EXAMINATION OF THE KEY CAREERS PROGRAM'S EFFECTIVENESS ON

INCREASING ONE-YEAR RETENTION AND FOUR-YEAR GRADUATION RATES AT

BALL STATE UNIVERSITY

A THESIS

SUBMITTED TO THE GRADUATE SCHOOL

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE

MASTER OF ARTS

IN STUDENT AFFAIRS ADMINISTRATION IN HIGHER EDUCATION

BY

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BALL STATE UNIVERSITY

MUNCIE, INDIANA

JULY 2016

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MUNCIE, INDIANA

JULY 2016

ABSTRACT

THESIS TITLE: Examination of the KEY Careers Program's Effectiveness on Increasing One-Year Retention and Four-Year Graduation Rates at Ball State University

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DEGREE: Master of Arts in Student Affairs Administration in Higher Education

COLLEGE: Teachers College

DATE: July, 2016

PAGES: 110

In higher education, there is a demand for institutions to raise both their one-year retention and four-year graduation rates, which can be measures of student and institutional success. The Indiana Commission for Higher Education established in 2012 that the state of Indiana as a whole had a goal of increasing four-year graduation rates to 50% by the year 2018. Career interventions are programming tools that can be utilized in the university setting to potentially improve both one-year retention and four-year graduation rates. Creating opportunities for student's to explore their vocational identity, such as through Holland's (1997) Theory of Occupational Themes, is one component that increases a student's likelihood of being integrated within an institution (Tinto, 1975). With resources becoming scarce within higher education, it is necessary to evaluate the effectiveness of programming to determine if the funding is being properly allocated. The KEY (Knowledge + Experience + You) Careers program at Ball State University (BSU) was designed as a campus-wide career intervention tool to improve one-year retention and four-year graduation rates.

The purpose of this study was to investigate the effectiveness of KEY Careers, a career intervention program, as measured by one-year retention and four-year graduation rates for

students who engaged with the program at BSU (a mid-sized, research, residential institution) and to determine whether initial My Vocational Situation (MVS) scores and engagement with the KEY Careers program were predictors of one-year retention and four-year graduation rates. The sample utilized in this study to understand the program's impact on one-year retention rates consisted of 14,099 Ball State matriculates from the 2011, 2012, 2013, and 2014 freshman fall cohorts. The sample of students for data analysis of four-year graduation rates included data from 3,781 matriculates from the 2011 fall cohort.

The average rate of retention for students who participated in KEY Careers was 86.3% compared to the non-participant retention rate, which was 77.5%. The program was found to be statistically significant in regards to increasing one-year retention rates for the entire sample of students, including both males and females as well as White and non-White students. Four-year graduation rates of KEY Careers participants were 58.4% compared to the 43.4% four-year graduation rates of non-participants. Data analysis revealed KEY Careers was statistically significant in regards to increasing four-year graduation rates for the total population of students regardless of gender or race.

High school GPA and KEY Careers involvement were identified as statistically significant predictors of one-year retention and four-year graduation. The predictive model of one-year retention had an 80.2% accuracy and the model predicting four-year graduation had a 65.5% accuracy. Recommendations for practice and future research were included in the final chapter.

ACKNOWLEDGMENTS

Writing a thesis in less than a year was definitely a team effort. Countless thanks go to my friends and family who have been with me during the process. Especially, I need to thank two women who have been highly influential in my life, which is my mother LeeAnn and grandmother Marietta. Thank you for always modeling an example of how to be a strong, ambitious, and kind-hearted person. I appreciate you both challenging me to do more than what I think I can, including pursuing a graduate degree and thesis in a year.

I want to acknowledge four supportive individuals. Eilis, thank you for being an understanding supervisor and being just as excited as I am about completing this endeavor. Nathan, you have been such a reliable partner and friend to me while I was writing this paper. Thank you for always suggesting Culvers after a long day and for your unwavering support. Stephanie, thank you for always being my cheerleader regardless of what I am doing. I am fortunate to have had you as a friend throughout all these years. Finally, Tatum you have been a wonderful friend and sister to me since the minute you were born, you make me a better person.

My committee was comprised of members who helped me take my research to the next level and who made me a better scholar. Dr. Latz, thank you for always being supportive and such an understanding educator. I have learned so much from being in your presence. Dr. Knight, I do not know how chapter four would have happened were it not for your help. I am honored to have worked with someone with your expertise and intelligence. I thank you both!

Most importantly, I need to thank Dr. Wessel for being an excellent advisor, professor, and phenomenal teacher.   I cannot picture graduate school or writing this thesis without his guidance. Thank you for always helping me on my road trip to writing this document.

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CHAPTER ONE: INTRODUCTION

Chapter one is an introduction to the study, which examined how effective the KEY (Knowledge + Experience + You) Careers program has been at Ball State University (BSU) in regards to impacting one-year retention and four-year graduation rates. This chapter provides information about the purpose of the study, proposed research questions, hypotheses, the setting of the study, significance of the study, definitions of terms, and an overview of how the study was organized.

There is an increasing trend in higher education of measuring an institution's success based on one-year retention and four-year graduation rates. Four-year graduation rates are deemed as one reliable statistic that summarizes the overall health of a higher education institution (Sullivan, 2010). One-year retention rates were also deemed an indicator of an institution's health because it is a statistic, which can be observed and measured (Cuseo, 2003). Gauging student success proves to be difficult to measure because learning outcomes tend to be subjective and ambiguous; however, one-year retention and four-year graduation rates are a quantifiable outcome utilized to measure student success (Sanders & Burton, 1996).

The cost of tuition at post-secondary institutions continues to rapidly climb; between the years 1995 to 2005, tuition increased by 21% in private higher education institutions and 30% in public institutions (Raikes, Berling, & Davis, 2012). The recession the United States experienced in 2008 led to further substantial tuition raises at both private and public institutions (Altbach, Berdahl, & Gumport, 2011). Students who graduate from college are more likely to secure jobs and less likely to default on college loans than those who dropped-out (Cuseo, 2003). Thus, from a financial standpoint it is imperative to have more students graduate within four-years and to focus on retention, especially when resource allocation can potentially impact these

rates (Hamrick, Schuh, & Shelley, 2004). Students need to be able to make well-informed choices to graduate in a timely manner, and universities are charged with implementing initiatives to increase one-year retention and four-year graduation rates.

The National Center for Education Statistics (2013) determined 36% of all first-time enrollers who began college in 2004 did not complete a degree or certificate within six years. Blumenstyk (2015) described one of the main issues America faces in regards to higher education is that four-year graduation rates are too low. As of 2015, only 60% of all students completed their respective four-year degrees within a six-year period. Attrition rates have also been a consistent critical issue within higher education over the past several decades (Grayson & Grayson, 2003; Parkin & Baldin, 2009; Pascarella, 1982; Tinto, 1993), and continue to cause issues for higher education professionals. Thus, across the United States there has been a call to action to focus on raising retention and four-year graduation rates, especially as resources diminish in higher education.

In 2012, the Indiana Commission for Higher Education published a report indicating one of the state's goals was to increase the percentage of students completing their bachelor's degrees within four years. At the time of publication, the report read the four-year graduation rate for students at four-year Indiana universities was 28%. This statistic encouraged higher education professionals across the state to find effective solutions to improve degree completion for students in Indiana.

The Indiana Commission for Higher Education (2015) reported approximately three out of ten students enrolled at four-year institutions in Indiana graduate within four years. The report also stated less than 65% of all students were able to graduate within six years from four-year institutions, which is inclusive of students who had dropped out of the university. The

Commission stated the importance of increasing the four-year graduation rates within the report, and although it is a complex issue, it is the responsibility of every university to strive towards having students graduate in a timely manner. Within the report, it was explicitly stated as students need more time to complete their degree, the more likely they are to take out additional loans. The more money a student is indebted, the less likely they are to complete their degree. Thus, it was of utmost importance for higher education professionals in Indiana to collaborate to create an effective strategic plan to increase retention and four-year graduation rates.

One reason college students may not graduate within four years is because of the inability to commit to a decision about what their vocational goals are or what they want to pursue as a major (Cuseo, 2005). College students may need assistance with navigating all of the resources and opportunities available, which is why career interventions can be an effective method for helping students persist within a university and graduate in a timely manner (Damminger, Potter, & Pritchard, 2009). Helping students gain career clarity and understand their vocational identity could potentially impact one-year retention and four-year graduation rates.

Purpose of the Study

The purpose of this study was to investigate the effectiveness of KEY (Knowledge + Experiences + You) Careers, a career intervention program, as measured by one-year retention and four-year graduation rates for students who engaged with the program at BSU and to determine whether initial MVS scores and engagement with the KEY Careers program were predictors of one-year retention and four-year graduation rates.

Research Questions

The following research questions were asked in this study:

1. Are there statistically significant differences in one-year retention rates for student demographic populations (i.e., race, gender, BSU college, and initial My Vocational Situation [MVS] score) who engaged in the KEY Careers program at Ball State University compared to students who did not participate with the program for the freshman cohorts of fall 2011, 2012, 2013, and 2014?

2. Are there statistically significant differences in four-year graduation rates for student demographic populations (i.e., race, gender, BSU college, and initial MVS score) who engaged in the KEY Careers program at BSU compared to students who did not participate with the program for the freshman cohort of fall 2011?

3. For students at BSU, can initial MVS scores, high school GPA, and engagement with the KEY Careers program be used to predict if a matriculate will be retained after the first-year and graduate within four years?

Hypotheses

The following hypotheses were tested in this study:

1. One-year retention rates will be significantly higher for the various populations of students who engaged with the KEY Careers program in comparison to non-participants.

2. Four-year graduation rates will be significantly higher for the various populations of students who engaged with the KEY Careers program in comparison to non-participants.

3. Initial MVS scores, high school GPA, and engagement with the KEY Careers program can be used to predict if a matriculate will be retained after their first year and graduate within four years at BSU.

Setting

This study utilized data from BSU, which is located in Muncie, Indiana. BSU, which is state-assisted, was founded in 1918 and is accredited by the Higher Learning Commission. The institution offers 178 bachelor's degrees, 99 master's programs, and 16 doctoral degrees, which are housed among seven academic colleges. The study utilized the data of the fall 2011, 2012, 2013, and 2014 freshmen cohorts. In the fall of 2011, there were 17,627 undergraduate students and 4,520 graduate students enrolled for a total of 22,147 students attending the division one research-ranked university (Ball State University, 2015a). There were 3,844 first-time freshmen in the fall 2011 semester student population, 3,556 first-time freshmen in the fall of 2012, 3,616 freshmen in the fall of 2013, and 3,597 first-time freshmen in the 2014 fall cohort.

The Career Center is an administrative office at BSU, which is located in the division of student affairs (Ball State University, 2015b). The Career Center connects students to potential employers, provides on-campus employment opportunities, and has full-time career coaches who hold individual appointments with students and oversee student career-related programming. One of the goals of the Career Center is to empower students to feel confident about their vocational identity and career direction. One initiative, the KEY Careers program, is designed to allow freshman and sophomore students to gain clarity in their career goals and provide the necessary services to assist the student as needed (Ball State University, 2015c; Lucas, 2011).

The KEY Careers program was designed by the BSU Career and Counseling Centers as a response to the institution's initiative to increase four-year graduation rates (Lucas, 2011). The program was designed with the intent of engaging first year students in the career exploration process and assisting second year students who failed to gain career-goal clarity during their freshman year at the university. The goal of the program is to assist students in becoming

engaged in a process that allows them to select a major with intentional thought and purpose as well as to gain clarity in their career goals and vocational identity. The intent of the KEY Careers initiative was to impact the BSU one-year retention and four-year graduation rates among participants.

The KEY Careers program utilizes the My Vocational Situation (MVS) to serve as a benchmark for assessing student's vocational identity and career goal clarity (Lucas, 2011). Within the KEY Careers program, the MVS is utilized to decipher the status of vocational identity of each respective student, and programming is tailored accordingly to meet their needs in both the first year and into the second year of their collegiate experience if necessary. KEY Careers exposes students to career exploration opportunities, resources available on campus, and workshops to increase the level of clarity they have in regards to their career goals and vocational identity.

The KEY Careers program was proposed in the spring semester of 2011, and the first cohort of students to participate in the program was the incoming freshman class of fall 2011. The program has seen several modifications over the past five years, however, it has consistently been a means for a career intervention for all freshman and sophomore students. The over-arching goal of the KEY Careers program during the initial year of the program in 2011 was to identify freshman students who were at-risk as noted by low scores of vocational identity clarity based on the results of the MVS to help them identify their vocational goals and therefore improve their collegiate experience (Peck, 2012).

As of 2013, the KEY Careers program is structured to be a potentially five-step program depending on the level of career clarity of a student (Ball State University Career Center, 2013). All matriculates who enroll at BSU complete steps one through four of the program, with the

fifth stage being for students who need extra resources to achieve career clarity. The first step is the implementation of the MVS survey, which is distributed to all incoming freshman students through their BSU email address. The survey is able to identify the career clarity of an individual. The majority of students complete the MVS assessment. These data are then utilized to separate the incoming freshman into those who have low, average, and high career clarity to effectively provide them with appropriate resources.

The second step of KEY Careers is an online experience facilitated by the Career Center that is completed through six modules, which are available through the online program Blackboard (Ball State University Career Center, 2013). The BSU Career Center defines students being involved with the KEY Careers program is they complete at least two out of the six online modules. All BSU students are encouraged to complete the modules, which include different opportunities such as prompts for identifying possible career paths, exploring potential interests, understanding their personality type, and other career assessments. Students who score within the low and average range of career clarity are encouraged to take the I Start Strong Interest Inventory, which uses Holland's (1973) theory of career development to help students engage in career exploration. Incoming students who score within the high range of career clarity are encouraged to complete TypeFocus, which is a personality assessment.

The third stage of the KEY Careers program is varied programming that is personalized and directly engages students in the career exploration process (Ball State University Career Center, 2013). Opportunities include: online assessments, KEY Careers Families, on-campus events, and meeting with Career Center staff for coaching opportunities. KEY Careers Families are groups of 30-40 targeted students who participated in summer bridge programming. The small groups are meant to be a support network as students engage in career exploration and an

alternative method of support. On-campus events include pizza parties, mocktail hours, employer site visits, and other opportunities for students to engage in career exploration. Career coaching is available for students who want to have one-on-one conversations with a professional who can provide further career exploration activities and resources.

