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AN EXPLORATION OF THE IMPACT  
OF STUDENT EMPLOYMENT AND RETENTION:  
A CORRELATIONAL ANALYSIS

By

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A dissertation submitted in partial fulfillment of the requirements  
for the degree of Doctor of Education  
in the Department of Educational Leadership and Higher Education  
in the College of Community Innovation and Education  
at the University of Central Florida  
Orlando, Florida.

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## ABSTRACT

“With so many students working, and such large numbers devoting a considerable amount of time to one or more jobs, work is – after going to class- the most common activity in which undergraduates engage” (Kuh, 2018, p. ix). An under-researched factor to investigate why students retain, is participation in an on-campus student employment program. The purpose of the study is to explore the relationship between a student’s participation in student employment and if the student retains from their first to second year. Understanding this relationship can provide an opportunity to create positive impact for both the student and institution with minimal institutional financial investment. Additionally, this study explores if the level of participation in the program impacts if a student will retain.

Utilizing a quantitative approach, the researcher used logistic regression to predict the relationship between student employment participation and retention. Tinto’s Model of Institutional Departure and Astin’s Student Involvement Theory framed the research questions for this study. Exploring the variable of student employment participation on retention might provide a valuable opportunity for institutions to invest in programming that provides financial, educational, and social support for the student while positively impacting their likelihood to retain.

This study’s analysis provides a prediction of the positive impact a student’s participation in an on-on campus student employment program can have on whether a student retains at the institution. This study found that student participants were about 46% more likely to retain from their first year to the next at their institution. Additionally, the study found that for each hour the

student participates in the program, they are .4% more likely to retain. Though significant, the study violated some assumptions on the logistic regression, restricting the generalizability of the study.

This dissertation is dedicated to my support systems who never allowed me to give up on myself  
and to my parents who have been my life support when I have needed it, literally and  
figuratively.

## **ACKNOWLEDGMENTS**

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# CHAPTER ONE: INTRODUCTION

## Introduction

According to a 2020 National Center for Education Statistics report, only 62% of students who started at a four year institution in fall of 2012 graduated from the same institution within six years. Increasing retention rates is important for institutions, students, and society as a whole (Tinto, 2012). An institution's financial outlook and ability to compete for students, impacts the viability of an institution. Students similarly benefit from retaining to graduation. In 2019, graduates from four year institutions were 19% more likely to be employed and had 57% higher median earnings, compared to those without a bachelor's degree (NCES, 2020c). Additionally, college graduates save more money, are healthier, and have longer life expectancies (Habley et al., 2012). Researching and understanding retention factors informs institutional strategy and benefits student outcomes.

An under-researched factor to investigate why students retain, is participation in an on-campus student employment program. "College students have combined work and schooling since the earliest colleges were established in the United States" (McCormick et al., 2010, p. 179). As the cost of attending college has increased throughout the nation's history, so has the proportion of students working and the number of hours worked (Tuttle et al., 2005). In 2018, 43% of full-time undergraduate students were employed (NCES, 2020b). Many students choose to work as employees at their institution as a means of remuneration and logistical convenience

but develop additional appreciation for other factors like career preparation, academic coursework association, and social connection (McClellan et al., 2018).

First year retention is a challenge for higher education institutions. Participation in campus-based employment is a variable to consider in understanding student retention. Understanding the retention rate of students who participate in on-campus employment might determine how institutions invest their resources.

### Problem Statement

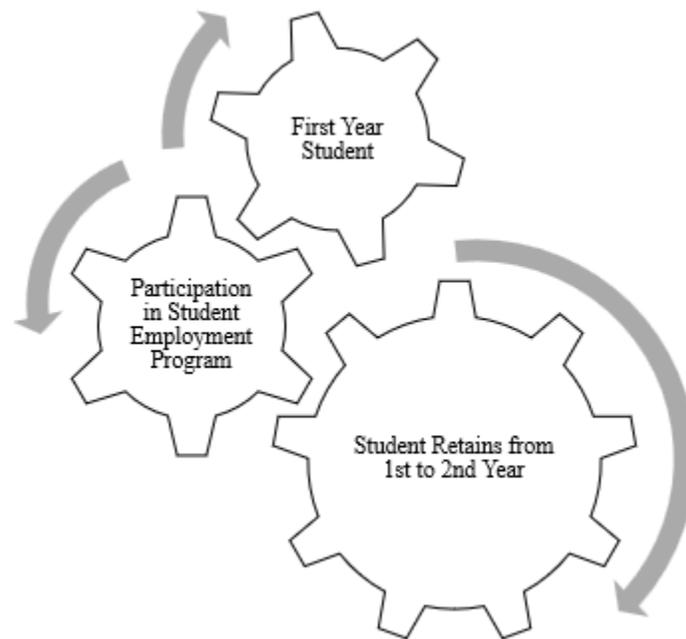
This study, An Exploration of the Impact of Student Employment and Retention: A correlational analysis, examines factors leading to the retention of students at their respective institution. Understanding the relationship between retention and participation in campus-based employment might determine how institutions invest their resources in campus-based employment for students. While extensive research has been conducted on student retention (Astin, 1975; Lau, 2003; Tinto, 2006, 2012) and to a lesser degree student employment (Gardner, Chickering, Frank, Robertson, Luzzo, Noel, Williams, Newman, Mulugetta, Chavez, Van de Water, Rinella, Kopecky, Wilkie, Jones, Foreman, Casella, Brougham, Little, ... Kennedy, 1996; McClellan et al., 2018), little empirical research has been conducted on the connection between student employment participation in the first year and retention at a medium size private institution.

In four-year institutions, any change that deters students from dropping out can affect three classes of students at once. Whereas any change in recruiting can affect only one

class in a given year. From this viewpoint, investing resources to prevent dropping out may be more effective than applying the same resources to more vigorous recruitment.

(Astin, 1975, p. 2)

Exploring the variable of student employment participation on retention might provide a valuable opportunity for institutions to invest in programming that provides financial, educational, and social support for the student while positively impacting their likelihood to retain. Figure 1 displays how participation in a Student Employment Program might impact a student's matriculation from their first to second year. Figure 1 is as follows:



*Figure 1. First year student matriculation process.*

Figure 1 shows how participation in a student employment program as an intervening factor in the matriculation process.

## Theoretical Framework

As previously mentioned, the phenomenon of why students retain has been a focus of much research for decades. Vincent Tinto and Alexander Astin are two mainstays in this researcher having developed theories which have framed much of the past and current studies. Tinto's (1975) interactionist theory of student departure became the best known and cited theory (Berger et al., 2005). Tinto's (1975) theory provided a model for why students leave college: academic challenges, inability to work through educational or occupational goals, and lack of engagement with the intellectual and social life at the institution. Following Tinto's model, Alexander Astin (1977) created a student involvement theory which correlated student involvement and retention. Both Tinto and Astin further developed these models through their research. This study is framed by these retention theories.

Tinto's model identifies two individual college systems, the academic system which includes the formal education of students and the social system, which concerns itself with daily life and student's personal needs. Expanding on this distinction, Tinto defines how varying modes of departure can be explained by the academic or social experiences a student might have (Tinto, 1993). Further, Tinto's model identifies that the early integration of academic and social systems leads to greater institutional commitment (Berger et al., 2005). These commitments increase the likelihood of a student retaining. These academic and social experience can include student employment since participating in a student employment program provides an opportunity for students to connect their work to their academics (McCormick et al., 2010) and social interactions (Mayhew et al., 2016).

Building on Tinto's interactionist theory, Astin developed the student involvement theory (1984) which describes a model that is simple, explains the empirical research conducted regarding the impact of environmental factors of student development, combines other very different theories, and can be used by both researchers and institutional leaders. The theory includes five assumptions. First, involvement requires physical and psychological energy investment by the student. Second, involvement exists on a continuum which varies based on the student's degree of involvement. Third, involvement can be measured quantitatively and qualitatively, or both. Fourth, there is a proportional relationship between the amount of learning that occurs and the quality and quantity of student involvement. Fifth, as a student's involvement increases, so will their academic performance. Participation in student employment fits with Astin's theory beginning with his definition of involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1985). Student employment directs the student's energy within not only an academic context, but also a fiduciary relationship between the student and institution. This study uses a quantitative approach to examine how the level of a student's participation in a student employment program might impact whether the student retains.

While Astin's theory provides a framework to understand how the level of involvement in the student employment program might impact retention, Vincent Tinto (1975) provides a model for why students leave college: academic challenges, inability to work through educational or occupational goals, and lack of engagement with the intellectual and social life at the institution. Student employment can provide an experiential learning opportunity (Kuh, et al.,

2006) for students to grow professional and occupational skills that connect to their academic program. These theories provide a framework for this study.

### Purpose Statement

The purpose of the study is to determine the relationship between a student's participation in student employment and if the student retains from their first to second year. Additionally, this study examines how the level of participation in the student employment program impacts student retention. Understanding this relationship can provide an opportunity to create positive impact for both the student and institution with minimal institutional financial investment.

### Research Questions and Hypotheses

The following research questions and null hypotheses are addressed to determine if participation in a student employment program and the level of participation impacts if students retain at the institution.

**Research Question 1:** Is there a significant difference in the retention rate of first year students who participate in an on-campus student employment program and non-participants in their first year?

**Null Hypothesis 1:** There is no significant difference in the retention rate of first year students who participate in an on-campus student employment program and non-participants.

**Research Question 2:** Are there significant differences in the retention rate of participants in an on-campus student employment program and their level of participation measured in hours worked?

**Null Hypothesis 2:** There are no significant differences in the retention rate of first year students based on their level of participation in an on-campus student employment program.

The aforementioned research questions and null hypotheses are aligned with a theoretical frame guiding the study in Table 1:

*Table 1 Alignment of research questions and theoretical framework for study.*

<b>Research Question</b>	<b>Theoretical Framework</b>	<b>Alignment of Research Question with Theoretical Framework</b>
Is there a significant difference in the retention rate of first year students who participate in an on-campus student employment program and non-participants in their first year?	Model of Institutional Departure (Tinto)	The early integration of academic and social systems leads to greater institutional commitment
Are there significant differences in the retention rate of participants in an on-campus student employment program and their level of participation measured in hours worked?	Student Involvement Theory (Astin)	The amount of physical and psychological energy that the student devotes to the academic experience

### Significance of the Study

Students at four year institutions are more likely to work during college compared to their past counterparts (Scott-Clayton, 2012). Perna (2010) explains that “although students who work have an obligation to fulfill their academic responsibilities, colleges and universities also have a responsibility to ensure that all students—including those who work—can be successful” (p. 32). Student employment provides students with an opportunity for meaningful engagement where they can build career competencies, grow in academic pursuits, and contribute to their institution while receiving helpful, if not necessary, compensation. George Kuh, Senior Scholar at the National Institute for Learning Outcomes Assessment, explains:

With so many undergraduates today working while pursuing their studies, it is incumbent on college and university leaders, faculty, academic advisors, student affairs professionals, and others committed to helping students to become more informed about how to harness the benefits of employment and both student engagement and educational outcomes... promoting greater levels of deep learning and goal realization through the work experience is one of the few promising approaches that does not require additional resources to implement. (McClellan et al., 2018, p. xiii)

In addition to requiring minimal to no cost to strengthen or expand a current student employment program. Realizing an increased retention rate assists the student participants in achieving success through educational attainment and the institution financially (Burnside et al., 2019). Institutions where students retain for four years, will generate the same income as four new students who leave after one year, as well as the cost of recruitment for those students who do

not retain (McClellan et al., 2018). Lastly, research has found that the impact of work during college on career success after graduation has been positive (Casella & Brougham, 1995; Sagen et al., 2000) which could make investment in a student employment program worthwhile for institution employability statistics and potential alumni giving.

