

FACTORS THAT PREDICT TIME TO IN-FIELD EMPLOYMENT OF
ASSOCIATE DEGREE GRADUATES: A STUDY OF ONE COLLEGE
IN THE TECHNICAL COLLEGE SYSTEM OF GEORGIA

by

Karon Wilkerson Futch

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

This regression study examined the set of graduate characteristics (age, gender, ethnicity), as well as Grade Point Average Motivation, and environmental factors (program of study, use of career services, internship completion, Grade Point Average) that predicted time to in-field employment among associate degree graduates. Graduates ranging from 2010-2012 in business, computers, healthcare, industrial, or service programs at one technical college in the Technical College System of Georgia were surveyed regarding employment status following graduation. Demographic data, as well as environmental data, were collected from the Technical College System of Georgia's Knowledge Management System in order to establish a relationship among variables. A hierarchical multiple regression analysis was used to construct a model of factors that predicted time to in-field employment among associate degree graduates. Analysis results conducted on the entire model were statistically significant, indicating that graduate characteristics, grade point average motivation, and environmental factors predicted time to in-field employment of associate degree graduates.

Keywords: community college, associate degree, environmental variable, input variable, Astin's Input-Environment-Output Theory

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List of Abbreviations

Associate of Science in Nursing (ASN)
Astin's Input-Environment-Output Theory (I-E-O)
Federal Aviation Administration (FAA)
Grade Point Average (GPA)
Hierarchical Multiple Regression (HMR)
Institutional Review Board (IRB)
Kentucky Community and Technical College System (KCTCS)
Knowledge Management System (KMS)
Licensed Practical Nurse (LPN)
National Merit Scholarship Corporation (NMSC)
Southern Association of Colleges and Schools (SACS)
Statistical Package for the Social Sciences (SPSS)
Technical College System of Georgia (TCSG)
Uniform Resource Locator (URL)
Variance Inflation Factor (VIF)

CHAPTER ONE: INTRODUCTION

In the current economy, obtaining employment is extremely difficult for college graduates who are just entering the job market. In fact, unemployment rates for recent college graduates has risen from 5.7% in 2007 to 9.4% in 2012 (Sabadish, Shierholz, & Wething, 2012). Although past literature suggests that in some states the number of jobs requiring an associate degree or higher would grow from 33 percent to 56 percent (Massachusetts Board of Higher Education, 2007) by 2012, new college graduates have found that securing in-field employment is more challenging than ever. Fogg and Harrington (2011) stated that when recent college graduates find employment, the positions are described as disproportionate between job skill requirements and the educational level of workers; the worker's education exceeds the requisite job skills.

As many occupations are requiring more education, post-secondary education has been proven to be a pathway or the only pathway in achieving middle-class status (Carnevale, Smith, & Strohl, 2010). The intended purpose for completing a college degree is to eventually secure employment in the graduate's field of study. Conversely, there is very little evidence in the literature that research has been conducted on predictors of securing employment or the length of time it takes to secure in-field employment following graduation from a two-year institution.

This study examined the factors that predicted time to in-field employment status of associate degree graduates. In demonstrating a relationship among variables, it was possible to reveal that demographic input factors such as age, gender, ethnicity, as well Grade Point Average (GPA) motivation, and the environmental factors of program of study, use of career services, internship completion, and GPA predicted time to in-field employment among associate degree graduates. By identifying factors that predicted in-field employment among associate degree

graduates, faculty and advisors may be better able to guide students toward meaningful employment following degree completion and graduation. Chapter One details the background, problem statement, purpose statement, and significance for this study. In addition, research questions and hypotheses, variables, definitions, and research summary are stated.

Background

In recognizing a need for workforce development, community and vocational colleges expanded their institutional expectations as early as the 1960's. Community colleges and technical institutions began the transition of providing both academic instruction, as well as workforce development, as options for students (Grubb, 2001). As the importance of community colleges began to increase, the relationship between community colleges and employers was described as exceedingly strong and of mutual expectancies. Colleges began to focus more on skill development as well as the changing labor market (Flannery, Slovic, Benz, & Levine, 2007). Following the transformation of community colleges into the present, in 2012 the Obama administration signed into law the Health Care and Education Reconciliation Act, providing over \$2 billion in funding to community colleges in order to educate and retrain workers for the future (Boggs, 2011). This funding was designated to be extended through 2014 and intended to provide further training opportunities for students in local and state community colleges. These opportunities may then lead to more employment options for up and coming college graduates.

The problem nonetheless exists that graduates from two-year colleges are having difficulty securing employment in their field of study in addition to securing in-field employment in a timely manner. Godofsky, Zukin, Van Horn, and Rutgers (2011) reported in a study conducted with 571 graduates that "82% of those graduating college between 2006 and 2010 are working in some fashion, although only 53% hold full-time jobs" (p. 17) and 30% are working in

positions below their educational level. While this study was revealing in many aspects regarding college graduate employment, the participants consisted of those who graduated with a four-year college degree, excluding those with sub-baccalaureate degrees. In 2012, 80% of nationally surveyed college graduates secured employment either while they were still in school or within six months following graduation, indicating that time to employment following graduation was expedient and relevant; however, the type of employment secured in many cases was unrelated to their field of study (Stone, Van Horn, Zukin, & Rutgers, 2012). More research is needed concerning sub-baccalaureate or two-year college graduate employment and more specifically the length of time that it takes associate degree graduates to secure in-field employment.

Of the 444 nationally sampled graduates from 2006-2011, only 40% stated their job was closely related to their program of study (Stone et al., 2012). These graduates were compelled to accept jobs under less than desirable circumstances such as below education level, longer hours, less pay, and out of their program of study. Garcia-Aracil (2008) found that program of study matters above all else and particularly when gender is considered. An extensive study conducted on over 30,000 European graduates from higher education institutions found that program of study played a large part in post-graduate earnings as well as positions that are typically gender specific in nature. In fact, when applying gender along with ethnicity to post-graduate earnings, Heckman, Lochner, and Todd (2008) reported that African-American males who increase years of education from 12 years to 14 years see higher gains than those of Caucasian males.

“Although sociological, economic, and demographic characteristics clearly affect returns to education, scant attention has been paid to the question of whether labor market opportunities for recent college graduates differ by age” (Bellas, 2001, p. 3). Demographic characteristics age,

gender, and ethnicity are clearly shown to have a direct relationship with program of study as well as a relationship in predicting time to in-field employment.

While demographic factors play a major role in relationship to the environmental factor program of study, still other environmental factors are shown to have a direct relationship with graduates securing in-field employment. Redone (2010) found that when students took advantage of career service offerings, they were more than twice as likely to obtain in-field employment as those who conducted job searches without assistance. Additionally, students who made job connections through internship completions while still enrolled in their program of study fared better than students that were not required to complete an internship. Students who completed an internship while enrolled in their program of study showed a 15% increase in earnings compared to those who were not required to complete an internship (Stone, et al., 2012). Students must put forth an effort and interact with their environment in order to be successful. In fact, Chia and Miller (2008) found that a student's GPA is directly connected to their post-graduate labor market outcomes indicating that students must be motivated to interact with their environment in order to achieve maximum outcome potential.

With a focus on community colleges as a means for increasing employment rates, more research is needed to provide administrators, faculty and advisors with information that may better guide students and graduates toward employment goals. Not only will students and graduates benefit from this information, but in aligning more graduates with proper employment, it is possible to see a substantial increase in the workforce as well as labor market outcomes.

Theory Application

In examining the point that individuals begin to consider an associate degree, it is impossible to ignore the beginning without also considering the result. Students are motivated to pursue a degree for various reasons and with various purposes in mind. A motivation for many students to pursue a post-secondary degree is the potential of entering the workforce upon graduation (Wenglinsky, 1996). As Maslow's Hierarchy of Needs theory posits, fulfilling unmet needs is the driving motivator behind human behavior (Maslow, 1943), and may play a part in individuals choosing to pursue a degree with obtaining in-field employment as a motivating factor. A study was conducted at a large research institution in the Midwest. The study examined various interactions that may contribute to a student's choice to attend college. Two hundred nineteen students were surveyed and identified achieving career goals as one of the overwhelming factors. On a scale of 0-5, the participants, as a group, scored the possibility of achieving a personal career goal upon completion of their degree program at a 4.87 (Pope & Fermin, 2003).

While Maslow's theory is innate in nature, still other extrinsic motivating factors exist as well. Victor Vroom's Expectancy Theory (1964) asserts that motivation is based on rewards that are obtained through effort. When relating student expectations and motivating factors, Lunenburg (2011) describes Vroom's Expectancy Theory as individuals being more motivated if they feel that their efforts will eventually lead to high performance. In turn, the higher performance will eventually lead to the desired outcome. In applying Vroom's Expectancy Theory to attainment of in-field employment, students may be motivated to earn a higher GPA when attending school with the expectation of obtaining meaningful employment following degree completion in a timely manner. Oehrlein (2009) posits that when students study harder

and possess a higher GPA, they perform better in the workplace and are more apt to be viewed positively by employers.

The more a student invests, the greater the return. The Human Capital Theory views education as an investment in that when an individual invests in higher education, they are more marketable and able to achieve in-field, skilled employment at a higher rate (Bellas, 2001). Higher academic achievement or GPA may translate into higher productivity in the workplace and as a result fits the Human Capital Theory. “To the extent that education is an investment in higher earnings capacity, it appears to be a better investment for those individuals who have the ability and motivation to achieve a higher GPA” (Chia & Miller, 2008, p. 2).

In applying Astin’s Input-Environment-Outcome (I-E-O) Theory to this study, demographic input factors, as well as GPA motivation, and environmental factors were examined in order to determine if there was a relationship to graduates securing in-field employment in a timely manner following graduation. Astin (1993), in referring to mentor John L. Holland, states that “early studies convinced us that any educational assessment project is incomplete unless it includes data on student inputs, student outcomes, and the educational environment to which the student is exposed” (p. 18). Input factors, as defined by Astin, are characteristics or variables that the student brings with them when they enter into a situation. In the case of this study, students enter into higher education with personal characteristics of age, gender, and ethnicity as well as motivation. Environmental factors are defined by Astin as interactions that take place in a particular environment. Program of study, use of career services, internship completion, and GPA are environmental factors observed in this study and exhibited interactions among the student and higher education environment. Input factors, as well as environmental factors, may demonstrate a relationship to the outcome in any given situation. In the case of this study, input

and environmental factors were able to predict time to in-field employment following graduation from an associate degree program.

Problem Statement

The problem exists that recent college graduates are experiencing increased difficulty finding employment in the current economy. Research indicates that recent college graduate unemployment rates are not based on the fact that graduates are unprepared for the workforce, but instead due to a lower demand for workers in a slow economy (Sabadish et al., 2012). The expected outcome and primary goal for these graduates is obtaining in-field employment and doing so in a timely manner. The majority of research places concentration on degree attainment as the wanted outcome with the focus on baccalaureate degrees. However, if staying true to the mission of two-year colleges or community colleges, the primary goal exceeds degree completion and extends to post-graduate employment. To better assist educational leaders and advisors at community colleges, more research is needed that focuses on the predictors for outcomes following graduation.

The majority of research associated with predictive variables and community college graduates has focused on various aspects of the students' time spent in college or leading up to college with only minimal research conducted on outcomes following graduation (Bellas, 2001; Sabadish et al., 2012; Stone et al., 2012). A recent study was conducted on predictors of long-term enrollment and degree outcomes for community college students examining integrating academic, psychosocial, socio-demographic, and situational factors with no mention of outcomes following degree attainment (Porchea, Allen, Robbins, & Phelps, 2010). Coates and Edwards (2011) suggest that outcomes are typically defined as “academic achievement, graduation rates, graduates’ satisfaction or sense of receiving a return on investment, or objective test results” (p.

75). While a few studies have focused on labor market outcomes, the majority of studies involving labor market outcomes are focused on the outcome returns to four-year colleges (Dadgar, Weiss, & CU, 2012). Very little research has been conducted on student outcomes following graduation from associate degree programs in community colleges.

Purpose Statement

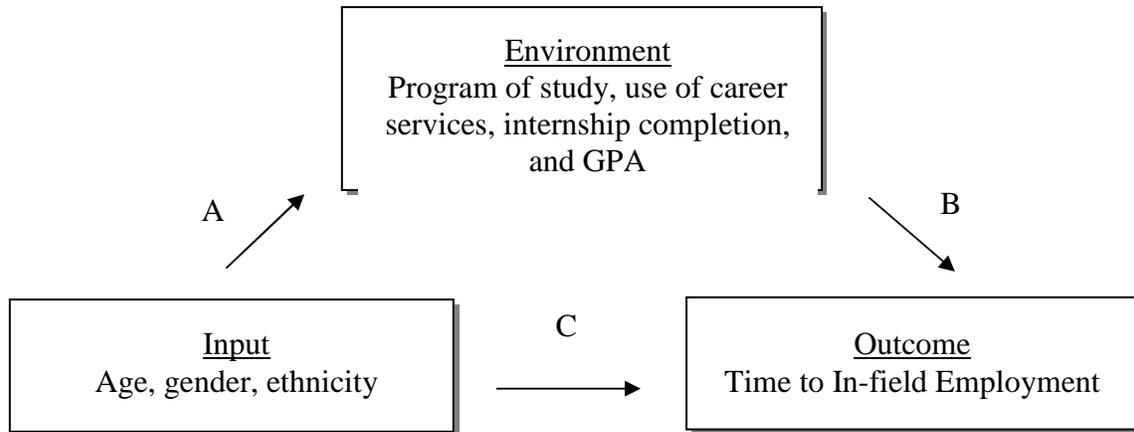
The purpose of this predictive, correlational study was to test Astin's I-E-O Theory that relates predictive environmental variables program of study, use of career services, internship completion, and GPA to the criterion variable time to in-field employment while controlling for the demographic input variables age, gender, and ethnicity for associate degree graduates at one college in the Technical College System of Georgia (TCSG).

Astin's I-E-O Theory is based on the presuppose that student characteristics or what students carry with them when they enter higher education are not the only factors that may influence the final outcome of their college experience. What happens while students are enrolled will affect the outcome as well. These factors are known as environmental factors and have a major impact on student outcomes in conjunction with input variables. In fact, it is inevitable that graduate characteristics such as age, gender, and ethnicity will influence final outcomes.

Astin (1993) notes that his I-E-O Theory is broad in the sense that input and environment, as well as outcome, may be defined in a number of different ways. Astin (1993) describes the I-E-O Theory as "a tool for trying to understand why things are the way they are and for learning what might be done to make things different if we feel the need to change them" (p. 20). For the purposes of this study, input factors are defined as age, gender, and ethnicity while environmental factors are defined as program of study, use of career services, internship

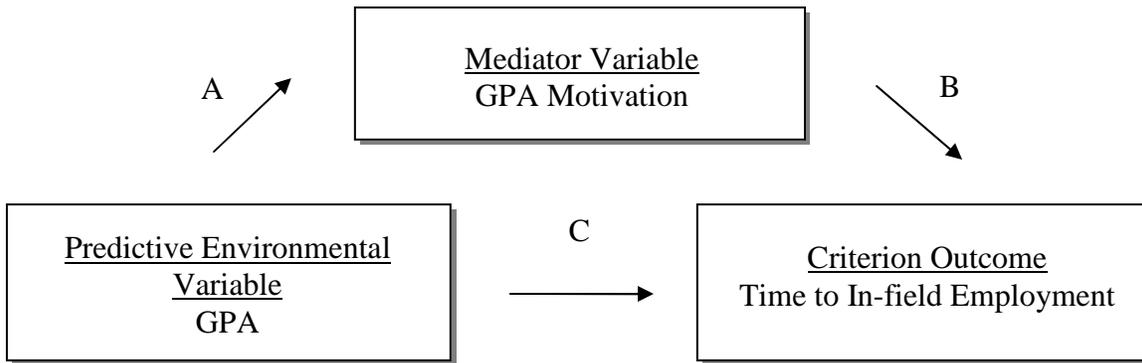
completion, and GPA. Likewise, the outcome variable time to in-field employment of associate degree graduates is well suited for the purposes of this study. As illustrated in Figure 1 below, the relationship among I-E-O variables is clearly visualized (Astin, 1993). Astin (1993) explains the relationship among variables from an educational standpoint. In education, the main concern rests on the relationship of environmental factors (B) on the outcome (C). That is to say that the basic concern focuses on the effect of the environmental variables on the outcome variables. However, it is impossible to ignore student input (A) and the relationship with the outcome (C) as well.

Figure 1. The I-E-O Theory



Vroom's Expectancy Theory, along with Human Capital Theory, were also tested using GPA motivation as the mediating variable relating GPA to time to in-field employment of associate degree graduates at one technical college in the TCSG. The relationship between the predictive environmental variable GPA (A) and the criterion outcome variable time to in-field employment (C) were mediated by GPA motivation (B) as illustrated in Figure 2 below. The figure is very similar in nature to the relationship that exists among variables in Astin's I-E-O Theory.

Figure 2. Mediator Variable



Significance of the Study

The significance of this study is to illustrate the demographic input factors, as well as GPA motivation, and environmental factors that predict associate degree graduates time to in-field employment upon graduation. As we view this study from the perspective of what students bring with them when they enter college (input), as well as the environmental factors that occur during the students' attendance (environment), the components of Astin's I-E-O Theory play a major role. As Astin (1993) states, "how we should assign these labels depends entirely on what aspects of experience we choose to study and how we formulate the questions we wish to answer" (p. 22). Student interactions in their educational environment play a large part in student outcomes. Motivation must be considered to the extent that students interact with their environment and how this motivation has an indirect relationship to obtaining in-field employment. While a great deal of responsibility lies with the graduate in securing in-field employment, having a better idea of the factors that may play a part in graduates securing in-field employment and the amount of time it will take in securing in-field employment will assist educational leaders in advising students to possible career paths that best suit their individual needs. The results of this study may potentially serve as a guide for program advisors in

matching students with more predictable post-graduate outcomes. The majority of past studies that are similar in nature focus on factors that may affect degree completion as this would be considered the final, desired outcome. However, due to the current economic climate, much more research is needed on what happens to graduates following degree completion, and more specifically, attainment of in-field employment. As Rouse (2007) states, there is a substantial amount of research regarding earnings from additional education. However, very few studies have focused earnings gains from community colleges in particular.