The fourth step of the KEY Careers program is the administration of a second round of MVS surveys (Ball State University Career Center, 2013). The surveys are distributed at the end of the fall semester to all first year students through the NACElink system. The data are then used to assess how a student's career clarity may have changed over the course of the semester. For students who still had low scores on the second MVS survey or who have not declared a major by their sophomore year are recommended to step five of the KEY Careers program, which is called KEY Careers 2.0. The fifth step initiates at the beginning of sophomore year. These students are then assigned a career coach in the Career Center who works extensively with the student to identify career interests, skills, and abilities. Students are also introduced to the Intern-Ready program to help them gain the skills needed to pursue an internship once they attain career clarity.

During the initial year of the KEY Careers program that was implemented beginning with the freshman cohort of the fall of 2011, incoming students were asked to complete the MVS instrument during the summer orientation sessions, which were held on campus (Peck, 2012). A total of 3,659 students completed the initial MVS instrument during orientation. Students were then tasked with completing additional online activities prior to arriving on campus for the fall semester of 2011 such as career exploration tools and personality assessments. Throughout the fall semester, all students who had completed the MVS instrument received invitations to fifteen different events and seminars on campus, which were designed to further engage students in

activities that were intended to improve individual career clarity and increase vocational identity scores. The event consisted of students creating an action plan for their career development and learning about the potential services on campuses that were available to assist them in the process. For both the fall 2011 and fall 2012 freshman cohorts, involvement in the KEY Careers program was defined as attending one of these workshops.

Significance of the Study

In higher education, there is a demand for institutions to raise both their one-year retention and four-year graduation rates. Career interventions are tools that can be utilized in the university setting to improve both one-year retention and four-year graduation rates. However, there is a lack of research examining the impact of career interventions on one-year retention and graduation rates for undergraduate students in a university setting. This study focuses on analyzing the quantitative impact career interventions had on one-year retention and four-year graduation rates at BSU through the Career Center's KEY Careers program. With resources becoming scarce within higher education, it is necessary to evaluate the effectiveness of programming to determine if the funding is positively impacting the institution.

Results from this study will provide evidence to determine whether or not career interventions are an effective use of institutional resources by how they are able to impact one-year retention and four-year graduation rates. Likewise, results may be able to determine the importance of vocational identity and career goal clarity for undergraduate students and how it can impact their ability to persist and graduate within four years. This study may allow the Career Center to have evidence supporting the validity of encouraging students to participate in career interventions during their first and second years of higher education to increase their chances of returning to the university and graduating within four years.

Definition of Terms

The following terms are defined for this study.

BSU College – The academic college housing the student's academic major at BSU.

Career Center – The administrative office at BSU, which houses all career development activities. Also referred to as the Career Center.

Career Coach – A professional staff member of BSU's Career Center who works individually with students to assist them with their career development needs.

Career Intervention – An action taken in career counseling to help individuals navigate through potential negative career thoughts to gain vocational clarity and confidence (Sampson, Peterson, Reardon, & Lenz, 2000).

Four-Year Graduation – Successful completion of a bachelor's degree program before the fifth year begins; defined as beginning in the Fall of 2011 and being awarded a degree before Fall 2015.

Initial My Vocational Situation (MVS) Score – The score a matriculate received on the My Vocational Situation (MVS) instrument prior to beginning their first semester at BSU.

KEY (Knowledge + Experience + You) Careers Program – A career intervention program utilized by BSU for freshman and sophomore students (Ball State University, 2015c).

My Vocational Situation – A brief instrument utilized to survey students to assess the clarity of their vocational identity and determine if they are having dysfunctional career thoughts (Lucas, Gysbers, Buescher, & Heppner, 1988).

One-Year Retention – A student returning to the same institution the following fall semester to continue pursuing their degree.

Vocational Clarity – An individual having a comprehensive understanding of their career development path and career goals (London, 1983).

Vocational Identity – An individual's identity pertaining to crystallizing their preferences for work environment and understanding of their abilities, skills, and interests (Savickas, 1985).

Organization of the Study

This study is organized into five chapters. This chapter serves as the introduction to the study and provides an explanation for the significance of the research. A literature review is provided in chapter two, which focuses on student persistence and career interventions in a university setting for undergraduate students. Chapter three describes the methodology utilized in the study. Within chapter four, the findings of the study are provided. The final chapter contains a discussion of the results, suggestions for career interventions, limitations of the study, and recommendations for future research. References and an appendix can be found after chapter five.

CHAPTER TWO: LITERATURE REVIEW

Summary of the Study

This study focused on the results of early career interventions for college students in relation to one-year retention and four-year graduation rates at Ball State University (BSU). With an increasing demand for raising one-year retention and four-year graduation rates within higher education, the KEY (Knowledge + Experience + You) Careers program was examined to determine the impact of a career intervention program on one-year retention four-year graduation rates for BSU graduates who engaged with the program in comparison to those who did not participate. The results of the freshmen college students who participated in the career intervention in the fall of 2011, 2012, 2013, and 2014 are described in chapter five. Chapter two reviews the literature.

For purposes of understanding the KEY Careers program, a career intervention initiative, it was necessary to describe the theory behind what has caused an undergraduate student to successfully integrate into their respective campus and gain clarity in their vocational identity. Tinto's (1975) Student Integration Model and Holland's (1973; 1997) theory of Occupational Themes were examined to gain insight to the intention behind career interventions. These theories provide a framework to understand why career interventions are important on college campuses, and how students are able to develop their vocational identities during their collegiate experience. Information about career services on college campuses, career interventions, and other relevant literature pertaining to career-development for first year students is provided in this chapter. This literature review focused on providing the context for the benefit and purpose behind career interventions on college campuses, such as the KEY Careers program.

Student Development Theory in Higher Education

Higher education is an opportunity to expose students to a multitude of ideas, knowledge, and experiences that have a major impact on their holistic development. Utilizing theory has been essential for professionals in higher education, because it serves as a framework which provides insight as to how to solve student issues, design services, create policies, and pursue action that will result in students becoming increasingly independent and developed (Evans, Forney, Guido, Patton, & Renn, 2010). Theory can be used to make predictions to meet both student and institutional needs. Students enter college in various stages of development; utilizing theory is important to provide appropriate accommodations to help them successfully navigate their collegiate experience, and allows for them to graduate as holistically developed individuals.

Tinto's Student Integration Model

In regards to student persistence, Tinto's theory has been one of the most established in terms of studying student retention (Metz, 2002). Tinto (1987) theorized the Student Integration Model, which premised that for students to remain at an institution they must feel integrated into the community both socially and academically (Cuseo, 2003; Talbert 2012). Factors Tinto (1975) deemed to be critical in regards to student persistence include: (a) a student's family and background prior to entering higher education; (b) goals and aspirations a student has for their college education; (c) the experience they have within the institution; (d) how integrated they become socially and academically; (e) how committed they are to graduating; and (f) the actual outcome of the student (e.g., dropout, transfer, graduate).

Tinto's theory suggested there are three steps students take when they are in the process of becoming integrated within a community: separation, transition, and incorporation (Elkins, Braxton, & James, 2000; Milem & Berger, 1997). An institution has a large role on impacting

the student's ability to transition to academia; various initiatives, services, and professionals influenced student persistence (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Tinto, 2006). Belonging on a college campus is important for students to feel integrated into their environment to have the greatest chance of being successful and completing their degree (Chambliss & Takacs, 2014). There is evidence that supports the importance of students having clearly identified career goals and clarity on their vocational identity because it also impacts a student's persistence (Astin, 1975; Peterson, 1993; Sprandel, 1986). Allowing students to identify their vocational goals early-on in their college experience allows for them to find opportunities to feel integrated into the academic community and to feel the have a purpose in their academic pursuits. When a student is committed to their career goals, they are more likely to commit to their academics and to persist in the higher education setting (Chambliss & Takacs, 2014).

Holland's Theory of Occupational Themes

One of the main psychosocial components of development students need to engage in during their undergraduate career is gaining an understanding of their vocational identity and goals (Osborn, Howard, & Leierer, 2007). Establishing a vocational identity is an essential task that an individual must achieve to avoid having career-indecision and dysfunctional career-thoughts (Yanchak, Lease, & Strauser, 2005). Within the study of career development and counseling, one of the most widely accepted and researched theories is Holland's (1973) theory of Occupational Themes (Nauta, 2010; Ohler & Levinson, 2012).

Holland's theory suggested there are six persisting personality types that exist among people (Artistic, Conventional, Entrepreneur, Investigative, Realistic, and Social), and there are certain careers associated with the various combinations of personalities (Holland, 1973, 1997; Ohler & Levinson, 2012). The traditional use of Holland's theory entails assessing an individual

and determining their respective top three personality types and then utilizing those to find the optimal career choice that will allow the person to be the most successful (Cowger, Chauvin, & Miller, 2009). Essentially, Holland's theory is utilized as a matching system for individuals who are exploring their vocational identity.

Holland's theory of vocational personality was first introduced in 1959, and has been thoroughly researched and modified throughout the years by career development professionals (Brown & Lent, 2005). The well-respected theory evolved from being a list of six personality types as time progressed to incorporate the importance of several other factors including how consistent an individual's personality was, how the personality types were related to one another, and how good of a fit a particular job environment was for an individual (Nauta, 2010). In 1973, Holland revealed the hexagonal occupational themes model, which has been the iconic image used among career counseling professionals ever-since.

According to Ohler and Levinson (2012), Holland's theory made four general assumptions in regards to occupational themes, environments, and individuals:

1. People could be categorized into three of six categories.
2. For each personality type there was a correlated specific work environment.
3. It was assumed that people would actively seek environments in correspondence to their personality type.
4. An individual's personality and work environment interacted with one another and impacted job satisfaction.

Through the establishment of the four assumptions of the theory, diagnostic indicators were able to be determined to systematically assist individuals with discovery of their vocational identity type.

Holland established four theoretical diagnostic indicators to utilize when assessing an individual and their vocational identity (Brown & Lent, 2005). Holland's theory suggested people have the greatest amount of career satisfaction when their skills and abilities are utilized within their work environment, which is defined as congruence (Nauta, 2010; Ohler & Levinson, 2012). Congruence is identified as the first diagnostic indicator (Brown & Lent, 2005). The second indicator is termed consistency and assesses how "consistent and harmonious" (p. 28) an individual's personality profile is and predicts how often they may encounter inner-turmoil in regards to career decision making. Differentiation is the third diagnostic indicator that identifies how strong a certain personality type is for an individual. The final indicator, identity, is utilized to assess how clearly an individual is able to define a "picture of one's goals, interests, and talents" (Holland, 1997, p. 5). One of the tools utilized to measure identity is through an assessment tool called My Vocational Situation (Brown & Lent, 2005).

My Vocational Situation. Career counselors frequently utilize Holland's theory to assist individuals with identify potential occupations, typically through vocational assessment tools (Gottfredson & Johnstun, 2009). One of these tools includes an assessment called My Vocational Situation (MVS) that briefly screens students and is able to assess an individual's career clarity, decision making abilities, and career indecisiveness based upon Holland's theory (Lucas et al., 1988; Tinsley & Bowman, 1990). Tools such as the MVS are frequently used in career interventions due to being a brief and easily accessible diagnostic tool (Nicholas & Pretorius, 1994).

According to Lucas et al. (1988), the MVS is composed of three sections: an 18 question survey that gauges Vocational-Identity, a four-question section used to provide resources to participants, and a four-item scale that indicates potential barriers participants face in regards to

achieving their career goals. Together, these assessments depict the client's vocational identity and give career counselors a foundation to gain insight into how they may approach counseling the individual (Nauta, 2010). Holistically, Holland's theory provides professionals with a framework to successfully approach a career intervention with an individual (Schaub, 2012).

Measurements of Higher Education Institutional Success

There are several methods in higher education of measuring institutional success, which can include but are not limited to: graduation rates, transfer rates, faculty productivity, and student satisfaction (Shin & Milton, 2004). One over-arching theme of higher education is the need to retain students and have students graduate in a timely manner. The main outcome of an institution is to have students successfully complete their degree, which is why retention and graduation rates are the most common indicators of institutional success (Seidman, 2012). Universities tend to use one-year retention and four-year graduation rates as a means of measuring institutional success and accountability because the data are objective and an easily quantifiable outcome (Sanders & Burton, 1996).

Additionally, higher education outcomes such as retention and graduation rates may also impact the type and amount of funding an institution receives, which is why universities strive to improve their rates (Shin & Milton, 2004). Throughout the history of higher education, a student failing to successfully complete their degree was deemed as their own shortcoming; however, the responsibility to oversee students persisting and completing their degree has shifted to the institution (Habley, Bloom, & Robbins, 2012). During the Obama administration, there was a call across the United States to focus on increasing the number of students who were completing college degrees (Kalsbeek, 2013).

Retention Rates

Retention is defined as students remaining enrolled at a singular institution from the point of when they have matriculated until they successfully complete their degree (Habley et al. 2012). Retention rates are used to measure the success of an institution of higher education because the ability to retain students directly relates to the college or university's enrollment stability, finances, and overall reputation of the university (Braxton, Hirschy, & McClendon, 2004). Retention rates are important to institutions because it is more cost effective to invest fewer resources to retain a student rather than to use more resources recruiting a brand-new student (Habley et al., 2012). Tinto (1975) stated a student needs to feel that they have socially integrated into a culture of a university or college if they are going to persist.

As of 2010, approximately one-third of all matriculates did not successfully return to the institution the following year (ACT, 2010). Literature suggested one-year retention rates are important to focus on, because students are more likely to remain at the institution for the remainder of their collegiate career if they persist from their first to their second year (DeNicco, Harrington, & Fogg, 2015). Institutional efforts and policies can have an impact on one-year retention rates, which is why assessing programmatic efforts is important for understanding how to most effectively help students persist. Fowler and Boylan (2010) concluded from their research that one-year retention rates can be increased by intervening with personal development issues, such as vocational identity.

Four-Year Graduation Rates

There has been a push in higher education across the United States to increase four-year graduation rates with the intent of making degrees more affordable for students (Mulvenon & Robinson, 2013). For prospective students, the four-year graduation rate of an institution is a

valuable statistic from a financial stand-point, which can impact enrollment numbers (Raikes et al., 2012). Stakeholders for public institutions who provide funding to the university such as state-level and national government are also interested in four-year graduation rates because it impacts how many resources they are allocating to higher education institutions through financial aid for students and institutional funding (Shin & Milton, 2004). Universities as a whole have not been meeting standards in regards to four-year graduation rates, which is why it is important for institutions to begin investigating how they can help students earn their degrees on-time and save financial resources (Sullivan, 2010).