### Limitations and Delimitations

All research has limitations for its study. One limitation in this study is that the retention analysis uses one institution's data and the outcomes may not be generalizable since there are many factors that contribute to a student's retention. It is not possible to account for all unknown factors. Additionally, there is not a control for which students participate in the student employment program. Students self-select to participate through the job application process and supervisors hire the best student for the individual position. Lastly, there are statistical and design problems inherent with correlation studies which can be limited, but not eradicated, through internal and external validity procedures (Mitchell, 1985).

To that end, Best and Kahn (2006) define delimitations as a way of identifying boundaries of a study and ensuring that these characteristics are present in the sample. The delimitations for this study are:

1. Only data from 2014 through 2019 were utilized.
2. The study is confined to students enrolled in their first year of undergraduate study at Lehigh University.
3. Only retention and program participation will be analyzed.

Though the generalizability of this study has these limitations and delimitations, this study contributes to the body of literature surrounding student employment and retention.

### Assumptions

The study is based on the following assumptions:

- 1) Students' employment experiences were similar each year.
- 2) Students' employment experiences were similar to one another.
- 3) All data provided by the institution was accurate.

### Definition of Terms

#### **Retention-**

This study uses the retention definition described by Hagedorn (2005) as "staying in school until completion of a degree" (p.83). For the purposes of this study the researcher further defines retention as remaining at the institution until completion of the baccalaureate degree.

#### **Full-time Student-**

Lehring University defines a full-time student as an undergraduate taking a minimum of three units (12 credit hours) each semester.

#### **Student Employment Program-**

Lehring University defines student employment as a best practice employment program where students grow in their career and academic pursuits through mentorship and experience as they actively contribute to the University (Lehring University, 2021).

### **Student Employee Participant-**

Perozzi (2009) defines student employment participants as “students who are paid by the institution and officially report to a supervisor” (p. x).

### Organization of the Study

This study consists of five chapters. Chapter One introduces the concepts of retention and student employment in higher education. Included in Chapter One is the background of the study, problem statement, theoretical framework, purpose statement, hypothesis, statement of significance, delimitations, limitations, assumptions, and definitions of terms.

Chapter Two presents a literature review, which includes student involvement theory, the student departure model, high impact practices, and retention. Chapter Three describes the methodology used for this study. It includes the selection of participants, design, data collection, and statistical procedures of the study.

Chapter Four presents the findings of the research study. Finally, Chapter Five provides a summary of the study, discussion of the findings, conclusions, and implications for further research and practice.

### Summary of the Introduction

First year retention is a challenge for higher education institutions. Participation in campus-based employment is a variable that researchers might consider in understanding student retention. This study provides a correlational study of the effect of student employment program participation on a students' retention at their institution for their first and second year. Understanding the retention rate of students who participate in on-campus employment might determine how institutions invest their resources.

## **CHAPTER TWO: LITERATURE REVIEW**

### Introduction

As discussed in Chapter One, understanding the factors that lead to student retention can provide an opportunity to create positive impact for both the student and institution. The purpose of the study is to explore the relationship between a student's participation in student employment and if the student retains at their institution from their first to second year. Defining the components of a student employment program, investigating the theories that surround student retention and reviewing how student employment might fit into those frameworks is necessary and provides a foundation for this study. This chapter will provide the rationale for this study by exploring relevant retention and student employment literature, including history, comparative studies, and development of a student employment program.

### Retention Perspectives

#### Research About Retention in Higher Education

Understanding the framework for why students retain is necessary to conduct conclusive research. Additionally, researchers Noel and Levitz (1985) note its impact, "effective retention research can provide just the vehicle colleges need to stay ahead of and cope with the changing environment" (p. 345). While the early developments of retention research date back to the

1900s, theories regarding retention began to develop and be accepted in the 1970's (Aljohani, 2016). William Spady (1971) argued, "the beginning of an ongoing movement in which retention would become a major focus of theory, research, policy and practice throughout American higher education" (as cited in Berger et al., 2005, p. 22). This sociological model studied the interaction between the college environment and the student's attributes. Building upon Spady's work, Tinto's (1975) interactionist theory of student departure became the best known and cited theory (Berger et al., 2005). Tinto's (1975) theory provided a model for why students leave college: academic challenges, inability to work through educational or occupational goals, and lack of engagement with the intellectual and social life at the institution. Following Tinto's model, Alexander Astin (1977) created a student involvement theory which correlated student involvement and retention. Both Tinto and Astin further developed these models through their research. This study will be framed by these retention theories.

### Tinto's Institutional Departure Model

As mentioned in the introduction to this section, Tinto (1975) built upon Spady's research on the college dropout process in developing his well-recognized Student Integration Model. Additionally, Tinto based his theory on Van Gennep's anthropological model of cultural rites of passage (Aljohani, 2016; Kuh et al., 2006). Between 1975 and 1993, this model went through many examinations and revisions by Tinto and others (Cabrera et al., 1992; Cabrera et al. 1993; Pascarella & Terenzini, 1979, 1980, 1983; Tarenzini et al., 1981; Tinto 1988). Tinto continues his

research to present day, with his most recent book publication, *Completing College: Rethinking Institutional Action* published in 2012.

### Tinto's 1993 Model of Institutional Departure

Tinto's model identifies two individual college systems, the academic system which includes the formal education of students and the social system, which concerns itself with daily life and student's personal needs. Expanding on this distinction, Tinto defines how varying modes of departure can be explained by the academic or social experiences a student might have (Tinto, 1993). These academic and social experience can include student employment as student employment is an opportunity for students to connect their work to their academics (McCormick et al., 2010) and social interactions (Mayhew et al., 2016). Tinto's Institutional Departure Model is presented in Figure 2.

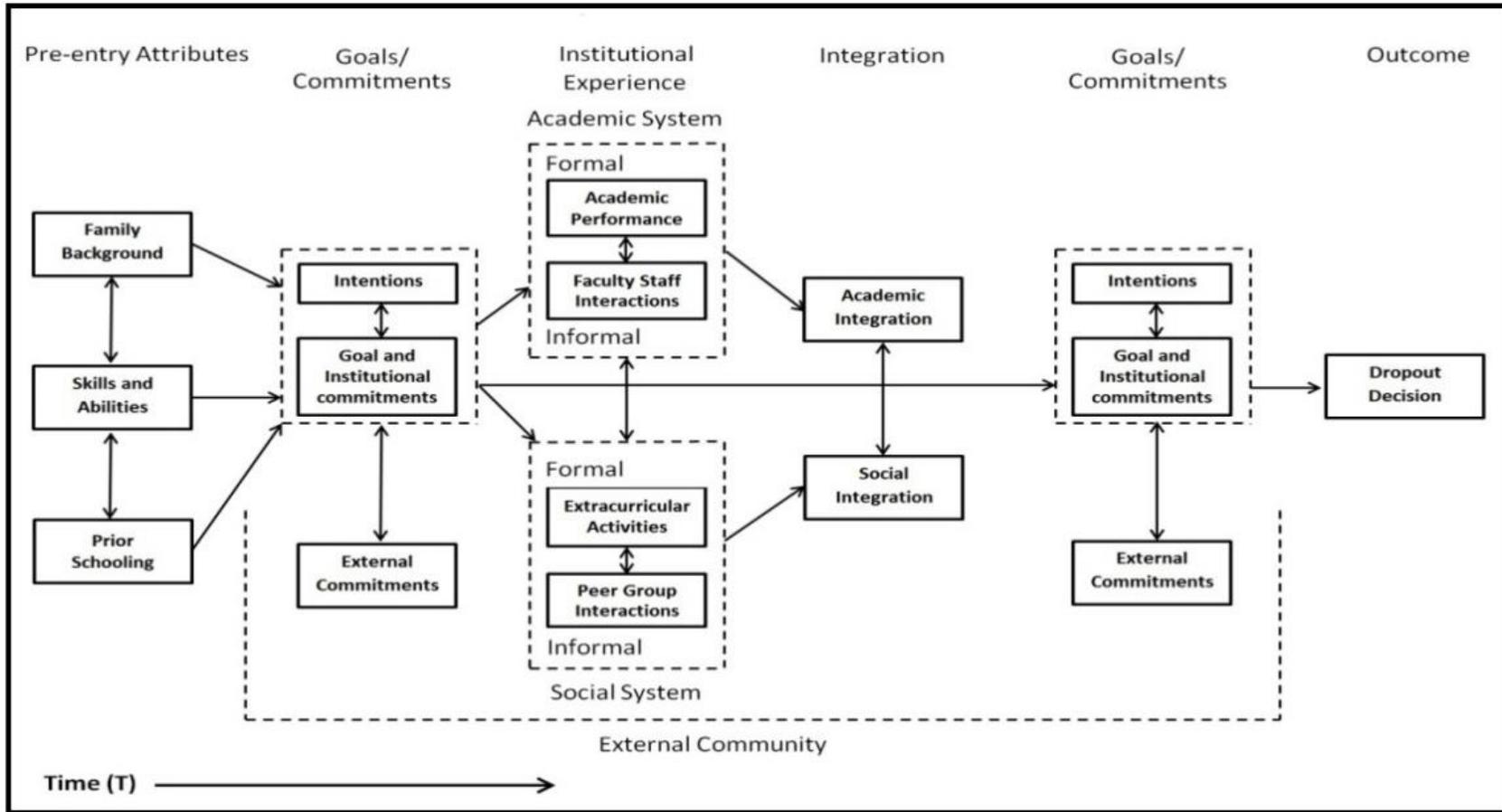


Figure 2 Longitudinal Model of Institutional Departure Model (Tinto, 1993, p. 114).

Figure 2 identifies the formal and informal experiences of the academic and social systems.

Additionally, both systems need to be adequate for a student to retain, but they need not be equal.

As the academic and social systems of the institution are in some measure distinct, it also follows that integration of either sort in one system need not imply comparable integration in the other. A person may be able to achieve integration in one system of the college without necessarily being able to do in the other. A person can conceivably become integrated and establish membership in the social system on the college, largely comprised of one's peers, and still depart because of an inability to establish competent membership in the academic domain of the college (e.g. failure to maintain adequate grades). Conversely a person may perform more than adequately in the academic domain of the college and still come to leave because of insufficient integration into the social life. Social isolation may lead to departure independent of one's academic performance.

(Tinto, p. 107, 1993)

Lastly, Tinto's model identifies that the early integration of academic and social systems leads to greater institutional commitment (Berger et al., 2005). These commitments increase the likelihood of a student retaining. Based on this model, Tinto clarifies three main reasons that students do not retain: academic challenges, inability to work through educational or occupational goals, and lack of engagement with the intellectual and social life at the institution (McClellan et al., 2018).

## Critique of Model of Institutional Departure

Tinto's (1993) interactionist theory is the dominant sociological model for why students depart "having attained near paradigmatic status (Braxton et al., 1997; Pascarella & Terenzini, 2005)" (Kuh, et al., 2006, p. 11). This model has been heavily critiqued as a result of this esteem, most notably by Braxton (2000) and Kuh (2006). Kuh's criticism is focused on limited empirical substantiation.