Brock and MDRC (2010) state, over the span of a lifetime, an associate degree graduate will earn nearly \$500,000 more than someone who chooses not to pursue education past high school. Carnevale et al. (2010) forecast that by 2018, almost two-thirds of all new jobs will require more than a high school diploma and half of those will require college that equal's less than a bachelor's degree. Employment status, as well as career earnings, is of great importance when students begin to contemplate educational choices. Likewise, it is of particular importance that "community college faculty, counselors, and advisers should provide assistance with career planning and accurate information regarding employment opportunities and earnings projections to potential vocational education students" (Azari, 1996, Implications).

Research Questions

The research questions, as well as null hypotheses, for this study are as follows:

RQ1: Do predictive environmental variables program of study, use of career services, internship completion, GPA, and mediating variable GPA motivation predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity?

H_{01a}: Predictive environmental variables program of study, use of career services, internship completion, GPA, and mediating variable GPA motivation will not significantly predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{01b}: Demographic input variables age, gender, and ethnicity will not significantly contribute to the model for predicting associate degree graduate's time to in-field employment.

H_{01c}: Program of study will not significantly contribute to the model for predicting associate degree graduates' time to in-field employment.

H_{01d}: Use of Career Services will not significantly contribute to the model for predicting associate degree graduates' time to in-field employment

H_{01e}: Internship completion will not significantly contribute to the model for predicting associate degree graduates' time to in-field employment.

H_{01f}: GPA will not significantly contribute to the model for predicting associate degree graduates' time to in-field employment.

H_{01g}: Mediating variable GPA motivation will not significantly predict associate degree graduates' time to in-field employment.

RQ2: Which predictive environmental variable program of study, use of career services, internship completion, GPA, or mediating variable GPA motivation best predicts associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity?

H_{02a}: Program of study will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{02b}: Use of career services will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{02c}: Internship completion will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{02d}: GPA will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{02e}: GPA motivation will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

Identification of Variables

The control variables in this study are demographic input characteristics age, gender, and ethnicity. Astin (1993) states that it is important to first control inputs in order to properly measure environmental factors. Age was self-reported and measured as 'age at the time of degree attainment'. Gender was self-reported and dummy coded as either '1= male or 0= female'. Ethnicity is defined as "all those social and psychological phenomena associated with a culturally constructed group identity" (Jones, 1997). Ethnicity was self-reported and falls into one of four coded categories: 1= Caucasian, 2= African-American, 3= Hispanic, and 4= other.

The predictive environmental variables are program of study, use of career services, internship completion, and GPA. There are eight program areas with a large number of associate degrees offered among the program areas. For the purposes of this study, only five of the eight programs were included due to the number of participants in the omitted programs and the lack of opportunity to continue to a higher level of degree obtainment. Programs were defined and

coded as '1= business, 2= computers, 3= healthcare, 4= industrial, and 5= service'. Use of career services was self-reported and defined as the graduate utilizing services offered by the institution's Office of Career Services. Any of the career service offerings that graduates took part in were considered a positive response as the dummy coded, binary response of '1= yes, or 0= no' as the alternative option. Internship completion was self-reported and dummy coded as '1= yes or 0= no' response and defined as the graduate participating in any off-campus internship, clinical, or practicum hours while enrolled and directly related to their program of study. GPA was collected from the institution's Knowledge Management System (KMS) and defined using a '0.0-4.0 scale' with lower numbers demonstrating poor academic performance (Young, 2007).

The criterion variable, known as the outcome variable, is identified as the time to in-field employment of associate degree graduates in one of the five general program areas in one technical college in the TCSG. In-field employment may be described as a job related to the field in which a graduate got their degree (Stone et al., 2012). In-field employment was self-reported and defined as 'currently employed in a position directly related to my degree'. Time to in-field employment has been described as a job that may have been obtained without interruption following graduation or some period of unemployment may have been experienced (Stone et al., 2012). Time to in-field employment was self-reported and coded and measured as '1= prior to graduation, 2= 0-3 months, 3= 3-6 months, 4= 6-9 months, 5= 9-12 months, 6= more than 12 months, 7= Not employed'. Additional options were available and self-reported on the survey instrument for those who have not secured in-field employment.

GPA motivation is the mediating variable in this study. Motivation is defined by Gredler (2005) as a process that influences one's choice of and continuance in particular behaviors. GPA

motivation was self-reported and coded and measured as '1= not motivated, 2= somewhat motivated, 3= motivated, 4= very motivated'.

Variables were entered in blocks in a hierarchal manner with regard to their temporarily determined priority. Priority was based on interpretation of existing literature. Control variables or demographic input characteristics was entered first, followed by environmental variables program of study, use of career services, internship completion, and GPA. GPA motivation was entered in the final block as a mediating variable. Demographic input variables were controlled when entering environmental and mediating variables into analyses. The basic purpose of the I-E-O Theory is to allow for corrections or control of input differences in an attempt to get a less biased effect of different environments on output (Astin, 1993). Variables were coded and entered as nominal values due to categorical variables being measured with more ease.

Table 1

Variables

Variables	Theoretical Framework	Measured by	Type
Demographic Input (Control)			
Age	Astin I-E-O Theory (1993)	Actual DOB (at time of graduation)	Ratio (Age)
Gender	Astin I-E-O Theory (1993)	1= Male 0= Female	Nominal
Ethnicity	Astin I-E-O Theory (1993)	1= Caucasian 2= African-American 3= Hispanic 4=Other	Nominal
Predictive Environmental			
Program of Study	Astin I-E-O Theory (1993)	Program Areas 1= Business 2= Computers 3= Healthcare 4= Industrial 5= Service	Nominal
Use of career services	Astin I-E-O Theory (1993)	1= Yes 0= No	Nominal
Internship completion	Astin I-E-O Theory (1993)	1= Yes 0= No	Nominal
GPA	Astin I-E-O Theory (1993)	Actual 0.0 – 4.0 Scale (at time of graduation)	Ratio
	Vroom's Expectancy Theory (1964) Human Capital Theory		

Table 1

Variables (continued)

Variables	Theoretical Framework	Measured by	Type
Criterion Output			
Time to in-field employment	Astin I-E-O Theory (1993) Vroom's Expectancy Theory (1964) Human Capital Theory	1= Prior to graduation 2= 0-3 months 3= 3-6 months 4= 6-9 months 5= 9-12 months 6= more than 12 months 7= Not employed	Ordinal
Mediator Variable			
GPA Motivation	Vroom's Expectancy Theory (1964) Human Capital Theory	1= Not motivated 2= Somewhat motivated 3= Motivated 4= Very motivated	Ordinal

Definitions

Associate Degree- An associate degree is acquired following the completion of generally a two-year program of study or roughly one half of a baccalaureate program. In 1984, the American Association of Community and Junior Colleges stated that the Associate of Applied Science degree is meant for students who plan to pursue employment immediately following graduation (Chase, 2011).

Astin's Input-Environment-Output Theory- A model developed by Alexander Astin (1993) as “a conceptual guide for assessment activities in higher education” (p. 16).

Career Services- Career Services is a department that offers assistance to students who are seeking employment or would like assistance in preparing for or obtaining employment. The office of Career Services offers job search assistance to students and graduates in the following areas: employment leads, campus recruiting and interviewing services, resume and cover letter preparation, interview training (Career Services).

Community College- “Colleges established and operated either individually or jointly, by counties, a community college region, cities, intermediate school districts, or school districts approved by the State University trustees” (Community College Regulations). Community college was defined in this study as a predominately two-year college offering various programs of study available to students (certificate, diploma, associate degree).

Environmental Variable- An environmental variable is a variable that is an experience that takes place during the educational program. As part of Astin's I-E-O Theory, environmental variable is also known as an independent variable referring to educational experiences (Astin, 1993). Environmental variables program of study, use of career services, and internship

completion were self-reported by participants. GPA was retrieved from KMS. Program of study was verified through TCSG's KMS as well.

Input Variable- An input variable is any variable that is considered a demographic variable such as age, gender, ethnicity or any characteristic that is personal to the graduate. Input variables are part of Astin's I-E-O Theory and are described as independent variables typically used as control variables (Astin, 1993).

Output Variable- An output variable is also considered a dependent or criterion variable. An output variable is what is anticipated as the "talent" that is developed during a program of study (Astin, 1993). For the purposes of this study, output was defined as the obtainment of in-field employment following graduation in a given timeframe.

Program of Study- The program shall include both career and college transfer programs on a full- and part-time basis (Community College Regulations). Program of study was limited to one of five associate degree programs: business, computers, healthcare, industrial, and service.

CHAPTER TWO: REVIEW OF LITERATURE

Introduction

Although the higher educational system of the United States has long been envied by other countries, according to Fogg and Harrington (2011), analysis shows that “it is not enough to educate young people” (p. 64), they must be prepared and assisted in finding jobs and careers that match up with their education and skills. Will graduates be able to find in-field employment in a timely manner following graduation from an associate degree program? The likelihood that students or graduates will obtain employment following their educational pursuits depends on a great many factors. This study, with the assistance of past and recent studies, revealed factors that predicted employment following attainment of an associate degree and more specifically the time that it took to obtain in-field employment in the graduates’ field of study. As recent studies indicate, there is most certainly a relationship between higher education and wages based on all degree levels of higher education. In fact, employers are willing to pay higher wages based on knowledge and skill at every “consecutive education level” (Carnavele et al., 2010, p. 4). Educational leaders have an obligation, particularly in community colleges, to fulfill the mission of preparing graduates for future employment in the workforce.

Theoretical Framework

Maslow’s Hierarchy of Needs

In 1943, Abraham Maslow composed a paper entitled “Theory of Human Motivation”. Maslow’s motivational theory centered on the basic needs of humans and classified them, as many other psychologists classify human growth, in stages. Maslow’s Theory, however, focused on the innate needs of humans and how based on these needs humans will move through various stages or hierarchy of needs. According to Maslow (1943), human needs arrange themselves in hierarchies of pre-potency. In other words, one need usually rests on the prior satisfaction of

another more pre-potent need. Although each need is separate, all needs are related based on preceding or proceeding needs.

Maslow's Hierarchy of Needs is centered upon five basic areas of need: physiological, safety, love and belonging, esteem, and self-actualization. An individual will move through the various stages depending on their need, with physiological superseding all others. Without the basic needs of food and water being fulfilled first, it is impossible for an individual to move to any of the other stages. However, according to Maslow (1943), based on the situation that an individual is immersed in will play a factor in the movement through the five stages. Based on an individual's environment, it is possible to surpass several of the levels and move quickly through the stages. Maslow's Hierarchy of Needs is typically represented in the form of a pyramid for this very reason. The most vital of needs at the bottom of the pyramid stand as the foundation for all others.

Safety may present itself in a variety of forms depending on the situation of the individual and the circumstances that exist for that individual. There are various 'cultural paths' that all lead to the same goal or the fulfilling of needs (Maslow, 1943). In some areas of the world, meeting safety needs may be much more drastic than for others. For instance, remaining safe in the wilds of Africa would be a quite different experience than the safety concerns of those living in the countryside of England. Safety may likewise be different for someone living in the inner-city than someone living in the rural South. Safety may represent mortality for one or simply securing employment for another.

The following three levels, love and belonging, esteem, and self-actualization all represent the need to fulfill more intrinsic needs such as feeling love and acceptance from others, self-respect, and realizing and fulfilling one's full potential in life. Extraordinary circumstances

may supersede any of these levels such as victims of abuse many times surpass safety caused by a great need for love and acceptance. Although Maslow (1943) points out that ‘local-cultural’ desires do play a part in motivation, they do not supplant the unconscious needs of a human being.

Research from 2010 Center for Community College Student Engagement Cohort data indicate that 70% of students who attend community colleges are motivated to do so in order to obtain job related skills with the purpose of securing employment (Center for Community College Student, 2010). College students in particular, begin to consider how their education will play a part in providing essential needs as well as motivation for future safety and security needs. Students are drawn to and motivated to attend college as a means of securing employment. As Bergerson (2009) states, as students begin to consider the return on their educational investment, their decision to receive an education becomes an economic one. At the point in which safety needs are met, it is possible that employment may provide fulfillment and self-esteem, and self-actualization begins to emerge as a factor as future graduates view employment in terms of status.

Very little research exists regarding how Maslow’s Hierarchy of Needs plays a part in the decision making of students to enter into higher education; more specifically, as a means of obtaining future employment in order to fulfill physiological and safety needs of students. Connections are typically made to the hierarchy of needs of students while they are enrolled in school. A study conducted on 263 students at the University of Mauritius measured the motivational needs of students and whether students felt that their needs were being met (Gobin, Teeroovengadam, Becceea, & Teeroovengadam, 2012). Safety needs focused on financial needs as well as the ability to purchase supplies and books to continue their education. Results

indicated that very little emphasis was placed on students ever reaching a level of self-actualization as higher education is failing to meet the entire needs of students. “Maslow’s theory assumes a person would develop through the lower stages to reach self-actualization” (Scott & Evans, 2010, p. 144).

As students enter into higher education with the hopes of obtaining employment and providing the physiological needs and safety needs for themselves and their families, it will be possible to move through the other stages in order to reach self-actualization. Achieving a goal such as degree attainment and the eventual obtainment of employment may certainly assist students or graduates in reaching their full potential. Maslow believes that motivation should be based upon personal goals and not simply on the prompting of motivated behavior from others (Maslow & Lowery, 1998). For the purposes of this study, motivation as it relates to Maslow’s Hierarchy of Needs is referenced in Chapter Five as possible reasoning and explanation of the relationship among predictive variables and the criterion variable.

Vroom’s Expectancy Theory

Victor H. Vroom has been a prominent business professor at Yale University since 1972. Vroom first began research in 1964 on what he deemed as the Expectancy Theory of Motivation. Vroom’s theory sought to connect individual behavior and the motivation to receive, or simply stated, expectations. Expectancy theory explains motivation in terms of four main concepts: force; valence; expectancy; and instrumentality (Vroom, 1964). Force refers to the compulsion of an individual to behave in a given way, valence the preference for consequent reward, expectancy the perceived likelihood that the behavior will result in the intended outcome, and instrumentality the perception that the intended outcome will lead to the consequent reward. As Smith (2009) explains, force is “the sum of the products of multiple valences, instrumentalities

and expectancies involved in a course of action” (p. 476). Vroom’s (1964) Expectancy Theory is explained as an outcome based motivation for an individual depending on particular circumstances or situations. An individual will expect a certain outcome based on their actions.

Vroom’s theory has been utilized typically in the labor sector. However, it may be directly correlated in the case of educational institutions. Pousa and Mathieu (2010) conducted a case study in that sales managers were studied regarding their motivation to coach employees as well as how their organization sought to increase motivation. In the case of Vroom’s Expectancy Theory, the employee would be motivated to behave as such that the end result or outcome would be desirable. Results indicated that short term rewards yielded more motivation from sales managers and greater short term performance was indicated (Pousa & Mathieu, 2010). If the focus concentrated on more long term results there was no effect on motivation and there was no altered behavior. These results may directly correlate to a student’s motivation to obtain a degree in order to gain employment following graduation. Celikoz (2010) proclaims that the probability of finding a job is the most effective extrinsic motivator for college students.

Motivation plays a part in the various choices that students make while they are enrolled in higher education institutions. The choice of higher academic achievement may be directly related to motivation itself in that students perform at a higher level with a particular outcome in mind. In the case of the majority of community college students, students are motivated to achieve at a higher rate with the hope of obtaining in-field employment. Motivation plays a part in how well students do while in school with a wanted outcome in mind. In the case of this study, many participants were motivated to work toward a higher GPA with the wanted outcome of obtaining employment in a timely manner. If a student feels that upon graduation they may obtain employment in their field of study, then the student may be more motivated as such to

work harder to achieve the goal in order to meet their expectations. They may engage in behaviors and interact within the educational environment in such a way as to further ensure that the final goal is met.

Human Capital Theory

Human Capital Theory first originated over 40 years ago under the guidance of Theodore Schultz, Gary Becker and Jacob Mincer (Hartog, van den Brink, & Henriëtte, 2007). Human capital can be explained as the ability of human beings to produce or act as capital gains in our society. Human capital is directly related to education as students pursue education in order to secure employment, thus producing in the workforce. As students move through the educational process, they begin to realize the effect that education will have on future earnings and therefore update their beliefs regarding the importance of higher educational pursuits (Jepsen, Patel, Troske, & University of Kentucky Center for Poverty, 2010). Human Capital Model assumes that students have some inclination of the costs versus benefit of attaining a degree and will typically make these decisions immediately following high school graduation (Becker, 1993).

A study was conducted in 2010 on 477 workers who recently lost employment or were displaced from work in the State of Iowa (Mihm-Herold, 2010). Knowledge levels, transferable skills, and skill needs were analyzed to assist in developing a model for future assessment and training. Mihm-Herold (2010) concluded that high percentages of both males and females expressed interest in continuing education in order to obtain employment in emerging occupations. Thus, workers concluded that based on the Human Capital Theory, further education and/or training would increase marketability and may improve their chances of obtaining employment. Mihm-Herold (2010) suggests that this study may be used as a replicable model for community colleges and assist displaced workers in reentering the workforce.

As Jepsen, Troske, and Coomes, (2010a) state, “Human capital investments in community and technical college programs produce large labor-market returns” (p. 36), and go on further to describe returns as varying among gender as well as program of study and academic achievement. Human Capital Theory plays a major role in the development that students may experience as evidenced by student success just as one may experience in the workplace (Donhardt, 2004).

As many students enter into community and technical colleges across the United States, they do so with a specific outcome in mind, obtaining in-field employment. Additionally, there are various benefits in obtaining in-field employment regarding rate of return for college students following graduation. Graduates who obtain in-field employment following graduation with a sub-baccalaureate degree are able to increase their earnings by 10%-27% (Romano, 2011, p. 76). Gill and Leigh (2003) found that students who graduate from community colleges tend to have higher earnings than students who do not graduate from a four year college. Women who obtain an associate degree also appear to benefit more than men in reported earnings, indicating that gender may play a role in labor market earnings as well.

In the current economy, many students are entering into higher education with the hopes of finding employment in a field related to their degree. According to a Pew Research study conducted in 2012, 86% of college graduates felt that higher education was a worthwhile investment (College graduation: Weighing, 2012). Obtaining employment ensures graduates that they are receiving a return on their investment. Graduates who secure in-field employment see more than a 15% increase in labor market returns (Stone et al., 2012).

Astin's Input-Environmental-Output Theory

Alexander W. Astin first recognized that although higher education institutions were concerned with evaluating students, the focus should concentrate on more than just the outcome. Astin felt that there were several variables that should be considered when assessing outcomes. Thus, Astin's I-E-O Theory was originated as a means of assessing student outcomes and the many variables that may affect outcomes. It should be noted, as Astin (1993) points out, the I-E-O model can be applied to most any social or behavioral science field as long as there are the three main components present: input, environment, and output.