High School GPA

High school grade point average (GPA) is a predictor of success in college (Chambliss & Takacs, 2014; Laskey & Hetzel, 2011; Sawyer, 2013). As a precollege characteristic, it has been found that there was a distinct correlation between one-year retention and high school GPA, with the higher the GPA the more likely a student was to return to the institution for their sophomore year (DeBerard, Spielmans, & Julka, 2004; Glass & Garrett, 1995). Regardless of race or gender, high school GPA has proven to be an effective indicator of student success in the collegiate setting (Astin, Korn, & Green, 1987; Hoffman & Lowitzki, 2005; Kim, 2002). High school GPA has been found to be the most prominent predictor of student retention and graduation regardless of the academic program a student pursues at an institution (Geiser & Santelices, 2007).

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Career Centers

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Over the past recent decades, the increasing reason why people have been enrolling in higher education programs was with the intent of securing a job upon graduation (Pryor, Hurtado, Saenz, Santos, & Korn, 2007). Thus, career centers on college campuses were

designed to assist students in their job search pursuits and to connect students to employers. Career centers have become increasingly important as higher education has evolved because of the wide array of available majors as well as the challenge that college students face with navigating a difficult economy (Schaub, 2012). Within career services in higher education, the most recent popular model consists of having a designated department on campus with professional staff who conduct one-on-one meetings with students to critique resumes, provide professional development opportunities, conduct mock interviews, and discuss career options (Grassgreen, 2013). Four ways career centers assist students with their career development include: career counseling, providing workshops related to career development skills, facilitating networking events with alumni, and communicating job and internship opportunities (Schaub, 2012). Career services and career centers are typically categorized within the division of student affairs because the primary focus of the service is geared towards student development.

Lopez (2014) stated career services on college campuses were charged to do more than just connect students with a job; rather, professionals working in career centers need to engage students in a process where they are discovering and internalizing their interests, personalities, and career goals. Reducing negative career thoughts and giving students the skills and confidence to make their own vocational decisions is a goal that career centers and student affairs professionals should incorporate on their respective campuses (Osborn et al., 2007). Professionals working in career centers on college campuses needed to have the primary goal of helping students overcome present obstacles for them to be prepared for post-collegiate success (Scott, Belke, & Barfield, 2011). As time progressed, career centers began to offer more services online for students to increase accessibility (Schaub, 2012). Another effort to increase accessibility of career center offices was a movement to a model that was more proactive in

reaching out to classrooms, student organizations, and specific populations of students who had career development needs (Rakes, 1994). Career centers also need to be assessing the needs and goals of the institution, and modifying their practices accordingly to accommodate institutional and student demands.

Career Intervention Programs

One of the most common reasons students enroll in higher education programs is to have the opportunity to enhance their career prospects upon graduation (Curran, 2012), which is why offering students guidance during their early collegiate careers has been deemed as important to helping them find success. Having programs that proactively assist students in engaging in their career development is seen as an effective method of persistence to graduation for institutions. Literature suggests undergraduate students have a tendency to make impetuous decisions in regards to choosing their academic major rather than take time to reflect and be indecisive, which is why career guidance is a developmental need on college campuses. (Cuseo, 2005).

Students who engaged in structured career development programming and courses were more likely to graduate within four years and also took fewer credit hours on average to graduate than their peers who did not engage in career planning curriculum (Osborn et al., 2007). College students are faced with many choices, and without the proper resources and guidance to explore their opportunities, many become discouraged and are more likely to not finish their undergraduate education in a timely manner (Damminger et al., 2009). The modern day college student is likely to have a significant amount of concerns pertaining to their vocational identity, which they may struggle with during their collegiate experience; that was why providing career interventions on college campuses is important (Johnson, Nichols, Buboltz, & Riedesel, 2002).

Institutions of higher education offer a variety of resources to students, such as courses, programming, and counselors.

Holland, Magoon, and Spokane (1981) argued that there were five essential components needed for successful career intervention:

1. The client gaining information on self and potential work environments.

2. The individual acquiring realistic expectations in regards to approaching their career goals.

3. Providing social support for the client through various forms (e.g., counseling, coaching, peers, or family).

4. Having opportunities for the individual to conceptualize future prospects and career possibilities.

5. Being able to effectively mobilize and navigate career exploration.

A successful career intervention addresses each of these components as described above. Peer-reviewed literature suggested successful career interventions in college settings varied from one-hour group counseling sessions to semester long classes and were successfully completed both through only online interactions and in-person (Brown & Lent, 2005). Career interventions are also completed through one-on-one counseling sessions as well as through the use of general systematic research-based modules.

An evaluation conducted by Folsom, Peterson, Reardon, and Mann (2002) revealed 81% of students who had participated in a career intervention course graduated from the institution compared to the 69% graduation rate for those students who had not participated in any form of career intervention programming. Students who participated in the career intervention were also

graduating an average of one semester earlier than those students who did not participate in the career intervention.

       Freshman career interventions. An investigation conducted by Damminger et al. (2009) evaluated the impact of a career development course on first year pre-business students. Data analysis determined 82.6% of the participants felt more confident about graduating from the institution where they began their studies. This data supports the idea of dedicating class hours to major and career exploration because it caused students to have higher degree completion rates and higher four-year graduation rates. Thus, the researchers concluded through data analysis that students who engage in a career development course may be more likely to graduate in a timely manner because they are given the opportunity to increase their knowledge of available careers and majors rather than poorly utilizing their time and money on a major they were not interested in pursuing.

       Rehfuss (2009) investigated how a traditional career development course impacted a group of undecided students in regards to gaining career goal clarity. Occupational narratives did change for the majority of students after the eight-week class was completed. Many students wrote about more specific career goals after completing the class and had specified majors or fields that they were interested in pursuing. Likewise, students had a greater ability to communicate what they value in a profession after completing the course, such as high achievement or recognition. A general theme of students self-perceived career outlook moved from a feeling of uncertainty to having an optimistic view on future career prospects. Results of the study concluded that the career intervention resulted in students gaining more self-confidence and excitement for their futures.

Sophomore career interventions. During the second year of college, students are most susceptible to entering moratorium because of being unable to identify their career interests or goals (Hunter et al., 2010). Research suggests a sophomore student's vocational identity and clarity of their career goals greatly impacts whether they persist in a higher education setting (Lewis, 2009). Students reported feeling less supported during their second year of college compared to their first year (Lee & Leonard, 2009; Vaughn & Parry, 2013); thus, it is critical to provide students resources they need to help them make progress in regards to developing their vocational identity. Sophomore students who are still selecting a college major specifically benefit from career interventions (Vaughn & Parry, 2013). Terkla, Armstrong, and Seifert (1999) argued that sophomore year is the ideal time to stage a career intervention because students have had two exploratory years and are at an academic point in their collegiate career where they need to declare a major.

Fretz and Leong (1982) administered a self-directed career intervention to second-year psychology students. The results of the study suggested there was a significant change in vocational identity scores, and that within a two-week period of time students gained clarity in their career goals through this brief and self-directed career intervention. Vaughn and Parry (2013) also investigated the impact a self-directed career intervention had on sophomore students. The assessment tool utilized a series of self-reflection writing questions to engage students in the process of identifying and crystallizing their career goals. The tool was deemed as successful in helping student further their self-exploration, and it was recommended to be utilized by institutions with large populations of sophomore students in need of a career intervention. Career counseling in a one-on-one setting also proves to be effective for sophomore career interventions (Hunter et al., 2010).

My Vocational Situation (MVS) as a career intervention tool. MVS was found to be an effective method for staging a career intervention for undergraduate students (Fuller, Blinne, & Johnston, 1994). The MVS assessment is utilized by career centers to assess the needs of students and to provide a more customized experience for individuals in relation to their vocational identity development. Research conducted by Buescher, Johnston, Lucas, and Hughey (1989) suggested MVS scores significantly increased after a brief career intervention that consisted of a session of career counseling and a tour of their respective institution's career center.

Fuller et al. (1994) evaluated the effectiveness of using the MVS to assess the needs of undecided college students. The method of the study was comprised of having matriculates complete the MVS the summer prior to beginning college. Based upon how a student scored on the assessment, they were provided specific resources and referrals for the fall semester. Students who scored low on the MVS were encouraged to engage in self-exploration and personality inventories while those who scored high on the MVS were encouraged to meet with a career counselor to engage in career planning. Evidence suggested students increased their MVS scores after engaging with the career center and that they were satisfied with the assistance they received. Evidence suggested that the utilization of the MVS tool is effective in regards to determining which students are in need of career development services based on being able to alter programming in accordance to a student's individual vocational identity status.

Summary

One-year retention and four-year graduation rates are utilized as indicators to assess the success of higher education institutions. In 2015, the Commission of Higher Education of Indiana explicitly stated the need for a statewide effort to improve one-year retention and four-

year graduation rates. Tinto (1987) established the theory of Student Departure and suggested

students need to feel integrated within their respective campus communities both socially and

academically. Establishing a vocational identity was associated with impacting a student's

decision to persist at a university or to depart, which impact one-year retention and four-year

graduation.

At BSU, a career intervention program called KEY Careers was developed as a response

to the nation-wide call to action with the intent of increasing one-year retention and four-year

graduation rates for students who participated in the program beginning in the fall of 2011. The

assessment used to assess a student's vocational identity for the KEY Careers program was the

MVS, which was created based off of Holland's (1973) theory of Occupational Themes.

CHAPTER THREE: METHODOLOGY

Design of the Study

The demand for an increase in one-year retention and four-year graduation rates in American higher education has led to a need to critically evaluate the effectiveness of programming efforts. Thus the impact of the KEY (Knowledge + Experience + You) Careers program, a career intervention, on one-year retention and four-year graduation rates was examined. A quantitative approach was utilized because data provided concrete evidence to most accurately evaluate the effectiveness of the KEY Careers program for various demographic samples of students including: race, gender, Ball State University (BSU) college, and initial My Vocational Situation (MVS) score.

Purpose of the Study

The purpose of this study was to investigate the effectiveness of KEY Careers, a career intervention program, as measured by one-year retention and four-year graduation rates for students who engaged with the program at BSU and to determine whether initial MVS scores and engagement with the KEY Careers program were predictors of one-year retention and four-year graduation rates.

Research Questions

The following research questions were asked in this study:

1. Are there statistically significant differences in one-year retention rates by student demographic populations (i.e., high school grade point average [GPA], race, gender, BSU college, and initial MVS score) who engaged in the KEY Careers program at BSU compared to students who did not participate with the program for the freshman cohorts of fall 2011, 2012, 2013, and 2014?

2. Are there statistically significant differences in four-year graduation rates by student demographic populations (i.e., high school GPA, race, gender, BSU college, and initial MVS score) who engaged in the KEY Careers program at Ball State University compared to students who did not participate with the program for the freshman cohort of fall 2011?

3. For students at Ball State University, can initial MVS scores, high school GPA, and engagement with the KEY Careers program be used to predict if a matriculate will be retained after the first-year and graduate within four years?

Hypotheses

The following hypotheses were tested in this study:

1. One-year retention rates will be significantly higher for the various populations of students who engaged with the KEY Careers program in comparison to non-participants.

2. Four-year graduation rates will be significantly higher for the various populations of students who engaged with the KEY Careers program in comparison to non-participants.

3. Initial MVS scores, high school GPA, and engagement with the KEY Careers program can be used to predict if a matriculate will be retained after their first year and graduate within four years at BSU.

Population and Sample

The freshman cohorts of fall 2011, 2012, 2013, and 2014 at BSU were utilized as the population for this study. The sample was the entire population of matriculates, because every student's data were available to utilize in the study. There were 3,844 first-time freshmen in the

fall 2011 semester student population, 3,556 first-time freshmen in the fall of 2012, 3,616 freshmen in the fall of 2013, and 3,597 first-time freshmen in the 2014 fall freshmen cohort. There were 1,088 first-time freshmen involved in the KEY Careers program in the fall 2011 semester student population, 1,334 first-time freshmen involved in KEY Careers in the fall of 2012, there were 356 freshmen participants in KEY Careers in the fall of 2013, and 1,557 first-time freshmen in the 2014 fall freshmen cohort engaged in KEY Careers.

The population data were used to examine the impact of the program on four-year graduation rates consisted of all incoming freshman in the fall of 2011, because four-year graduation rates were only available for the first cohort of KEY Careers participants. The four freshmen cohorts from fall 2011, 2012, 2013, and 2014 from Ball State University were utilized to examine the impact of the KEY Careers program on one-year retention rates.

Student demographics (i.e., high school GPA, race, gender, BSU college, and initial MVS score) were also used in this study to understand the impact of KEY Careers. For the racial demographic populations, students were classified dichotomously as "White" or "non-White" because populations of individual minority groups were too small to be statistically significant. Students were identified dichotomously as "male" or "female" for gender, and the population of non-identifying were omitted from this demographic because the group was not large enough for statistical accuracy. The BSU college demographic involved dividing populations into the seven different colleges. Students were divided into colleges with the intent of having grouping students with similar career paths because they would have a similar path and obstacles in regards to one-year persistence and four-year graduation. Information pertaining to high school grade point average (GPA) was taken from materials supplied by students during the admissions process. Initial MVS scores were provided by the BSU Career Center.

Research Approach

This study utilized a quantitative approach to examine the impact of a career intervention program on one-year retention and four-year graduation rates. Quantitative methods can be used to determine whether a set of conditions causes a significant change in the outcome of the data (Bailey, 2008). An analysis of covariance (ANCOVA) allows for certain extraneous variables to be controlled to minimize the error of the calculations in regards to understanding the variable in question (Brown, 2014; Woodruff, 1993). Because high school grade point average (GPA) is one of the most reliable predictors of student success, a covariance model was utilized to most accurately determine the KEY Careers program impact on one-year retention and four-year graduation rates (Laskey & Hetzel, 2011; Sawyer, 2013). The utilization of an ANCOVA allowed for greater accuracy in the results and R-squared value by minimizing the variable of high school GPA, which is strongly positively correlated with one-year retention and four-year graduation rates.

Likewise, a hierarchical logistic regression analysis was also completed to understand the relationships that exist between student involvement in the KEY Careers program, one-year retention, and graduation in the various student demographic populations by creating a predictive model (Hosmer & Stanley, 2000). The hierarchical logistic regression allows for several variables to be included, which could impact results to be accounted for within the model, which in return results in a greater understanding the specific variable in question (Swanson, Clauser, Case, Nungester, & Featherman, 2002). Understanding the impact of the KEY Careers program on one-year retention and four-year graduation rates involved using the hierarchical logistic regression to minimize the impact of high school GPA because it is an extraneous variable and a strong predictor of student success for the various demographic groups of students. Equations

derived from hierarchical logistic regressions are able to determine odds-ratios, which will be able to serve as a predictive model for how involvement in KEY Careers can impact a student's ability to persist or graduate within four-year (Kleinbaum & Klein, 2010).