For example, only 8 of the 11 multi-institutional studies that attempted to link academic integration and persistence provided support for the relationship. Single institution studies examining the relationship between academic integration and persistence are less clear. Nineteen of 40 studies Braxton et al. examined did not indicate a link between persistence and academic integration. (Kuh et al., 2006, p. 12)

Kuh offers that the social integration is significantly more impactful than academic integration. As Braxton tested Tinto's model, he found that when studies use multi-institutional settings in their scope, they are less compatible with Tinto's approach. "Single-institutional studies, however are more congruous with the underlying assumptions of Tinto's theory of college departure" (Braxton, 2000, p. 13). Additionally, Braxton's review concluded that Tinto's theory focused primarily on residential institutions and primarily white institutions (McClellan et al., 2018, p. 109). Though Kuh argued the lack of empirical research to substantiate Tinto's theory, Braxton found that single-institution studies, like this research study, are more congruent. Additionally, though Tinto's theory lacks broad reach by institution type (residential of limited in diversity), Lehigh University in this study is primarily a residential and predominantly white

institution. Additionally, Tinto's holistic model to frame retention, fits the student employment model well. Lastly, Tinto refined his departure model throughout his career as new perspectives and research emerged, however the focus on the social and academic integration of the student remained integral to his evolving model.

### Conclusion

The institutional experience is an important piece of Tinto's model. Participation in an on-campus student employment program, particularly in a student's first year, could link both distinct systems by connecting the academic experiences and the social work commitment. Although critiques of this theory are appropriate, Tinto's model provides a holistic framework for the student. After more than 35 years of research, Tinto (2010) found that research on retention provides some insight on why students retain, but a complete model for how institutions can positively impact retention has not been developed.

Though we are increasingly able to explain why some students leave and others persist within an institution and have been able to point out some types of action that institutions can take to improve student retention, we have not yet been able to develop a comprehensive model of institutional action that would help institutions make substantial progress in helping students continue and complete their degree programs within the institution. (Tinto, 2010, p. 51)

Understanding the impact of an on-campus student employment program might contribute to the work of Tinto and others in developing this retention model regarding institutional action.

## Astin's Student Involvement Theory

As Tinto developed a model based on student and academic integration, Alexander Astin developed Student Involvement Theory. Astin's (1984) Student Involvement Theory describes a model that is simple, explains the empirical research conducted regarding the impact of environmental factors of student development, combines other very different theories, and can be used by both researchers and institutional leaders. The theory includes five assumptions. First, involvement requires an investment of physical and psychological energy by the student. Second, involvement exists on a continuum which varies based on the student's degree of involvement. Third, involvement can be measured quantitatively and qualitatively, or both. Fourth, there is a proportional relationship between the amount of learning that occurs and the quality and quantity of student involvement. Fifth, as a student's involvement increases, so will their academic performance.

### Student Employment as an Academic and Social Support

Kuh et. al (2006) describes Astin's approach as a cultural perspective where "Student perceptions of the institutional environment and dominant norms and values influence how students think and spend their time. Taken together, these properties influence student satisfaction and the extent to which students take part in educationally purposeful activities" (p. 14) . Additionally, Astin determined that the way a college environment supports a student's academic and social needs as perceived by a student, is the best predictor of student satisfaction

(Kuh et al., 2006). This support is likely seen through the eyes of peers. According to Astin (1993), peers are the “single most potent source of influence” (p. 398). Astin (1997) lists peer interactions that foster learning:

1. discussing course content with other students;
2. working on group projects for classes tutoring other students;
3. participating in intramural sports;
4. being a member of a social fraternity or sorority;
5. discussing racial or ethnic issues;
6. socializing with someone from a different racial or ethnic group;
7. being elected to a student office;
8. spending time each week socializing or in student clubs or organizations (p. 385)

Student employees take on many roles at an institution. Different items on this list of peer interactions are included as responsibilities across several of the on-campus student employment roles.

Participation in student employment fits with Astin’s theory tightly beginning with his definition of involvement as “the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1985, p. 36). Further, student employment directs the student’s energy within not only an academic context, but also a fiduciary relationship between the student and institution. Lastly, the student experience can be measured beyond its possible impact on retention. This research can be conductive qualitatively through supervision and social/peer support, and quantitatively through evaluations, participation, and surveys. For the purpose of this study, however, the researcher conducted a correlational analysis of student

participation in an on-campus student employment program and their retention. Additionally, given Astin's model of Student Interaction, the level of interaction will be measured in the number of hours a student worked in the semester. This will determine if the level of participation in an on-campus Student Employment program impacts a student's likelihood to retain.

### Critique of Student Involvement Theory

Astin's involvement theory has been critiqued based on its difficulty in measurement, due to its broad scope. When asked how to measure a student's campus involvement when they might be involved in only one extracurricular activity, Astin noted,

A person can be completely absorbed in only one organization... being in the French Club might not mean much for the student, But certain kinds of organization memberships such as Greek-letter organizations, which typically demand considerable time and effort are better representations of involvement... it is about putting time and energy into the thing. (as cited in Wolf-Wendel et al., 2009, p. 411)

Additionally, Astin's theory has been criticized for having limited application for non-traditional age populations. Astin agrees that there is likely an overrepresentation of traditional age student in the data, it is simply a result of available data. Further, he identified that "older students are probably affected by somewhat different forms of involvement, but I don't see involvement as not being equally relevant of all ages" (Wolf-Wendel et al., 2009 p. 412). This criticism is

accurate but has little to no impact on the study since Lehigh University in this study has a traditional college-age population.

Astin's Student Involvement Theory differs in form and critique in comparison to Tinto. Tinto's theory provides a model for understanding and situating a retention intervention strategy, and Astin provides a structure for measurement and analysis of the intervention. In Astin's estimation, his theory is a "handy device" to be used by researchers in advancing the "fundamental trust: 'learning experiences pay off in terms of what you invest in them'" (Wolf-Wendel et al., p. 412, 2009).

### History of Student Employment

The history of student employment can be traced back to the 1650s with a Harvard student, Zecharia Brigden. Historical records note he was the first American student to work his way through college. (McClellan et al., 2018). The better documented history of student employment can be traced to the Morrill Acts of 1862 and 1890. This legislation expanded the number and size of colleges and universities, especially residential campuses. As these campuses were quickly built, there was a new need for dining hall and operational staff to run and maintain them (McClellan et al., 2018).

## Student Employment

### Defining Student Employment

According to Tuttle, 80% of American college students worked during their time in college (as cited in McClellan et al., 2018). Additionally, data from the National Center for Education Statistics (2009) cites 79% of undergraduates worked a minimum of one hour per week (Perozzi, 2009). For the purpose of this research, the study focused on the undergraduate students who complete work on-campus and are paid by the University. McClellan et al. (2018) provide additional clarity in defining this population.

Although they do not make up the majority of students who are employed, they are the population upon whom staff and faculty have the greatest impact. Given the role that they play in creating employment opportunities, shaping employment conditions, and providing employment supervision and guidance. (p. 9)

Additionally, an on-campus student employment program provides a supportive environment that puts students in situations where they can put the classroom learning to use in a safe environment (Kuh, 2018). Lastly, the phrase *work study*, should refer exclusively to a student employee whose work is funded through the Federal Work Study program. “To do otherwise is to risk inadvertently conveying a message to students that the expectation we and they should have is that we see their role as a blend of work and study as opposed to being about development, learning, or retention” (McClellan et al., 2018, p. 10). Lehigh University’s student employment program does not distinguish its program based on Federal Work Study eligibility.

## Federal Work Study

The Federal Work Study Program was originally enacted in the Economic Opportunity Act of 1964 and included the next year in the Higher Education Act of 1965. According to part C on the Higher Education Act of 1965, the Federal Work Study Program's purpose to "stimulate and promote the part-time employment of students . . . who are in need of the earnings from such employment to pursue courses of study at eligible institutions" (Higher Education Act of 1965, as amended in 2008, 42 U.S.C. § 2751). According to the Federal Student Aid website, "Federal Work-Study provides part-time jobs for undergraduate and graduate students with financial need, allowing them to earn money to help pay education expenses. The program encourages community service work and work related to the student's course of study" (Federal Student Aid, 2020, para. 1). This program provides funds to assist in employing student on or off campus. Typically, the program reimburses the institution 75% of a student's hourly wage, and the institution matches the additional 25%. According to U.S. Department of Education data for 2018-2019, 3101 institutions received a total \$1.11B dollars. According to this campus-based program data, 612,601 students worked nationwide through this program. This federal work study funding is not the only funding used for student employment. As curricular and co-curricular programming has grown in higher education, so have the opportunities for student employment on campus (McClellan et al, 2018).

## Research on Student Employment

Hammes and Haller (1983) conducted research on the impact of employment on college students in 1983 and are considered the “pioneering scholars to assert that paid employment may be an asset for some students, and that minimal durations of work are not necessarily detrimental for college students (Barnhardt et al., 2019, p. 710). Significant research has been conducted since then in an effort to understand and measure the potential outcomes of students who work while attending college. In their article for *The Review of Higher Education*, Barnhardt et al. (2018) explain:

With a substantial portion of students employed while attending college and the time and energy that they devote to work, studying the effects of work on college student outcomes is an active area of college impact research (for reviews see Astin, 1993; Mayhew et al., 2016; Pascarella & Terenzini, 1991, 2005). (p. 708)

Empirical research on students who work while attending college explored how work impacted measures of academic performance, student engagement, and persistence. The findings of these studies have been inconsistently positive and negative from study to study. Research exploring the impact of participating on academic factors, like a student’s GPA, has found negative effects (Astin, 1993; DeSimone, 2008; Ma & Wooster, 1979), no effects (Kalenkoski & Pabilonia, 2004, Lundberg, 2004) and positive effects (Hammes & Haller, 1983; Martinez et al.; 2009; Roksa, 2011; Van De Water & Augenblock, 1987). As Hood and Maplethorpe’s (1980) critique reviewed these studies, they found that when a student’s academic ability was controlled for, the significant effects of work on GPA no longer materialized. Studies that researched the

persistence of students who work, have also been mixed. When national datasets were analyzed, a negative effect on persistence was found (Choy, 2002; King, 2002), but smaller population studies have found work to have a positive effect on persistence (Curtis & Nimmer, 1991; Kulm & Cramer, 2006). Additionally, Mayhew, Rockenbach, Bowman, Seifert, Wolniak, Pascarella, and Terenzini (2016) reviewed the full body of research on student employment participation and likelihood to retain..

Given such wide variation in the operationalization of work during college, the mixed evidence concerning the relationship between work during college and student learning may be expected. In several cross-sectional multi-institutional studies, working during college was associated positively with self-reported gains on measures of general education and quantitative and subject matter competence, accounting for an array of student and institutional characteristics. (p. 82).

Through their research, Mayhew et al. (2016) recognized a curvilinear relationship between hours worked and educational attainment, stating that “attainment diminishes at some point, but the exact number of hours varies across studies” (p. 393). This research will add to the body of literature where a smaller known population is used, which allows for a deeper level of assessment to include not only whether a student participates in on-campus employment, but also if their level of participation (in hours per week) has an impact on a student’s likelihood to retain.

## Working on Campus

The cost of attending institutions of higher education rises continually creating the need for many students to work during college to afford their education (Baum, 2005; Martinez et al., 2012; Mayhew et al., 2016). Understanding how employment affects students' educational experiences is complicated by why students work (Perna, 2010). Scott-Clayton (2012) in her working paper for the National Bureau of Economic Research Explains how students may benefit from taking loans instead of work, but credit constraints can force students to work.

Given the unrelenting rise in tuition prices over the past 40 years, an immediate concern is that the increase in student employment may reflect a market failure rather than an economically efficient time allocation decision. Unless student employment has other benefits, students would be better off borrowing money to finance rising costs, so that they could finish college faster or with higher levels of achievement. But credit-constrained students may have little choice but to work. This in turn may delay or diminish their acquisition of human capital, thus decreasing the return on their educational investment. (p. 3)

Students who have to work due to their financial situation might find benefits beyond their paycheck. Working on campus can provide opportunities for leadership and social and political activism (Mayhew, et al., 2016; McClellan, et al., 2018).