To better understand the framework of the I-E-O Theory, it is necessary to examine further the three variables on which the model is based. The 'I' or input refers to the personal qualities that students bring with them to the educational experience (Astin, 1993). The 'E' or environmental factors of the I-E-O Theory refers to the students' experiences during the educational encounter. The 'O' or output refers to the development of the students during their educational experience. In order to simplify Astin's I-E-O Theory, the following analogical example assists in describing the relationship among variables. A student makes the statement, "I didn't know anything about calculus (input) until Mrs. Smith (environment) helped me to understand it. I would have never passed the class (output) without her." The example clearly establishes the effects of the environment on the output but also illustrates the condition of input and the effect on the output as well.

When speaking to the three variables, it is necessary to take a closer examination of the output in Astin's I-E-O Theory. Astin (1993) describes output as not how we measure it in terms of how many graduates earn degrees or how much money alumni earn, but must be thought of in terms of input. Astin (1993) cites an earlier study conducted at National Merit Scholarship

Corporation (NMSC) on Ph.D. productivity. In this study, Ph.D. productivity was not determined by a single input but on multiple input variables. However, he found that output data was still limited as no consideration was given to what transpired during their educational experience. When the environment was examined along with input and output, it was possible to understand the 'why' question of the output or outcome. It is, however, important to acknowledge that it is impossible to understand the relationship between environment and outcome without also taking into account the input (Astin, 1993).

Past and recent studies have utilized Astin's I-E-O Theory in order to demonstrate a relationship between independent and dependent variables or predictor and criterion variables. A recent study conducted by Fincher (2008) examined the input and environmental variables that evidenced a relationship between college students with learning disabilities and leadership self-efficacy. Predictor variables included both student characteristics such as age, gender, and ethnicity as well as institutional characteristics including the use of institutional services.

When assessing outcome through the use of student surveys, According to Astin (1943), it is important to develop a data base that includes a follow-up of students who have completed or are about to complete their program of study. Institutions must survey graduates on their environmental experiences in order to capture a more accurate assessment of the outcome. It is possible and most often necessary to combine student survey information with existing archival data in order to supply the researcher with supplemental data.

This study revealed variables that predicted time to in-field employment among associate degree graduates in one technical college through the use of both student surveys as well as archival data. Demographic input variables included age, gender, and ethnicity and environmental factors program of study, use of career services, internship completion, and GPA,

as well as GPA motivation, that predicted time to in-field employment. Variables were analyzed in such a way as to show a relationship among the variables and the relationship to the criterion or outcome variable of time to in-field employment. Results may assist educational leaders in guiding students and future graduates toward more suitable choices that may lead to meaningful employment following degree completion.

Related Literature

Mission of Community Colleges

Due to the declining economy in the late 2000's, more emphasis was placed on community colleges. Unemployment rates began to climb along with many plant closures that "sent large numbers of displaced workers back to community colleges, where they hoped to pick up the skills needed to be reemployed" (Boggs, 2011, p. 5). As more emphasis was placed on the necessity of attaining some form of education or career training, more individuals turned to community colleges as a means of meeting these goals. In late 2012, the Obama Administration developed an initiative and promised to invest over two billion dollars into community colleges in order to better prepare Americans for the current and future job climate (Boggs, 2011).

Hagedorn, Perrakis, and Maxwell (2007) describe community colleges as an "American educational success story" (p. 25) based on more relaxed admissions requirements and the willingness to admit students who require remediation and may not be prepared to enter into higher education. Class schedules are typically flexible in offering day and evening classes, making community colleges much more attractive for working students. In addition, two-year colleges offer necessary work training in that graduates are prepared for immediate employment.

As students graduate from high school, they face many difficult decisions regarding the next step in their lives. There is a vast range of possibilities such as: seeking employment,

attending a community college, attending a four-year college, or securing employment and attending college as well. The type of college students choose to attend will have a major impact on their future. In 2008, more than 30 % of students enrolled in degree programs were enrolled in two-year colleges (Arcidiancono, Hotz, & Kang, 2010). As noted by Hanushek, Woessmann, and Zhang (2011), graduates from two-year colleges that focus on vocational or technical training will see more immediate results in securing employment, but will then see a decline in job progression over time. They similarly note that in the United States vocational education has been almost eliminated and is considered a separate track in secondary schools, arguing that specific skills become obsolete quickly and students must be able to keep up with current and changing technologies. In contrast, four-year colleges and universities tend to focus more on knowledge that is obtained while attending school with less focus on employment status following graduation. According to Coates and Edwards (2011), initial entry into the labor market is important but more important is the knowledge obtained in higher education that creates the foundation for careers. Career employment may in turn take years to develop. This seems to imply that while vocational or technical education graduates exhibit more immediate returns in the labor market; graduates from four-year institutions experience greater longevity in the workplace. Therefore, it is impossible to ignore the relevance of the type of higher educational institution a student chooses to attend and the impact the choice has on securing in-field employment in the short term and long term future.

Characteristics of Graduates (demographic input)

Age. According to the Bureau of Labor Statistics, in August 2013 over 20% of men and women between 18 and 19 years old were unemployed. During that same month, men and women between the ages of 25 and 54 only experienced a 6.3 % rate of unemployment. Based

on these statistics, unemployment rates unquestionably differ among age groups as well as gender identity ("Labor force statistics," 2014).

Adult learners are returning to school in pursuit of higher education degrees for a number of reasons. Some are displaced workers due to a slow economy, while others are simply seeking a career change. Adult graduates face the difficulties of having been away from an educational environment for a period of time as well as lack of knowledge in technological advances. Following graduation, they face still further obstacles in obtaining in-field employment with younger graduates competing for many of the same positions.

Community colleges are increasingly becoming an alternative for older, displaced workers attempting to re-enter the workforce due to lose of job or desire to change careers. In 2010, the Health Care and Education Reconciliation Act of 2010 was created in order to fund community colleges in an attempt to assist displaced workers in the growing unemployment crisis (Fishman & Association for the Study of Higher Education, 2011). As a result, federal grants were put into place to assist displaced workers over 50 in retraining and re-acclimating into a college environment.

Purcell, Wilton, and Elias (2007) state that over half of community college students are older adults and considered non-traditional. Community colleges are more aligned with the needs of older or non-traditional students based on cost and flexibility of schedules. More importantly, community colleges offer programs that prepare students for jobs that are typically in high demand. A past study conducted in the early 1990's found that using age as a quantifier, mature graduates were more likely to have greater difficulty than younger peers in finding related employment following completion of coursework (Purcell et al., 2007). Study

participants expressed overwhelming concern that employers discriminated against them based on age and the perception that they would be unable to fill a new graduate position.

Although various demographics have been researched in regards to labor market returns, very little research exists that focuses on age (Bellas, 2001). A study was conducted in the United Kingdom that included several hundred thousand United Kingdom and European Union students who completed graduate degrees in 2006. Results indicated that more mature students held an advantage in securing paid employment and more particularly graduate-level employment (Woodfield, 2011). While many believe that younger, more innovative employees are preferred by employers, some research would indicate otherwise. As the need for educated workers expands, employers must now consider older workers as an option. Employers are attracted to the experience that older workers bring to the workplace. In addition, older individuals who have recently graduated from higher education institutions tend to have a much higher GPA than those of younger graduates (Hoyert & O'Dell, 2009). Perhaps one obstacle for older students is the reluctance to use institutional services while in school. This places older students at a disadvantage as research indicates that students who use services such as career assistance have a greater likelihood of obtaining employment.

In the case of this study, a large number of participants were identified as non-traditional students and graduates. The variation in ages in this study has the potential to reveal a significant relationship with attainment of in-field employment in a timely manner; demonstrating that more research is needed that investigates relationships between the age of graduates and time to securing in-field employment.

Gender. Since the early 1970's, women have entered the workforce at a startling rate. With the many alternatives in childcare, many more women are now able to work full-time as

well as throughout the year. In the late 70's, women only earned a 62 % proportion of men's earnings compared to 82% at present. Likewise, women in the workforce ages 25 to 64 with a college degree have more than tripled from the 70's to present ("Women in the," 2013).

In decades past, the majority of those attending higher education institutions were males, with a lower percentage of female students attending. However, in the past several decades, the tables have turned. More females than males now attend all types of colleges. There are some limitations for male students regarding program of choice that appear to correlate with lower rates of post-graduate employment. Research suggests that men may see an increase of over 12 percent while women may see more than a 19 percent increase in obtaining in-field employment following completion of an associate degree (Jepsen et al., 2010). Likewise, age also appears to indicate a positive correlation with gender when speaking to returns on degree attainment. Using administrative data from the Kentucky Community and Technical College System (KCTCS), Jepsen et al. (2010) found that "for men, the largest returns for associate's degrees are for students in their early twenties, although there are sizable returns to associate's degrees" (p. 33) for some older age groups as well.

Gender specificity has been linked to particular fields of study with women typically gravitating toward healthcare and men entering into industrial and technical fields. Likewise, the matching of fields to gender also has a positive correlation to economic returns among men and women. Research conducted by Grubb (2002) found that when applied to sub-baccalaureate degrees, women saw larger, positive returns in healthcare while men saw larger returns in computer fields and engineering as well. Black, Haviland, Sanders, and Taylor (2008) dispel the pre-conceived notion that women are viewed in literature as experiencing greater discrimination

in the job market than men and furthermore point out how gender and ethnicity together may factor into acquiring in-field employment.

Ethnicity. When examining in-field employment rates among two-year college graduates, it is necessary to determine if ethnicity plays a role in employment following graduation. This study sought to determine if belonging to a certain demographic group bears a relationship with in-field employment rates after graduating from an associate degree program as well as the length of time that it takes to secure in-field employment.

In more recent years, studies indicate that a greater number of individuals from varying ethnic backgrounds are entering into higher education institutions and are choosing community colleges. In data collected from nationally surveyed college students, over 53 % of Hispanic, 45 % of African-American, 52 % of Native American, and 45 % of Asian/Pacific Islander students now attend community colleges (Boggs, 2011). Research indicates that some ethnic populations experience more success in obtaining a degree and eventually in-field employment that is directly related to program of study. Heckman et al. (2008) reported that African-American males who increase years of education from 12 years to 14 years see higher gains than those of Caucasian males.

Recent research was conducted on over 3,000 students from five community colleges in Florida. Researchers questioned the academic outcomes of African-American and Hispanic students and how the outcomes differ from Caucasian counterparts. Results indicated that African-American, as well as Hispanic students, did not perform as well as their Caucasian counterparts (Greene, Marti, & McClenney, 2008). While African-Americans performed lower academically, Hispanics earned significantly lower grades than Caucasian students. Furthermore, research demonstrates that non-Hispanic white males are shown to have

considerable more labor market advantages than African-American or Hispanic males as opposed to greater returns over female job seekers (Black et al., 2008). As noted throughout literature, academic success or GPA does have a positive correlation with obtaining employment following graduation as well as an increase in income following degree completion. However, little connection has been made regarding how the academic achievements of minority students may affect employment outcomes following graduation from specific program areas.

Although the number of immigrants enrolling in community colleges has increased, very little research exists regarding this population within these institutions (Conway, 2010). Additionally, more research is needed to analyze degree attainment by minority students and how this attainment will affect future employment.

Environmental Factors

Program of Study. As many students enter into higher education, they do so with the hope that attending college will assist them in obtaining employment. However, very few students realize what aspects of the college life will assist them toward greater labor market outcomes (Rosenbaum, Deil-Amen, & Person, 2006). Perhaps the greatest influence on obtaining in-field employment among community college graduates is that of program of study. Community colleges have long faced the challenge of increasing student success whether in terms of simply graduating from their program of study or obtaining a job following graduation (Nitecki, 2011). The program of study that a student chooses has proven to have a direct correlation to the rate of success for many community college students. However, when choosing a program of study, students are often confused regarding the actual degree program, course offerings, and what jobs they will be qualified to perform when they graduate.

Of the many vocational programs that are offered, the healthcare industry appears to be in the highest demand. Boggs (2011) points to the fact that over 50% of registered nurses in United States attended community colleges while over 80 % of first responders attended community colleges as well. Likewise, business graduates showed varying results in labor markets outcomes compared to other areas of study (Wilton, 2007). Female business graduates compared to other female graduates reported employment placement as not being related to long-term career plans. They were more likely, however, to be employed in some capacity.

As Garcia-Aracil indicates (2008), it is not enough to view program choice singularly; program of choice is influenced by various personal circumstances as well as particular life goals. One such life goal is that of earned income. Although, other factors are included, post-graduate income is directly related to this particular study. As Dadgar et al. (2012) observe, the perceived economic returns to a particular program of study has an initial impact on a student's field of choice.

Researcher Garcia-Aracil (2008) notes that previous studies have revealed that the field of study has a significant influence on various work-related benefits among graduates. "The results reveal that the field of study, that is the result of a personal choice, appears to influence the distribution of work-related benefits among graduates even after controlling for unobservable heterogeneity and observable individual/job specific characteristics" (Garcia-Aracil, 2008, p. 733). However, when degrees are specific in occupation, graduates experience greater benefits securing employment at the point of entry into the labor market but may have a more difficult time growing in the position. Likewise, if graduates enter the labor market with general skills, more growth is experienced over time (Roksa & Levey, 2010). Pascarella and Terenzini (2005) have conducted extensive research over several decades and found that typically when graduates

are employed in a job that is directly related to their degree, their career trajectories were much greater. Still more data are needed on colleges that offer specific degree programs, what jobs require particular degrees, and how these factors may predict labor market outcomes (Rosebaum, 2007).

Use of Career Services. While past research has examined institutional characteristics and the relationship between the institution and student or graduate success, very little research exists regarding the use of Career Services and the effect that these services may have on graduates obtaining employment. When examining factors that may predict student outcomes, it is important to note that although institutions may extend multiple offerings to assist students in their educational experience, students are not always willing to take advantage of these offerings. Career Services is an institutional benefit that students may have at their disposal but choose not to use the services for various reasons. Additionally, institutions may fail to properly promote services that assist students in obtaining employment following graduation. In the case of community colleges, the mission of placing graduates in employment positions is paramount. However, past research indicates that many educational administrations place very little emphasis on these services.

As Career Services offices have become more visible, discrepancies exist in the consistency and amount of assistance that is actually offered to students. Rosenbaum et al. (2006) maintain that when services were offered, students were actually more likely to graduate from their specified program of study. However, this was only found to be true of private two-year colleges but not in public two-year colleges. They also suggest that a discrepancy exists between some administrators of two-year colleges and career office staff. Administrators assert that career services frequently place graduates while office workers state that no such placement

exists (Rosenbaum et al., 2006). Redone (2010) found that when students used career services and were placed by the school, they were 2.7 times more likely to find jobs that were relevant to their program of study than students who attempted to seek employment on their own.

Hagedorn et al. (2007) suggest that community colleges must make all options available for students and graduates relating to career paths. This makes it possible for students to begin planning for their future early on in their educational pursuit. As community college enrollment increases, it is imperative that community colleges offer some form of job placement services for graduates (Hagedorn et al., 2007). Research indicates that students who utilize career services are over two times more likely to secure relevant employment than students who attempt to seek employment on their own (Redone, 2010).

In reviewing past analysis conducted on public, two-year colleges, very little research exists regarding the extent of involvement of career services staff in job placement of graduates. On the other hand, private schools do indeed place more emphasis on career services with full-time staff expending a great deal of their time to developing employer contacts as well as job placement for graduates (Rosenbaum, 2007). Redline and Rosenbaum (2006) found in one private, two-year college very high job placement rates, and more specifically, that students representing both genders and multiple ethnicities were being placed in skill-relevant jobs at a higher rate.

As much of the research in the area of job placement through career services focuses on private, two-year colleges, much more research is needed with regards to public community colleges. Rosenbaum (2007) suggests that more current surveying should be conducted on career services staff, and better still conducted on students' or recent graduates' use of career services. Accurate survey collection is necessary in order to ascertain an exact assessment of

career services involvement in job placement. Discrepancies have been shown among administrators and staff members regarding actual job placement (Rosenbaum et al., 2006). This study surveyed graduates from one public, two-year community college in order to determine the use of career services and job placement and the relationship career services usage has in securing in-field employment in a timely manner following graduation.

Internship Completion. Internship requirements within particular fields of study have long been established within community and technical colleges. It is during these internships that many students gain in-field employment while still attending school. Furthermore, graduates are more likely to return to establishments in which internships were completed and gain in-field employment following graduation. In this sense, internships are an invaluable tool in obtaining in-field employment. Hagedorn et al. (2007) point to the fact that technical fields such as computer science often provide internships that eventually lead to job offers for those completing associate degrees. If the program of study requires an internship of some form, further benefits are attained. Stone et al. (2012) asserts that students who completed internships while in college earned approximately 15% more on average than those who did not complete an internship.

GPA. In order for students of all genders and ethnicities to achieve maximum return on their educational pursuits, research has established that students must also put forth maximum effort in the form of GPA. A study conducted by Chia and Miller (2008) demonstrated that not only does GPA have a direct effect on labor market returns for graduates but also the program of study that the student chooses will have a direct effect as well.

Although many would consider GPA to be of importance only while students are enrolled in an institution of higher learning, that is not the case. Donhardt (2004) suggests that employers

view GPA quite differently in relation to employment and explains that “grade point average demonstrates a mastery of subject matter and skills and reveals a positive relationship between the two” (cited from 1991, p. 536). Donhardt (2004) goes further in stating that employers typically reward workers who are productive through raises in pay. Therefore, if college affords graduates the skills that will make them more industrious on the job, then GPA has a positive correlation.

Within the post-secondary setting, student GPA plays a role in many aspects of student life (financial aid, coursework progression, etc). Still, very little is known regarding the effect of GPA, if any, on students following degree completion and graduation. Is there a positive correlation between GPA and obtaining employment following graduation? Although past research conducted within the United States indicates a positive correlation between GPA and degree completion, very little research exists relating GPA to postgraduate employment status. An Australian study was recently conducted in which results show GPA as a significant indicator of employment status. The research model demonstrates that a one point rise in GPA increases post-graduate earnings by nearly \$4,000 per year (Oehrlein, 2009). As Oehrlein (2009) states, “Employers use grades as a tool to judge applicants, so students with higher GPA’s are likely to get better jobs” and “GPA appears to be a fair measure of human capital after graduation” (p. 22).