One-year retention and four-year graduation rates of various demographic populations at BSU (i.e., high school GPA, race, gender, BSU college, and initial MVS score) were computed for students who participated in KEY Careers program and for non-participants. The MVS instrument results are out of a total of 18 points. Students who initially scored 0-5 on the instrument were classified as at-risk students, those who scored 6-12 were considered to be moderately at-risk, and students who scored 13 or more were considered to have high career clarity and were classified as high scorers.

The data utilized were considered categorical, also known as nominal, because they reflected observations of student one-year retention and four-year graduation rates (Brace, Kemp, & Sneglar, 2013). Data utilized in the study had already been collected by the Career Center and BSU, and therefore were considered archival (Shaughnessy, Zechmeister, & Zechmeister, 2003).

Data Collection Procedures

Upon receiving approval from the Institutional Review Boards (Appendix A) data were retrieved by the researcher from the BSU Career Center collection of archival data of the initial MVS results and student engagement with the KEY Careers program, which was kept on secure Microsoft Excel files. Student one-year retention and graduation rates as well as demographic variables were evaluated by the Office of Institutional Effectiveness, BSU's institutional research office which collects institutional data. Information on student one-year retention, whether or not the student graduated in four-years for the fall 2011 freshman cohort, and their involvement in

the KEY Careers program was correlated with one another through student identification

numbers. For the fall 2011 and 2012 freshman cohorts, involvement in KEY Careers was

defined as students who attended one of the sponsored events to create a career action plan. For

the fall 2013 and 2014 freshman cohorts, KEY Careers involvement was defined as students who

completed at least two out of the six career development modules because the program evolved

from a lecture based session to an online module format.

After student demographic information and KEY Careers involvement were identified

and correlated with appropriate one-year retention and graduation information, identifiable

student information was removed to keep data confidential. All data were managed using Excel

documents, which were password protected.

Data Analysis

Upon data collection, data were computed to percentages of one-year retention and four-

year graduation rates for the entire sample. The calculation of percentages served as a method for

gathering initial observations for one-year retention and four-year graduation rates for the

various groups of students (Drösler, 1989). A linear regression, specifically the ANCOVA

model, was used to analyze the impact of the KEY Careers program participation on one-year

retention and four-year graduation rates. The ANCOVA model was chosen for data analysis to

statistically control the independent variable, high school GPA, which research suggested is one

of the driving components impacting one-year retention and four-year graduation rates (Brown,

2014; Woodruff, 1993).

A hierarchical logistic regression analysis was utilized in this study to create a predictive

model to understand the relationships that exist between a student's involvement in the KEY

Careers program, their initial MVS score, and their one-year persistence or ability to graduate

within four-years. The hierarchical logistic regression was used to eliminate the influence of high school GPA as a variable, because it is a pre-existing condition which has been found to impact student success (Hosmer & Stanley, 2000). The SPSS program, which is a commonly used program for data analysis, was utilized for statistical analysis in this study. The statistical analysis was utilized to determine whether a causal relationship existed among students who engaged with a career intervention and increased one-year retention and four-year graduation rates.

Data Presentation

Descriptive and inferential statistics of one-year retention and four-year graduation rates of the various sub-populations of the various freshman cohort will be presented in table format in chapter four. The presentation of the data follows the order of the research questions. Discussion of the results can be located in chapter five.

Summary

Chapter three described the various methods utilized to manipulate the raw data in this study. A quantitative approach was used to determine the impact of a career intervention on one-year retention and four-year graduation rates to provide concrete numerical evidence. An ANCOVA was utilized to understand the difference in one-year retention and four-year graduation rates for various demographic populations of students who engaged with the KEY Careers program compared to students who did not while minimizing the variable of high school GPA. A hierarchical logistical regression was also used to create a predictive model to understand how involvement in a career intervention and initial MVS score impacted a student's likelihood of persistence and ability of graduating within four years. Data were archival, and were collected from both existing files from BSU's Office of Institutional Effectiveness and the

BSU Career Center. Findings from the data analysis section will be used in relation with Tinto's

(1975) Student Integration Model and Holland's (1997) Theory of Occupational Themes to

understand how a student's ability to return to the university after their first year of college and

graduate within four years is impacted by career interventions.

CHAPTER FOUR: RESULTS

Summary of the Study

This study was utilized to understand the impact of the KEY Careers program on one-year retention and four-year graduation rates on various demographic populations of students (i.e., race, gender, Ball State University [BSU] College, and initial My Vocational Situation [MVS] score). Investigating the effectiveness of career interventions for first-year students is important for administrators in regards to understanding the most effective way to utilize resources on campus. The linear regression analysis of covariance (ANCOVA) model was used to control for high school grade point average (GPA), which is already proven to be a predictor of student retention and graduation rates to isolate the impact of the KEY Careers program on various demographic groups (i.e., race, gender, and BSU College). A predictive model was also created using a hierarchical logistic regression to determine if initial My Vocational Situation (MVS) scores and KEY Careers participation were statistically significant predictors of one-year retention and four-year graduation rates for matriculates while controlling for high school GPA. This model would be beneficial for understanding a student's likelihood of persisting through their first year of college and reaching graduation. Results of the linear regressions, hierarchical logistic regression, and demographic data were presented in this chapter.

Sample

The sample for this study in regards to one-year retention rates consisted of 14,099 BSU matriculates from the 2011, 2012, 2013, and 2014 freshman fall cohorts. The sample of students for data analysis of four-year graduation rates included data from 3,781 matriculates from the 2011 fall cohort. The data encompassed a large enough sample and allowed for an accurate

representation on the effect of the KEY Careers program on one-year retention and four-year graduation rates.

Major Findings

Major findings were categorized into three sections to reflect the research questions, including:

- The KEY Careers program impact on one-year retention rates for various demographic populations (i.e., race, gender, BSU college) was the first section. Gaining an understanding how career interventions impact one-year retention for various demographics of students allowed for more specific recommendations to be made in chapter five.

- The KEY Careers program's impact on four-year graduation rates (i.e., race, gender, BSU college). This section was designed to dissect the entire sample of students to understand how the career intervention was effecting the various demographics of students to allow for more specific program recommendations.

- Predicting a student's likelihood of returning for their second year and graduating within four years based on their initial MVS score and KEY Careers program involvement.

All major findings controlled for the impact of high school GPA on one-year retention and four-year graduation rates. An ANCOVA model was utilized to produce results on the impact of the KEY Careers program on one-year retention and four-year graduation rates. A hierarchical logistic model was used to create a predictive model for student success as measured by the probability of one-year retention and four-year graduation rates based on initial MVS score and KEY Career involvement.

KEY Careers Effect on One-Year Retention Rates

Out of the 14,099 matriculates whose data were utilized in this study, it was found that the one-year retention rate of KEY Careers participants was 86.3% compared to the rate of non-participants, which was 77.5% (Table 1). There were 4,196 students who participated in the KEY Careers program and 9,903 students who did not participate in the program in the fall 2011, 2012, 2013, and 2014 cohorts.

The results of the ANCOVA analysis summary of how significant KEY Careers participation was in regards to impacting one-year retention rates can be found in Table 2. The covariate in this analysis was high school GPA because it is a proven indicator of student retention. According to the results, involvement in the KEY Careers program had a significant effect on the total sample of matriculates and one-year retention rates with a p-value of < .001, which is deemed a strong indicator. High school GPA was also deemed a significant predictor of one-year retention with a p-value of $p < .001$. This analysis reflected the data of 13,893 students.

Male and female data were analyzed separately to determine whether KEY Careers involvement impacted the two genders differently (Table 3). The analysis of the data to understand the effect of KEY Careers involvement for male matriculates suggested the program impacted student retention. The covariate of high school GPA was also found to be statistically significant and served as a predictor of student retention. In this table, the information of 5,453 males from Ball State University was utilized. The p-value for this analysis was $p < .001$, which suggests KEY Careers involvement is a strong predictor of one-year retention for matriculate males. The analysis of covariance for female matriculates yielded results of both KEY Career involvement and high school GPA being significant indicators of one-year retention. A total of 8,440 female students' data were utilized for this analysis. P-values for both of these sources were $p < .001$.

Table 1

One-Year Retention Rates Summary for KEY Careers Participants versus. Non-KEY Careers Participants

	Returned second year	
Variable	N	Percent
KEY Careers Participant	3,621	86.3%
Non-KEY Careers Participant	7,677	77.5%

Note. N represents the number of students who returned to the university out of the 14,099 matriculates in the fall 2011, 2012, 2013, and 2014 cohorts.

Table 2

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on One-Year Retention Rates with High School GPA as Covariate

Source	SS	df	MS	F
Covariate of High School GPA	87.952	1	87.952	583.293***
KEY Career Involvement Effect	11.026	1	11.026	73.121***
Error	2094.406	13,890	0.151	
Total	2204.453	13,892	0.159	

Note. Data sample size included 13,893 students. ***$p < .001$.

Table 3

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on One-Year Retention Rates of Matriculates by Gender with High School GPA as Covariate

Source	SS	df	MS	F
Males				
Covariate of High School GPA	47.763	1	47.763	297.809***
KEY Career Involvement Effect	3.979	1	3.979	24.810***
Error	874.086	5450	0.160	
Total	929.180	5452	0.170	
Females				
Covariate of High School GPA	40.177	1	40.177	278.226***
KEY Career Involvement Effect	7.375	1	7.375	51.070***
Error	1218.323	8437	0.144	
Total	1271.659	8439	0.151	

Note. Data sample size included 5,453 male and 8,440 female matriculates. ***$p < .001$.

The effect of the KEY Careers program pertaining to racial demographic information was also analyzed (Table 4). An analysis of covariance for 11,671 White matriculates in regards to high school GPA and their involvement in the KEY Careers program revealed both of these factors had a p-value of $p < .001$, which suggests they are strong indicators of White students being retained from their first to second year. For non-White students, the results of the analysis yielded a p-value of $p < .001$ for high school GPA and a value of $p < .05$ for the effect of being involved in the KEY Careers program. Both of these values suggest the variables were statistically significant in regards to serving as predictors of one-year retention based on the data of 2,117 non-White students.

The matriculate data were divided into the eight colleges of BSU and were separately analyzed to determine whether various colleges were impacted differently by involvement in the KEY Careers program (Table 5). For students in the BSU College of Applied Science and Technology, the covariate of high school GPA was found to be a strong predictor of one-year retention ($p < .001$). KEY Careers involvement effect had the same p-value and was deemed as equally statistically significant for the 2,526 students whose data were utilized. A total of 452 students were represented for the BSU College of Architecture and Planning data analysis. High school GPA was found to be a statistically significant predictor of one-year retention ($p < .001$). KEY Careers involvement was not found to be a predictor of one-year retention, with a p-value of 0.298. The data of 1,718 matriculates in the BSU College of Communications, Information, and Media was analyzed in this study. The covariate, high school GPA, revealed to be statistically significant with a p-value of $p < .001$. Key Careers involvement was also deemed as a statistically significant predictor of one-year retention ($p < .01$). The BSU College of Fine Arts had 1,134 matriculates whose data were included in the table, and high school GPA served as the

Table 4

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on One-Year Retention Rates of Matriculates by Race with High School GPA as Covariate

Source	SS	df	MS	F
White				
Covariate of High School GPA	71.978	1	71.978	488.709***
KEY Career Involvement Effect	10.063	1	10.063	68.324***
Error	1718.480	11668	0.147	
Total	1810.080	11670	0.155	
Non-White				
Covariate of High School GPA	14.247	1	14.247	83.911***
KEY Career Involvement Effect	0.796	1	0.796	4.960*
Error	358.918	2114	0.170	
Total	374.969	2116	0.177	

Note. Data sample size included 11,671 White and 2,117 non-White matriculates. *$p < .05$. ***$p < .001$.

Table 5

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on One-Year Retention Rates of Students of Various BSU Colleges with High School GPA as Covariate

Source	SS	df	MS	F	Sig.
BSU College of Applied Science and Technology					
Covariate of High School GPA	17.596	1	17.569	109.433	$p < .001$
KEY Career Involvement Effect	2.910	1	2.910	18.126	$p < .001$
Error	410.846	2559	0.161		
Total	433.637	2561	0.169		
BSU College of Architecture and Planning					
Covariate of High School GPA	2.919	1	2.919	31.129	$p < .001$
KEY Career Involvement Effect	0.102	1	0.102	1.084	0.298
Error	42.108	449	0.094		
Total	45.246	451	0.100		
BSU College of Communications, Information, and Media					
Covariate of High School GPA	9.487	1	9.487	70.125	$p < .001$
KEY Career Involvement Effect	1.132	1	1.132	8.371	$p < .01$
Error	232.009	1715	0.135		
Total	243.688	1717	0.142		
BSU College of Fine Arts					
Covariate of High School GPA	4.027	1	4.027	31.857	$p < .001$
KEY Career Involvement Effect	0.063	1	0.063	0.497	0.481
Error	142.951	1131	0.126		
Total	147.302	1133	0.130		
BSU Miller College of Business					
Covariate of High School GPA	7.786	1	7.786	51.730	$p < .001$
KEY Career Involvement Effect	0.722	1	0.722	4.794	$p < .05$
Error	238.700	1586	0.151		
Total	247.687	1588	0.156		

(continued)

Table 5 (continued)

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on One-Year Retention Rates of Students of Various BSU Colleges with High School GPA as Covariate

Source	SS	df	MS	F	Sig.
BSU College of Sciences and Humanities					
Covariate of High School GPA	33.385	1	33.385	206.375	$p < .001$
KEY Career Involvement Effect	5.520	1	5.520	34.123	$p < .001$
Error	647.409	4002	0.162		
Total	692.778	4004	0.173		
BSU Teachers College					
Covariate of High School GPA	1.719	1	1.719	14.848	$p < .001$
KEY Career Involvement Effect	0.602	1	0.602	5.198	$p < .05$
Error	111.274	961	0.116		
Total	113.925	963	0.118		
BSU University College					
Covariate of High School GPA	8.312	1	8.312	47.699	$p < .001$
KEY Career Involvement Effect	0.918	1	0.918	5.271	$p < .05$
Error	251.979	1446	0.174		
Total	262.333	1448	0.181		

Note. Data sample size included 2,562 matriculates from the BSU College of Applied Science and Technology, 452 students from the College of Architecture and Planning, 1,718 matriculates from the BSU College of Communications, Information, and Media, 1,134 matriculates from the College of Fine Arts, 1,589 students from the Miller College of Business, 4,005 matriculates from the College of Sciences and Humanities, 964 students from the Teachers College, and 964 students from the University College.

covariate to determine if KEY Careers was effective and statistically significant in regards to

one-year retention rates. High School GPA had a p-value of $p < .001$, which is significant. The

p-value for KEY Career involvement effect was 0.481, which is not statistically significant.