Similar to research on student employment, the type of student employment opportunities vary. According to Burnside, Wesley, Wesaw, and Parnell (2019) in their 2019 NASPA longitudinal study entitled, *Employing Student Success: A Comprehensive Examination of On-*

*Campus Student Employment*, “the top three areas that hire the most student employees are (1) student life and student affairs, (2) recreation services and fitness center, and (3) residential life” (p. 21). That study further discusses student employment roles as typically serving the institution’s broad functions across most all departments and divisions.

Historically, researchers have used time worked during college as a control variable in many studies, understanding that as students are working, they are not academically or socially involved during that time (Mayhew, et al., 2016). Mayhew et al. (2016) argue that using student work as a control negates the on the job learning that might be occurring.

Given such wide variation in the operationalization of work during college, and mixed evidence concerning the relationship between work during college and student learning may be expected. In several cross-sectional multi-institutional studies, working during college was associated positively with self-reported gains on measures of general education and quantitative and subject matter competence, accounting for an array of student and institutional characteristics. (p. 82)

Research connecting student development and on-campus student employment emerged between 2003 and 2012 2012 (Brint et al., 2012; Gellin, 2003; Kim & Sax, 2011; Strauss & Terenzini, 2007; Walker, 2003). In Perozzi’s 2009 introduction to the book, *Enhanced Student Learning Through College Employment*, he explains “Employment of students, particularly on-campus employment, is relevant and germane to the student employment experience, yet the academy rarely embraces employment as a means to education and student development” (p. vii).

## The Co-Curricular Connection

### Student Employment as a High Impact Practice

High Impact Practices (HIPs) are defined broadly as select educational activities that can lead to positive outcomes (Kuh, 2008). Characteristics of HIPs connect directly with Tinto's Model of Institutional Departure and Astin's Student Involvement Theory. Specifically, the concept of academic integration (Tinto, 1993) and level of involvement (Astin, 1984). In a well-developed student employment model, student work provides an opportunity for students to apply course material, and a supportive environment to reflect on that experience in a supportive environment.

High Impact Practices were introduced by the Association of American Colleges and Universities (AAC&U) in 2002 as a collection of educational methods that research showed to be correlated with positive educational outcomes for students. These educational activities include first year seminars and experiences, common intellectual experiences, learning communities, writing intensive courses, collaborative assignments and projects, undergraduate research, diversity/global learning, service learning or community-based learning, capstone courses and projects, and internships (AAC&U, 2019).

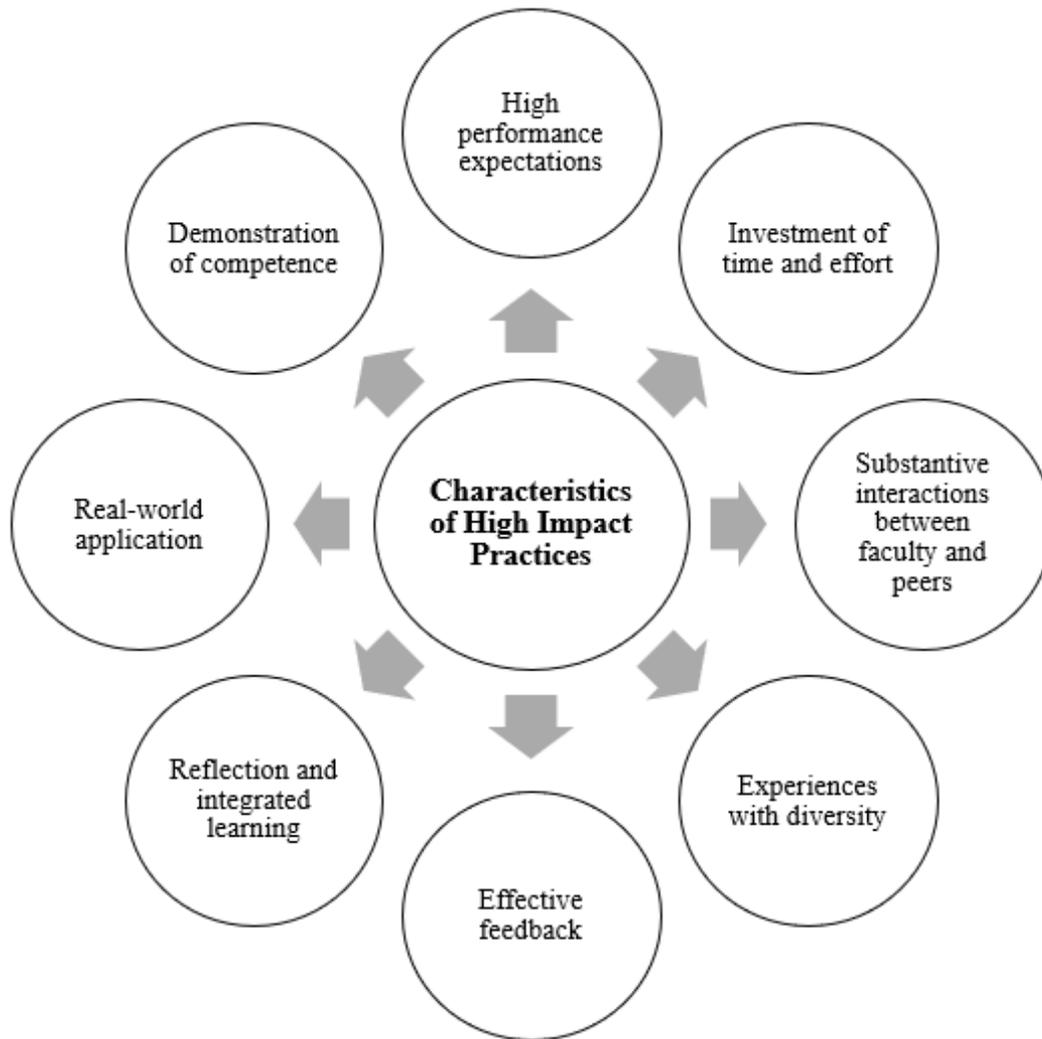
As outlined by Kuh and O'Donnell (2013), HIPs share eight characteristics which are listed below.

1. Performance expectations set at appropriately high levels.
2. Significant investment of time and effort by students over an extended period of time.

3. Interactions with faculty and peers about substantive matters.
4. Experiences with diversity, wherein students are exposed to and must contend with people and circumstances that differ from those with which students are familiar.
5. Frequent, timely, and constructive feedback.
6. Periodic, structured opportunities to reflect and integrate learning.
7. Opportunities to discover relevance of learning through real-world applications.
8. Public demonstration of competence. (p. 10)

Kuh explains that these HIPs can be applied to an on-campus student employment program.

“Indeed, I am persuaded that employment during college... can be structured in ways to mimic the attributes of and outcomes associated with such HIPs as learning communities, service-learning courses, and first-year seminars” (Kuh, 2018, p. xii). HIPs are graphically represented in Figure 3.



*Figure 2 Characteristics of High Impact Practices.*

Lehring University’s Student Employment Program incorporates these HIP characteristics into practice. A 2019 NASPA study examining on-campus student employment by Burnside et al., explained that student employment programs vary across institutions. “The degree to which a particular on-campus employment opportunity serves as a high-quality, developmental experience can depend on the various work conditions, processes, and policies an institution has in place” (p. 1). According to Lehring University, their student employment

program “provides a best practice employment program where students grow in their career and academic pursuits through mentorship and experience as they actively contribute to the University” (Lehring University, 2020, Student Employment). Exploring the elements of this program and how it interacts within the university structure can inform future application of this research.

### NACE Career Competencies

Beginning in 2014, the National Association of Colleges and Employers (NACE) researchers analyzed years of *Job Outlook* data and identified the skills employers sought in new college graduates (Cruzvergara et al., 2018). NACE defined these skills as student career readiness in 2015 with seven associated competencies. An eighth career readiness competency was added in 2017 (Nunamaker et al., 2017). The eight career readiness competencies are listed below.

1. Problem solving
2. Communication
3. Teamwork
4. Digital technology
5. Leadership
6. Professionalism
7. Career management
8. Intercultural fluency

## National Competency Symposium

Institutions across the United States have instituted these competencies to varying degrees. In 2017, a collaboration between the Career Offices at Clemson University and The University of Tampa, resulted in the first Strategies of Institutional-wide Competency Development Symposium. “The symposium was designed to bring faculty, career services staff, administrators, student affairs staff, and employers together to discuss strategic campus wide approaches. Over 180 attendees from over 40 institutions attended the day and a half Symposium” (Clemson University, n.d.-b). This two-day annual Symposium created an opportunity for data and resource sharing across a diverse array of institutions. In 2019, the most recent year with shared data, 94 institutions were represented at this Symposium. These resources assist Career professionals identify how their institution, office, and campus partners have progressed in implementing this competency framework.

## Competency Relationship Continuum

A result of the institutional collaboration at the Symposium is the Competency Relationship Continuum. This document assists Career offices in understanding and mapping where their work with campus partners “fit” within the implementation framework. To recognize where the partnership might fit, the Competency Relationship Continuum includes questions for Career offices to answer to determine the relationship it has with campus departments and

programs. The Continuum defines the relationship stages as: Unfamiliar, Awareness, Support, Engagement, Collaboration and Partnership.

To determine if the relationship is unfamiliar, one must ask whether or not they are interested in learning about competency development. Awareness questions include:

1. Do you understand the importance of university wide competency development?
2. Do you believe the competencies can be developed in the curriculum?
3. Do you believe the competencies can be developed in the co-curriculum?
4. Do you know people who might be key stakeholders?

Support questions include:

1. Have you interacted with anyone in a meaningful way about competency development?
2. Do you see ways in which your students can benefit from university-wide competency development?
3. Do you refer students to competency development programs/events?

Engagement questions include:

1. Do you collaborate on competency develop programs/events with campus partners?
2. Do you take on leadership roles, including serving on committees and actively collaborating on competency development?
3. Do you commit time and resources to work with others on competency development?
4. Do you intentionally build in campus competency development programs into your students' experience?

Collaboration questions include:

1. Do you actively infuse competency development into your own classes, programs, events, etc.?
2. Are you able to readily articulate the contribution that your department makes to competency development?
3. Do you assess the contribution your department is making to students' competency development?
4. Do you help students connect the outcomes from your department with other competency development experiences? (Clemson University, n.d.-a )

At Lehigh University, the Career office has determined that a true “Partnership” exists between the Student Employment Office and the Career office regarding competency development given the extensive connection between the NACE Competencies and Lehigh University’s Student Employment Program.

#### The Four Pillars

In addition to the Competency Relationship Continuum, the Symposium Committee updates their Pillar model annually. The Pillar model frames the Competency Symposium and a student success initiative with the following outcomes (Clemson University, n.d.-a). Outcomes include academic achievement, career readiness, life preparedness, and social justice (Clemson University, n.d.-a). This Pillar model depicts the process of implementing the competency model at an institution.

### Pillar 1: Conceptualization & Planning

Competency learning, development, and articulation should be made apparent and infused into the curriculum and co-curriculum to provide opportunities for students to actively demonstrate competency development and career readiness. Framing programs, services, and one-on-one conversations around competencies provide students with multiple touchpoints throughout their time at the institution.

### Pillar 2: Coalition Building

The value of an institution-wide competency development and career readiness initiative that supports overall student success is apparent when strategic relationships result in the initiative being reflected in institution/division/ college/department strategic plans and general education. A common vocabulary and definitions for institution-identified competencies provides a shared understanding, buy-in, and brand. One area may take the lead in mobilizing stakeholders while refraining from solely owning the initiative.