Criterion Variable

Time to In-Field Employment (output). Very little research has been conducted in the past that analyzes employment following graduation from a two-year or community college, and more importantly obtaining employment within a graduates’ field of study in a timely manner. The majority of studies focus on degree graduates from four-year colleges as opposed to

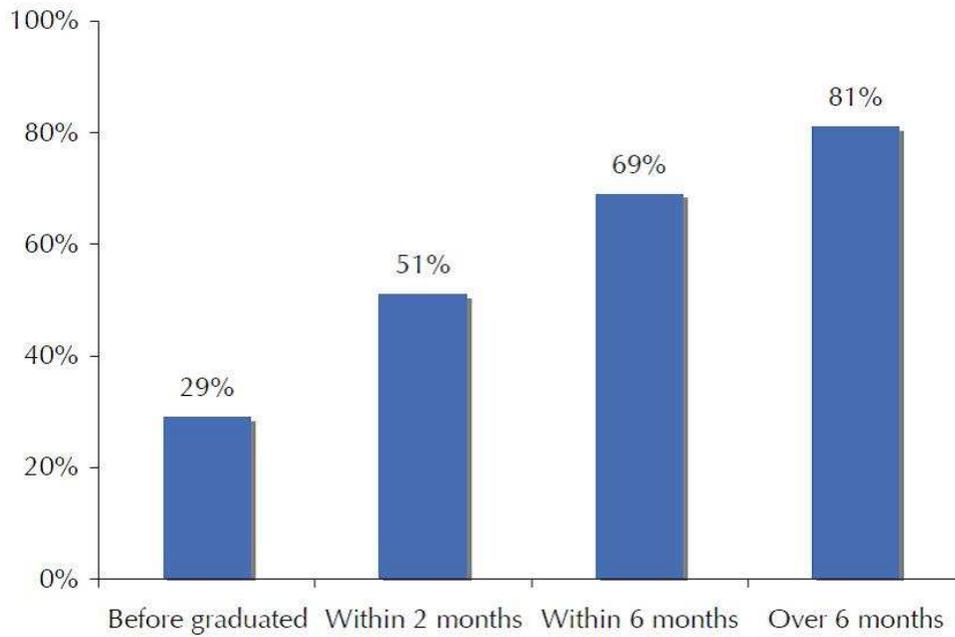
community college graduates from associate degree programs. Additionally, past studies conducted with graduates of two-year colleges are concerned with degree attainment and graduation versus obtaining in-field employment.

As we look at the investment that students make in terms of human capital, as well as the mission of community colleges in placing graduates in employment positions, more research is needed which focuses on labor market returns of associate degree graduates. As noted by Vaughan (2006), almost half of recent college students attended community colleges. A disproportionate amount of community college students consisted of women, minorities, and low-income individuals (Levey, 2010). Obtaining employment is crucial for the above demographic groups and more importantly the time that it will take these graduates to obtain in-field employment following graduation.

A national study was conducted with 571 United States college graduates (Godofsky et al., 2011). Graduates were surveyed regarding details of their first job following graduation. Although the survey was extensive in analysis of first jobs, the participants included graduates from 2006-2010 and only included graduates from a four-year college (Figure 3).

Figure 3. Length of Time to First Job

From: (Godofsky et al., 2011)



Results indicated that over 29% of graduates secured their first job prior to graduation. In addition to totals, 51% secured employment within 2 months, 69% within 6 months, and 81% over 6 months.

Table 2

Length of Time to First Job

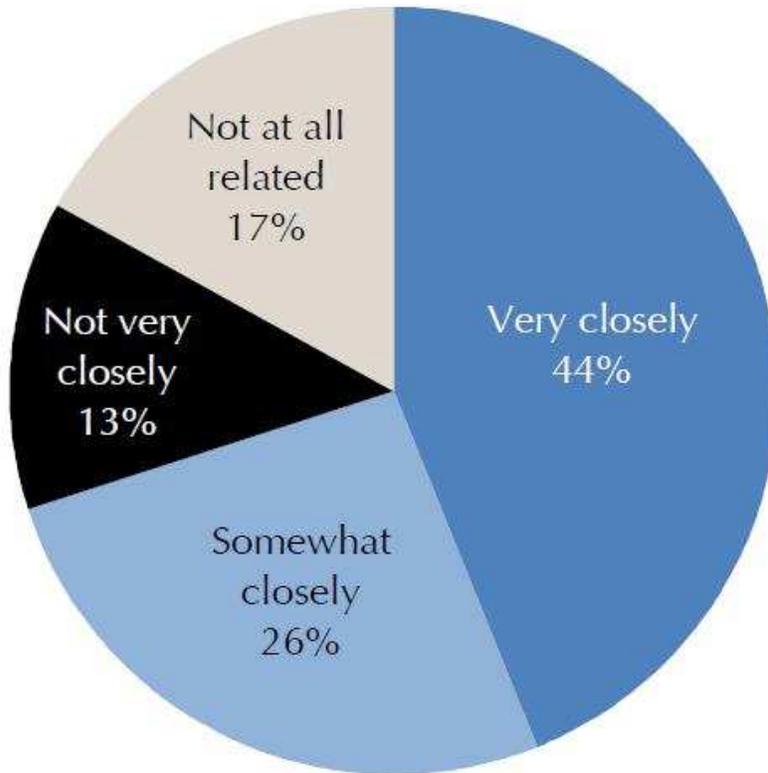
From: (Godofsky et al., 2011)

	2006-2008	2009-2010
Less than 6 months	8%	12%
6 months to 1 year	12%	12%
1 year to 2 years	16%	4%
Over 2 years	18%	5%
Still work there	46%	68%
Total	100%	101%

It is interesting to note that there was somewhat of a significant difference in the length of time that graduates from 2009 - 2010 remained at their first job as compared to graduates from 2006-2008 (Table 2).

Figure 4. Relationship of Academic Work to First Job

From: (Godofsky et al., 2011)



Although, over half of participants did not feel that their first job was closely related to their field of study. Of those who secured employment, 44% felt that their first job was closely related to their field of study, 26% somewhat closely related, 13% not very closely related, and 17% not related at all (Figure 4).

With only a snapshot in time of graduate employment, study results are not as accurate given that employment status may be fluid. Few studies that have been conducted on college graduate employment have been longitudinal in nature. In 2006, a comprehensive study was conducted on United Kingdom graduates that indeed examined employment following higher education graduation. Data was captured six months after graduation and evidence suggests that a longer-term view may see further employment gains for all graduates (Woodfield, 2011).

Mediating Factor

GPA Motivation. Many factors exist in a college environment which may have an effect on student outcomes while enrolled in an associate degree program as well as outcomes following graduation. Likewise, the personal factors that students bring with them when they enter into college will have an effect on outcomes as well. While students have no choice regarding their gender or ethnicity, they do have a choice in how engaged they are during their degree program. This engagement will have a direct effect on outcomes while enrolled in school as well as an indirect effect following graduation. Students must be engaged in order to achieve their full potential.

Over 3,000 community college students in five Florida community colleges were surveyed regarding their engagement during their degree program. Participants consisted of African-American and Hispanic students. Minority student outcomes were compared to their white counterparts. Results indicated that while minority students were more motivated and engaged, academic achievement was well below white students (Greene et al., 2008). While this study consisted of the effects of engagement while enrolled, that engagement may have an indirect effect on outcomes following graduation.

This study examined the relationship that student engagement or motivation has on academic achievement while enrolled in an associate degree program. Furthermore, it demonstrated the mediating relationship that motivation has on GPA and time to in-field employment among associate degree graduates.

Summary of Research

Given the current downturn in the economy and increased unemployment across the United States, many are flocking to local colleges in the hopes of acquiring the skills necessary to obtain gainful employment. Whether students directly entering college from high school or those changing professions or who have recently lost their jobs, community and technical colleges are emerging as an ideal alternative to meet the needs of those seeking job skills. The mission of many four-year colleges is to educate its students and prepare them for the future through academics. The majority of community colleges focus on skill attainment with a focus on obtaining relevant employment following graduation. However, simply acquiring skills does not automatically equate into obtaining employment. Many other factors may play a part in post-graduate employment and how quickly post-graduate employment is obtained.

Individuals entering into higher education enter their respective institutions with a variety of backgrounds and personal characteristics. These characteristics may play a part in whether graduates are able to find relevant employment or choose a different path. Characteristics such as age, gender, and ethnicity may play a role in the future. Institutional characteristics cannot be ignored given that each student will have a different experience based on the choices that they make while enrolled in school. Such choices may include program of study, use of career services, internship completion, and GPA. Student motivation must also be considered an integral part of student outcomes and how students interact within their educational environment.

As students enrolled in higher education institutions seek guidance that will prepare them for the future, it is vital that educational leaders and administrators are equipped with as much information as possible to assist these students. Awareness of the factors that predict the attainment of in-field employment following graduation may assist educational advisors and other institutional leaders in guiding particular students toward more suitable, research-based choices made during their enrollment as well as following graduation. The subsequent three chapters demonstrate the personal characteristics along with institutional characteristics that predict in-field employment as well as the length of time it takes to obtain employment.

CHAPTER THREE: METHODOLOGY

The purpose of this predictive, correlational study was to examine the demographic input factors, as well as GPA motivation, and environmental factors that predict and best predict time to in-field employment among associate degree graduates from one college in the TCSG. The intent of this study was to describe the characteristics of those who have graduated with an associate degree; describe the five program areas of business, computers, healthcare, industrial, and service; describe time to in-field employment of associate degree graduates; determine which demographic input factors predict time to in-field employment of associate degree graduates; and determine if environmental factors were able to assist in predicting time to in-field employment of associate degree graduates. This chapter provides a description of the study's design, sample, instruments, procedures, and analysis.

Design

A predictive, correlational design was used for this study. Gall, Gall, and Borg (2007) state that correlational designs are very useful in education as researchers are able to analyze relationships among numerous variables in a single study. It is also possible to discover the extent of the relationship among the variables being studied. This design was chosen because it allowed me to determine which set of variables were most highly predictive of graduates' time to in-field employment status.

Numerous variables were examined in this study in order to test Vroom's Theory of Expectancy, Human Capital Theory, and the main theory, Astin's I-E-O Theory. As Astin (1993) notes, "outcome variables are typically affected by more than one input variable and in order to thoroughly control for multiple input variables, you have to be able to control for more than one variable at the same time" (p. 274).

Research was collected using a student survey that provided employment status as well as demographic information. In the case of this study, multiple predictive variables were analyzed in order to establish a relationship with the criterion variable. Vroom's Expectancy Theory was used to test the variable GPA motivation as students may be more motivated to achieve a higher GPA in order to secure in-field employment. Human Capital Theory also tests GPA motivation as students realize that their interactions within the educational environment may have a direct effect on their educational outcomes and the success of those outcomes. In the case of this study, outcome is defined as time to in-field employment. Finally, Astin's I-E-O Theory was utilized to test all variables (age, gender, ethnicity, use of career services, internship completion, GPA, GPA motivation) and the relationship variables have with time to in-field employment. Astin (1993) posits that in order to measure student outcomes, student environments must be examined as well as the input that students bring with them as they enter into higher education. Participants were surveyed regarding their employment status. Survey results were verified with the institution's archival data in KMS containing demographic data and program of study of associate degree graduates.

A recent study, analogous with this study, was conducted that examined the "relationship between student success and employment outcomes" (D'Amico, Rios-Aguilar, Salas, & Gonzalez Canche, 2012, p. 251). Eighty-four community college students were surveyed in order to determine what relationship the community college experience may hold on potential careers. A correlational design was used in order to establish a positive correlation between the use of college and career information and college-career alignment (D'Amico, et. al, 2012). The study is analogous to this study as a similar design and analysis were used. This study examined not only demographic input factors among associate degree graduates from a technical college,

but also the institutional factors that graduates are exposed to and the relationship to obtaining in-field employment in a timely manner following graduation.

Questions and Hypotheses

The research questions, as well as null hypotheses, for this study are as follows:

RQ1: Do predictive environmental variables program of study, use of career services, internship completion, GPA, and mediating variable GPA motivation predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity?

H_{01a}: Predictive environmental variables program of study, use of career services, internship completion, GPA, and mediating variable GPA motivation will not significantly predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{01b}: Demographic input variables age, gender, and ethnicity will not significantly contribute to the model for predicting associate degree graduate's time to in-field employment.

H_{01c}: Program of study will not significantly contribute to the model for predicting associate degree graduates' time to in-field employment.

H_{01d}: Use of Career Services will not significantly contribute to the model for predicting associate degree graduates' time to in-field employment

H_{01e}: Internship completion will not significantly contribute to the model for predicting associate degree graduates' time to in-field employment.

H_{01f}: GPA will not significantly contribute to the model for predicting associate degree graduates' time to in-field employment.

H_{01g}: Mediating variable GPA motivation will not significantly predict associate degree graduates' time to in-field employment.

RQ2: Which predictive environmental variable program of study, use of career services, internship completion, GPA, or mediating variable GPA motivation best predicts associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity?

H_{02a}: Program of study will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{02b}: Use of career services will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{02c}: Internship completion will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{02d}: GPA will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

H_{02e}: GPA motivation will not best predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.

Participants

A convenience sample was used due to the ease of accessibility and proximity for the researcher in identifying participants (Gall et al., 2007). This study attempted to enlist 807 students who graduated from one of five associate degree program areas (business, computers, healthcare, industrial, service) in one technical college in the TCSG between Spring 2010 – Fall

2012. Records containing 2010-2012 associate degree graduates in the five program areas were provided by the institution's archival data in KMS. In the case of this study, eight predictor variables were used requiring a minimum sample size of forty. Additionally, an a priori power analysis indicated that a sample size of 40 was needed to have an 80% power for detecting an effect size of .52 when using a .05 criterion of statistical significance. Green (1991) suggests in earlier texts that the minimum number of subjects for each predictor variable in a regression analysis should be five to one (p. 128-129). Although the sample for this study was small, it was sufficient.

Attempts were made to contact graduates through a participation letter that was both mailed and emailed as well as phone contact established by the researcher and research assistant. Participants' identity remained confidential throughout the process. Of the graduates who were contacted, 53 graduates responded to the survey. However, survey question #4 asked graduates; "Were you employed in your degree field of study prior to beginning your degree program?". Of the 53 graduates, five were employed in-field prior to entering into their program of study and were excluded, resulting in 47 participants.

Setting

The two-year technical college that was used in this research is Southern Association of Colleges and Schools (SACS) accredited and a multi-campus school located in rural Northwest Georgia. The college consists of five campuses while serving nine counties. From 2010-2012, the average student enrollment population consisted of approximately 6,000 students per year.

Program Areas

The college is comprised of eight program areas: automotive, aviation, business,

commercial truck driving, computers, healthcare, industrial, and service. There are only a small number of students enrolled in automotive and aviation. Commercial truck driving does not offer any associate degree programs. For said reasons, the three program areas were deleted from the study and graduates from only five of the eight programs were used: business, computers, healthcare, industrial, and service. Within the program of study, requirements, as well as semester hours, vary among the comprised majors.

Automotive. Automotive offers an Automotive Technology Associates Degree program that “prepares students for careers in the automotive service and repair profession. The program emphasizes a combination of automotive mechanics theory and practical application necessary for successful employment” (Automotive technology).

Aviation. Aviation offers a single associate degree in Aviation Maintenance Technology that requires 105 semester hours of coursework. Following completion of this degree, graduates may “participate in Federal Aviation Administration (FAA) power plant and airframe examinations and certification processes” (Aviation maintenance technology).

Business. Business degree programs consist of associate degrees in Accounting, Business Administrative Technology, Business Management, Health Information Technology, and Marketing. Semester hours range from 69-74 with general education courses required for all degree programs. Students are prepared for employment in business or marketing management as well as health information areas of business.

Commercial Truck Driving. Commercial Truck Driving does not offer an associate degree program and could not possibly be included in this study.

Computers. The program area of computers offers three degree programs of study:

Computer Support Specialist, Internet Specialist Web Site Design, Networking Specialist.

Participants are required to complete semester hours ranging from 69-77 semester hours and upon graduation are qualified to work in computer and internet related fields.

Healthcare. Healthcare is the largest of the eight program areas offering 16 degree programs that vary from nursing to echocardiography. Nearly all degree programs require successful internship, clinical, or practicum completion in order to graduate from the specified program area.

Industrial. Industrial program offers five degree programs: Construction Management, Drafting Technology, Electronics Technology, Industrial Systems Technology, Instrumentation and Controls Technician. All degree programs require general education courses with minimal internship hours required. However, much of the coursework utilizes hands-on activities.

Service. Six degree programs are contained within the service careers program area. Degrees include: Criminal Justice Technology, Culinary Arts (two cohorts), Early Childhood Care and Education, Fire Science Technology, Social Work Assistant. Graduates are prepared to work in a variety of positions such as police officers, chefs, pre-school teachers, fireman, and social workers just to name a few. All degree areas require hands-on activities and many require internship completion.

Career Services

The Career Services offices included in this study are located on the main campus as well as one satellite campus. Representatives are available on specified days at all other satellite campuses. Career Services is advertised on every campus and is included in all new student orientation. A Career Services orientation video is part of the new student orientation when they enter school. Instructors are responsible for notifying students regarding Career Services and

may schedule class time for Career Services personnel to speak to students. All students have access to the tools on the Career Services webpage that include sample resume, interviewing questions, and job postings. An online tool, Optimal Resume, is available for students to create resumes, cover letters, conduct an interactive mock interview, and assess their job skills. All career related documents may be sent to Career Services for review. Students must fill out a generic form in order to obtain assistance from Career Services. A file is created for the student and updated as needed. All students on file are notified via student email when new job postings become available. Also, employers may request resumes of students who are on file. Resumes from students will be sent to the prospective employer. However, only resumes pertaining to that particular field of study will be sent to potential employers.

Internship Completion

Internship completion is also considered in a portion of this study. Internships, clinicals, and practicums take place in a multitude of locations as well as a multitude of program areas. However, internship location was not a factor in research results. All five program areas included in this study, business, computers, healthcare, industrial, and service require some form of internship, practicum, or clinical hours. Healthcare degrees require the majority of internship placements with Neuromuscular Therapy requiring an in-house internship. Table 3 displayed below lists program areas, degrees, and hours required for internship completion.