In Table 5, results of the BSU Miller College of Business data analysis consisted of 1,589

students. High school GPA was determined to be statistically significant with a p-value of $p <$

.001 and was a strong predictor of one-year. The ANCOVA results yielded KEY Career

involvement to be statistically significant ($p < .05$). The analysis of the data of 4,005 students in

the BSU College of Sciences and Humanities was used to determine if high school GPA and

KEY Careers involvement were statistically significant indicators of one-year retention. The

analysis suggested both were strong indicators, and calculated p-values were $p < .001$. High

school GPA and KEY Careers involvement were evaluated in an analysis of covariance

pertaining to the impact the two variables had on one-year retention rates for matriculates in the

BSU Teachers College. Both high school GPA and KEY Careers involvement were statistically

significant predictors, with high school GPA having a p-value of $p < .001$ and KEY Careers

involvement yielding $p < .05$. The analysis of covariance of 964 matriculates in the BSU

University College revealed the covariate, high school GPA, was determined to be statistically

significant in regards to one-year retention with a p-value of $p < .001$. The KEY Careers

program's effect on retention of matriculates in the BSU University College was also a

statistically significant predictor ($p < .05$).

The examination of the effect of the KEY Careers program for students with various

initial MVS scores, analyses of covariance with the covariate of high school GPA were utilized

to explore the effectiveness of the program (Table 6). For the 973 matriculates who had no

initial MVS scores, it was determined high school GPA was an effective predictor of student

Table 6

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on One-Year Retention Rates of Students based on Initial MVS Score with High School GPA as Covariate

Source	SS	df	MS	F	Sig.
No Initial MVS Score					
Covariate of High School GPA	8.294	1	8.294	42.456	$p < .001$
KEY Career Involvement Effect	0.424	1	0.424	2.169	0.141
Error	189.505	970	0.195		
Total	198.571	972	0.204		
Initial At-Risk MVS Score					
Covariate of High School GPA	4.992	1	4.992	34.340	$p < .001$
KEY Career Involvement Effect	2.480	1	2.480	17.057	$p < .001$
Error	170.082	1170	0.145		
Total	178.738	1172	0.153		
Initial Moderately At-Risk MVS Score					
Covariate of High School GPA	21.697	1	21.697	146.511	$p < .001$
KEY Career Involvement Effect	2.891	1	2.891	19.522	$p < .001$
Error	669.662	4522	0.148		
Total	697.791	4524	0.154		
Initial high MVS scores					
Covariate of High School GPA	51.770	1	51.770	352.425	$p < .001$
KEY Career Involvement Effect	4.383	1	24.383	29.838	$p < .001$
Error	1060.439	7219	0.147		
Total	1121.240	7221	0.155		

Note. Data sample size included 973 matriculates without initial scores, 1,173 students with initial at-risk scores, 4,525 students who had moderately at-risk initial MVS scores, and 7,222 individuals with initial high MVS scores.

success (p < .001), but involvement in the KEY Careers program was not a statistically

significant predictor of student success as suggested by the p-value of 0.141. A total of 1,173

matriculates scored at-risk initially on the MVS assessment, and an analysis of covariance was

utilized to determine the effectiveness of the KEY Careers program with high school GPA as the

covariate. The analysis yielded results of both high school GPA and KEY Career involvement

being statistically significant predictors of one-year retention based on calculated p-values of p <

.001. The same analysis was used for students with initial moderately at-risk MVS scores to

determine whether the KEY Careers program was a predictor of one-year retention. The data of

4,525 matriculates revealed both high school GPA and being involved in the KEY Careers

program were both strong predictors of one-year retention according to the found p-values (p <

.001). The effect of the KEY Careers program was also examined for students with high initial

MVS scores through the ANCOVA method with high school GPA as the covariate. Results of

the analysis yielded both variables to have p-values, which were statistically significant (p <

.001). The data utilized in this analysis included information of 7,222 matriculates.

KEY Careers Effect on Four-Year Graduation Rates

According to the data of the fall 2011 matriculate cohort, the four-year graduation rate of

students who participated in the KEY Careers program was 58.4% compared to the rate of non-

participants, which was 43.4% (Table 7). There were 1,072 students in the 2011 fall matriculate

cohort who participated in the KEY Careers program and 626 of the students were able to

graduate within four-years. Of the remaining 2,709 students who did not participate in the KEY

Careers program, 1,176 graduated in four years.

Table 7

Four-Year Graduation Rate Summary for KEY Careers Participants versus Non-KEY Careers Participants

	Graduated within four-years	
Variable	N	Percent
KEY Careers Participant	626	58.4%
Non-KEY Careers Participant	1,176	43.4%

Note. N represents the number of students who graduated within four-years out of the 3,781 matriculates in the fall 2014 cohort.

The results of the analysis of covariance summary with high school GPA as the covariate indicate how significant KEY Careers participation was in regards to impacting four-year graduation rates of matriculates in the fall 2011 cohort, which included 3,749 students (Table 8). An ANCOVA model was utilized because the analysis indicates whether variables were statistically significant in effecting a student's potential to graduate within four years. Results indicate both high school GPA and KEY Careers involvement were statistically significant indicators ($p < .001$).

One demographic of interest pertaining to the effectiveness of the KEY Careers program impacting four-year graduation rates was gender (Table 9). An ANCOVA of male matriculate data of fall 2011 with high school GPA as the covariate was utilized to determine the effectiveness of the KEY Careers program in regards to impacting four-year graduation rates. The analysis indicated both high school GPA and being involved in the KEY Careers program had an effect on four-year graduation rates, which was indicated by the p-values (both $p < .001$) based on the data of the 1,488 male matriculates. An ANCOVA analysis of the data of 2,261 matriculate females from the fall cohort of 2011 suggested both high school GPA and involvement in the KEY Careers program were statistically significant predictors of graduating within four years as indicated by p-values of $p < .001$.

Another demographic that was examined was race in relation to the impact of the KEY Careers program on four-year graduation rates (Table 10). The results of an ANCOVA with high school GPA as the covariate for 3,213 White matriculate students revealed that involvement in the KEY Careers program and high school GPA both served as strong indicators of a student's likelihood of graduating within four years based on the p-values, which were $p < .001$ for both variables. Data of 494 non-White matriculates from the fall 2011 cohort were analyzed using the

Table 8

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on Four-Year Graduation Rates with High School GPA as Covariate

Source	SS	df	MS	F
Covariate of High School GPA	89.571	1	89.571	404.992***
KEY Career Involvement Effect	10.854	1	10.854	73.121***
Error	828.496	3,746	0.221	
Total	935.208	3,748	0.250	

Note. Data sample size included 3,749 students. ***$p < .001$.

Table 9

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on Four-Year Graduation Rates of Matriculates by Gender with High School GPA as Covariate

Source	SS	df	MS	F
Males				
Covariate of High School GPA	33.720	1	33.720	154.159***
KEY Career Involvement Effect	3.799	1	3.779	17.637***
Error	324.825	1485	0.219	
Total	363.720	1487	0.245	
Females				
Covariate of High School GPA	50.919	1	50.919	228.491***
KEY Career Involvement Effect	6.833	1	6.833	30.644***
Error	503.188	2258	0.223	
Total	565.006	2260	0.250	

Note. Data sample size included 1,488 male matriculates and 2,261 females. ***$p < .001$.

Table 10

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on Four-Year Graduation Rates of Matriculates by Race with High School GPA as Covariate

Source	SS	df	MS	F
White				
Covariate of High School GPA	75.214	1	75.214	338.683***
KEY Career Involvement Effect	9.367	1	9.367	42.177***
Error	712.873	3210	0.222	
Total	803.048	3212	0.250	
Non-White				
Covariate of High School GPA	9.203	1	9.203	42.695***
KEY Career Involvement Effect	1.330	1	1.330	6.169*
Error	105.840	491	0.216	
Total	116.923	493	0.237	

Note. Data sample size included 3,213 White matriculates and 494 non-White matriculates. *$p < .05$. ***$p < .001$.

ANCOVA model. Results of the analysis revealed the covariate, high school GPA, was a significant predictor of four-year graduation among non-White matriculates with a p-value of $p < .001$. KEY Careers involvement was a lesser strong indicator of four-year graduation and the calculated p-value was $p < .05$.

Demographic data of the various BSU Colleges were utilized to understand the impact of the KEY Careers program on four-year graduation rates based on which college the matriculate enrolled (Table 11). The data of 722 matriculates in the BSU College of Applied Science and Technology was included in the ANCOVA summary. Both the covariate of high school GPA and the KEY Careers program were determined to be effective in regards to indicating a student's likelihood of graduating within four-years according to calculated p-values ($p < .001$). The data of 124 matriculates from the BSU College of Architecture and Planning were utilized in the ANCOVA analysis to understand the impact of high school GPA and KEY Careers involvement on four-year graduation rates. According to the calculated p-value ($p < .001$), the covariate of high school GPA was determined as statistically significant as a predictor. However, KEY Careers involvement had a p-value of 0.823, which suggested it was not an indicator of four-year graduation for students from this particular college. In Table 11, an analysis of the 454 matriculates in the BSU College of Communications, Information, and a Media suggested both were statistically significant factors in regards to four-year graduation rates. Both high school GPA (the covariate) and KEY Careers involvement yielded p-values of $p < .001$, which were deemed as statistically significant.

The ANCOVA model was used to determine whether the KEY Careers program had an effect on four-year graduation rates for the 308 fall 2011 matriculates who were enrolled in the BSU College of Fine Arts. The covariate, high school GPA, was determined to be a significant

Table 11

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on Four-Year Graduation Rates of Students of Various BSU Colleges with High School GPA as Covariate

Source	SS	df	MS	F	Sig.
BSU College of Applied Science and Technology					
Covariate of High School GPA	17.822	1	17.822	81.151	$p < .001$
KEY Career Involvement Effect	3.312	1	3.312	15.082	$p < .001$
Error	157.901	719	0.220		
Total	180.188	721	0.250		
BSU College of Architecture and Planning					
Covariate of High School GPA	1.638	1	1.638	7.280	$p < .01$
KEY Career Involvement Effect	0.011	1	0.001	0.050	0.823
Error	27.217	121	0.225		
Total	28.935	123	0.235		
BSU College of Communications, Information, and Media					
Covariate of High School GPA	7.615	1	7.615	33.012	$p < .001$
KEY Career Involvement Effect	1.590	1	1.590	6.891	$p < .001$
Error	104.030	451	0.231		
Total	113.480	453	0.251		
BSU College of Fine Arts					
Covariate of High School GPA	7.669	1	7.669	33.785	$p < .001$
KEY Career Involvement Effect	0.003	1	0.003	0.014	0.906
Error	69.234	305	0.227		
Total	76.971	307	0.251		
BSU Miller College of Business					
Covariate of High School GPA	11.228	1	11.228	50.769	$p < .001$
KEY Career Involvement Effect	0.810	1	0.810	3.665	0.056
Error	91.777	415	0.221		
Total	104.211	417	0.250		

(continued)

Table 11 (continued)

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on Four-Year Graduation Rates of Students of Various BSU Colleges with High School GPA as Covariate

Source	SS	df	MS	F	Sig.
BSU College of Sciences and Humanities					
Covariate of High School GPA	24.836	1	24.836	112.073	$p < .001$
KEY Career Involvement Effect	3.396	1	3.396	15.325	$p < .001$
Error	243.985	1101	0.222		
Total	275.847	1103	0.250		
BSU Teachers College					
Covariate of High School GPA	6.613	1	6.613	30.480	$p < .001$
KEY Career Involvement Effect	1.724	1	1.724	7.945	$p < .01$
Error	55.539	256	0.217		
Total	64.703	258	0.251		
BSU University College					
Covariate of High School GPA	3.599	1	3.599	18.718	$p < .001$
KEY Career Involvement Effect	1.645	1	1.645	8.557	$p < .01$
Error	64.796	337	0.192		
Total	70.174	339	0.207		

Note. Data sample size included 722 matriculates from the BSU College of Applied Science and Technology, 124 students from the College of Architecture and Planning, 454 matriculates from the BSU College of Communications, Information, and Media, 308 matriculates from the College of Fine Arts, 418 students from the Miller College of Business, 1,104 matriculates from the College of Sciences and Humanities, 259 students from the Teachers College, and 340 students from the University College.

indicator of graduating within four years for matriculates. The independent variable, KEY

Career involvement, was not found to be statistically significant because the p-value was 0.906.

Data of 418 matriculate students from the BSU Miller College of Business in the fall 2011 cohort

were used to analyze the effectiveness of the KEY Careers program while also calculating for the

impact of the covariate of high school GPA. The analysis contained a p-value of $p < .001$ for the

impact of high school GPA in regards to four-year graduation, which was statistically significant.

KEY Careers involvement was not found to be statistically significant due to the p-value of

0.056 exceeding values of statistical significance. The analysis of the effectiveness of the KEY

Careers program for matriculates who enrolled in the fall 2011 in the BSU College of Sciences

and Humanities revealed the covariate in this analysis, high school GPA was statistically

significant as an indicator with a p-value of $p < .001$. Involvement in the KEY Careers program

was also found to be an effective indicator of four-year graduation for the 1,104 matriculates

whose data were analyzed. The p-value of the KEY Careers involvement effect was $p < .001$.

An analysis of covariance with high school GPA as the covariate was conducted for the BSU

Teachers College using the data of 259 matriculates. High school GPA was determined to be

statistically significant with a p-value of $p < .001$ and was a strong predictor of four-year

graduation. The ANCOVA results yielded KEY Career involvement to be statistically

significant ($p < .01$). KEY Careers was a less strong indicator than high school GPA for the

matriculates in the Teachers College based on the data collected. This table also reflects the data

analysis of 340 matriculates who enrolled in BSU University College. An analysis of covariance

was used to determine if high school GPA and KEY Careers involvement were statistically

significant indicators of one-year retention. The analysis suggested both were strong indicators;

calculated p-value of high school GPA as an indicator was $p < .001$, and the p-value of the effect of the KEY Careers program was $p < .01$.