### Pillar 3: Resources

Institution-wide competency infusion may be achieved through new and repurposed human and financial resources and single departmental or collaborative initiatives. It is imperative to keep a pulse on trends and issues affecting higher education and the evolving world to ensure an institution-wide approach and learning opportunities remain relevant.

#### Pillar 4: Assessment

Competency development should be assessed at the micro and macro levels in curricular and cocurricular experiences. Collecting outcomes data will help individual students realize developmental progress and institutions focus on continuous improvement.

Lehring University's Career office meets with campus partners twice annually to assess and understand how initiatives have been adopted across the institution. In the most recent meeting, held in July 2020, attendees believed that the Student Employment component of competency infusion is between Pillar 3 and 4. Pillar 3 discusses repurposing human and financial resources (Clemson University, n.d.-a). The Student Employment Program at Lehring University has maximized its programming structure and human capital to provide an employment program where students are focused on career skill development and growth. Though the student employment has captured some competency evaluation data, an assessment plan has not been fully realized.

#### Lehring University's Student Employment Program

##### Institutional Demographics

This study was conducted with archival data from Lehring University. Lehring University is a medium sized private four-year institution in the Southeast that enrolls approximately 930

first time in college students annually. The values of individual growth, intellectual development, and global competence and participation are central to Lehigh University's mission. The retention rate for these students has remained steady at 77% from 2015 through 2019. The average age of the undergraduate population at Lehigh University is 21.6 years old. The students self-reported racial breakdown is 58% white, 18% Hispanic/Latinx, 10% Black or African American, 5% Asian, 5% non-resident alien, 5% two or more races, and 5% unknown. The students come from 36 states and 40 countries. (Lehigh University's Just the Facts website, 2021).

### Development of Program

Lehigh University began its current student employment program in 2014 with a mission “to provide an educational on-campus student employment experience for all participating students that is dynamic, efficient, and intentional” (Student Employment Experience, 2014, para. 1). The institution chose to invest in the program, which included funding a full-time coordinator, after a year of internal and external data collection. An internal Financial Aid document (Lehigh University, 2013) outlines three major obstacles: considerable and continued confusion of 100 hiring managers, indiscriminate hiring without regard for compliance, and a frustrating experience for student employees. Today, the program is lauded internally and recognized externally by peer institutions for co-curricular integration (Lehigh University, 2020).

## Partnership with Career Office

Lehring University's student employment coordinator partnered with the Career Office to develop and implement a Student Employment Experience (SEE) Plan in 2014. The current version of the SEE Plan, SEE 3.0, remains grounded in career skill outcomes. The original SEE Plan (Lehring University, 2014) used the National Association of Colleges and Employers (NACE) *Job Outlook 2014* which included a ranking of the key skills or qualities recruiters seek in candidates, as a framework for learning outcomes for the program. The institution's strategic plan was also mapped onto these outcomes in an effort to increase institutional legitimacy. These original learning outcomes include.

1. Students will be able to demonstrate an ability to work collaboratively in a team structure.
2. Students will be able to demonstrate an ability to make decisions and solve problems.
3. Students will be able to demonstrate an ability to plan, organize and prioritize work.
4. Students will be able to demonstrate an ability to verbally communicate with persons inside and outside the organization.
5. Students will be able to demonstrate an ability to obtain and process information.
6. Students will be able to demonstrate an awareness of appropriate professional behavior.
7. Students will be able to connect their work with the core values of Lehring University.

The SEE Plan was updated to SEE 2.0 in the Summer of 2016. Following a similar outline this plan incorporates information from NACE's *Job Outlook 2016*. (Lehring University,

2016). These goals are listed alongside the original plan in Table 2 to show the similarities of both plans.

*Table 2 Lehring University's Learning Outcome Plan Comparison*

<b>SEE Plan 1.0 (2014)</b>	<b>SEE Plan 2.0 (2016)</b>
Students will be able to demonstrate an ability to work collaboratively in a team structure.	Students will be able to demonstrate teamwork skills
Students will be able to demonstrate an ability to make decisions and solve problems.	Students will be able to demonstrate critical thinking and problem solving skills
Students will be able to demonstrate an ability to plan, organize and prioritize work.	Students will be able to demonstrate oral and written communication skills
Students will be able to demonstrate an ability to verbally communicate with persons inside and outside the organization.	Students will be able to demonstrate professionalism and work ethic
Students will be able to demonstrate an ability to obtain and process information.	Students will be able to connect their student employment work to their academic curriculum
Students will be able to demonstrate an awareness of appropriate professional behavior.	Students will be able to connect their student employment work to their career goals
Students will be able to connect their work with the core values of Lehigh University.	

### Connecting the Career Competencies

This model for career readiness, provided an opportunity for enhanced co-curricular integration. Career professionals at Lehigh University convened a committee of students, staff, and faculty to create additional meaning around these competencies. In 2018, Lehigh University

published its Professional and Career Readiness Competencies. These competencies are included alongside the NACE Competencies in Table 3.

**Table 3** Comparison of NACE Career Readiness Competencies (2017) and Lehigh University's Professional and Career Readiness Competencies (2018)

<b>NACE Career Readiness Competencies</b>	<b>Lehigh's Professional and Career Readiness Competencies</b>
Problem Solving	Professionalism and Productivity
Communication	Communication
Teamwork	Teamwork and Collaboration
Digital Technology	Digital Literacy
Leadership	Leadership
Professionalism	Career Navigation
Career Management	Global and Intercultural Engagement
Intercultural Fluency	

The SEE Plan 3.0 in 2018 identified Lehigh University's Professional and Career Readiness Competencies as the learning outcomes for Student Employment (Lehigh University, 2018b). As an integration measure, Career and Student Employment Professionals mandated that all job descriptions for student employment positions had to be rewritten to incorporate these competencies. The Student Employment Experience program has not been reviewed since the implementation of these competencies as the career outcomes. Instead, the student employment

program has doubled its efforts in this integration by redesigning evaluations, creating monthly professional development opportunities, and institution-wide programming.

### Institutional Strategies on Retention

As previously discussed, when a student does not retain, both the student and institution are impacted considerably. This is an institutional focus at Lehigh University where retention has remained 26-29% from 2008 through 2018. An increased retention rate impacts student graduation outcomes as a comparative standard for institution. More importantly, however, students who leave Lehigh University represent lost revenue. If a student leaves from their first to second year, Lehigh University will lose three years of tuition for each student. As a tuition dependent institution, the challenge of retention has resulted in significant research and new initiatives aimed to increase this rate. The departments and offices that have implemented retention initiatives met in 2019 to understand the current data and share their work around increasing retention. These schools and departments included under the Office of the Provost included the School of Music, the School of Business Administration, the College of Arts and Sciences, and the Biology Department. Campus Life and Student Success offices included First Year Advising, the Orientation Program, the Undeclared Majors Program, the First Generation College Student Mentorship Program, and Student Employment (Lehigh University, personal communication, September 9, 2019).

In a meeting of these Lehigh University delegates, the Institutional Research office shared that the most common determinates of student retention involve the student's GPA and a

student's ability to afford to attend (personal communication, October 22, 2019). Given this information, this study uses the student's GPA as a control variable. The study will not use a student's ability to afford to attend Lehigh University since this variable is unpredictable.

### Summary of the Literature Review

Chapter Two examined Student Employment, including its history and unique terminology. Additionally, it set the theoretical foundation for the study through the exploration of Tinto's (1993) Student Departure Model and Astin's (1984) Student Involvement Theory. Building upon that groundwork, High Impact Practices and the career competency model were presented as a way to connect the educational components of Astin and Tinto's theories with positive educational outcomes for students. Lastly, this chapter explored how Lehigh University has implemented an intentional program with a foundation in the Career Competency model. The next chapter will describe the methodology for this study which will include the selection of participants, instrumentation, data collection, and data analysis.

## **CHAPTER THREE: METHEDOLOGY**

### Introduction

The purpose of the study is to explore the relationship between a student's participation in student employment and if the student retains at their institution from their first to second year. First year retention is a challenge for higher education institutions. Participation in campus-based employment is a variable to consider in understanding student retention. Understanding the retention rate of students who participate in on-campus employment might determine how institutions invest their resources. While extensive research has been conducted on student retention (Astin, 1975; Lau, 2003; Tinto, 2006, 2012) and to a lesser degree student employment (Gardner et al., 1996; McClellan et al., 2018), little empirical research has been conducted on the connection between retention in the first and second year and on-campus employment. Exploring the variable of student employment participation on retention might provide a valuable opportunity for institutions to invest in programming that provides financial, educational, and social support for the student while positively impacting their likelihood to retain.

The study seeks to determines whether or not significant differences exist between on-campus student employment participation and retention. This chapter is organized into six sections: research questions, research site, participation, and data collection, statistical measures, data analyses, research validity, and the summary of the methodology.

## Research Questions

The following research questions examine if participation in a student employment program and the level of participation have a significant impact on student retention. The research questions are as follows:

**Research Question 1:** Is there a significant difference in the retention rate of first year students who participate in an on-campus student employment program and non-participants in their first year?

**Research Question 2:** Are there significant differences in the retention rate of participants in an on-campus student employment program and their level of participation measured in hours worked?

## Research Site, Participation, and Data Collection

The setting for this study is a private university in Florida with a student population between 2500 and 3500 students. For the purposes of this study, Lehring University is used as a pseudonym to protect the anonymity and confidentiality of the identified site. The institution has a Carnegie classification as a Master's College and Lehring University (medium programs). The institution developed a comprehensive student employment program in the summer of 2014. This is a tuition dependent institution. Students work in more than 150 different roles on campus within over 80 departments at the host site.

Archival data of the first time in college population at Lehring University in the fall semesters of 2014, 2015, 2016, 2017, and 2018 will be used. All of the students at Lehring

University are included in the data set whether or not they participated in the student employment program. These data provide the population for this study.

The researcher requested the data needed for this study from Lehigh University's Institutional Research Office upon approval from the Institutional Review Board at both the researcher's educational institution and the host institution. The data set for the college population for 2014, 2015, 2016, 2017, and 2018 was de-identified prior to receipt so that the information could not be linked to individual students. To request the data set, the researcher sent an email to the director of Institutional Research. The researcher received the data on a password protected USB drive which was kept in a locked safe at the researcher's residence when not in use.

### Statistical Measures

The researcher used a quantitative research design for this study. Creswell and Creswell (2017) define quantitative research in the book *Research design: Qualitative, Quantitative, and Mixed Methods Approaches*.

Quantitative research is an approach for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures. The final written report has a set structure consisting of introduction, literature and theory, methods, results, and discussion. (p. 4)

More broadly, quantitative research is a study of a population or a study of samples of a population where statistical methods are the primary method of data analysis (Gall et al., 2005). Additionally, quantitative research can provide predictability for future occurrences. Using data collected at a point in time to predict future interactions between variables is a distinct attribute of quantitative research. (Gall, et al., 2005). Retention rates at an institution is an example of prediction research that institutions can use. For this study, the researcher examined how participation in Lehigh University's on-campus student employment program impact on a students' retention at the institution from their first to second year.

Quantitative research seeks to understand if cause-effect relationships exist between variables. Field (2009) defines these variables.