Table 3

Internship Completion

Program Name	Program Degrees Requiring Internship	Internship Hours
Business	Health Information Technology	6 credit hours
Computers	Internet Specialist Web Site Design	3 credit hours
Healthcare	Associate of Science in Nursing (ASN)	-
	Diagnostic Medical Sonography	32 credit hours
	Echocardiography	25 credit hours
	Medical Assisting	6 credit hours
	Neuromuscular Therapist	8 credit hours
	Licensed Practical Nurse (LPN) to Associate of Science In Nursing (ASN)- Transition	-
	Occupational Therapy Assistant	16 credit hours
	Paramedicine	15 credit hours
	Pharmacy Technology	10 credit hours
	Radiation Therapy	17 credit hours
	Radiologic Technology	33 credit hours
	Respiratory Care	18 credit hours
	Surgical Technology	12 credit hours
	Vascular Technology	31 credit hours
Industrial	Drafting Technology	3-13 credit hours
Service	Criminal Justice Technology	6 credit hours
	Culinary Arts	6 credit hours
	Early Childhood Education	15 credit hours
	Social Work Assistance	12 credit hours

Survey

The survey for this study was completed by participants utilizing the online survey system, Survey Monkey. The reason for this choice of setting is that graduates were more likely to respond due to the ease of participation (Dillman, Smyth, & Christian, 2009).

Instrumentation

A graduate survey was used to obtain data regarding in-field employment status of associate degree graduates in business, computers, healthcare, industrial, and service programs from Spring 2010 through Fall 2012. The survey was a modified version of the existing institutional graduate survey (Appendix A). The survey included generally closed form questions, “meaning that the question permits only pre-specified responses” (Gall et al., p. 234) with few fill-in-the-blank responses. Careful construction of survey questions, as well as proper administration of the survey, was adhered to in order to ensure reliability. Surveys were administered with complete confidentiality and were coded specifically to protect the identity of the participants.

For the purpose of verifying demographic information (age, gender, ethnicity) and the environmental factor program of study, data was collected from the TCSG’s KMS and confirmed with survey responses by matching student identification numbers to the randomly assigned participation identification number assigned to each survey. GPA was collected solely from the KMS along with participant contact information. KMS provides the following: manages data collection and reporting for the agency's technical colleges and adult education programs, designs and develops web applications and other systems in support of the agency's data needs, provides programming, database administration, and data warehousing services (About data).

Survey Development

A survey was developed by the researcher in order to gain demographic information as well as information pertinent to the analysis of the criterion (output) variable. The survey consisted of twelve questions with varying answer options. All questions were either yes/no, multiple choice, fill-in-the-blank, and Likert-type (Appendix A). Several of the questions included on the survey were not included in analysis data but instead will be used for clarification in Chapter Five. The survey used in this study served as a questionnaire with carefully structured questions applicable to research collection. Content and face validity were established through an expert panel. Construct validity was not established.

The survey was reviewed and validated by an expert panel of three higher education instructors and administrators prior to mailing the participation letter. Panel members consisted of a current, post-secondary school administrator with over 30 years experience in the classroom as a business instructor. He has been an acting dean for over 10 years and has an earned Ed.D. in Educational Leadership. Other panel members included a former post-secondary administrator and current post-secondary instructor with an earned Ed.D. and over 30 years experience in higher education. The final panel member has been a post-secondary English instructor for more than 25 years with a terminal degree in English. The panel members were given a rubric and asked to examine each question on clarity and directness as well as whether questions were useful in evaluating variables within the study (Tabachnick & Fidell, 2007). All questions were reviewed by the panel members (Appendix B). Panel members were given two choices: “YES, the question meets the requirements of clarity, directness, and usefulness in evaluating variables contained in this multiple regression study”, “NO, the question does not meet the requirements of clarity, directness, and usefulness in evaluating variables contained in this multiple regression

study”. If questions were not affirmed, panel members were asked to make suggestions in the comment box provided. All questions were approved and accepted by the panel.

Control (Demographic Input) variables. Question #1- “What is your age?” The graduate was asked to self-report their age. A space was provided in order for graduates to fill in their age. Question #1 measured the control variable, age. Question #2- “What is your gender?” The graduate was asked to self-report gender either Male or Female. Question #2 measured the control variable, gender. Question #3- “What is your ethnicity?” Graduates were asked to respond as to the ethnicity that best applies to them. Possible choices included Caucasian, African-American, Hispanic, and Other. Question #3 measured the control variable, ethnicity. All demographic information was verified through the institution’s KMS.

Predictor (Environmental) variables. Question #8- “What degree did you acquire upon graduation?” Graduates were asked to indicate their major at the time of graduation through self-reporting on the survey provided. The information was verified through the institution’s KMS. The graduates were asked to fill in the blank in the space provided. Question #9- “Did you receive assistance from your school’s Career Services office while you were enrolled in your degree program?” Graduates were asked to answer Question #9 regarding their use of Career Services. The graduates self-reported in the survey provided. The graduates were asked to respond either yes or no. They were then prompted to answer the following: “If so, were you assisted in obtaining in-field employment by the Career Services Office?” The graduates were again asked to respond either yes or no. Question #9 measured the environmental variable, use of career services. Question #10- “Did your degree program require internship, clinical, or practicum hours?” Graduates self-reported in the survey regarding internship requirements. The graduates were asked to respond either yes or no. Graduates were then prompted to answer the

following by responding either yes or no: “If so, are you employed in the place of business where the internship, clinical, or practicum was completed?” Question #10 measured the environmental variable, internship completion. GPA was collected through the institution’s KMS following consent provided on the survey. GPA was measured on a scale of .00 – 4.0. GPA has proven to be a valid measurement of student success. Young (2007) describes GPA as a traditional 4-point scale with lower numbers reflecting a less satisfactory performance.

Criterion (Output) variables. Question #4- “Were you employed in your degree field of study prior to beginning your degree program?” Question four in the survey established if the graduate was employed prior to entering their degree program. Participants were asked to respond either yes or no. If the participant responded affirmatively, this disqualified them from data analysis and is discussed further in Chapter Four. Question #5- “Please choose all that apply to your current situation.” The graduates self-reported their current employment status by choosing one of the following responses: Currently employed in a position directly related to my degree; Employed in a position not directly related to my degree; Looking for employment directly related to my degree; Not looking for employment; Unemployed; Unemployed due to pursuit of a higher degree. Question #5 established whether the participant was employed in-field. The graduates were prompted to answer the following by self-reporting time to in-field employment on the survey provided: Question #6- “How long did it take you to secure an in-field position from the time that you received your degree?” Please choose one of the following responses: Prior to graduation, 0-3 months, 3-6 months, 6-9 months, 9-12 months, more than 12 months, Not employed. Question #6 measured the criterion variable, time to in-field employment. The participants were asked one additional question to verify job title based on

degree. Question #7- “If you are currently employed, please enter your job title.” The participants were asked to respond in the blank provided.

Mediator variable. The mediator variable, GPA motivation, was measured according to a Likert-type scale. Question #12- “How motivated were you to achieve a higher Grade Point Average (GPA) because you expected that better grades may help you obtain in-field employment following graduation from your degree program?” Graduates were given the following choices: Not motivated, Somewhat motivated, Motivated, Very motivated. Question #12 measured the mediating variable, GPA motivation.

Graduates were asked the following question in order to provide further clarity in Chapter Five regarding motivation to enter into higher education. Question #11- “How motivated were you to enter into higher education in order to obtain in-field employment following graduation from your associate degree program?” Graduates were asked to choose one of the following answers: Not motivated, Somewhat motivated, Motivated, Very motivated.

Variables and measurement methods are illustrated in Table 4 below.

Table 4

Variables and Measurement Methods

Theoretical Framework & Research	Variable	Data Source/ Measurement	Unit of Analysis
Astin I-E-O Theory (Astin, 1993)	Control (Demographic Input) Data		
	- Age	Self-report survey; #1; “What is your age?” Verified by Archival Data; KMS	Fill-in-fill-blank; years
	- Gender	Self-report survey; #2; “What is your gender?” Verified by Archival Data; KMS	1= Male 0= Female
	- Ethnicity	Self-report survey; #3; “What is your ethnicity?” Verified by Archival Data; KMS	1= Caucasian 2=African-American 3= Hispanic 4= Other
Astin I-E-O Theory (Astin, 1993) Human Capital Theory	Predictive Environmental Data		

Table 4

Variables and Measurement Methods (continued)

Theoretical Framework & Research	Variable	Data Source/Measurement	Unit of Analysis
Vroom Expectancy Theory (Vroom 1964)	- Program of Study	Self-report survey; #8; "What degree did you acquire upon graduation?" Verified and categorized by Archival Data; KMS	Fill-in-the-blank 1= Business 2= Computers 3= Healthcare 4= Industrial 5= Service
	- Use of Career Services	Self-report survey; #9; "Did you receive assistance from your school's Career Services Office while you were enrolled in your degree program?" "If so, were you assisted in obtaining in-field employment by the Career Services Office?"	1= Yes 0= No 1= Yes 0= No
	- Internship Completion	Self-report survey; #10; "Did your degree program require internship, clinical, or practicum hours?"	1= Yes 0= No

Table 4

Variables and Measurement Methods (continued)

Theoretical Framework & Research	Variable	Data Source/Measurement	Unit of Analysis
Astin I-E-O Theory (Astin, 1993) Human Capital Theory Maslow's Hierarchy of Needs (Maslow 1943) Vroom Expectancy Theory (Vroom 1964)	- GPA	"If so, are you employed in the place of business where the internship, clinical, or practicum was completed?" Retrieved through archival data; KMS	1= Yes 0= No 0.0-4.0 Scale

Table 4

Variables and Measurement Methods (continued)

Theoretical Framework & Research	Variable	Data Source/Measurement	Unit of Analysis
	- Time to In-field Employment Status of Associate Degree Graduates	Self-report survey; #4; “Were you employed in your degree field of study prior to beginning your degree program?”	1= Yes 0= No
		Self-report survey; #5; “Please choose all that apply to your current situation.”	1= Currently employed in a position directly related to my degree 2= Employed in a position not directly related to my degree 3= Looking for employment directly related to my degree 4= Not looking for employment 5= Unemployed 6= Unemployed due to pursuit of a higher degree 7= Not employed

Table 4

Variables and Measurement Methods (continued)

Theoretical Framework & Research	Variable	Data Source/Measurement	Unit of Analysis
Astin I-E-O Theory (Astin, 1993) Human Capital Theory Maslow's Hierarchy of Needs (Maslow 1943)	- Mediating Data	Self-report survey; #7; "If you are currently employed, please enter your job title."	Fill-in-the-blank
		Self-report survey; #6; "How long did it take you to secure an in-field position from the time that you received your degree? Please choose one of the following responses:"	1= Prior to graduation 2= 0-3 months 3= 3-6 months 4= 6-9 months 5= 9-12 months 6= more than 12 months 7= Not Employed

Table 4

Variables and Measurement Methods (continued)

Theoretical Framework & Research	Variable	Data Source/Measurement	Unit of Analysis
Vroom Expectancy Theory (Vroom 1964)	GPA Motivation	Self-report survey, #12; “How motivated were you to achieve a higher Grade Point Average (GPA) because you expected that better grades may help you obtain in-field following graduation from your degree program?”	1= Not motivated 2= Somewhat motivated 3= Motivated 4= Very motivated

Procedures

The participating technical college was contacted and approved the study. Following a successful proposal defense, approval was obtained from Liberty University's Institutional Review Board (IRB). Once approval was granted, the participating institution's Research and Information Coordinator was contacted by phone regarding the development of a specific application such that designated data may be collected from KMS. A research assistant was secured in order to assist in mailing out participation letters and collecting and recording data. Following a meeting with the Research and Information Coordinator, records of graduates from degree programs in business, computers, healthcare, industrial, and service, from Spring 2010 through Fall 2012 were obtained by the Research and Information Coordinator. No identifiers were present when the data was turned over to the researcher. Participants were identified by student identification numbers only and chosen based on graduation year and program of study. KMS data contained student identification numbers, physical address, email address (if available), phone number (if available), age, gender, ethnicity, program of study, and GPA.

Data was inputted into an Excel spread sheet on a password protected computer with the help of the research assistant. Each graduate's student identification number was assigned a random number to be used in all correspondence and also in aligning survey data with archival data. A physical print out was used for notations and verification. Participation letters were mailed out to a portion of identified graduates in the five program areas. Letters were addressed to 'TCSG Graduate' and included the graduate's physical mailing address. The participation letter contained the coded number, or participant identification number, that corresponded with the graduate's student identification number and included detailed instructions regarding access to the consent form and survey (Appendix C). Names or other identifiers were not used. A

Uniformed Resource Locator (URL) was contained in the participation letter in which graduates were able to access the consent form and online survey. Once the URL was accessed, the participant was required to read the consent form and verify by electronically signing and dating the consent (Appendix D). Once the participant signed, a prompt took the participant to the online survey. If the participant did not electronically sign, they were not prompted to continue on to the survey and the process was terminated. By participants agreeing to the contents of the consent form, they were also agreeing to allow academic records and graduate information collected from the institution's KMS to be used in this study as well as all self-reported survey information. After agreeing to the consent form, participants were asked to enter their participant identification number on the survey form prior to beginning the survey. Following completion of the survey, participants were mailed a gift card of \$5 to any McDonald's Restaurant. The offering of a small incentive assists in decreasing non-response rates and limits non-response bias (Dillman et al., 2009). Identifying information was removed after survey data had been downloaded.

Following the initial mail-out, the researcher emailed the participation letter to all graduates with valid email addresses. Once an initial contact was attempted with all graduates, follow-up contacts were conducted by either email or phone. Graduates who were notified by phone were asked to participate in the study using a pre-written script (Appendix F). There were a large number of graduates who had incorrect information which may account for the low response rate.

Survey results were collected in a password protected account on the Survey Monkey website. As surveys were completed, participant identification numbers on surveys were matched to the student identification number on the spread sheet and print out. The research

assistant assisted in recording the in-field employment status and other survey variables into the existing excel spread sheet as well as on the print version. Also, if graduates answered affirmatively to Question #9- “Were you employed in your degree field of study prior to beginning your degree program?”, the survey information was analyzed and a decision was made whether to exclude the graduate from analysis. Five graduates were excluded due to in-field employment prior to entering into their associate degree program of study. A target date of 45 days following the initial mail-out was reached and all data was recorded. Data analysis then took place and results were included within this study. Throughout this process, all data were kept in a secured, locked filing cabinet in the researcher’s office.

Data Analysis

This study utilized HMR in order to demonstrate a relationship between the criterion variable and multiple predictor variables (Gall et al., 2007). HMR is able to analyze various types of data and determine the statistical significance of variable relationships. Variables were entered into analysis in blocks based on predetermined priority.

This study examined the factors that predict and best predict time to in-field employment among associate degree graduates from one college in the TCSG. Demographic input variables (age, gender, ethnicity) were categorized as control variables. The variables (program of study, use of career services, internship completion, GPA) were categorized as predictive environmental variables. GPA motivation was categorized as the mediator variable in this study. Time to in-field employment was categorized as the criterion output variable.

All variables and corresponding survey and KMS data were contained in one Excel file and entered into Statistical Package for the Social Sciences (SPSS) version 22. SPSS is the most commonly used software in educational research for the purpose of statistical analysis (Gall et

al., 2007). In order to examine how the model predicted time to in-field employment, HMR analysis was used. The purpose of this analysis was to demonstrate a relationship between the criterion output variable time to in-field employment status of associate degree graduates and predictive environment variables (program of study, use of career services, internship completion, and GPA) while controlling for the demographic input variables (age, gender, ethnicity) based on participant sample data. The mediator variable (GPA motivation) was also analyzed in order to demonstrate a mediating relationship between GPA and time to in-field employment. For the purposes of this study, six blocks of predicting factors were entered into regression in a hierarchical manner to determine time to securing in-field employment of associate degree graduates (Ange, 2011). Categorical variables were coded as ordinal data as this is preferred when analyzing data. Gender was dummy coded as follows: Male=1, Female=0. Use of career services and internship completion were dummy coded as follows: Yes=1, No=0. Finally, program of study was dummy coded as evidenced in Table 5.

Table 5

Program of Study Dummy Code

	POS1	POS2	POS3	POS4
Business	1	0	0	0
Computer	0	1	0	0
Healthcare	0	0	1	0
Industrial	0	0	0	1
Service	0	0	0	0

Note: POS= Program of Study; Service- Reference Category

Vroom's Expectancy Theory, as well as Human Capital Theory, was tested in order to establish a relationship between GPA motivation, GPA, and the criterion variable time to in-field employment. Astin's I-E-O has been the preferred theory of many researchers examining predictive factors involving higher education studies. A recent study conducted by Knight (2004) examined the time to bachelor degree attainment at Bowling Green University using a modified version of Astin's I-E-O as well as a HMR analysis. This study examined multiple, predictive factors that are most appropriately analyzed using multiple regression in that variables are entered as blocks in a hierarchal manner.

The control, predictor, and mediating variables were placed into blocks in order to analyze the statistical significance of the variables as they relate to the output variable. Variables were placed in blocks to demonstrate the significance of the relationship that each variable has with the criterion variable. Based on the review of literature, blocks were ordered by perceived priority. Block 1 consisted of demographic input control variables age, gender, and ethnicity. Block 2 included the environmental variable program of study. Block 3 included the use of career services while Block 4 included completion of an internship program. Block 5 included the graduates GPA upon graduation, while Block 6 included GPA motivation. Demographic input variables were controlled in Blocks 2-6. In Astin's I-E-O Theory, the main focus is on the relationship of the environment to the outcome or criterion variable. "It is important to control for the effects of inputs before attempting to assess the effects of environments on outcomes" (Astin, 1993, p 233). Blocks are illustrated in Table 6 below.

Table 6

Data Source Blocks

Data Source Blocks	Variables
Block 1	Demographic Input (Control) Data Age Gender Ethnicity
Block 2	Predictive Environmental Data Program of Study
Block 3	Predictive Environmental Data Use of Career Services
Block 4	Predictive Environmental Data Internship Completion
Block 5	Predictive Environmental Data GPA
Block 6	Mediator Data GPA Motivation

The effect size for this regression model was determined when multiple R and R squared was reported (Warner, 2008). An alpha level of .05 was set throughout the study.