Data were analyzed to reflect groups of students with various initial MVS scores to understand the impact of the KEY Careers program depending on initial scores (Table 12). Analyses of covariance included the covariate of high school. For the 273 matriculates who had no initial MVS scores, it was determined high school GPA was an effective predictor ($p < .001$) of student success pertaining to four-year graduation. Involvement in the KEY Careers program was determined to not be a statistically significant predictor of student success as suggested by the p-value of 0.064. There were 257 matriculates who scored initially at-risk on the MVS assessment. An analysis of covariance was utilized to determine the effectiveness of the KEY Careers program with high school GPA as the covariate for the at-risk scorers on the MVS assessment. The analysis yielded results of both high school GPA and KEY Career involvement being statistically significant predictors of four-year graduation based on calculated p-values for high school GPA being $p < .001$ and $p < .01$ for the significance of the KEY Careers program involvement. An analysis of students with initial moderately at-risk MVS scores to determine whether the KEY Careers program was a predictor of one-year retention. The data of 1,017 matriculates revealed both high school GPA and being involved in the KEY Careers program were both strong predictors of four-year graduation according to the found p-values. The p-value for high school GPA was $p < .001$, and the p-value for KEY Careers involvement was $p < .01$. The effect of the KEY Careers program on four-year graduation was also examined for students with high initial MVS scores through the ANCOVA method with high school GPA as the covariate. Results of the analysis yielded both variables to have p-values which were

Table 12

ANCOVA Analysis Summary of KEY Careers Participation Impact Significance on Four-Year Graduation Rates of Students based on Initial MVS Score with High School GPA as Covariate

Source	SS	df	MS	F	Sig.
No Initial MVS Score					
Covariate of High School GPA	2.522	1	2.522	11.369	$p < .01$
KEY Career Involvement Effect	0.770	1	0.770	3.471	0.064
Error	59.891	270	0.222		
Total	63.634	272	0.234		
Initial At-Risk MVS Score					
Covariate of High School GPA	5.715	1	5.715	26.345	$p < .001$
KEY Career Involvement Effect	1.847	1	1.847	8.513	$p < .01$
Error	55.100	254	0.217		
Total	62.451	256	0.244		
Initial Moderately At-Risk MVS Score					
Covariate of High School GPA	20.622	1	20.622	91.148	$p < .001$
KEY Career Involvement Effect	2.129	1	2.129	9.410	$p < .01$
Error	229.409	1014	0.226		
Total	253.506	1016	0.250		
Initial high MVS scores					
Covariate of High School GPA	59.290	1	59.290	271.247	$p < .001$
KEY Career Involvement Effect	6.296	1	6.296	28.803	$p < .001$
Error	480.664	2199	0.219		
Total	550.496	2201	0.250		

Note. Data sample size included 273 matriculates without initial scores, 257 students with initial at-risk scores, 1,017 students who had moderately at-risk initial MVS scores, and 2,202 individuals with initial high MVS scores.

statistically significant (p < .001). The data utilized in this analysis included information of 2,202 matriculates.

Predicting One-Year Retention and Four-Year Graduation

The results of a hierarchical logistic regression predicting one-year retention of matriculates are shown in Table 13. Variables included in the table were: regression coefficient (B), standard error (SE), Wald test statistic (Wald), p-value (p), and the odds ratio. The regression coefficient is the value, which can be used to predict the dependent variable based on the independent variable. Odds ratios were calculated by an exponentiation of the value of the regression coefficient (B). Both the regression coefficient and the odds ratio were utilized to compare the predictive nature of independent variables on dependent variable outcomes. As an example, high school GPA, an independent variable, had a regression coefficient of 1.293, which was calculated into an odds ratio of 3.645 ($e^{1.293}$). The odds ratio for high school GPA signified that, for each point a GPA was increased, the odds of a matriculate being retained to their sophomore year increased by 3.645. In Table 37 it is evident the odds ratio was significant for high school GPA, which had an odds ratio of 3.645 and KEY Careers involvement with a calculated value of 1.581 for an odds ratio. Initial MVS scores were not significant in regards to impacting one-year retention for matriculates as indicated by the p-value of 0.105. Because the MVS scores were not predictive of one-year retention rates, they were not included in the equation for predicting one-year retention. One year retention =

$$\left(e^{-3.090}\right) \times \left(e^{1.293 \times High\ School\ GPA}\right) \times \left(e^{0.007 \times Initial\ MVS\ Score}\right) \times \left(e^{0.458 \times KEY\ Careers}\right).$$

Table 13

Hierarchical Logistic Regression Predicting One-Year Retention of Matriculate Based on KEY Careers Involvement and Initial MVS Scores as Predictors

Predictor	B	S.E.	Wald	Sig.	Odds ratio
High School GPA	1.293	0.056	526.087	*p* < .001	3.645
KEY Careers Involvement	0.458	0.052	76.249	*p* < .001	1.581
Initial MVS Score	0.007	0.004	2.643	0.105	1.007
Constant	-3.090	0.186	276.140	*p* < .001	0.046

Note. Data sample size included 13,892 matriculates.

Table 14 displayed the summary of the hierarchical logistic regression results of predicting one-year retention of matriculates, which included the -2 Log, Cox & Snell R Square, and Nagelkerke R Square. Hierarchical logistic regressions do not have r-squared values, however the Cox & Snell R Square and Nagelkerke R Square are both considered pseudo R-squares because they provide information about the fit of the equation in regards to the results of the independent variables within the models. The hierarchical logistic regression model summary predicting one-year graduation rates had a high -2 Log likelihood value (13,087.770) and the pseudo R-square values were both above the alpha-level (0.050), which suggested the model was statistically significant in regards to predicting one-year retention.

Table 15 contains information pertaining to the accuracy of the derived predictive model. The classification table reflected observed data (No or Yes depending on if a student was retained) along with the prediction of the model. The model was 100% correct when predicting a student returning to the university and was 0.1% correct when predicting if a student would not return. Overall, the model had an 80.2% accuracy in predicting one-year retention rates.

Data to build a predictive model of four-year graduation rates of fall 2011 matriculates based on KEY Careers participation, high school GPA, and initial MVS scores were seen in Table 16. A regression coefficient was utilized to calculate the odds ratio, which is derived by taking an exponentiation of the regression coefficient. For example, KEY Careers involvement had a regression coefficient of 0.532, which was calculated into an odds ratio of 1.702 ($e^{0.532}$). Thus, matriculates who participated in the KEY Careers program had a 1.702 odds of graduating within four years based on the predictive model. The odds ratios for high school GPA was 5.104, signifying for each point a matriculate's high school GPA was increased, their odds of

Table 14

Hierarchical Logistic Regression Model Summary for Predicting One-Year Retention

Statistic	Value
-2 Log likelihood	13,087.770
Cox & Snell R Square	0.051
Nagelkerke R Square	0.081

Table 15

Classification Table for Predicting One-Year Retention

| | Predicted | | |
Observed	No	Yes	% Correct
No	4	2,744	0.1
Yes	5	11,139	100.0
Overall Percentage			80.2

Table 16

Hierarchical Logistic Regression Predicting Four-Year Graduation of Matriculate Based on KEY Careers Involvement and Initial MVS Scores as Predictors

Predictor	B	S.E.	Wald	Odds ratio
High School GPA	1.630	0.089	333.166***	5.104
KEY Careers Involvement	0.532	0.077	47.592***	1.702
Initial MVS Score	0.014	0.007	4.695*	1.014

Note. Data sample size included 7,222 matriculates. *p< .05. ***p < .001.

graduating within four-years increased by an odds of over five. Initial MVS scores had a calculated odds ratio of 1.014, which was statistically significant but not as significant as the predictors of high school GPA or KEY Careers involvement. Four Year Graduation =

$$(e^{-5.862}) \times (e^{1.630 \times High\ School\ GPA}) \times (e^{0.014 \times Initial\ MVS\ Score}) \times (e^{0.532 \times KEY\ Careers}).$$

The hierarchical logistic regression results summary for predicting four-year graduation was displayed in Table 17. The tabled included the -2 Log, Cox & Snell R Square, and Nagelkerke R Square values. The Cox & Snell R Square and Nagelkerke R Square both were the pseudo R-squares, which provided information about the accuracy of the equation in regards to determining how predictive the independent variables were on the dependent outcomes. The hierarchical logistic regression model summary predicting four-year graduation rates had a large -2 Log likelihood value (4,738.004). The pseudo R-square values were both well-above the alpha-level (0.050), which indicated the predictive model was statistically significant.

Table 18 was a classification table for the four-year graduation predictive model. The model had a 65.5% success rate in predicting whether a student would graduate within four years of beginning their undergraduate education. The model was based off of the indicators of high school GPA, KEY Careers involvement, and initial MVS score.

Summary

Information about the KEY Careers program effect on both one-year retention and four-year graduation rates were presented in this chapter based on the results of an analysis of covariance (ANCOVA). Two predictive models, based on hierarchical logistic regressions, were also derived and displayed in this chapter pertaining to predicting one-year retention rates and four-year graduation rates with independent variables including high school GPA, KEY Careers involvement, and initial MVS scores. Overall, it was found that the KEY Careers program was

Table 17

Hierarchical Logistic Regression Model Summary for Predicting Four-Year Graduation

Statistic	Value
-2 Log likelihood	4,738.004
Cox & Snell R Square	0.113
Nagelkerke R Square	0.151

Table 18

Classification Table for Predicting Four-Year Graduation

Observed	Predicted		
	No	Yes	% Correct
No	1368	594	69.7
Yes	698	1089	60.9
Overall Percentage			65.5

positively impacting one-year retention and four-year graduation rates of students at BSU.

The average rate of retention for students who participated in KEY Careers was 86.3% compared to the non-participant retention rate which was 77.5%. The ANCOVA model was used to analyze data to understand if the KEY Careers program had an effect on one-year retention rates for various student demographics. The program was found to be effective for both males and females as well as White and non-White students as indicated by statistically significant p-values. The analysis of the impact of the KEY Careers program indicated there was a statistically significant impact on one-year retention rates for the majority of colleges, but not for students in the BSU College of Architecture and Planning or in the BSU College of Fine Arts.

Four-year graduation rates of KEY Careers participants were 58.4% compared to the 43.4% four-year graduation rates of non-participants. The ANCOVA revealed KEY Careers was statistically significant in regards to increasing four-year graduation rates. KEY Careers participant significantly increased graduation rates for males, females, White, and non-White students. Likewise, KEY Careers was effective for increasing four-year graduation rates for students in all BSU colleges sans the College of Architecture and Planning as well as the College of Fine Arts.

The two predictive models that were created for one-year retention and four-year graduation rates, respectively, were found to be statistically significant in regards to predicting outcomes based on the hierarchical logistic regression results. High school GPA and KEY Careers involvement were identified as statistically significant predictors of one-year retention and four-year graduation. The predictive model of one-year retention had an 80.2% accuracy and the model predicting four-year graduation had a 65.5% accuracy.

CHAPTER FIVE: DISCUSSION

Summary of the Study

This study utilized various demographic data of Ball State University (BSU) matriculates to understand the effectiveness of career interventions on one-year retention and four-year graduation rates. Retention and four-year graduation rates have served as indicators of institutional effectiveness, which is why higher education professionals seek ways to increase student success (Seidman, 2012; Sullivan, 2010). Thus, understanding if career interventions can potentially improve retention and four-year graduation rates is relevant in the scheme of higher education. Institutional funding and how resources are being allocated on college campuses is also of current importance, which is why investigating if the KEY (Knowledge + Experience + You) Careers program is producing effective results allows for administrators at BSU to make the sound investments on behalf of their students. This study provided insight into the impact of career intervention programmatic efforts on one-year retention and four-year graduation rates at BSU and provided a model for other campuses to potentially utilize.

Vincent Tinto's (1975) Student Integration Model has been one of the most thoroughly researched frameworks of student retention and persistence. Tinto's (1975; 1987) student model stated a student must be integrated both socially and academically if they are going to return to the university the following year and persist to graduation. One specific factor needed for academic integration is for a student to have an established sense of vocational identity and to have some type of commitment to graduating from the institution (Astin, 1975; Peterson, 1993; Sprandel, 1986). Higher education institutions have the potential to influence a student's transition and integration within the community, which is why career interventions can be highly impactful on one-year retention and four-year graduation rates (Kuh et al., 2008; Tinto, 2006).

The KEY Careers program provides an opportunity for all matriculates to engage in career exploration and vocational identity development with the intent of allowing the students to further integrate into the BSU community, which ultimately impacts one-year retention and four-year graduation rates.

The KEY Careers program was grounded in Holland's (1997) theory of Occupational Themes, which research suggests has been highly effective in helping individuals understand and develop their vocational identity. Theoretically, allowing students to explore which occupational themes best relate to their abilities, personality, and skills allows for effective career exploration and creates a narrower focus (Cowger, Chauvin, & Miller, 2009; Holland, 1997; Ohler & Levinson, 2012). The KEY Careers program provides a career intervention for thousands of students each year at BSU, and the utilization of Holland's (1997) theory allows for each student to create a framework that places students in a position to be successful when developing their vocational identity. While students are involved in the KEY Careers program, matriculates receive the resources they need from professional staff, which is determined by the My Vocational Situation (MVS) assessment, which was designed based on Holland's (1997) theory of Occupational Themes.

Archival data were utilized in this study, which were provided by the BSU Career Center and the Office of Institutional Effectiveness. Names, student identification numbers, and other identifying information were removed from the data immediately after initial MVS scores and demographic data were correlated. The sample consisted of 14,099 students for the analysis of one-year retention and 3,781 student data for the analysis of four-year graduation rates. Data were taken from the BSU matriculate fall classes of 2011, 2012, 2013, and 2014. Only data from the fall matriculate class of 2011 were utilized to analyze the impact of the KEY Careers

program on four-year graduation rates because four-year graduation information was not available for the other classes. An analysis of covariance (ANCOVA) was used to understand the effectiveness of the KEY Careers program with high school GPA as the covariate. Analyses were conducted for various demographics including gender, race, BSU college, and initial MVS scores, which were used to further understand the effectiveness for the KEY Careers program on one-year retention and four-year graduation rates. A hierarchical logistic regression was utilized to create a predictive model to determine whether a causal relationship existed between career interventions and likelihood of a student being retained to the following year or graduating from the university within four years.

KEY Careers Effect on One-Year Retention Rates

The first research question of this study focused on understanding if the KEY Careers program affected one-year retention rates at BSU. A summary of the findings for the various demographic populations of students can be found in Table 19. Out of the total sample of 14,099 students it was determined the one-year retention rates of KEY Careers participants was 86.3%, which was 8.8% higher than the non-participant rate (77.5%). When the sample was analyzed, it was found that both high school GPA and involvement in the KEY Careers program were statistically significant predictors of one-year retention for the student body at-large. This result supported the literature, which indicates career interventions are effective methods of improving retention and that high school GPA is also a predictor of student retention (Brown & Lent, 2005; Cuseo, 2005; Johnson et al., 2002; Laskey & Hetzel, 2011; Sawyer, 2013).