A variable that we think is a cause is known as an independent variable (because its value does not depend on any other variable). A variable that we think is an effect is called a dependent variable. Because the value of this variable depends on the cause (independent variable). These terms are very closely tied to experimental methods in which the cause is actually manipulated by the experimenter. (p. 7)

This study examines the relationship between a student's participation in student employment and if the student retains at their institution from their first to second year using logistic regression. Logistic regression is a type of regression which results in predictable categorical outcomes based on the independent variable (Field 2009). The outcome variable of whether or not a student retains is a categorical variable for both questions. The independent variable of participation in the student employment program in research question one is also categorical,

while the number of hours a student works in the on-campus employment program is a continuous variable. Field (2009) defines logistic regression as:

Multiple regression with an outcome variable that is a categorical variable and predictor variables that are continuous or categorical. In its simplest form, this means that we can predict which of two categories a person is likely to belong to given certain other information. (p. 265)

The researcher used the logistic regression process that Field (2009) outlined in the textbook *Discovering Statistics Using SPSS* to compare employment program participants' retention from their first to second year at Lehigh University. Peng, So, Stage, and John (2002) reviewed higher education research journals to understand the frequency of use of logistic regression. In their study of three of the most prestigious higher education journals: *Research in Higher Education*, *The Journal of Higher Education*, and *The Review of Higher Education* from January of 1988 to December of 1999, they found 90 abstracts out of 233 (38.63%) in these journals (Peng et al., 2002). They also identified that 52 articles used logistic regression in the same time period. Importantly, the researchers found 29 (55.77%) of the articles focused on enrollment and retention (Peng et al., 2002). A review of the research shows how logistic regression is used in higher education as a predictor for retention.

For the purpose of this study, SPSS 26 was used to analyze the data using simultaneous logistic regression method. Both research questions use the same logistic methods to answer the questions. The regression provides a prediction of how the independent variable of student participation in a student employment program might influence the outcome of the dependent variable when accounting for the student's GPA.

## Data Analyses

For the purpose of this study, the dependent variable for both research questions is whether or not the student had retained at the institution from their first to second year. The primary independent variable to be examined in this study is a student's participation in Lehigh University's Student Employment program in their first year. Additionally, Field (2009) explains that the independent variable is known to researchers as the predictor variable and the dependent variable is known as the outcome variable.

Researchers use control variables in an effort to keep other factors constant when conducting experimental research. The Sage Encyclopedia of Communication Research Methods (2017) explains that in order to "properly measure the relationship between a dependent variable and an independent variable, other variables, known as extraneous or confounding variables, must be controlled" (Allen, p. 2). To understand a student's likelihood to retain, significant factors may have been previously identified. For context, Allen (2017) uses student retention as an example.

In this example, a researcher is exploring how first-year seminars (independent variable) affect student retention (dependent variable). To ensure that this relationship is truly being examined, a researcher would need to control for other factors that might lead to student retention. Therefore, control variables in this experiment would be factors such as ACT/SAT scores, student housing, and involvement in sororities and fraternities. (p. 3)

Since multiple variables are included in the research model for retention, Field (2009) suggests using multivariable regression test. For the purposes of this study, the student's GPA is a known determining factor for retention at Lehigh University and is therefore included as a control variable in this study. A student's GPA is used as a control variable to ensure the model

addresses student retention in the logistical regression model for these research questions. Lehring University has found that a student’s GPA is the strongest predictor of a student’s likelihood to retain. The researcher examines this independent variable for correlation in both Research Questions.

For the first research question, Is there a significant difference in the retention rate of first year students who participate in an on-campus student employment program and non-participants in their first year?, Lehring University’s first year student population is used as the independent variable. Student participation in the on-campus student employment population will determine which category the student is in (Yes or No). The dependent variable is whether the student retained (Yes or No). The student’s GPA is a continuous variable that is used as a control for this Research Question. These variables are identified in Figure 4.

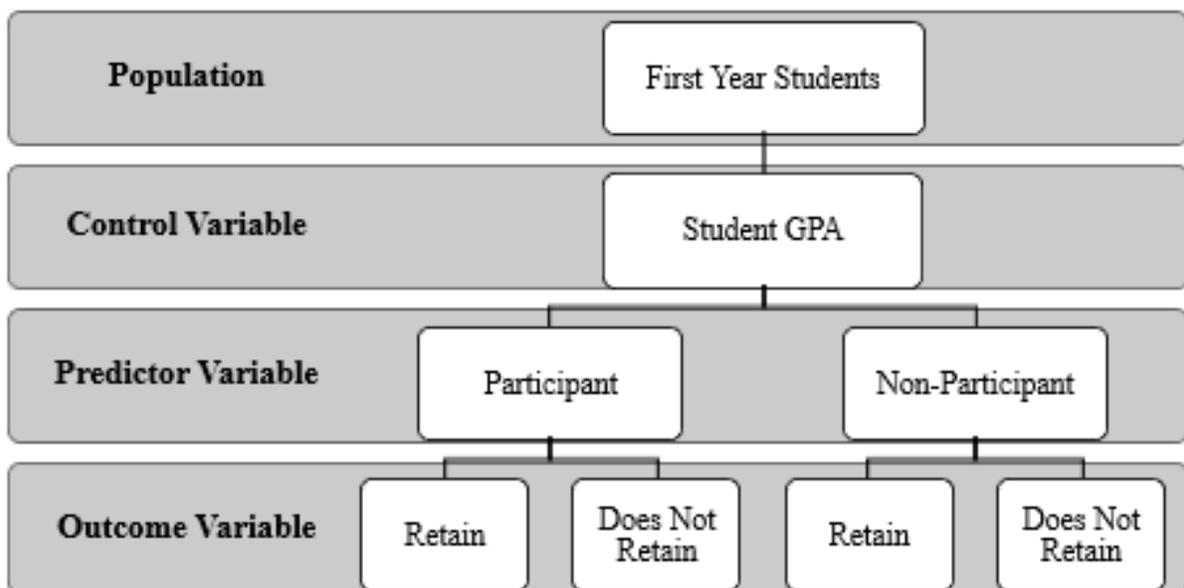


Figure 3. Quantitative format for exploring differences between participation and retention.

In the second research question, Are there significant differences in the retention rate of participants in an on-campus student employment program and their level of participation measured in hours worked?, the independent variable is the number of weekly hours a student participated in the on-campus Student Employment Program and the dependent variable is whether the student retained (Yes or No). The student’s GPA is a continuous variable that will be used as a control for this Research Question. These variables are identified in Figure 5.

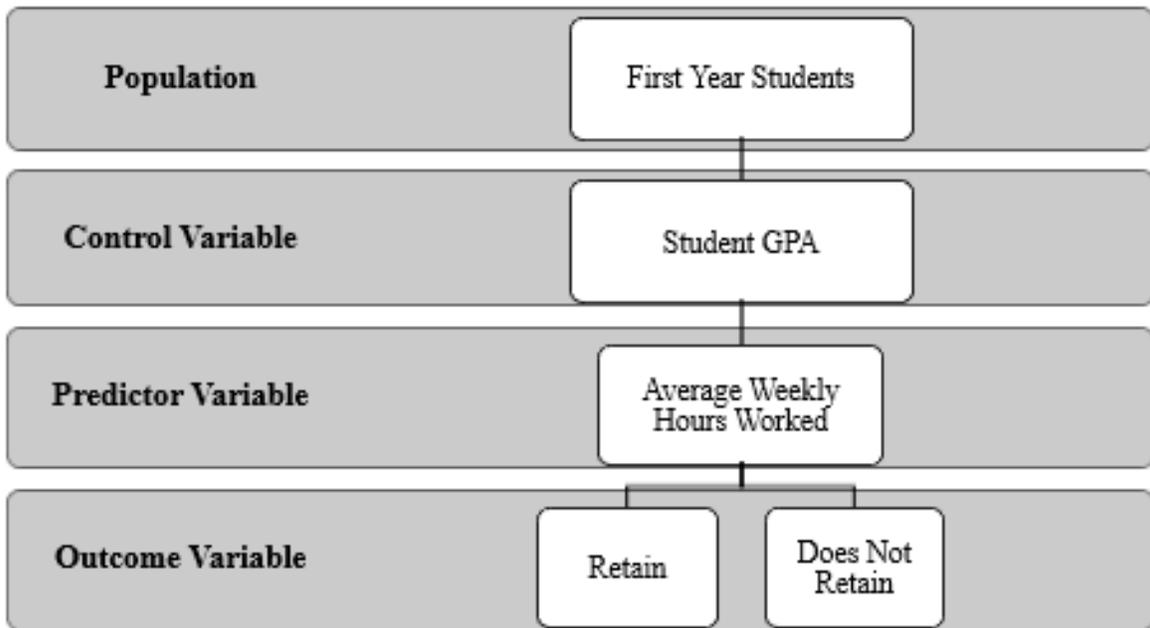


Figure 4. Quantitative format for exploring differences between levels of participation and retention

After considering the aforementioned variables, the researcher developed the logistical regression model. Upon creation of the model, a goodness-of-fit test is used to understand how well each of the regression coefficients fit within the model. Lomax and Hahs-Vaughn (2020a) suggest that the most successful tool to provide goodness-of-fit for logistical regression is the

Hosmer- Lemeshow goodness-of-fit test. This test produces a chi-square test. A good model fit is identified by the level of statistical significance to be above  $p > .05$  (Lomax & Hahs-Vaughn, 2020a). If this test returns a statistical significance result less than  $p < .05$ , the model is deemed a bad fit. The SPSS program calculates the Hosmer-Lemeshow goodness-of-fit test as part of the logistic regression.

When evaluating the effect size of the model and the variables, logistical regressions  $r$ ,  $r^2$  and the odds ratio (OR) can be used. When examining  $r$  and  $r^2$ , Cohen (1988) identified a small effect exists when  $r = .1$  or  $r^2 = .01$ , a medium effect exists when  $r = .3$  or  $r^2 = .09$ , and a large effect exists when  $r = .5$  or  $r^2 = .25$ . In addition to  $r$  and  $r^2$ , the odds ratio can be used to determine the effect size. Hahs-Vaughn (2016) provides the instruction on running an SPSS logistic regression calculation where the odds ratio is  $\text{Exp}(B)$ . An odds ratio of 1 indicates the variable in question does not have an effect on the outcome. The further the number is away from 1, the greater the odds of the outcome affecting the dependent variable. This effect could be in either a positive and negative direction depending on the effect on the outcome (Hahs-Vaughn, 2020). The larger the effect size, the larger the relationship between the independent variable and the dependent variable.

Once the dataset was supplied, the sample size (first year populations) was confirmed for all questions to be larger than 100. Outliers were identified with SPSS, and the identified cases were removed accordingly for each question they identify. The dependent variable was confirmed to be dichotomous where all values will be either a No, a student did not retain, or a Yes, the student did retain from their first to second year. With all the assumptions and conditions met,

the dataset was ready for the logistic regression to be calculated and evaluated in the results chapter of this dissertation.

### Research Validity

To ensure that the values and models produced by the logistic regression are valid, the assumptions and conditions of the model must be understood and addressed. Field (2009) noted that there are three assumptions to address:

1. Linearity: In ordinary regression we assumed that the outcome had linear relationships with the predictors. In logistic regression the outcome is categorical and so this assumption is violated... The assumption of linearity in logistic regression, therefore, assumes that there is a linear relationship between any continuous predictors and the logit of the outcome variable. This assumption can be tested by looking at whether the interaction term between the predictor and its log transformation is significant.
2. Independence of Errors: This assumption is the same as for ordinary regression. Basically it means that cases of data should not be related; for example, you cannot measure the same people as different points of time. Violating the assumption produces overdispersion.
3. Multicollinearity: Although not really an assumption as such, multicollinearity is a problem as it was for ordinary regression. In essence, predictors should not be too highly correlated. As with ordinary regression, this assumption can be checked with

tolerance and VIF statistics, the eigenvalues of the scaled, uncentred cross-products matrix, the condition indexes and the variance proportions. (p. 273)

### Summary of Methodology

This quantitative research study examines how student participation in an on-campus student employment program impacts a students' retention at Lehigh University. This chapter provided an overview of the methodology to be employed in this causal analysis. This chapter discussed how the data are analyzed in a logistical Regression model. The next chapter will present the results of this analysis and the implications of these results. The outcomes of this study might inform how Lehigh University might invest in its retention efforts.