Assumptions testing was conducted in this regression study that included assumption of normality, homoscedasticity, linearity, multicollinearity, multivariate outliers, and extreme

outliers. The assumption of normality was evaluated using a Normal P-P Plot of Regression Standardized Residuals. Histograms were used to measure distribution to examine data for normality as well. For tenability, points were aligned in a reasonably straight line on the Normal P-P Plot. A scatterplot was used to check data for homoscedasticity and linearity (Tabachnick & Fidell, 2007). Individual scatterplots were examined as well for even distribution of errors. Multicollinearity was tested using the Variance Inflation Factor (VIF). VIF tested for a high level of intercorrelation among the predictive variables. A Cook's distance D_1 was used to identify multivariate outliers that may have skewed overall results (Tabachnick & Fidell, 2007). Extreme outliers were evaluated using a scatterplot. These tests ensured that the outcome variable had a linear relationship to input and environmental variables.

CHAPTER FOUR: FINDINGS

Introduction

This regression study determined the set of predictive environmental variables program of study, use of career services, internship completion, and GPA, as well as GPA motivation, that predicted associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity, and also which variable best predicted associate degree graduates' time to in-field employment by answering the following research questions:

RQ1: Do predictive environmental variables program of study, use of career services, internship completion, GPA, and mediating variable GPA motivation predict associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity?

RQ2: Which predictive environmental variable program of study, use of career services, internship completion, GPA, or mediating variable GPA motivation best predicts associate degree graduates' time to in-field employment while controlling for demographic input variables age, gender, and ethnicity?

Descriptive Data

Demographic data for the 47 participants is presented in Table 7 below. Prior to analyses, all categorical variables, gender, ethnicity, program of study, use of career services, and internship completion were dummy coded. The age of the participants ranged from 23 to 63, with a mean age of 39.04 ($SD = 11.44$). Age, gender, ethnicity, and program of study were all self-reported and verified through the participating institution's KMS. Participants included 30 (64%) females and 17 (36%) males. Among the participants, 94 % or 44 were identified as

Caucasian, two as African-American, and one as Hispanic. This study grouped all other graduate ethnicities into one category, which did not receive any responses. Due to lack of variance, ethnicity data was excluded from analysis. Possible degree majors in this study included business, computers, healthcare, industrial, and service. Data indicated that of the 47 participants, 12 (26%) of the participants were identified as business majors, 9 (19 %) computers, 11 (23%) healthcare, 4 (9 %) industrial, and 11 (23%) service. Question #9 on the participant survey was self-reported and revealed that the Career Services office was utilized by 7 % of the participants ($Mdn = .00$). However, none of the participants was assisted in finding in-field employment. Of the 47 participants, 21 were required to complete an internship, practicum, or clinical hours as evidenced by question #8 on the participant survey through self-reporting. Of the 21, only one participant is working in a position at the place of business where internship, practicum, or clinical hours were required ($Mdn = .00$, $SD = .50$). Graduate GPAs were collected from the institution's KMS and ranged from 2.44 to 4.0 with a mean score of 3.57 ($SD = .32$).

Findings based on question #12 were self-reported on the participant survey and indicated that of the 47 participants, 31 (66 %) were very motivated, 7 (15 %) motivated, 7 (15 %) somewhat motivated, and 2 (4%) were not motivated to achieve a higher GPA in hopes of securing a job in their degree field following graduation.

Table 7

Descriptive Statistics- N = 47

Variables	<i>M/Mdn/n (SD)</i>
	<i>M (SD)</i>
Age	39.04 (11.44)
GPA	3.57 (.32)
	<i>Mdn (SD)</i>
Use of Career Services	.00 (.36)
Internship Completion	.00 (.50)
GPA Motivation	4.00 (.90)
	<i>n (%)</i>
Gender	
Male	17 (36%)
Female	30 (64%)
Program of Study	
Business	12 (26%)
Computers	9 (19%)
Healthcare	11 (23%)
Industrial	4 (9%)
Service	11 (23%)
GPA Motivation	
Not Motivated	31 (66%)
Somewhat Motivated	7 (15%)
Motivated	7 (15%)
Very Motivated	2 (3%)

Correlation of Predictor Variables and Time to In-field Employment

Results of the correlation analyses are presented in Table 8. The analyses suggested significant positive and negative relationships between program of study and time to in-field employment. Students in the program of study, computers ($r = .32, p = .03$), took longer to secure in-field employment (relative to Service) while those graduating from healthcare ($r = -.41, p < .01$), were able to secure in-field employment in the shortest length of time (relative to Service). Age, gender, use of career services, internship completion, GPA, and GPA motivation were not shown to be significantly correlated to the participants' time to in-field employment.

Table 8

Correlation of Predictor and Criterion Variables

		Time to Job	Age	Gender	Bus/ POS1	Comp/ POS2	Health POS3	Indus/ POS4	Career Services	Internship	GPA	GPA Motivation
Pearson Correlation	Time to Job	1.00										
	Age	.18	1.00									
	Gender	-.22	-.23	1.00								
	Bus/POS1	.26	.39*	-.44*	1.00							
	Comp/POS2	.32*	-.05	.31*	-.29	1.00						
	Health/POS3	-.41*	-.10	.00	-.32*	-.27	1.00					
	Indus/POS4	.04	-.05	.41*	-.18	-.15	-.17	1.00				
	Career Services	-.15	-.11	-.19	.17	-.20	-.09	.09	1.00			
	Internship	-.02	-.16	-.32*	-.23	-.33*	.41*	-.27	-.02	1.00		
	GPA	-.04	.08	-.15	-.02	.03	-.08	-.17	.03	.11	1.00	
	GPA Motivation	.08	.08	.19	-.17	-.05	-.10	.20	.07	-.05	.22	1.00

Note: POS= Program of Study; * $p < .05$

Assumption Testing

Assumptions testing was conducted in this regression study that included assumption of normality, homoscedasticity, linearity, multicollinearity, multivariate outliers, and extreme outliers. The assumption of normality was evaluated using a Normal P-P Plot of Regression Standardized Residuals. The P-P Plot revealed a normal distribution of the residuals which suggested no significant deviations from normality. A histogram of the standardized residuals was used to examine data for normality as well. The standardized residuals revealed a normal distribution of the criterion variable data which indicated normality within the data. For tenability, points were aligned in a reasonably straight line on the Normal P-P Plot. A scatterplot was used to check data for homoscedasticity and linearity (Tabachnick & Fidell, 2007). The scatterplot indicated some pattern of outliers. However, a fit-line was applied to the scatterplot and was found to be flat. Further testing was conducted on individual variables using scatterplots; even distribution of error was noted. Multicollinearity was evaluated using the VIF. VIF tested for a high level of intercorrelation among the predictive variables. The VIF values for all of the variables were significantly below 10 and the tolerance values were above .10 suggesting there was not collinearity among the predictor variables. A Cook's distance D_1 was used to identify multivariate outliers that may have skewed overall results (Tabachnick & Fidell, 2007). A maximum Cook's distance of .16 suggested no significant problems with multivariate outliers. Extreme outliers were evaluated using a scatterplot. These tests ensured that the outcome variable had a linear relationship to input and environmental variables.

Results of Hierarchical Regression Model

This study sought to answer the primary research question regarding which variables predict time to in-field employment among associate degree graduates while controlling for

demographic variables age, gender, and ethnicity. Following completion of the initial analysis, the predictive variable, ethnicity, was removed from further analysis due to lack of variation as Tolerance = .000 limit was reached (94% of the respondents were identified as Caucasian). The remaining predictor variables were placed into six blocks in order to identify their significance on the overall model. Results are listed in Table 9 below.

The control variables entered into Block 1 of the regression (age, gender) explained 7% of the variance in time to in-field employment, and were not statistically significant, with $F(2, 44) = 1.56, p = .22$.

Block 2 of the model added the dummy coded variable, program of study, and accounted for an additional 31.7% of variance, R^2 change $(4, 40) = .32, p < .01$. In addressing survey question 2, “What is your gender”, gender was found to be a statistically significant variable within this block (beta = $-.39, p = .02$). The beta value of $-.39$ indicates a positive relationship between gender and time to in-field employment with female graduates being more predictive of time to in-field employment compared to male graduates. Survey question 8, “What degree did you acquire upon graduation?” addressed the dummy coded variable, program of study, and was also found to be a statistically significant variable within this block. Program of study POS2 (Computers) was statistically significant (beta = $-.51, p < .01$). With a beta value of $-.51$, computer majors appear to obtain in-field employment in a shorter time as compared to service majors (dummy coded reference category). Block 2 containing the variables age, gender, and program of study was found to be a statistically significant model, $F(6, 40) = 4.15, p < .01$.

Block 3 of the model added the variable, use of career services, and accounted for an additional 4.2% of variance, R^2 change $(1, 39) = .04, p = .10$. Survey question 2 related to gender was found to be a statistically significant variable within Block 3 (beta = $-.44, p = .01$).

Survey question 8 was also found to be a statistically significant variable within Block 3. The beta value of $-.44$ indicates a positive relationship between gender and time to in-field employment with female graduates being more predictive of time to in-field employment compared to male graduates. The dummy coded variable POS2 (Computers) was statistically significant (beta = $.48$, $p < .01$). POS4 (Industrial) was also statistically significant (beta = $.33$, $p = .04$). While computer and industrial majors were significant, based on the beta values, in-field employment was obtained at a slower rate compared to service majors (dummy coded reference category). Block 3 containing the variables age, gender, program of study, and use of career services was found to be a statistically significant model, $F(7, 39) = 4.14$, $p < .01$.

Block 4 of the model added the variable, internship completion, and accounted for an additional 8.3% of variance, R^2 change (1, 38) = $.08$, $p = .02$. Survey question 8 was also found to be a statistically significant variable within block 4. The variables, program of study POS1 (Business) (beta = $.43$, $p = .02$), POS2 (Computers) (beta = $.64$, $p < .01$), and POS4 (Industrial) (beta = $.43$, $p = .01$) were all found to be statistically significant. While business, computer, and industrial majors were significant, based on the beta values, in-field employment was obtained at a slower rate compared to service majors (dummy coded reference category). In addressing the variable, internship completion, survey question 10, “Are you employed in the place of business where the internship, clinical, or practicum was completed?” was found to be a statistically significant variable within block 4 (beta = $.39$, $p = .02$). Although internship completion was found to be significant, the beta value of $.39$ indicated that graduates who participated in internships look longer to obtain in-field employment. Block 4 containing variables age, gender, program of study, use of career services, and internship completion was found to be a statistically significant model, $F(8, 38) = 4.93$, $p < .01$.

Block 5 of the model added the variable, GPA, and accounted for an additional .6% of variance, R^2 change (1, 37) = .01, $p = .51$. Survey question 8 was also found to be a statistically significant variable within Block 5. The variables, program of study POS1 (Business) (beta = .42, $p = .02$), POS2 (Computers) (beta = .63, $p < .01$), and POS4 (Industrial) (beta = .41, $p = .01$) were all found to be statistically significant. While business, computer, and industrial majors were significant, based on the beta values, in-field employment was obtained at a slower rate compared to service majors (dummy coded reference category). Survey question 10 regarding internship was found to be a statistically significant variable within block 5 (beta = .40, $p = .02$). Although internship completion was found to be significant, the beta value of .40 indicated that graduates who participated in internships took longer to obtain in-field employment. Block 5 containing the variables age, gender, program of study, use of career services, internship completion, and GPA was found to be a statistically significant model, $F(9, 37) = 4.36$, $p < .01$.

The variable GPA motivation was added in the final block of the model and contained survey question 12 addressing how motivated graduates were to achieve a higher GPA. GPA motivation added a variance of 4.5% to the model, R^2 change (1, 36) = .05, $p = .06$. Survey question 2 related to gender was found to be a statistically significant variable within Block 6 (beta = -.37, $p = .02$). The beta value of -.37 indicates a positive relationship between gender and time to in-field employment with female graduates being more predictive of time to in-field employment compared to male graduates. The variables program of study POS1 (Business) (beta = .49, $p = .01$), POS2 (Computers) (beta = .69, $p < .01$), and POS4 (Industrial) (beta = .41, $p = .01$) were all found to be statistically significant. While business, computer, and industrial majors were significant, based on the beta values, in-field employment was obtained at a slower rate compared to service majors (dummy coded reference category). Survey question 10 was

also found to be a statistically significant variable within the regression model (beta = .41, $p = .01$). Although internship completion was found to be significant, the beta value of .41 indicated that graduates who participated in internships look longer to obtain in-field employment. Block 6 containing all variables (age, gender, program of study, use of career services, internship completion, GPA, GPA motivation) was found to be a statistically significant model, $F(10, 36) = 4.58, p < .01$.

This study sought to answer the secondary research question (RQ2) regarding which variable best predicts time to in-field employment among associate degree graduates while controlling for demographic variables age, gender, and ethnicity. Program of study made the most significant contribution to the prediction of the criterion variable accounting for 31.7% of variance in time to in-field employment.

Table 9

Hierarchical Regression Model and Individual Variable Contribution in Block 6

Variable	R^2 Change	F Ratio R^2 Change	Zero- Order r	Partial r	β	SE B	B	t	p
Block 1	.07	1.56							
Block 2	.32	5.15*							
Block 3	.04	2.88							
Block 4	.83	6.41*							
Block 5	.01	.44							
Block 6	.05	3.67							
Age			.18	-.03	-.02	.03	-.01	-1.18	.86
Gender			-.22	-.37	-.37	.78	-1.84	-2.37	.02*
POS1			.26	.43	.49	.96	2.71	2.82	.01*
POS2			.32	.59	.69	.97	4.21	4.35	<.01*
POS3			-.41	-.20	-.18	.82	-1.00	-1.22	.23
POS4			.04	.42	.41	1.27	3.55	2.79	.01*
Use of Career Services			-.15	-.29	-.22	.81	-1.49	-1.83	.08
Internship Completion			-.02	.41	.41	.74	1.98	2.68	.01*
GPA			-.04	-.18	-.13	.92	-1.03	-1.11	.27
GPA			.08	.30	.24	.33	.64	1.92	.06
Motivation									

Note: POS = Program of Study; * $p < .05$

Null Hypotheses

Hierarchical Multiple Regression, and more specifically R^2 change was utilized to analyze the null hypotheses in this study. The addition of demographic input control variables (age, gender) in Block 1 was not significant, therefore analyses failed to reject the following null hypothesis: “Demographic input variables age, gender, and ethnicity will not significantly contribute to the model for predicting associate degree graduates’ time to in-field employment.” The addition of the predictive environmental variable (use of career services) in Block 3 was not significant, therefore analyses failed to reject the following null hypothesis: “Use of Career Services will not significantly contribute to the model for predicting associate degree graduates’ time to in-field employment.” The addition of the predictive environmental variable (GPA) in Block 5 was not significant, therefore analyses failed to reject the following null hypothesis: “GPA will not significantly contribute to the model for predicting associate degree graduates’ time to in-field employment.” The addition of the mediating variable (GPA motivation) in Block 6 was not significant, therefore analyses failed to reject the following null hypothesis: “Mediating variable GPA motivation will not significantly predict associate degree graduates’ time to in-field employment.”

The addition of the predictive environmental variable (program of study) in Block 2 was significant, therefore analyses rejected the following null hypothesis: “Program of study will not significantly contribute to the model for predicting associate degree graduates’ time to in-field employment.” The addition of the predictive environmental variable (internship completion) in Block 4 was significant, therefore analyses rejected the following null hypothesis: “Internship completion will not significantly contribute to the model for predicting associate degree graduates’ time to in-field employment.”

The overall regression model that included all variables accounted for a total of 56% of the variance in time to in-field employment. After the demographic input variables (age and gender) were controlled for, the contribution of the predictive environmental variables (dummy coded variable program of study, use of career services, internship completion, GPA) and the mediating variable (GPA motivation) significantly contributed an additional 49.3% of the variance accounted for in time to in-field employment, R^2 change (8, 36) = .49, $p < .01$, therefore analyses rejected the following null hypothesis: “Predictive environmental variables program of study, use of career services, internship completion, GPA, and mediating variable motivation will not significantly predict associate degree graduates’ time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.”

The addition of each block of variables entered into the model was analyzed in order to determine which predictive variable best predicts associate degree graduates’ time to in-field employment. The addition of program of study demonstrated the most significant contribution accounting for 31.7% variation in predicting time to in-field employment. Program of study best predicts time to in-field employment, therefore analyses rejected the following null hypothesis: “Program of study will not best predict associate degree graduates’ time to in-field employment while controlling for demographic input variables age, gender, and ethnicity”. Use of career services, internship completion, GPA, and GPA motivation did not best predict associate degree graduates’ time to in-field employment, therefore analyses failed to reject the following null hypotheses: “Use of career services will not best predict associate degree graduates’ time to in-field employment while controlling for demographic input variables age, gender, and ethnicity”, “Internship completion will not best predict associate degree graduates’ time to in-field employment while controlling for demographic input variables age, gender, and ethnicity”,

“GPA will not best predict associate degree graduates’ time to in-field employment while controlling for demographic input variables age, gender, and ethnicity”, “GPA motivation will not best predict associate degree graduates’ time to in-field employment while controlling for demographic input variables age, gender, and ethnicity”.

Chapter Five will discuss the hypotheses and results, the relationship to literature, implications of this research, limitations of the study, and future research. Chapter Five will not only contribute to current literature but provide a better understanding and interpretation of results.

CHAPTER FIVE: DISCUSSION

Introduction

This predictive, correlational study examined the graduate characteristics, as well as GPA motivation, and environmental factors that predict and best predict time to in-field employment among associate degree graduates from one college in the TCSG. HMR was used to examine the relationship between predictive and criterion variables. As Astin (1993) states, to better understand student outcomes in an educational environment, one must examine student input as well as the institutional environment. Astin (1993) suggests that a correlational design is the most efficient way in which to measure output properly. Studies in the past have focused on four-year college graduates as well as graduation from degree programs as the wanted outcome. This study differs in that it focuses on associate degree graduates or sub-baccalaureate graduates in a two-year college and attainment of in-field employment as the wanted outcome. Additionally, a great deal of data was gathered for this study through self-reporting. Past studies have relied on government agency employment reports as well as longitudinal data. This chapter will discuss the results of the hypotheses, the relationship of the results to previous research and theory, the implications of this study, limitations and implications for future research, and a summary of the results.

Results of the Hypotheses

This study examined the demographic and predictive variables in a six block hierarchical regression model. Blocks of variables were entered into SPSS based on priority as interpreted by past literature. Null hypotheses were either accepted or rejected based on the contribution of each block to the overall model. Block 1 examined the relationship of demographic input control variables age, gender, and ethnicity. However, based on initial testing, ethnicity was removed

from analysis due to lack of variance in data (Caucasians accounted for 92% of respondents).

