Recommendation 1.** Based on the findings of the research in section two that indicate ethnicity is a statistically significant student success variable, infusing additional technology to support the early alert process is a core method to achieve positive results. One of the best ways to improve an existing complex process is through the utilization of

new technology and given appropriate time and training both students and instructors are likely to accept its usage (Buabeng-Andoh, 2012). Computers have helped minimize the manual processing of data and communications since their inception (Lajoie, Derry, 2013). The application of technology for ease, usage, and overall efficiency in education is no exception (Thompson, 2013).

Technology utilization in educational processes must be metered with common sense but can be used to reach a much larger approach to at-risk intervention (Tampke, 2013). The utilization of computers and technology in studies is shown to engage and empower minority students (Shank & Cotten, 2014). When technology actually simplifies processes for users it can be viewed as very empowering (Tampke, 2013). Technology should be utilized when it actually enhances and simplifies for the intended audience and not just because it exists (Karp & Fletcher, 2014). Adding an element of technology for the clear benefit of students to simplify and document a process is considered good utilization. Technology should never be a complete replacement for personal interaction (Giebelhausen, Robinson, Sirianni, & Brady, 2014). The human factor supports the introduction of student success coaches. Accountability and efficiency is a driving force behind the use of technology in education with respect to simplification of use and understanding by all stakeholders (Lewis, Fretwell, Ryan, & Parham, 2013).

There are few software packages that will work in conjunction and add student retention value to the existing college's Banner mainframe system. The software package that has the most potential for this application is called Starfish Retention Solutions. The Starfish software is an additional complementary piece of technology that contains an

automated student tracking system, early alert, online appointment scheduling, and assessment system. Starfish CONNECT is a module within the software that facilitates significant interaction of students, faculty, advisors, and academic support staff. The Starfish software allows students and advisors to track their progress towards academic goal completion (STARFish Solutions, www.STARFish.com). The system helps institutions identify at-risk students in real time, based on their daily course work performance along with faculty concerns and also connects the students to the resources designed to help them be successful (STARFish Solutions, www.STARFish.com). Faculty engagement is key to the implementation of any improved technology solution (Ramano & Connell, 2015). Clear communication regarding the use of new technology implementation and its benefits is extremely important so students will not form a negative opinion at first contact and prior to its utilization (Asby, 2015).

**Recommendation 2.** The use of mid-terms is another tool by an institution to officially inform students of their progress at the half-way point of the class. The goal of the mid-term is to help students take needed steps to increase their likelihood of course success and is yet another opportunity for faculty to clearly communicate learning expectations and goals (Tampke, 2013). The mid-term is also another snapshot look given to all students, not just students with less than acceptable academic progress. Communicating a student's progress or lack of progress is an important aspect for behavior reinforcement or a needed change in behavior (Tinto Interview, 2015). The mid-term should be used as a tool to improve and expand an existing early alert program.

The relationship of student procrastination combined with a denial of facts regarding their performance in a class is directly correlated with a negative student academic outcome (Kim & Seo, 2015). Many students do not feel that their performance early in a course semester will be reflective of their overall performance, but the mid-term is a hard piece of evidence for them to ignore (Jensen, & Barron, 2014). The mid-term in combination with the existing early alert is reinforcement and measurement of their performance. Mid-Term is another opportunity for intrusive intervention by the institution for students who are academically at risk (Habley, Bloom, & Robbins, 2012). The mid-term is another opportunity for the institution to measure student success and notify the student and a success coach at the halfway point of the course. At the half way point this is a final critical juncture for the students to improve their grade or behavior around to successfully pass the course (Tampke, 2013).

A poor midterm grade can be an institutional trigger for a last chance student intervention opportunity track for a mandatory mini course in student core study skills within a course (Cathey, Visio, Whisenhunt, Hudson, & Shoptaugh, 2016). At Lorain Community College they have positive data that mid-term grades combined with multiple disbursements in financial aid equals gains in student success (Sutton, 2015). Instructors have often commented that the early alert took place too early in the semester for accuracy, but the mid-term timing cannot be disputed and typically reinforces the early alert results (Moore-Harrison, McEachnie, Cassidy, & Taylor, 2015).

**Recommendation 3.** Student success coaches to help and guide early alert students. The definition of student success coach is an experienced and knowledgeable

individual who can help motivate and navigate a student through their educational journey to successful completion (Horner, Kincaid, Sugai, Lewis, Eber, Barrett, & Algozzine, 2014). Bettinger & Baker (2013) believe the reason some minority and economically disadvantaged students do not persist in college is directly related to the students not having access to core examples and basic information regarding how to be successful and/or not properly executing necessary academic or economic actions because they have no role model to follow. A competent student success coach can guide the student (Bettinger, & Baker, 2013). Students who have utilized their student success coach regularly reported lower overall stress and less conflicts both at school and at home (Johnson, 2015). Students who are assigned a success coach are required to meet with them weekly during the semester. A coach can help students make informed choices up front on a program of study which greatly can impact completion at community colleges which typically graduate only 4 out of 10 students (Scott-Clayton, 2012).