## **CHAPTER FOUR: DATA ANALYSIS**

### Introduction

The purpose of this study is to explore the relationship between a student's participation in student employment and if the student retains from their first to second year at a private university in Florida with a student population between 2500 and 3500 students. This quantitative research study used logistic regression to analyze the relationship between student participation, hours worked in the program, and GPA. The logistic regression model provided the ability to predict the likelihood of the outcome variable, student retention. The variable of the student's GPA was used as a control variable throughout this analysis. The results of this logistic analysis follow for each research question.

### Question One Results

The first research question explored if there is a significant difference in the retention rate of first year students who participated in an on-campus student employment program and non-participants in their first year. Logistic regression was conducted to determine whether student participation could predict a student's retention from their first to second year.

## Assumptions

The assumptions of logistic regression were tested. Specifically, these include: (a) noncollinearity; (b) linearity; and (c) independence of errors.

In terms of noncollinearity, a VIF value of 1.014 (below the value of 10.0 which indicates the point of concern) and tolerance of .986. (above the value of .10 which suggests multicollinearity) provided evidence of noncollinearity. Additionally, in examining the collinearity diagnostics, a condition index value of 7.614 was observed, which falls below the range of concern (specifically 10–30) (Lomax & Hahs-Vaughn, 2020b). Review of the variance proportions suggested that 0% of the variance of the regression coefficient for employment participation and 98% for student GPA were related to the smallest eigenvalue. According to Hahs-Vaughn & Lomax (2020b) “Multicollinearity is suggested when covariates have high percentages associated with a small eigenvalue (and large condition index) (p. 641).” While the assumption of noncollinearity was met with the tolerance, VIF values, and condition index values, there is some concern for multicollinearity with the variance proportion values.

Linearity was assessed by re-estimating the model and including, along with the original predictors, an interaction term which was the product of the continuous independent variable (i.e., student GPA) and its natural logarithm. The interaction term was statistically significant, thus violating the assumption of linearity (Student\_GPA\*ln(Student\_GPA),  $B = 1.913$ ,  $SE = .124$ ,  $Wald = 239.157$ ,  $df = 1$ ,  $p = .000$ ). Nonlinearity can have biased parameter estimate outcomes and an inconsistent change in the logit of Y. As a result, the Hosmer-Lemeshow Goodness-of-Fit test will test will less effectively measure linearity (Hahs-Vaughn & Lomax).

Independence of errors was assessed by examining a plot of the standardized residuals against values of each independent variable. This assumption was violated as evidenced by a multitude of cases outside the band and outside of the absolute value of 2.0 thus indicating the assumption of independence has not been met.

In reviewing for outliers and influential points, Cook's distance values were within the recommended range of less than 1.0. Leverage values ranged from .00003 to .02256, well under the recommended .50, suggesting outliers were not problematic.

### Analysis

Logistic regression analysis was then conducted to determine whether retention of a student from the first to second year (retained or not retained) could be predicted based on participation in a student employment program. Good model fit was not achieved as evidenced by statistically significant results on the Hosmer and Lemeshow test,  $\chi^2 (n = 4289) = 61.473, df = 8, p < .001$ . The odds ratio for students that participate in a student employment program are about 1 and 1/2 times greater for retaining from the first to second year as compared to non-participants. These results are statistically significant with 95% confidence. The table below presents the results for the model including the regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals for the odds ratios.

Table 4 Logistic Regression Results for Question One

	B	S.E.	Wald $\chi^2$	p	OR	95% C.I.for EXP(B)	
						Lower	Upper
<b>Intercept (constant)</b>	-2.085	0.143	213.103	0.000	0.124		
<b>Student GPA</b>	1.2	0.051	543.683	0.000	3.319	3	3.671
<b>Participation</b>	0.403	0.138	8.531	0.003	1.497	1.142	1.963

In addition to the above table, the graph below shows the predicted probability to retain based on employment status and GPA. This graph shows the positive impact participation in student employment has on a student's likelihood to retain.

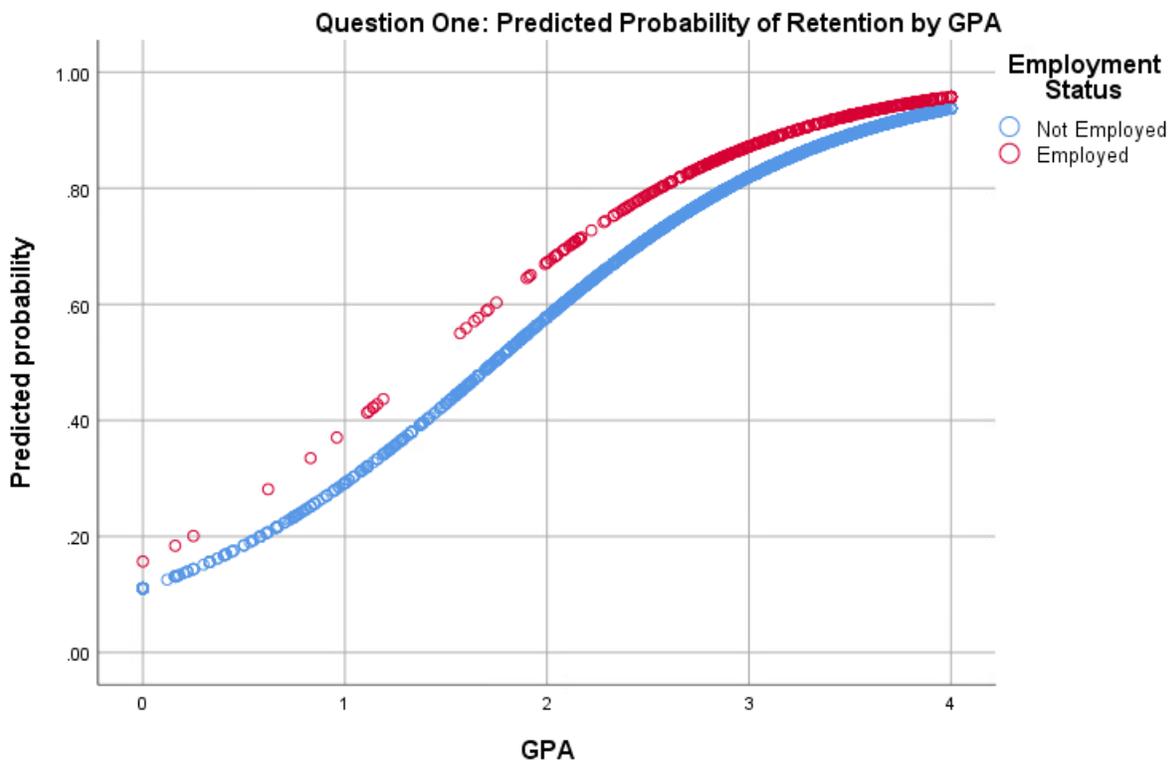


Figure 5: Graph of Predicted Probability According to GPA

Overall, the logistic regression model accurately predicted 83.6% of the students in our sample, with students who retained considerably more likely to be classified correctly (98.2% of students that retained and 31.5% of non-retained students correctly classified).

## Question Two Results

The second research question explored if there is there is a relationship between the number of hours a student works in the on-campus student employment program and the students likelihood to retain from their first to second year. Logistic regression was conducted to determine whether the amount of student participation (hours) could predict a student's retention from their first to second year.

### Assumptions

The assumptions of logistic regression were tested. Specifically, these include: (a) noncollinearity; (b) linearity; and (c) independence of errors.

In terms of noncollinearity, a VIF value of 1.024 (below the value of 10.0 which indicates the point of concern) and tolerance of .976. (above the value of .10 which suggests multicollinearity) provided evidence of noncollinearity. Additionally, in examining the collinearity diagnostics, a condition index value of 11.79 was observed, which falls within the range of concern (specifically 10–30) (Lomax & Hahs-Vaughn, 2020b). Review of the variance proportions suggested that 0% of the variance of the regression coefficient for hours worked and 97% for student GPA were related to the smallest eigenvalue. According to Hahs-Vaughn & Lomax (2020b) “Multicollinearity is suggested when covariates have high percentages associated with a small eigenvalue (and large condition index) (p. 641).” While the assumption of noncollinearity was met with the tolerance and VIF values, there is some concern for multicollinearity with the condition index and variance proportion values.

Linearity was assessed by re-estimating the model and including, along with the original predictors, an interaction term which was the product of the continuous independent variable (i.e., hours worked) and its natural logarithm. The interaction term was not significant, thus providing evidence of linearity (Hours\*ln(Hours), B = -.001, SE = .004, Wald = .115, df = 1, p = .734).

Independence of errors was assessed by examining a plot of the standardized residuals against values of each independent variable. This assumption was violated as evidenced by a multitude of cases outside of the absolute value of 2.0 thus indicating the assumption of independence has not been met.

In reviewing for outliers and influential points, Cook's distance values were within the recommended range of less than 1.0. Leverage values ranged from .000 to .042, well under the recommended .50, suggesting outliers were not problematic.

### Analysis

Logistic regression analysis was then conducted to determine whether retention of a student from the first to second year (retained or not retained) could be predicted based on hours worked in a student employment program. Good model fit was achieved as evidenced by nonsignificant results on the Hosmer and Lemeshow test,  $\chi^2 (n = 583) = 2.627, df = 8, p = .956$ . The odds ratio for students to retain are about .4% for each hour worked. These results are statistically significant with 95% confidence. The table below presents the results for this model including the regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals for the odds ratios.

*Table 5 Logistic Regression Results for Question Two*

	<b>B</b>	<b>S.E.</b>	<b>Wald <math>\chi^2</math></b>	<b><i>p</i></b>	<b>OR</b>	<b>95% C.I.for EXP(B)</b>	
						<b>Lower</b>	<b>Upper</b>
<b>Intercept (constant)</b>	-2.325	0.588	15.621	.000	0.124		
<b>Student GPA</b>	1.248	0.192	42.326	.000	3.319	2.391	5.070
<b>Hours</b>	0.004	0.002	7.120	.008	1.004	1.001	1.007

Overall, the logistic regression model accurately predicted 88.5% of the students in our sample, with students who retained considerably more likely to be classified correctly (99.8% of students that retained and 12% of non-retained students correctly classified).

### Summary

This study used logistic regression to examine how student participation in an on-campus student employment program impacts a student's retention at Lehigh University. The analysis showed a significant correlation between student participation (yes/no and hours worked) and retention from the first to second year. The results should be interpreted with caution, however, given the violation of assumptions. This chapter presented the results of the logistic regression and the implications of these results. The next chapter will provide a summary, conclusion, implications of the study, and recommendations for future research.

## **CHAPTER FIVE: SUMMARY, DISCUSSION, AND CONCLUSIONS**

### Introduction

This quantitative research study sought to understand the relationship between a student's participation in an on-campus student employment program and their likelihood to retain at Lehigh University. In the preceding chapter, the presentation and analysis of data have been reported. Tinto's Model of Institutional Departure and Astin's Student Involvement Theory are reviewed as the results are discussed. This chapter consists of the summary of the study, conclusion, implications of the study, and recommendations for future research.

### Summary of the Study

This study begins with a summary of the purpose and structure of the study and is followed by the conclusion of the findings. Finally, the implications for practice and recommendations for future study will be presented and discussed.

The purpose of the study was to determine the relationship between a student's participation in an on-campus student employment program and if the student retains from their first to second year. Additionally, this study examined how the level of participation (measured in hours of work) in the student employment program impacts student retention. Understanding the impact of working on-campus provides an opportunity to create positive impact for both the student and institution with minimal institutional financial investment.