Block 1 suggested that there was not a statistically significant contribution of demographic input variables to the overall model and accepted the null hypothesis. When demographic variables are entered into the first block, the researcher is able to control for these variables throughout the analysis process. Block 2 (RQ1) of the regression examined the relationship of the variable, program of study, on the participants' time to in-field employment. This block suggested a statistically significant contribution of the variable to the overall model and rejected the null hypothesis. Approximately 31.7% of the variance in program of study was explained by the linear relationship with time to in-field employment. Block 3 (RQ1) of the regression examined the relationship of the variable, use of career services, on the participants' time to in-field employment. Use of career services did not make statistically significant contribution to the overall model and the null hypothesis was accepted. Approximately 4.2% of the variance in use of career services was explained by the linear relationship with time to in-field employment. Block 4 (RQ1) of the regression examined the relationship of the variable, internship completion, on the participants' time to in-field employment. This block suggested a statistically significant contribution of the variable to the overall model, therefore the null hypothesis was rejected. Approximately 8.3% of the variance in internship completion was explained by the linear relationship with time to in-field employment. Block 5 (RQ1) of the regression examined the relationship of the variable, GPA, on the participants' time to in-field employment. This block did not suggest a statistically significant contribution of the variable to the overall model and the null hypothesis was accepted. Approximately .6% of the variance in GPA was explained by the linear relationship with time to in-field employment. Block 6 (RQ1) of the regression examined the relationship of the variable, GPA Motivation, on the participants' time to in-field

employment. This block did not suggest a statistically significant contribution of the variable to the overall model, therefore the null hypothesis was accepted. Approximately 4.5% of the variance in GPA Motivation was explained by the linear relationship with time to in-field employment.

The overall regression model that included all variables contributed an additional 49.3 % of variance in time to in-field employment. The overall model was statistically significant, therefore the null hypothesis was rejected. Program of study made the most significant contribution in the model in predicting time to in-field employment. Program of study was considered the best predictor of time to in-field employment (RQ2) explaining 31.7% of the variance in time to in-field employment. The following null hypothesis was rejected: “Program of study will not best predict associate degree graduates’ time to in-field employment while controlling for demographic input variables age, gender, and ethnicity.” All other null hypotheses for (RQ2) were accepted.

Relationship of Results to Research and Theory

As past research suggests, college graduates are able to secure employment in a timely manner following graduation. However, the type of employment that graduates gain may not be relevant to their field of study. Eighty percent of college graduates who were included in a 2012 national survey were employed within six months following graduation. All participants surveyed graduated from four-year institutions with baccalaureate degrees. However, the type of employment that was secured was irrelevant to their program of study (Stone et al., 2012). This study added to past research studies in that it focused solely on associate degree graduates from a two-year college. Similar to the Stone et al. (2012) study, 68% of graduates were employed at an

average rate of 9-12 months following graduation. Of the 47 participants surveyed, only 34% were employed in a position directly related to their program of study.

Individuals enter into higher education for a variety of reasons. As Maslow's Hierarchy of Needs Theory posits, individuals are motivated in order to ensure that personal needs are met (Maslow, 1943). In the case of this study, graduates were surveyed regarding their motivation to enter into a degree program in order to secure in-field employment following graduation. Of the 47 participants, 51% stated that they were very motivated to enter college in order to secure in-field employment. Thirty-eight percent were either motivated or somewhat motivated to attain a degree in order to secure in-field, for a total of 89% who were motivated to enter higher education in order to obtain in-field employment. Eighty-nine percent is comparatively high in relation to past studies. The Center for Community College Student Engagement Cohort data found that 70% of students attending community colleges were motivated to enter into higher education in order to attain in-field employment following graduation (Center for Community College Student, 2010).

Vroom's Expectancy Theory (1964) states that individuals are more motivated to act in a certain way in order to achieve a particular outcome. Likewise, the Human Capital Theory views education as an investment. The individual or graduate invests in higher education in order to increase the likelihood of attaining in-field employment. Graduates who invest time and effort into higher education, such as a higher GPA, may be more likely to achieve on a higher level in the workplace. In the case of this study, graduates were surveyed and asked if they were more motivated to achieve a higher GPA in hopes of securing in-field employment following graduation. As Chia and Miller (2008) state, "To the extent that education is an investment in higher earnings capacity, it appears to be a better investment for those individuals who have the ability and motivation to achieve a higher GPA" (p. 2). Of the 47 participants, 97% were motivated to achieve a higher GPA in hopes of securing in-field employment following

graduation. Within this study, GPA motivation was found not to have statistical significance on securing in-field employment in a timely manner.

Astin's I-E-O Theory suggests that in order to properly assess student achievement or outcome, one must include student input as well as the educational environment. In the case of this study, outcome was measured as the student graduating and obtaining in-field employment in a timely manner. Graduate demographics of age and gender, as well as GPA motivation, were analyzed. Additionally, the environmental factors of program of study, use of career services, internship completion, and GPA were examined. The environmental factor, program of study, exhibited the most statistically significant relationship to graduates' time to in-field employment. Past research studies have found that both demographic and environmental variables are significant predictors in predicting graduates' time to in-field employment (Bellas, 2001; Chia & Miller, 2008; Garcia-Aracil, 2008; Godofsky et al., 2011; Heckman et al., 2008; Redone, 2010; Stone, et al., 2012). In the case of the study, demographic input variables demonstrated no statistical significance to the overall model. When controlling for demographic input variables, environmental variables, as well as GPA motivation, demonstrated statistical significance in predicting time to in-field employment.

Implications of This Study

The results of this study established future implications for associate degree graduates in their pursuit of attaining in-field employment in a timely manner. The most significant implication found in this study was the program of study or major that students choose is the best predictor of the time that it takes to secure in-field employment. This implies that when students enter college, more thought should be placed on choosing a program of study. In a recent study, close to 50% of college graduates surveyed stated that in retrospect they would have chosen their

major more carefully and would have completed additional internship hours (Godofsky et al., 2011). Internship completion was analyzed in this study. Results indicated that internship completion of participants was statistically significant. However, it did not lead to obtainment of in-field employment in a timely manner. Similarly, Rosenbaum (2007) suggests that many advisors and faculty are unfamiliar with degree specifics and unable to guide students to proper program choices. Educational leaders must present accurate information regarding programs of study in order that students are able to make a more informed decision. Results of this study were consistent with past research studies in that the major chosen by students predicts the time that it takes to obtain in-field employment. Past studies suggest that program of study matters above all else in relation to employment attainment (Garcia-Aracil, 2008). Carnevale et al. (2009) posit that age and gender appear to be less of a factor when speaking to graduate employment when the degree is acquired at a community or technical college. Conversely, gender was found to be significant within this study with female associate degree graduates obtaining in-field employment in a shorter period of time than male graduates.

Of the programs analyzed in this study, healthcare demonstrated the shortest time to in-field employment of the programs that were included in this study. Furthermore, healthcare required the most internship hours. Students should consider one of many healthcare degrees offered if attainment of employment is the desired outcome when entering into higher education.

Limitations and Implications for Future Research

Limitations that were identified in this study will have implications on any future research involving associate degree graduates attainment of in-field employment and moreover the length of time that it takes graduates to obtain in-field employment. The participants in this study were limited to associate degree graduates in one of five programs areas (business,

computers, healthcare, industrial, service) in one technical college in the TCSG. The fact that participants were limited to associate degree graduates only, limited the number of participants and graduates from the participating institution. Future studies may consider including certificate and diploma graduates as this would expand the study and provide more information regarding graduate employment. A convenience sample was utilized in this study.

Generalizability of results do not represent the entire population and only a sample of the population is represented. Researchers may generalize only regarding the population that the convenience sample was taken from and nothing more (Tabachnick & Fidell, 2007).

Nonignorable and nonresponse within a study is of concern particularly if correlated with variables within a study. Although graduates from all five program areas were surveyed, a great number of graduates who were contacted did not respond that resulted in nonresponse bias. The number of survey respondents in program areas can be quite small (Rosenbaum, 2007). Despite the low response rate in this study, the responders appear to be representative of the population in terms of gender, and closely representative of ethnicity and program of study. The general population of the participating institution at the time of this study consisted of 65% female and 35% male students. The participants in this study consisted of 64% female and 36% male graduates. The ethnicity of the general population of the participating institution was closely representative of the participants in this study. The general population consisted of 88% Caucasian, 11% African American, and less than 1% Hispanic students. Participants in this study consisted of 94% Caucasian, 4% African American, and 2% Hispanic graduates. Due to the nature in which data is reported at the participating institution, only approximations were made with regards to percentages and program of study. The combined majors of business and computers within the general population consisted of 33% of the student population while

accounting for 45% of the participants in this study. Healthcare majors accounted for 28% of the institution's general population while accounting for 23% of participants in this study. Industrial majors accounted for 19% of the institution's general population while accounting for 9% of participants in this study. Service majors accounted for 19% of the institution's general population while accounting for 23% of participants in this study. Future studies should consider more effective means of encouraging graduates to participate.

Participants were asked to provide appropriate and accurate information regarding in-field employment status. It is recognized that not all participants may have responded accurately.

Likewise, contact information obtained for some graduates was outdated or incorrect. The inability to contact graduates, as well as low response rate, resulted in a small sample size. It is recognized that some graduates chose not to participate for many reasons while some have relocated, had phone numbers changed or disconnected, possessed invalid email addresses, or were simply unable to be reached. The data collected for this study covered a two year span and included graduates from the five program areas only. Due to the fact that participants were past graduates, a great deal of contact information on file was incorrect. Suggestions for future research may consider securing participants prior to graduation and following graduates for a length of time past graduation. This would ensure a larger sample size and more accurate information.

Omitted variable bias is considered a threat due to the fact that omitted variables may have an influence on the criterion variable. A thorough examination of literature on this topic was conducted and variables were added to the regression model in order of priority. In the case

of this study, owing to lack of response from multiple ethnic groups, ethnicity was omitted from analyses.

A correlational design is limited in that only predictions are to be made and no inferences to a causal relationship should be made (Gall et al., 2007). It is not possible to prove a causal relationship among variables in this type of study. While this is limiting in nature, due to the vast number of possible external influences with respect to employment rates, it is not feasible to utilize any other research design.

Summary

This study examined the institutional or environmental factors, as well as GPA motivation, that predict time to in-field employment of associate degree graduates while controlling for individual characteristics or demographics. Hierarchical Multiple Regression (HMR) analysis was utilized in order to identify graduate characteristics and environmental factors that significantly predicted time to in-field employment status. Variables were entered into the model in a manner which each predictive variable was assessed to better answer research questions.

Based on Astin's I-E-O Theory, the principle theory in the conceptual framework of this study, Astin suggests that regression analysis is the most well suited design for eliminating the effect of input (predictive) variables on outcome (criterion) variables (Astin, 1993). A recent study conducted by Norwani, Yusof, and Abdullah (2009) utilized Astin's I-E-O model in establishing "relationships between students' development and students' input and learning environments" (p. 86). Norwani et. al. (2009) used a multiple regression design to illustrate the importance of input and institutional, environmental factors in learning and development of final year business majors in Malaysia. In contrast, this regression study attempted to illustrate the

importance of input and institutional factors on associate degree graduates obtaining in-field employment in a timely manner. Vroom's Expectancy Theory, along with Human Capital Theory, were tested as well in order to demonstrate the importance of motivation as a mediator in the relationship between GPA and time to in-field employment.

This study was unique in that graduates were personally surveyed following graduation regarding their employment status. The majority of data collected was through self-reporting. Past studies have utilized data from employment agencies as well as longitudinal data. By personally contacting graduates, more personal information was gained regarding specific employment status and a more accurate account of the timeframe to in-field employment was acquired. Results from this study suggested that program of study demonstrated the most statistically significant contribution to the model in predicting time to in-field employment. Previous studies have examined factors that predict graduation rates among associate degree graduates with no mention of the outcome following graduation. Others have focused solely on four-year colleges with no regard for those receiving sub-baccalaureate degrees. As future research is conducted, advisors and faculty must be properly trained in order to provide current and accurate information regarding program of study choice. Students must also be made aware of the importance of completing required internships and doing so with the thought of attaining possible employment at their internship placement.

REFERENCES

- About data, planning, & research.* (n.d.). Retrieved from
<https://kms.tcsg.edu/DPR/DPR/AboutUs.aspx>
- Ange, C.P. (2011). *Determining factors contributing to graduation for students with learning disabilities in community colleges.* (Published doctoral dissertation). Liberty University, Lynchburg, VA.
- Arcidiacono, P., Hotz, V. J., & Kang, S. (2010). Modeling college major choices using elicited measures of expectations and counterfactuals (NBER Working Paper No. 15729). Cambridge, MA: *National Bureau of Economic Research.*
- Astin, A. W. (1993). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education.* New York: American Council on Education/Macmillan.
- Automotive technology.* (n.d.). Retrieved from
<http://www.gntc.edu/academics/program.php?id=289>
- Aviation maintenance technology.* (n.d.). Retrieved from
<http://www.gntc.edu/academics/program.php?id=346>
- Azari, C. E. (1996). Measuring student outcomes in postsecondary vocational education: Using wage record data. *Community College Review, 24*(3), 37.
- Becker, G. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education.* Chicago, IL: The University of Chicago Press.
- Bellas, M. L. (2001). Investment in higher education: Do labor market opportunities differ by age of recent college graduates?. *Research in Higher Education, 42*(1), 1-25.
- Bergerson, A. (2009). Special issue: college choice and access to college: Moving

- policy, research, and practice to the 21st century. *ASHE Higher Education Report*, 35(4), 1-141.
- Black, D. A., Haviland, A. M., Sanders, S. G., & Taylor, L. J. (2008). Gender wage disparities among the highly educated. *Journal of Human Resources*, 43(3), 630-659.
- Boggs, G. R. (2011). Community colleges in the spotlight and under the microscope. *New Directions for Community Colleges*, (156), 3-22.
- Brock, T., & MDRC. (2010). Evaluating programs for community college students: How do we know what works? A Paper Prepared for the White House Summit on Community Colleges. *Mdrc, Career Services*. (n.d.) Retrieved from <http://www.gntc.edu/student-services/career-services.php>.
- Carnevale, A., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018*. Washington, D.C.: Georgetown University, Center on Education and the Workforce, 2010.
- Celikoz, N. (2010). Basic factors that affect general academic motivation levels of candidate preschool teachers. *Education*, 131(1), 113-127.
- Center for Community College Student, E. (2010). The heart of student success: Teaching, learning, and college completion. 2010 Findings. *Center for Community College Student Engagement*.
- Chase, M. M. (2011). Benchmarking equity in transfer policies for career and technical associate's degrees. *Community College Review*, 39(4), 376-404.
- Chia, G., & Miller, P. W. (2008). Tertiary performance, field of study and graduate starting salaries. *Australian Economic Review*, 41(1), 15-31.

- Coates, H., & Edwards, D. (2011). The graduate pathways survey: New insights on education and employment outcomes five years after bachelor degree completion. *Higher Education Quarterly*, 65(1), 74-93.
- College graduation: Weighing the cost ... and the payoff. (2012). Retrieved from <http://www.pewresearch.org/college-graduation-weighing-the-cost-and-the-payoff/>
- Community college regulations. (n.d.). Retrieved from <http://www.suny.edu/CommunityColleges/files/Regulations.pdf>
- Conway, K. M. (2010). Educational aspirations in an urban community college: Differences between immigrant and native student groups. *Community College Review*, 37(3), 209-242.
- Dadgar, M., Weiss, M., & Columbia University, C. (2012). Labor market returns to sub-baccalaureate credentials: How much does a community college degree or certificate pay? CCRC Working Paper No. 45. *Community College Research Center, Columbia University*.
- D'Amico, M. M., Rios-Aguilar, C., Salas, S., & Gonzalez Canche, M. S. (2012). Career capital and the community college. *Community College Journal of Research and Practice*, 36(4), 251-261.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail and mixed-mode surveys, the tailored design method, 3rd edition*. John Wiley Co. Hoboken: N.J.
- Donhardt, G. L. (2004). In search of the effects of academic achievement in postgraduation earnings. *Research in Higher Education*, 45(3), 271-284.
- Fincher, J. (2008). *Leadership self-efficacy for college students with a learning disability*. (Published master's thesis). University of Maryland, College Park.

- Fishman, S., & Association for the Study of Higher, E. (2011). Completion agenda for baby boomers. Commentary. *Association For The Study Of Higher Education*,
- Flannery, K., Slovic, R., Benz, M. R., & Levine, E. (2007). Priorities and changing practices: Vocational rehabilitation and community colleges improving workforce development programs for people with disabilities. *Journal of Vocational Rehabilitation*, 27(3), 141-151.
- Fogg, N. P., & Harrington, P. E. (2011). Rising mal-employment and the great recession: The growing disconnection between recent college graduates and the college labor market. *Continuing Higher Education Review*, 7551-65.
- Gall, M., Gall, J. & Borg, W. (2007). *Educational research: An introduction* (8th ed.). Boston, MA: Allyn & Bacon.
- Garcia-Aracil, A. (2008). College major and the gender earnings gap: A multi-country examination of postgraduate labor market outcomes. *Research in Higher Education*, 49(8), 733-757.
- Gobin, B., Teeroovengadum, V., Becceea, N., & Teeroovengadum, V. (2012). Investigating into the relationship between the present level of tertiary students' needs relative to Maslow's hierarchy: A case study at the University of Mauritius. *International Journal Of Learning*, 18(11), 203-219.
- Godofsky, J., Zukin, C., Van Horn, C., & Rutgers, T. (2011). Unfulfilled expectations: Recent college graduates struggle in a troubled economy. Work Trends. *John J. Heldrich Center for Workforce Development*.
- Gredler, M. (2005). *Learning and instruction. theory into practice*. Fifth edition. Pearson Merrill Prentice Hall. Upper Saddle River, New Jersey and Columbus, Ohio.