One-year retention is an observable indicator which is one measure of an institution's success, which is why it is essential to understand how university administrators can be positively impacting this measurement (Cuseo, 2003). As the pressure of student persistence

Table 19

Summary of KEY Careers Participation Impact Significance on One-Year Retention Rates of Various Student Demographics

Source	SS	df	MS	F	Sig.
GENERAL					
Covariate of High School GPA	87.952	1	87.952	583.293	$p < .001$
KEY Career Involvement Effect	11.026	1	11.026	73.121	$p < .001$
BY GENDER					
Males					
Covariate of High School GPA	47.763	1	47.763	297.809	$p < .001$
KEY Career Involvement Effect	3.979	1	3.979	24.810	$p < .001$
Females					
Covariate of High School GPA	40.177	1	40.177	278.226	$p < .001$
KEY Career Involvement Effect	7.375	1	7.375	51.070	$p < .001$
BY RACE					
White					
Covariate of High School GPA	71.978	1	71.978	488.709	$p < .001$
KEY Career Involvement Effect	10.063	1	10.063	68.324	$p < .001$
Non-White					
Covariate of High School GPA	14.247	1	14.247	83.911	$p < .001$
KEY Career Involvement Effect	0.796	1	0.796	4.960	$p < .05$
BY COLLEGE					
BSU College of Applied Science and Technology					
Covariate of High School GPA	17.596	1	17.569	109.433	$p < .001$
KEY Career Involvement Effect	2.910	1	2.910	18.126	$p < .001$
BSU College of Architecture and Planning					
Covariate of High School GPA	2.919	1	2.919	31.129	$p < .001$
KEY Career Involvement Effect	0.102	1	0.102	1.084	0.298
BSU College of Communications, Information, and Media					
Covariate of High School GPA	9.487	1	9.487	70.125	$p < .001$
KEY Career Involvement Effect	1.132	1	1.132	8.371	$p < .01$

(continued)

Table 19 (continued)

Summary of KEY Careers Participation Impact Significance on One-Year Retention Rates of Various Student Demographics

Source	SS	df	MS	F	Sig.
BSU College of Fine Arts					
Covariate of High School GPA	4.027	1	4.027	31.857	$p < .001$
KEY Career Involvement Effect	0.063	1	0.063	0.497	0.481
BSU Miller College of Business					
Covariate of High School GPA	7.786	1	7.786	51.730	$p < .001$
KEY Career Involvement Effect	0.722	1	0.722	4.794	$p < .05$
BSU College of Sciences and Humanities					
Covariate of High School GPA	33.385	1	33.385	206.375	$p < .001$
KEY Career Involvement Effect	5.520	1	5.520	34.123	$p < .001$
BSU Teachers College					
Covariate of High School GPA	1.719	1	1.719	14.848	$p < .001$
KEY Career Involvement Effect	0.602	1	0.602	5.198	$p < .05$
BSU University College					
Covariate of High School GPA	8.312	1	8.312	47.699	$p < .001$
KEY Career Involvement Effect	0.918	1	0.918	5.271	$p < .05$
BY MVS					
No Initial MVS Score					
Covariate of High School GPA	8.294	1	8.294	42.456	$p < .001$
KEY Career Involvement Effect	0.424	1	0.424	2.169	0.141
Initial At-Risk MVS Score					
Covariate of High School GPA	4.992	1	4.992	34.340	$p < .001$
KEY Career Involvement Effect	2.480	1	2.480	17.057	$p < .001$
Initial Moderately At-Risk MVS Score					
Covariate of High School GPA	21.697	1	21.697	146.511	$p < .001$
KEY Career Involvement Effect	2.891	1	2.891	19.522	$p < .001$
Initial high MVS scores					
Covariate of High School GPA	51.770	1	51.770	352.425	$p < .001$
KEY Career Involvement Effect	4.383	1	24.383	29.838	$p < .001$

has shifted from the student to the institution's responsibility, it is a necessity for administrators to find methods to improve retention rates and to create an educational setting, which cultivates opportunities for students to return to the university the following year (Habley et al., 2012), which the KEY Careers program has been able to accomplish according to the results of this study because of the 8.8% increase in student retention for program participants. Tinto (1975) described that it is necessary for students to feel integrated academically into their college campus if they are going to return the following year to the institution, and the KEY Careers program assisted students with finding majors and career paths that are of direct relevance to their strengths and interests, which was seen based on the increase in retention.

The KEY Careers program allows for students to explore their interests and find majors that align well with their goals and strengths, which in return allows for them to integrate most successfully in their academic community. This notion is reiterated by the idea that students, regardless of gender or race, were positively impacted by involvement in the KEY Careers program and were more likely to be retained than their peers who did not participate in the program as indicated by the p-values that revealed involvement in the program was statistically significant regarding improved retention rates. However, when students were separated by the demographic of BSU College, data analyses revealed that students in the BSU College of Architecture and Planning and BSU College of Fine Arts were not significantly impacted by participating in the KEY Careers program. One reason may be because these colleges having linear career paths. Students in colleges with linear career paths may find career exploration to be ineffective, which is why one-year retention rates may not be impacted (Brown et al., 2003). However, for the other six colleges there was statistical significance in improving one-year retention rates for students who participated in KEY Careers.

The analyses of the student data categorized by initial MVS score indicated the program was ineffective for students who did not have an initial assessment score. The MVS allows for a successful way to conduct a career intervention because it is able to assess the needs of students and determine if they are at-risk in regards to their vocational identity status (Buescher et al., 1989; Fuller et al., 1994). The initial MVS score was utilized to ensure students who were involved within the KEY Careers program were receiving the resources and support they needed to most effectively utilize the program. Interestingly, it was found that the KEY Careers program overall was effective for all students, however it did not have a statistically significant effect for students with no initial MVS scores because the calculated p value (p=0.141). This signifies students without initial MVS scores may not have received the resources or support they needed for a career intervention to be successful, which reiterates the importance of the MVS assessment. This tool is what allowed for the KEY Careers program to be successful by identifying which students were in need of additional resources with the intent of giving a student the optimal circumstances to return to the university the following year.

In 2010, ACT released that one-third of all matriculates do not return to their respective institution after the first year. However, participants in the KEY Careers program had an 86.3% one-year retention rate. Research suggests one-year retention rates from the first year to the second year of college are one of the most important aspects for higher education professionals to focus on improving, because a student is likely to remain at the institution and persist if they are retained after the initial year (DeNicco et al., 2015). Career interventions are an effective way of increasing one-year retention rates specifically for matriculates, as indicated by this study and also by existing literature (Fowler & Boylan, 2010). First-year students are ideal populations for career interventions, and the results of this study and relevant research suggested it is

beneficial to have students engage in developing their vocational identity during their first year of college (Damminger et al., 2009; Johnson et al., 2002; Rehfuss, 2009). The KEY Careers program was effective for students at BSU regardless of gender or race, which suggest KEY Careers is an effective retention initiative.

KEY Careers Effect on Four-Year Graduation Rates

The second research question focused on determining whether the KEY Careers program affected four-year graduation rates at BSU. The analysis revealed the four-year graduation rate for KEY Careers participants was 58.4% compared to the non-participant rate of 43.4%. With a 15% increase in graduation, it was clearly indicated that participation in the KEY Careers program resulted in an increased odds of graduating from BSU within four years. Looking at the statistic more in depth, it was determined through an ANCOVA analysis that the KEY Careers program as a whole was statistically significant in improving four-year graduation rates for the entire sample of students. The program also proved to be effective and statistically significant for students improving four-year graduation rates regardless of gender or race. The findings of this study implied career interventions significantly increased four-year graduation rates, which mirrored what was stated in relevant literature (Damminger et al., 2009; Folsom et al., 2002). Table 20 contains a summary of the results for the various demographics pertaining to involvement in the KEY Careers program and four-year graduation rates. The table revealed high school GPA was also a predictor of four-year graduation rates, which was anticipated based on found literature (Laskey & Hetzel, 2011; Sawyer, 2013).

Based on the findings of this study, career interventions can positively impact four-year graduation rates. Four-year graduation rates are a quantifiable number that measures student success at an institution, which is why it is important for university administrators to create

Table 20

Summary of KEY Careers Participation Impact Significance on Four-Year Graduation Rates of Various Student Demographics

Source	SS	df	MS	F	Sig.
GENERAL					
Covariate of High School GPA	89.571	1	89.571	404.992	$p < .001$
KEY Career Involvement Effect	10.854	1	10.854	73.121	$p < .001$
BY GENDER					
Males					
Covariate of High School GPA	33.720	1	33.720	154.159	$p < .001$
KEY Career Involvement Effect	3.799	1	3.779	17.637	$p < .001$
Females					
Covariate of High School GPA	50.919	1	50.919	228.491	$p < .001$
KEY Career Involvement Effect	6.833	1	6.833	30.644	$p < .001$
BY RACE					
White					
Covariate of High School GPA	75.214	1	75.214	338.683	$p < .001$
KEY Career Involvement Effect	9.367	1	9.367	42.177	$p < .001$
Non-White					
Covariate of High School GPA	9.203	1	9.203	42.695	$p < .001$
KEY Career Involvement Effect	1.330	1	1.330	6.169	$p < .05$
BY COLLEGE					
BSU College of Applied Science and Technology					
Covariate of High School GPA	17.822	1	17.822	81.151	$p < .001$
KEY Career Involvement Effect	3.312	1	3.312	15.082	$p < .001$
BSU College of Architecture and Planning					
Covariate of High School GPA	1.638	1	1.638	7.280	$p < .01$
KEY Career Involvement Effect	0.011	1	0.001	0.050	0.823
BSU College of Communications, Information, and Media					
Covariate of High School GPA	7.615	1	7.615	33.012	$p < .001$
KEY Career Involvement Effect	1.590	1	1.590	6.891	$p < .001$

(continued)

Table 20 (continued)

Summary of KEY Careers Participation Impact Significance on Four-Year Graduation Rates of Various Student Demographics

Source	SS	df	MS	F	Sig.
BSU College of Fine Arts					
Covariate of High School GPA	7.669	1	7.669	33.785	$p < .001$
KEY Career Involvement Effect	0.003	1	0.003	0.014	0.906
BSU Miller College of Business					
Covariate of High School GPA	11.228	1	11.228	50.769	$p < .001$
KEY Career Involvement Effect	0.810	1	0.810	3.665	0.056
BSU College of Sciences and Humanities					
Covariate of High School GPA	24.836	1	24.836	112.073	$p < .001$
KEY Career Involvement Effect	3.396	1	3.396	15.325	$p < .001$
BSU Teachers College					
Covariate of High School GPA	6.613	1	6.613	30.480	$p < .001$
KEY Career Involvement Effect	1.724	1	1.724	7.945	$p < .01$
BSU University College					
Covariate of High School GPA	3.599	1	3.599	18.718	$p < .001$
KEY Career Involvement Effect	1.645	1	1.645	8.557	$p < .01$
BY MVS					
No Initial MVS Score					
Covariate of High School GPA	2.522	1	2.522	11.369	$p < .01$
KEY Career Involvement Effect	0.770	1	0.770	3.471	0.064
Initial At-Risk MVS Score					
Covariate of High School GPA	5.715	1	5.715	26.345	$p < .001$
KEY Career Involvement Effect	1.847	1	1.847	8.513	$p < .01$
Initial Moderately At-Risk MVS Score					
Covariate of High School GPA	20.622	1	20.622	91.148	$p < .001$
KEY Career Involvement Effect	2.129	1	2.129	9.410	$p < .01$
Initial high MVS scores					
Covariate of High School GPA	59.290	1	59.290	271.247	$p < .001$
KEY Career Involvement Effect	6.296	1	6.296	28.803	$p < .001$

solutions and programmatic efforts that will positively impact this number (Sanders & Burton, 1996). Higher education is costly for students, which is why a university creating initiatives to help students graduate within four years is essential for their financial well-being (Hamrick et al., 2004). One salient reason students struggle to graduate within four years because they lack clarity in their vocational identity (Cuseo, 2005). However, the KEY Careers program encourages students to establish their vocational identity during their first year of college, and to place them in a position to successfully graduate within four years.

One of the factors Tinto (1975) deemed to be essential for students persisting to graduation was to have a commitment to graduate, which requires having a desire to complete their degree. The KEY Careers program allows for students to explore potential career paths and to discover majors that will accommodate their interests and career goals, which in return solidifies their commitment to graduating from BSU. Thus, the KEY Careers program has been successful in helping students find their vocational identity and persist to graduation in a timely manner. Tinto also stated having goals and aspirations for a college degree are a necessary component of persistence, which is why the KEY Careers program effectively impacts a student's ability to explore and identify those goals (Cuseo, 2003; Talbert, 2012). Graduating within four years requires students to commit to a major and academic path early in their academic career and the KEY Careers program assisted students with the process of identifying strengths and interests (Astin, 1975; Peterson, 1993; Sprandel, 1986).

An important psychosocial component of identity development for college students is understanding their vocational identity (Osborn et al., 2007), which is the goal of the KEY Careers program. When students have this need satisfied and are confident with their career goals, they are more likely to persist to graduation and complete their degree within a timely

manner. Research indicates students who are exposed to resources on campus to assist with their vocational identity development and who are guided through the process of career exploration are more likely to persist to graduation and graduate within four years, which supports the findings from this study (Damminger et al., 2009). Thus, for students who initially enrolled in colleges with linear career paths (i.e., BSU College of Architecture and Planning, BSU College of Fine Arts, and BSU Miller College of Business) it was not surprising career interventions did not have a statistically significant impact on their four-year graduation rates because their career goals are typically established prior to entering higher education (Brown et al., 2003). Likewise, Ball State University has a more competitive admission selection criterion for students in the College of Architecture and Planning (Ball State University, 2016b). Students who are admitted into this college tend to be in the top 20% of their high school class and have a higher average high school GPA than the incoming class. Since high school GPA is a strong predictor of one-year retention and four-year graduation (Chambliss & Takacs, 2014; Laskey & Hetzel, 2011; Sawyer, 2013), it is logical that the high achieving students would not be as impacted by a career intervention.

However, for humanities students, who may tend to have more ambiguous career paths (Fretz & Leong, 1982), KEY Careers was found to be effective in improving four-year graduation rates. The KEY Careers program was statistically significant in regards to improving one-year retention rates and four-year graduation rates for undecided students in the University College. Again, understanding personal interests and strengths caused students to identify their career goals, which made them more likely to graduate in four years than their peers who did not participate in KEY Careers.