In his Model of Institutional Departure, Tinto explained how a student's early integration of academic and social systems at their institutions leads to greater institutional commitment and

an increased likelihood to retain at the same institution from one year to the next. Tinto's model framed the first research question, *Is there a significant difference in the retention rate of first year students who participate in an on-campus student employment program and non-participants in their first year?* The literature review in chapter two showed how Lehring's student employment program is both academically and socially impactful for students. This study examined the first year student population for five distinct years. A logistic regression was used to answer this question by comparing the retention of first year students (participants and non-participants). The student's GPA after their spring term was used as a control variable noting that at Lehring, the GPA is considered the strongest predictor of retention.

Similarly, Astin's Student Involvement Theory which discussed how the amount of physical and psychological energy the student devotes to their academic experience impacts their likelihood to retain. This theory provides a structure and method of measure for this intervention and framed the second research question, *Are there significant differences in the retention rate of participants in an on-campus student employment program and their level of participation measured in hours worked?* The literature review established that Lehring's model for student employment creates a structured holistic opportunity where the student is impacted socially, financially, and academically. A logistic regression was used to answer this question by comparing the number of hours a first-year student worked and if they returned to Lehring the following Fall semester. Again, the student's GPA after their spring term was used as a control variable.

This study examines the relationship between a student's participation in student employment and if the student retains at their institution from their first to second year using

logistic regression. Logistic regression is a type of regression which results in predictable categorical outcomes based on the independent variable (Field 2009). The outcome variable of whether or not a student retains is a categorical variable for both questions. The independent variable of participation in the student employment program in research question one is also categorical, while the number of hours a student works in the on-campus employment program in question two is a continuous variable. Additionally, the control variable of student GPA was used in the analysis of both research questions.

The setting for this study was Lehigh University which is a private university in Pennsylvania with an undergraduate student population between 2500 and 3500 students. Upon approval from the Institutional Review Board (IRB) at the researcher's educational institution, archival data of the first time in college population for each fall semester from 2014-2018 were provided by Lehigh University's Institutional Research Office. The host institution did not require additional IRB approval since only archival data were provided. These data included the student GPA after the spring semester, their participation (yes/no), and their hours worked (if applicable).

The study included 4327 students. Of these participants, 38 were excluded from the sample because they had started at the institution in the fall but had not completed the year and therefore did not have a GPA. The logistic regression was completed on 4289 students for question one and 583 students for question two. Additionally, assumptions and conditions of each model were tested to understand and address the validity of the results.

## Discussion of Research Questions

### Research Question One

A logistic regression of the data were conducted to determine if participation in a student employment program impacts if students retain at the institution. The hypothesis and null hypothesis are included below.

**Research Question 1:** Is there a significant difference in the retention rate of first year students who participate in an on-campus student employment program and non-participants in their first year?

**Null Hypothesis 1:** There is no significant difference in the retention rate of first year students who participate in an on-campus student employment program and non-participants.

The finding resulting from research question one indicates a positive and significant relationship between a student's retention from their first year to their second and their participation in Lehring's student employment program. This finding speaks to the impact the experience has on a student's desire and ability to remain at their institution. Institutions benefit when students retain since the student will likely remain at the institution for an additional three years, which decreases recruitment costs. "From this viewpoint, investing resources to prevent dropping out may be more effective than applying the same resources to more vigorous recruitment (Astin, 1975, p. 2)." Additionally, retention rates are reflected in the institution's

graduation rate which is a metric included in the US Department of Education's College Scorecard. This scorecard is a tool for prospective and current students to use to make decisions about which school to attend (Kerr, 2020). Additionally, when the prediction values for participation were placed on a graph with GPA on the X axis, it was evident that the curve separation grew smaller as GPA increased. This suggests that as the student's GPA increases, the participation in the student employment program becomes less impactful on if they retain.

Students similarly benefit from retaining to graduation. College graduates are more likely to be employed, earn more than those without a bachelor's degree (NCES, 2020c), save more money, are healthier, and have longer life expectancies (Habley et al., 2012). Understanding the positive retention factor may inform Lehigh University's institutional strategy. This significant positive relationship between student participation in Lehigh's on-campus student employment program and retention is an indicator that the university's student employment program is perhaps meeting the needs of students who may choose to not retain at the institution.

While the logistic regression model for question one suggested a significant relationship between retention and participation in an on-campus student employment program, some violations of the logistic regression were violated. These violations were shown through assumption testing, including the scatterplot of the predicted probabilities. These violations are likely caused by an inconsistent distribution of the data and limits the generalizability of these data.

## Research Question Two

A logistic regression of the data were analyzed to determine if the degree of participation (measured in hours worked) in a student employment program has an impact on whether a student retains at their institution. The hypothesis and null hypothesis are included below.

**Research Question 2:** Are there significant differences in the retention rate of participants in an on-campus student employment program and their level of participation measured in hours worked?

**Null Hypothesis 2:** There are no significant differences in the retention rate of first year students based on their level of participation in an on-campus student employment program.

The finding resulting from research questions two indicates a positive and significant relationship between the student's hours worked and their likelihood to retain at Lehigh. The model showed that with each hour worked, the student was more likely to retain at the University. Realizing an increased retention rate assists the student participants in achieving success through educational attainment and the institution financially.

Historically, researchers have used a deficit model when conducting research on time worked during college as a control variable in many studies, based in the belief that as students are working, they are not academically or socially involved during that time (Mayhew, et al., 2016). Using the deficit model negates the on the job learning that might be occurring (Mayhew et al., 2016). Though this research did not measure student learning, it did measure student retention at the institution and its relation to participation in an intentional and holistic student

employment program. This study found a positive and significant relationship, suggesting that for each hour worked, the likelihood of retention increases.

Similar to question one, the reliability of these results is limited due to the violation of the assumption of independence of errors. This violation suggests possible bias and weakened reliability in the resulting prediction, limiting the generalizability of the study.

### Implications of the Study

Increasing retention rates is important for institutions, students, and society as a whole (Tinto, 2012). An institution's financial outlook and ability to compete for students, impacts the viability of an institution. Students similarly benefit holistically from retaining to graduation. provide additional clarity in defining this population. Staff and faculty have the greatest impact on students working on-campus compared to student not working or working off campus. Institutions can shape this employment experience, providing academic connection, social support, easing of financial need, career competency growth, and individual mentorship (McClellan et al., 2018).

### Broad Impact for High Education Professionals and Policymakers

The findings in this study have far-reaching implications for many higher education professionals and policymakers. This study identified significant relationships between participation and hours worked in a student employment program and student retention. Persons interested in higher education finance, retention, student learning, and professional competency

growth will find the evidence of connection between institutional investment and student experience very useful.

For policymakers, this study provides insight of how further investment in students working on-campus could assist the institution and students in achieving their goals. It could also be used to predict what type and level of investment might be needed for desired retention results. Both research questions resulted in positive correlations between student employment participation and retention. Understanding the level of investment needed to impact retention could be used in policy development at the federal level as policymakers legislate how tax dollars are used in higher education.

Higher education finance administrators recognize the impact of student retention on the institution's financial statement. They might use these results to understand how the impact of an investment in a student employment program compares to the impact of other retention focused investments. Additionally, this study suggests that if participation in student employment decreases, so too will retention. This would negatively impact the institution's financials.

Beyond policymakers and financial administrators, these results are useful to supervisors, student affairs professionals, and university board members. These educational stakeholders are in their roles to support students through their educational journey. Understanding how a student could benefit from participation in a student employment program might change attitudes and efforts in individual interactions with student employees and goal setting, up to and including strategic planning efforts.

## Local Impact for Lehigh University

As demonstrated in chapter two, Lehigh University has invested in their current student employment program through additional staffing in a move from one part-time position to one full time professional. Additionally, the institution has invested through increased partnerships, specifically its career office and its school of business. This study provides evidence that an increased investment in this program might positively impact retention.

As evidenced in the results of question one, increasing the number of first year students who work would increase the likelihood for those students to retain. This might increase Lehigh University's overall retention and graduation rate as well as create positive financial outcomes. Additionally, as evidenced by the results of question two, if the university decided to increase the allocation limit for students, thereby allowing for more hours of work per student, there might again be an impact on the retention rate of students.

Another strategy Lehigh University might employ would be to target students with low GPAs who might be at risk of not retaining. The university could create intentional experiences for these students. Since the data showed a stronger impact on retention for students with lower GPAs, this targeted approach might provide a distinct impact on retention at Lehigh.

## Recommendations

The goal of the study was to predict the relationship between a student's participation in student employment and if the student retains from their first to second year. Additionally, this study examined how the level of participation in the student employment program impacted the

likelihood of the student to retain. The ability to predict this relationship provides an opportunity to create positive impact for both the student and institution. Five years of data from Lehigh University were analyzed through logistic regression. The findings for both research questions were found to be statistically significant.

This retention analysis used one institution's data and includes only one control variable. There are many factors that contribute to a student's retention and it is not possible to account for all unknown factors. Also there is not a control for which students participate in the student employment program. Students self-select to participate through the job application process and supervisors hire the best student for the individual position. Lastly, there are statistical and design problems inherent with correlation studies which can be limited, but not eradicated, through internal and external validity procedures (Mitchell, 1985). As a result, of these limitations and delimitations there is concern for the generalizability of this study.

In addition to these limitations and delimitations the data violates the assumption of collinearity and independence of errors. This was likely due to the uneven distribution of student GPA and the number of students who participated compared to the larger number of students who did not participate. This variability created limitations in reliability and validity to these data. A sampling procedure might be used in future research to limit this variability.

Future research on student employment should focus on its more long-term impact for students such as persistence through to graduation, post graduate career satisfaction, and alumni satisfaction. Additional research might also include student employment and belongingness. Given Tinto and Astin's models on retention, this research might lead to a better understand of the positive interaction between student employment and retention which this study found.

Additionally, research might investigate the peripheral institutional impact of a student employment program. For example, is there a difference in employee satisfaction or retention for employees who supervisor students compared to non-supervisors? Are employees more likely to financially give to the institution if they supervisors student employees?

### Conclusions

The findings of this study expanded the work of previous researchers in the areas of student employment and retention. This research revealed that students who participated in an on-campus student employment program at a private university in Florida were significantly more likely to retain at their institution after the first year.

As students and universities evaluate where to invest their time and money, understanding factors that impact retention can be important to this decision making. Additionally, with a significant number of students employed while attending college, the time and energy students devote to their jobs continues to be an active area of college impact research (Barnhardt et.al. 2019).

**APPENDIX: UCF IRB APPROVAL LETTER**



UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board  
FWA00000351  
IRB00001138, IRB00012110  
Office of Research  
12201 Research Parkway  
Orlando, FL 32826-3246

NOT HUMAN RESEARCH DETERMINATION

June 11, 2021

Dear [Noreen Huth](#):

On 6/11/2021, the IRB reviewed the following protocol:

Type of Review:	Initial Study
Title of Study:	An Exploration of the Relationship Between Student Employment and Retention: A Correlational Analysis
Investigator:	<a href="#">Noreen Huth</a>
IRB ID:	STUDY00003172
Funding:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> <li>• Noreen Huth, Category: IRB Protocol;</li> <li>• Supplement to HRP 250, Category: Other;</li> </ul>

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving human in which the organization is engaged, please submit a new request to the IRB for a determination. You can create a modification by clicking [Create Modification / CR](#) within the study.

If you have any questions, please contact the UCF IRB at 407-823-2901 or [irb@ucf.edu](mailto:irb@ucf.edu). Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Gillian Bernal  
Designated Reviewer

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