- Green, S. B. (1991). How many subjects does it take to do a regression analysis? *Multivariate Behavioral Research*, 26(3).
- Greene, T. G., Marti, C., & McClenney, K. (2008). The effort-outcome gap: Differences for African-American and Hispanic community college students in student engagement and academic achievement. *Journal Of Higher Education*, 79(5), 513-539.
- Grubb, W. N. (2001). From isolation to integration: Postsecondary vocational education and emerging systems of workforce development. *New Directions for Community Colleges*, (115), 27.
- Grubb, W. N. (2002). Learning and earning in the middle, part I: National studies of pre-baccalaureate education. *Economics of Education Review*, 21(4), 299–321.
- Hagedorn, L., Perrakis, A. I., & Maxwell, W. (2007). The negative commandments: Ten ways urban community colleges hinder student success. *Florida Journal of Educational Administration & Policy*, 1(1), 25-33.
- Hanushek, E. A., Woessmann, L., & Zhang, L. (2011). General education, vocational education, and labor-market outcomes over the life-cycle (NBER Working Paper No. 17504). Cambridge, MA: *National Bureau of Economic Research*.
- Hartog, J., van den Brink, M., Henriëtte. (2007). *Human capital: Theory and evidence*. Cambridge, GBR: Cambridge University Press.
- Heckman, J. J., Lochner, L. J., & Todd, P. E. (2008). Earnings functions and rates of return. *Journal of Human Capital*, 2, 1-31.
- Hoyert, M. S., & O'Dell, C. D. (2009). Goal orientation and academic failure in traditional and nontraditional aged college students. *College Student Journal*, 43, 1052-1061.

Jepsen, C., Patel, D., Troske, K., & University of Kentucky Center for Poverty. (2010).

An exploratory analysis of the relationship between student earnings and postsecondary retention. University of Kentucky Center for Poverty Research Discussion Paper Series, DP2010-13. *University of Kentucky Center for Poverty Research*.

Jepsen, C., Troske, K., & Coomes, P. (2010a). The labor market returns to community college degrees, diplomas, and certificates. Discussion Paper 2009-08. University of Kentucky Center for Poverty Research, Lexington, KY.

Jones, S. (1997). *The archaeology of ethnicity: Constructing identities in the past and present*. Routledge Press, London and New York.

Knight, W. E. (2004). Time to bachelor's degree attainment: An application of descriptive, bivariate, and multiple regression techniques. *IR Applications: Using Advanced Tools, Techniques, and Methodologies*, 2: 1-15.

Levey, T. (2010). The effect of level of college entry on midcareer occupational attainments. *Community College Review*, 38(1), 3-30.

Lunenburg, F. C. (2011). Expectancy theory of motivation: Motivating by altering expectations. *International Journal of Management, Business, and Administration*, 15(1).

Maslow, A. (1943). A theory of human motivation. *Psychological Review*, 50, 370-396.

Maslow A. & Lowrey R. (1998). *Toward a psychology of being*, 3rd ed. New York: Wiley and Sons.

Massachusetts Board of Higher Education, (2007). Final report from the task force on retention and completion rates at the community colleges.

- Mihm-Herold, W. (2010). *Considering human capital theory in assessment and training: Mapping the gap between current skills and the needs of a knowledge-based economy in Northeast Iowa.*
- Nitecki, E. M. (2011). The power of the program: How the academic program can improve community college student success. *Community College Review*, 39(2), 98-120.
- Norwani, N. M., Yusof, R., & Abdullah, M. K. L. (2009). Learning outcomes at higher education institutions: To what extent do institutional environments contribute?. *The Journal of Human Resource and Adult Learning*, 5(1), 84-94.
- Oehrlein, P. (2009). Determining future success of college students. *Undergraduate Economic Review*, 5(1), Article No. 7. Retrieved from <http://digitalcommons.iwu.edu/uer/vol5/iss1/7>
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research.* San Francisco, CA: Jossey-Bass.
- Pope, M. L., & Fermin, B. (2003). The perceptions of college students regarding the factors most influential in their decision to attend postsecondary education. *College And University*, 78(4), 19-25.
- Porchea, S. F., Allen, J., Robbins, S., & Phelps, R. P. (2010). Predictors of long-term enrollment and degree outcomes for community college students: Integrating academic, psychosocial, socio-demographic, and situational factors. *Journal of Higher Education*, 81(6), 680-708.
- Pousa, C., & Mathieu, A. (2010). Sales managers' motivation to coach salespeople: An exploration using expectancy theory. *International Journal Of Evidence Based Coaching & Mentoring*, 8(1), 34-50.

- Purcell, K., Wilton, N., & Elias, P. (2007). Hard lessons for lifelong learners? Age and experience in the graduate labor market. *Higher Education Quarterly*, 61(1), 57-82.
- Redone, J. (2010). School job placement: Can it avoid reproducing social inequalities?. *Teachers College Record*, 112(3), 843-875.
- Redline, J., & Rosenbaum, J. (2006). Institutional job placement: Can it avoid reproducing social inequalities? Unpublished paper, Northwestern University.
- Roksa, J., & Levey, T. (2010). What can you do with that degree? College major and occupational status of college graduates over time. *Social Forces*, 89(2), 389-415.
- Romano, R. M. (2011). A brief look at what economists are saying about the community college. *Community College Review*, 39(1), 69-87.
- Rosenbaum, J. E. (2007). New data needed: Improving survey research on two-year college experiences. Issues & Answers. REL 2007-No. 015. *Regional Educational Laboratory Midwest*.
- Rosenbaum, J., Deil-Amen, R., & Person, A. (2006). *After admission: From college access to college success*. New York: Russell Sage Foundation Press.
- Rouse, C. E. (2007). Consequences for the labor market. In C. R. Belfield & H. M. Levin (Eds.), *The price we pay: Economic and social consequences of inadequate education* (pp. 99-124). Washington, DC: Brookings Institution Press.
- Sabadish, N., Shierholz, H., & Wething, H. (2012). *The class of 2012: Labor market for young graduates remains grim*. Retrieved from <http://www.epi.org/publication/bp340-labor-market-young-graduates/>

- Scott, D. G., & Evans, J. (2010). Peak experience project. *International Journal of Children's Spirituality*, 15(2), 143-158.
- Smith, B. D. (2009). Maybe I will, maybe I won't: What the connected perspectives of motivation theory and organizational commitment may contribute to our understanding of strategy implementation. *Journal Of Strategic Marketing*, 17(6), 473.
doi:10.1080/09652540903371729
- Stone, C., Van Horn, C., & Zukin, C. (2012). Chasing the American dream: Recent college graduates and the great recession. Work Trends. *John J. Heldrich Center for Workforce Development*.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon.
- U.S. Bureau of Labor Statistics, (2014). *Labor force statistics from the current population survey*. Retrieved from website: <http://www.bls.gov/web/empsit/cpseea10.htm>
- U.S. Bureau of Labor Statistics, (2013). *Women in the labor force: a data book*. Retrieved from website: <http://www.bls.gov/cps/wlf-databook-2012.pdf>
- Vaughan, G. B. (2006). *The community college story* (3rd ed.). Washington, DC: American Association of Community Colleges.
- Vroom, V. (1964). *Work and motivation*. New York: Jon Wiley & Sons.
- Warner, R. M. (2008). *Applied statistics: From bivariate through multivariate techniques*. London: SAGE.
- Wenglinsky, H.H. (1996). The educational justification of historically Black college and universities: A policy response to the U.S. Supreme Court. *Education and Policy Analysis*. 18: 91-103.

Wilton, N. (2007). Does a management degree do the business for women in the graduate labor market?. *Higher Education Quarterly*, 61(4), 520-538. doi:10.1111/j.1468-2273.2007.00370.x

Woodfield, R. (2011). Age and first destination employment from UK universities: Are mature students disadvantaged?. *Studies in Higher Education*, 36(4), 409-425.

Young, I. (2007). Predictive validity of grade point averages and of the miller analogies test for admission to a doctoral program in educational leadership. *Educational Research Quarterly*, 31(2), 44-54.

APPENDICES

Appendix A

Research Survey

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Full Name _____

Date _____

Please enter your participant identification number found in the upper right hand corner of your participation letter _____

1. What is your age? _____

2. What is your gender?

Male Female

3. What is your ethnicity?

Caucasian African-American Hispanic Other

4. Were you employed in your degree field of study prior to beginning your degree program?

Yes No

5. Please choose all that apply to your employment status.

Currently employed in a position directly related to my degree

Employed in a position not directly related to my degree

Looking for employment directly related to my degree

Not looking for employment

Unemployed

Unemployed due to pursuit of a higher degree

6. How long did it take you to secure an in-field position from the time that you received your degree? Please choose one of the following responses:

Prior to graduation 0-3 months 3-6 months 6-9 months 9-12 months

more than 12 months Not employed

7. If you are currently employed, please enter your job title.

8. What degree did you acquire upon graduation? _____

9. Did you receive assistance from your school's Career Services office while you were enrolled in your degree program?

Yes No

If yes, were you assisted in obtaining in-field employment by the Career Services office?

Yes No

10. Did your degree program require internship, clinical, or practicum hours?

Yes No

If yes, are you employed in the place of business where the internship, clinical, or practicum was completed?

Yes No

11. How motivated were you to enter into higher education in order to obtain in-field employment following graduation from your associate degree program?

Not motivated Somewhat motivated Motivated Very motivated

12. How motivated were you to achieve a higher Grade Point Average (GPA) because you expected that better grades may help you obtain in-field employment following graduation from your degree program?

Not motivated Somewhat motivated Motivated Very motivated

Thank you for your participation. You will be mailed a \$5 gift card to
McDonald's Restaurant immediately!

Appendix B

Survey Instrument Feedback Rubric

Please complete the following feedback rubric by placing an X in the YES or NO box as it applies to the following questions. Any questions that are marked NO, please give a brief explanation in the comments section provided below:

	YES, the question meets the requirements of clarity, directness, and usefulness in evaluating variables contained in this multiple regression study.	NO, the question does not meet the requirements of clarity, directness, and usefulness in evaluating variables contained in this multiple regression study.
1. "What is your age?"		
2. "What is your gender?" Male Female		
3. "What is your ethnicity?" Caucasian, African-American, Hispanic, Other		
4. "Were you employed in your degree field of study prior to beginning your degree program?" Yes No		
5. "Please choose all that apply to your employment status." Currently employed in a position directly related to my degree, Employed in a position not directly related to my degree, Looking for employment directly		

<p>related to my degree, Not looking for employment, Unemployed, Unemployed due to pursuit of a higher degree</p>		
<p>6. “How long did it take you to secure an in-field position from the time that you received your degree? Please choose one of the following responses:”</p> <p>Prior to graduation, 0-3 months, 3-6 months, 6-9 months, 9-12 months, more than 12 months, Not employed</p>		
<p>7. “If you are currently employed, please enter your job title.”</p>		
<p>8. “What degree did you acquire upon graduation?”</p>		
<p>9. “Did you receive assistance from your school’s Career Services Office while you were enrolled in your degree program?”</p> <p>Yes No</p> <p>“If so, were you assisted in obtaining in-field employment by the Career Services Office?”</p> <p>Yes No</p>		
<p>10. “Did your degree program require internship, clinical, or practicum hours?”</p>		

<p>Yes No</p> <p>“If so, are you employed in the place of business where the internship, clinical, or practicum was completed?”</p> <p>Yes No</p>		
<p>11.”How motivated were you to enter into higher education in order to obtain in-field employment following graduation from your associate degree program?”</p> <p>Not motivated, Somewhat Motivated, Motivated, Very Motivated</p>		
<p>12.”How motivated were you to achieve a higher Grade Point Average (GPA) because you expected that better grades may help you obtain in-field employment following graduation from your degree program?”</p> <p>Not motivated, Somewhat Motivated, Motivated, Very motivated</p>		

Comments:

Appendix C

Initial Recruitment Letter to Participants

Participant ID# _____

Dear Graduate,

In our current economy, employment following graduation from many degree programs is becoming increasingly difficult. It is of the utmost importance that recent graduates provide feedback regarding post-graduate employment status, as well as services used while enrolled in school, in order to determine what factors may affect the obtainment of employment.

In order to fulfil the requirements for my doctorate in education from Liberty University, I am requesting your participation in a study that seeks to determine the factors that may predict the length of time it takes to obtain employment in your program of study following graduation. Your feedback is essential in increasing the knowledge base regarding this topic. Your information will assist educators in better understanding how personal and institutional diversity effects graduates in seeking employment.

A short survey may be accessed at the following web address (www.surveymonkey.com/s/FN8BTM2). If you agree to participate in this study, you simply access the above website, read and electronically sign and date the consent form, and complete the survey. Upon completion of your survey, you will be mailed a \$5 gift card which may be used at any McDonald's restaurant. Detailed information regarding the gift card will be included on the consent form.

The researcher, as well as those assisting with the research process, will not be able to directly link your survey with any personal information. All information is coded by participant identification numbers and no names or personal information will be provided.

Thank you for your consideration and participation in this study.

Sincerely,

Karon Futch, Liberty University

Appendix D

CONSENT FORM

Factors that Predict Time to In-Field Employment of Associate Degree Graduates: A Study of One College in the Technical College System of Georgia

Karon Futch

Liberty University

Department of Education

You are invited to participate in a research study regarding the factors that predict time to securing in-field employment of associate degree graduates. You were selected as a participant in this study due to your status as a past graduate from an associate degree program in either business, computers, healthcare, industrial, or service. Please take time to read this consent form prior to agreeing to participate in this study. If you have any questions regarding this document, please feel free to email with questions.

This study is being conducted by Karon Futch, Department of Education, Liberty University.

Background Information:

The purpose of this study is to identify if there is a relationship between graduates' personal demographics, as well as institutional characteristics, and time to securing in-field employment among associate degree graduates.

Procedures:

If you agree to be in this study, you will be asked to do the following things:

You will be asked to consent to participate in the study by reading the consent form and electronically signing and dating the form in the space provided. By electronically signing and dating the consent form, you are agreeing to allow the institution to use demographic data as well as academic records to be pulled from the institution's archives. You will be asked to complete a short, 2 minute online survey regarding factors that may predict time to in-field employment. On the survey, you will be asked to provide your participant identification number, age, gender, and ethnicity. In addition, you will be asked to provide your current employment status, as well as your major upon graduation. Finally, you will be asked to provide information regarding your use of career services while enrolled and whether you were required to complete an internship for your program of study and your motivation while enrolled in your program of study. Upon completion of the survey, you will be mailed a \$5 gift card that may be used at any McDonald's Restaurant.

Risks and Benefits of Being in the Study:

The risks involved in this survey are no greater than any that you would experience in a typical day. The survey will ask you to provide your participant identification number found on your participation letter. This number will only be used for the purposes of aligning records from the registrar's office with survey information and as identification in analysis. In order to maintain a level of confidentiality, each survey will be identified by the participant identification number. The number will correspond with the student identification number as well as information that will be pulled from the school's knowledge management system. This will help maintain confidentiality of the study and its participants. .

There are no direct benefits to participation in this study. The benefits to participation are that faculty and administrators are able to visualize a relationship between particular factors that may predict time to in-field employment. Current research lacks the inclusion of community college students and rarely associate degree graduates. This research may provide faculty and advisors with information that assists them in guiding students to more suitable vocations.

Compensation:

You will receive a \$5 gift card to McDonald's. You will be mailed a \$5 gift card that may be used at any McDonald's restaurant. When the researcher receives the completed survey and consent form, you will be mailed the gift card as a small token of appreciation.

Confidentiality:

The records of this study will be kept private. Any report that may be published will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records.

The researcher will take precautions to protect your identity by not linking survey information to your identity. The researcher will not identify you by name or identify the institutional name in any writings or presentations. All data will be stored on a computer hard drive and database that are protected by password only. Data will be stored for three years and then deleted.

Each survey will be identified by the participant identification number and will correspond with the student identification number and information pulled from the institutions knowledge management system. Graduate information will be pulled from the system by the Research and Information Coordinator using the major code and year of graduation. The researcher will store all research documentation on a password-protected computer database on a personal computer for the duration of three years and will then delete the documentation from the computer database. Participant data will also be stored on Liberty University's secure server, SharePoint, in order for the researcher and dissertation committee to review as needed. All hard copies of data will be kept in a locked filing cabinet for no more than 3 years and then destroyed. .

Voluntary Nature of the Study:

Your decision to participate in this survey is strictly voluntary. You are free to answer questions to the best of your knowledge or omit answering any questions that you do not feel comfortable with. You are also free to discontinue your participation in this study at any time. Your participation will not affect current or future relations with Liberty University.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24515 or email at irb@liberty.edu.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Electronic Signature _____

Date _____

Appendix E

Permission to Use Figures in Chapter Two

← REPLY ←← REPLY ALL → FORWARD ☰



Futch, Karon Wilkerson

Wed 9/18/2013 2:24 PM

Sent Items

mark as unread

To: [REDACTED]

To Whom It May Concern:

My name is Karon Futch. I am currently pursuing a doctorate degree in Curriculum and Instruction at Liberty University. I am in the process of revising my proposal for submission and need assistance. My dissertation topic is *Factors That Predict Time to In-Field Employment of Associate Degree Graduates: A Study of One Technical College in The Technical College System of Georgia*

I would like to use several figures found in a report written in 2011 by Jessica Godofsky, Dr. Cliff Zukin, and Dr. Carl Van Horn entitled *Unfulfilled Expectations: Recent College Graduates Struggle in a Troubled Economy*. John J. Heldrich Center for Workforce Development. Could you please advise me as to how I may obtain permission to use these figures and if it is possible? Thank you.

Karon Futch

← ←← →

mark as unread



[REDACTED]
Mon 9/23/2013 8:35 PM

Hello and thank you for your interest.

Dr. Zukin says you may reprint the figures with attribution.

Thank you!

Appendix F

Phone Script

May I please speak with the Graduate in your household?

Hello Sir or Mam:

I am calling on behalf of Karon Futch who is a doctoral candidate at Liberty University. Recently, a letter was sent to you requesting your participation in a study that is being conducted with [REDACTED]. The study seeks to determine the factors that may predict the time that it takes associate degree graduates to find a job in their degree field of study. The survey consists of 12 brief questions and takes less than 90 seconds to complete. You simply log onto the web site listed in your letter, read the consent form, sign and date. A short survey will follow. Following completion of the survey, a \$5 gift card to McDonald's Restaurant will be mailed to you as a small token of appreciation. It may be used at any McDonald's Restaurant.

Your information is very important to this study and may assist educational leaders in helping graduates find meaningful employment. Do you have any questions or concerns that I can help you with? Thank you for your time.

<https://www.surveymonkey.com/s/FN8BTM2>

Appendix G

IRB Approval Letter

LIBERTY UNIVERSITY

INSTITUTIONAL REVIEW BOARD

November 1, 2013

Karon Futch

IRB Approval 1707.110113: Factors That Predict Time to In-Field Employment of Associate Degree Graduates: A Study of One Technical College in the Technical College System of Georgia

Dear Karon,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Please retain this letter for your records. Also, if you are conducting research as part of the requirements for a master's thesis or doctoral dissertation, this approval letter should be included as an appendix to your completed thesis or dissertation.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

Fernando Garzon, Psy.D.
Professor, IRB Chair
Counseling

(434) 592-4054

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