The analysis for the demographic of Initial MVS revealed the KEY Careers program was effective for program participants regardless of initial score. However, students who did not have an initial MVS score were not statistically significantly impacted by the program, because the calculated p-value was found to not be of significance (p=0.064). The reason why the MVS assessment is distributed to students at the beginning of the KEY Careers program is to determine which students are at-risk, moderately at-risk, or not at-risk to properly allocate resources among students (Buescher et al., 1989; Fuller et al., 1994). This analysis provided evidence that utilizing the MVS is an effective tool for identifying which students need assistance in the career development because KEY Careers was found to be effective for students regardless of their initial score regarding impacting their likelihood of four-year graduation. However, for the students without an initial score, the KEY Careers program was statistically found to be ineffective because of the lack of being able to provide the correct level of support.

One reason involvement in the KEY Careers program may have led to an increase in increased four-year graduation rates is due to the sophomore outreach. For students who participated in the KEY Careers program, a post-assessment was utilized to identify which students were still in need of resources during their second year of college. Continuing to support sophomore students who still lacked career clarity may have contributed to improving the four-year graduation rates for KEY Careers participants, since a significant amount of development continues to occur during the second year of college (Lee & Leonard, 2009; Terkla et al., 1999; Vaughn & Parry, 2013). Vocational identity development is a process that can take longer than just the first year of college, which is why students who participated in KEY Careers were likely to have more support throughout their collegiate experience, which led to an increase in four-year graduation rates for this population.

Predicting One-Year Retention and Four-Year Graduation

The third research question of this study was developed to determine if initial MVS scores, high school GPA, and engagement with the KEY Careers program, predicted one-year retention and four-year graduation rates for matriculates. For one-year retention, the predictive model revealed that initial MVS scores were not an indicator of whether a student would return to the university the following year, and were omitted from the model. Initial MVS scores are meant to describe the vocational clarity and determine a person's level of indecisiveness regarding career goals when they first complete the assessment (Lucas et al., 1988; Tinsley & Bowman, 1990). The MVS was not intended to determine whether a student would fail or succeed in college, rather to determine how much support they may need pertaining to their vocational identity development. Thus, the analysis of this study revealed initial MVS scores were not an indicator of a student's ability to persist. The fact that initial MVS scores were not statistically significant predictors of student success implies the career interventions happening at BSU are successful and that students are receiving the resources they need to be successful based on this diagnostic tool, which is the purpose of the MVS according to relevant literature (Nicholas & Pretorius, 1994).

Although initial MVS scores were not an indicator of a student returning to the university the following year, involvement in the KEY Careers program was found to be a statistically significant predictor of one-year retention in addition to high school GPA. A student who participated in the KEY Careers program had an odds ratio of 3.645 of returning to the university the following year in comparison to non-participants who had the odd ratio of 1.000. This signifies students' likelihood of being retained was over three percent greater than non-participants, which reiterates the impact of career interventions. Tinto (1975) argued for a

student to persist in college they needed to be integrated academically into their institution. The KEY Careers program allows students to have assistance with developing their vocational identity to allow them to find programs and majors that resonate with their skills, interests, abilities, and career goals in return allows for a greater level of academic integration and commitment.

The predictive model, which was generated to understand how initial MVS score, high school GPA, and KEY Careers involvement impact a student's likelihood of four-year graduation were all found to be statistically significant. Initial MVS scores, however, had an odds ratio of 1.014. Although this is statistically significant, an initial MVS score had miniscule significance in regards to predicting student success. It was found that KEY Careers involvement and high school GPA were significant predictors of a student's likelihood of graduating within four years, which supported findings in the literature (Damminger et al., 2009; Laskey & Hetzel, 2011; Sawyer, 2013). High school GPA had a calculated odds ratio of 5.104, which meant that for every point a student's GPA increased they were five percent more likely to graduate within four years, which was predicted based off of existing literature (Laskey & Hetzel, 2011; Sawyer, 2013). Participation in KEY Careers resulted in an odds ratio of 1.702 for students matriculating within four years, which significantly increased their chance of graduating within four years. This statistic suggests career interventions are highly effective tools for universities such as Ball State to utilize because it significantly impacts a student's ability to graduate from the institution in a timely manner. When students have a sound grasp on their vocational identity, their likelihood of finding a program they identify with and committing to graduation becomes more likely for the matriculate (Tinto, 1975).

Suggestions for Practice

Over one-third of students who enroll to complete a higher education degree are not able to finish within six-years (National Center for Education Statistics, 2013). Thus, finding effective programming initiatives is essential for fostering student success and for allowing the most students to identify their career goals and complete their college degree in a timely manner. As resources become scarcer in higher education, finding effective ways to counteract attrition rates is a necessity for all institutions in the United States (Grayson & Grayson, 2003; Parkin & Baldwin, 2009; Tinto, 1993). Research suggested career interventions are effective ways to impact both one-year retention and four-year graduation rates (Damminger et al., 2009).

Suggestions for Institutions

Based on the results of this study it was found to be highly effective to offer a career intervention for all incoming students at an institution. Having a specific office, such as a career center or a retention department, focus on implementing a successful curriculum for a career intervention is highly recommended to ensure there is a sense of responsibility and accountability for the program. The Career Center at BSU has been responsible for administering, evaluating, and developing the KEY Careers program since it was created by a partnership between the counseling center and the Career Center.

Suggestions for Career Intervention Program Administrators

For those who may be designing or administering a career intervention program, the utilization of the MVS tool is highly recommended to maximize the experience of each KEY Careers participant. The initial distribution of the MVS assessment allows for administrators to identify which students are at-risk or moderately at-risk in regards to vocational identity, and the tool allows for professionals to know which students may be in need of extra support. Rather

than targeting thousands of students in the same way, BSU is able to effectively use resources to assist students who may be in the greatest need of assistance by providing a KEY Careers peer coach to work individually with the student to ensure their success. Although all students are invited to attend KEY Careers, specific outreach efforts to the at-risk and moderately at-risk students is part of what allows career interventions to be successful on the BSU campus. Using an instrument similar to to the MVS tool is highly recommended to properly and effectively allocate resources to program participants.

Beginning the intervention immediately when a matriculate enrolls in higher education has been found to be effective. If an institution is looking to improve four-year graduation rates, it is essential to have students begin thinking about their career goals early in their academic careers. Involving students with exploring their vocational identity before they even arrive to campus in the fall was found to be effective for BSU matriculates. Online modules were available for students during the summer as tools to begin their career and vocational identity exploration to allow for them to reflect on their interests, skills, and values before they arrived on campus. An additional suggestion for practice is to utilize the career intervention to not only allow for students to engage in career exploration, but to expose student to different resources existing on campus including: career services, counseling center, academic advising, and more.

Suggestions for Career Centers

Providing students with the necessary resources to explore their occupational identity is equally important during the process of a career intervention. A career center is most effective for students when it offers a wide-array of resources during the process of a career intervention. Offering one-on-one coaching sessions, additional exploratory inventories, group settings, and peer mentors are methods the BSU Career Center has utilized to allow for this program to be

successful. Students having multiple capacities to explore and verbalize their academic and career interests is a necessary component in gaining vocational identity clarity.

Following-up with students at the end of the career intervention is also highly recommended to ensure the most positive impact on one-year retention and four-year graduation rates. Conducting a post-assessment can allow administrators and career centers to identify students who may still be at-risk and in need of further support or resources as they enter their second year of college. The sophomore experience allows for students to continue exploring and developing their vocational identity while still receiving the support they need on campus. Being intentional with utilizing resources effectively for the sophomore population can also be a way to increase four-year graduation rates in regards to career interventions.

Suggestions for Incoming Students and Guardians

Identifying career interests and investing time in vocational identity exploration was found to be effective in regards to one-year retention and four-year graduation rates. Students who chose to engage in the KEY Careers program were more likely to be retained and to graduate from the institution within four-years if they participated in a career intervention. Thus, if an institution offers a vocational identity development program or resources through a career center on campus, it is highly advised to utilize them at the beginning of a collegiate career to increase the chance of returning to the university and graduating in a timely manner.

<div align="center">

Limitations

</div>

One limitation of this study was that the data were only comprised of matriculates who attended BSU. Because this study reflects data from a single site, the results may be limited especially for institutions that are not similar to Ball State University's institutional profile. Additionally, the sample which analyzed the impact of the KEY Careers program on one-year

retention rates only consisted of four matriculate classes, and the examination of four-year

graduation rates was comprised of only the fall 2011 matriculate class. A sample containing a

larger number of class sizes would be ideal to gain a more accurate understanding of the impact

of career interventions.

The retention and graduation office at BSU opened during the fall of 2011 when the KEY

Careers program was first implemented (Ball State University, 2016a). This office focuses its

efforts on creating programming to improve both one-year retention and four-year graduation

rates for students on campus. The efforts of this office may have also caused an increase in one-

year retention and four-year graduation rates for students who participated in the KEY Careers

program if they were also using the resources provided by this office on campus.

Another limitation which exists includes students who are engaged in university

programs tend to be students who are committed to investing their time into their education and

integrating within the university setting through other co-curricular activities in addition

involvements such as the KEY Careers program (Astin, 1999; Bergen-Cico & Viscomi, 2012).

Thus, ambitious students who chose to participate in the KEY Careers program may have been

more likely to be involved on campus, which would have also led to an increase in their

likelihood to return to the university the following year. This limitation could also be related to

social capital, and that the students who are likely to be involved will already feel they belong at

a higher education institution and are thus more likely to persist (Budgen, Main, Callcot, &

Hamlet, 2014; Thomas, 2002).

Recommendations for Future Research

This study only utilized quantitative data to understand the impact of career interventions.

One recommendation to gain a deeper understanding of how students are impacted by career

interventions would be to collect qualitative data to determine what specific tools were useful to them during the process of the KEY Careers program. Qualitative data would also allow for themes to emerge of other potential obstacles that hinder a student's ability to develop their vocational identity.

The KEY Careers 2.0 program is a continuation of the KEY Careers program for sophomore students who were identified as still lacking vocational clarity after the completion of the KEY Careers program during their sophomore year. Examining how effective the KEY Careers 2.0 program is in regards to one-year retention and four-year graduation rates would allow for administrators to understand if there is value in sophomore initiative programming and how these students are being affected by continuing their involvement in KEY Careers.

The KEY Careers program has been evaluated and restructured as the program has grown. One major change the program underwent was when the program changed from lecture-based involvement to a hybrid, which included a set of online modules and in-person group activities to encourage career exploration. The fall 2011 and 2012 cohorts utilized the lecture-based format where involvement in the KEY Careers program was defined as attending one event while the other two cohorts utilized the online module model. Exploring the differences of the KEY Careers impact for these two different methods of a career intervention would be beneficial to understand best practices for distributing an effective career intervention.

The KEY Careers program started in the fall of 2011, and only four sets of class data were available in the study. Expanding this study to encompass more student data when there is more data available to analyze four-year graduation rates may provide a deeper insight as to how career interventions impact students.

The initial MVS assessment was distributed during orientation for incoming students at BSU. The demographic of students that were not affected by participation in the KEY Careers program were those who did not have initial MVS scores, which were also students who did not attend orientation. Investigating the link between persistence, four-year graduation rates, and attending orientation would be another aspect for further research.

Examining this study through the lens of Baxter-Magolda's (2001) theory of self-authorship would also be recommended to further understand the best way to implement a career intervention. Self-authorship focuses on utilizing reflective questions to allow individuals to grow and make their own decisions about their values and goals, which is what career interventions seek to do in the higher education setting. Exploring the connections to having students intentionally focus on exploring their vocational identity and self-authorship would be interesting to investigate in further research.

Focusing on various student demographics and how they are impacted by career interventions is also another possible avenue of research. Student athletes, students involved in Greek life, and other demographic groups could be of potential interest for future studies.

An additional recommendation for research includes examining reasons why matriculates did not return to the university. Institutions can have a significant influence on students' abilities to integrate into the university setting, which is why understanding reasons why students do not return to the university would be beneficial for administrators. Researching obstacles that exist at BSU for students may also provide insight as to what hinders students from graduating within four years.

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APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL

B A L L S T A T E
U N I V E R S I T Y

Office of Research Integrity
Institutional Review Board (IRB)
2000 University Avenue
Muncie, IN 47306-0155
Phone: 765-285-5070

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DATE:	February 12, 2016
TO:	Karley Clayton, B.S.
FROM:	Ball State University IRB
RE:	IRB protocol # 866654-1
TITLE:	EXAMINATION OF THE KEY CAREERS PROGRAM'S EFFECTIVENESS ON ONE-YEAR RETENTION AND FOUR-YEAR GRADUATION RATES AT BALL STATE UNIVERSITY
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
DECISION DATE:	February 12, 2016
REVIEW TYPE:	**EXEMPT**

_____

The Institutional Review Board reviewed your protocol on February 12, 2016 and has determined the procedures you have proposed are appropriate for exemption under the federal regulations. As such, there will be no further review of your protocol, and you are cleared to proceed with the procedures outlined in your protocol. As an exempt study, there is no requirement for continuing review. Your protocol will remain on file with the IRB as a matter of record.

Exempt Categories:

	Category 1: Research conducted in established or commonly accepted educational settings, involving normal educations practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
	Category 2: Research involving the use of educational test (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior
	Category 3: Research involving the use of educational test (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under category 2, if: (i) the human subjects are elected or appointed officials or candidates for public office; or (ii) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
X	**Category 4:** Research involving the collection of study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or

- 1 -

	if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
	Category 5: Research and demonstration projects which are conducted by or subject to the approval of Department or agency heads, and which are designed to study, evaluate or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in methods or levels of payment for benefits or services under these programs.
	Category 6: Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed which contains a food ingredient at or below the level and for a use found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

Editorial Notes:

1. N/A

While your project does not require continuing review, it is the responsibility of the P.I. (and, if applicable, faculty supervisor) to inform the IRB if the procedures presented in this protocol are to be modified or if problems related to human research participants arise in connection with this project. **Any procedural modifications must be evaluated by the IRB before being implemented, as some modifications may change the review status of this project.** Please contact (ORI Staff) if you are unsure whether your proposed modification requires review or have any questions. Proposed modifications should be addressed in writing and submitted electronically to the IRB (http://www.bsu.edu/irb) for review. Please reference the above IRB protocol number in any communication to the IRB regarding this project.

Reminder: Even though your study is exempt from the relevant federal regulations of the Common Rule (45 CFR 46, subpart A), you and your research team are not exempt from ethical research practices and should therefore employ all protections for your participants and their data which are appropriate to your project.