The coach has regular contact with their students' faculty to check on course progress and attendance. When a student misses class or their weekly success coach appointment, the success coach proactively reaches out to the student to find out their status. The coach's intrusiveness is necessary to find out the students' challenges and help them overcome any difficulties or barriers to their success (Tinto, 2012). The student success coach is educated in the full complement of social services offered ranging from professional counseling to food banks available to the student. Often the student forms an emotional bond with the success coach. The success coach is especially helpful with at-risk college students who have no role model with experience in college or successful life

habits (Sweat, Jones, Han, & Wolfgram, 2013). Data from multiple studies with students working directly with success coaches have shown improvements in academics in several areas: semester to semester student retention, persistence to graduation, and overall academic success (Allen& Lester, 2012).

**Costs of Implementation**

Student success coaches $195,000.00 total for three student success coaches including benefits. Starfish software purchase and implementation is $46,000.00 with a student band width of 8,001 to 15,000 students per year. Starfish software has no annual maintenance cost per year (P. Trumpower, personal communication, June 6, 2016). The mid-term implementation has no costs associated with its start up because the current college mainframe system is capable of the function and just needs enabled.

Some of the existing supports within the institution are a technology savvy faculty base. Being a former technical college helps most of our faculty embrace new technology. XYZ Community College's open minded student services administrator. The institution has also kept up with IT hardware investments for a great base that supports upgrades. These upgrades include the Sungard/Banner mainframe system that already has mid-term grade capability.

Areas that will potentially will have barriers are the current advisors who may see the student success coaches as threats to them. There are also pockets of technology and process change resistance by faculty in some areas that have not needed to keep up with changes in technology on a regular basis. Some administrators are resistant to changes if they did not initiate the change. Culture change for faculty, students, and staff is always a

difficult but not insurmountable obstacle (Stensaker, Välimaa, & Sarrico, 2012). Cost will be a barrier that will be brought forward as well.

Suggestions for overcoming many of the barriers and resistance revolve around clear early communication and buy in from all stakeholders. Student success focused grants can be pursued to cover the costs of Starfish Retention Solutions and student success coaches from entities like the Bill and Melinda Gates Foundation who support student success initiatives (www.gatesfoundation.org/What-We-Do/US-Program/Postsecondary-Success, 2014).

Implementation and Timeline The timeline for hiring the student success coaches is to have them in place by the start of spring semester 2017. The timeline for purchasing and implementing Starfish is the start of summer semester 2017. This will allow for proper system integration with the existing college mainframe system as well as the early alert system. The timeline for implementing a mid-term grading process is a spring 2017 start. The quick turnaround time is because the current Banner college mainframe system already has the mid-term feature available and ready for use.

Roles and Responsibilities The core role and responsibility for the overall communication, faculty and student buy in, software purchase and implementation of Starfish Retention Solutions, funding and hiring of student success coaches, and implementation of mid-term grading rests with the administration. The role of the faculty, student services personnel, and success coach is to help support and reinforce the administration's early alert student success improvement efforts as well as assisting in the front line communication and utilization encouragement to students. The student's

responsibility is to utilize and respond to the additional software, student success coaches, and mid-term communication.

**Project Evaluation Plan** The project will be a goal based evaluation model. The goal of the project is to increase the early alert student success rate. The benchmark for this goal will utilize the current early alert student success rate to measure progress the first year. A goal based evaluation is an appropriate evaluation because it is a method used to determine the actual outcome of a project compared to a goal or benchmark (Kueng & Kawalek, 1997). A realistic first year goal is 5% over the previous year.

The stakeholders in this project are: the institution as a whole, students, faculty, and staff. The community as a whole will also benefit from more students who are successful in their academic goals by producing a more skilled workforce. Individuals who have skills and credentials have greater potential to earn more throughout their lifetime. More earnings equate to a higher standard of living and tax base for the overall community.

Conclusion The importance of each student to have the ability to achieve their educational goals is paramount for both the student as well as the community. Academic achievement is especially significant to at-risk students who are often minorities. This project is about better understanding data so that resources can be allocated effectively to more effectively positively influence early alert student's success rates. The research has pointed me in several core areas: utilization of additional technology, student success coaches, and mid-term grades. By the institution making some investments in the resource areas listed above more early alert students will pass courses they would not

have before. The student's success has the ability to be intergenerational and could be a catalyst for the next generation to go to college.