Studying Unicorns: Single-Father Student Educational Attainment and Tinto's Model

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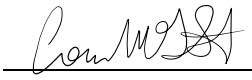
Signature 

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ABSTRACT

This quantitative study utilized Tinto's model of academic attrition and the National Longitudinal Survey of Youth 1997 (NLSY97) to explore the educational attainment of a rarely studied group, single-father students.

For the first question, "What effects do the parental status, marital status, and gender of a student have on educational attainment?" data collected for the NLSY97, n = 8,984, was utilized to compare academic attainment amongst participants in regards to gender, marital status, and parental status. Through a series of non-parametric tests, it was found that single, childless, female students had higher educational attainment than any other group, followed by married parent-students of both genders and single-mother students.

For the second question, "What effects do Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling, have on educational attainment of the single-father student?" the impact of seven independent variables, representing Tinto's pre-entry attributes, on educational attainment for single-father students, n = 44 after removal of incomplete records, was studied. Non-parametric tests were utilized to study the relationship between the seven independent variables and educational attainment; an ordered logistic regression was conducted to study the relationship between the independent variables as a group and educational attainment of the single-father student. Results were largely non-significant; however, positive relationships were found to exist between educational attainment and occupation, parents in the childhood home, and average hours worked per week. While non-significant, these results do provide insight into potential future areas of research regarding the single-father student.

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ACKNOWLEDGEMENTS

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Finally, I need to acknowledge my family who were absolutely my biggest cheerleaders and support team in this process. First, my husband who provided a patient ear and picked up the slack at home during this process. Second, I wouldn't be at this point without my mom and dad who have cheered me on and supported me my entire life. Third, I have to admit a little sibling rivalry between myself and my brother helped jump start my drive when it was waning; the race to be the first Ed.D. in the family was strong motivation!

DEDICATION

I want to dedicate this dissertation to my parents, David and Marie, and my husband, Preston. Your support and love are always abundant and free-flowing. I love you!

Chapter I

INTRODUCTION

Background

Over the last few decades, higher education has witnessed a shift in the student population. While the student body at most universities could previously be described as residential, full-time, and 18 to 24 years old, the new student body incorporates much greater diversity (Moreau, 2016). Unlike those earlier university students, students nowadays are just as likely to live off-campus, have children, have a job or career, attend classes part-time or online, or even, in the case of single-parent students, juggle multiple of these criteria. Frequently single-parent students find themselves having to struggle upstream against financial aid deadlines, registration issues, inaccessible office schedules, and other academic barriers (Estes, 2011). These factors, along with others, have an impact on the educational attainment of single-parent students and the completion of their academic goals.

My first experience with a parent-student was observing my mother as she navigated being a parent, a wife, a student, and an employee. There were many instances in my childhood when my mother would leave work early in order to go to her university campus in hopes of getting assistance or meeting paperwork submission deadlines before campus offices closed as well as many weekends and spring breaks spent with a grandfather so that my mother could work on papers and other large projects around the

needs of her children's extracurricular activities and her husband's work schedule. Luckily, this parent-student example had a support system to help somewhat with child care and other concerns. One of my fondest memories is of having the opportunity to walk across the graduation stage with my mother after our simultaneous completion of a set of master's degrees, my first, my mother's second. This experience was a fitting end to many years of struggle as a parent-student trying to raise young students of her own.

Once I entered my career, I observed many other parent-students, frequently single-parents, experiencing similar issues with trying to earn their degrees while also managing their goals and commitments. Many changes have occurred in education in the almost 17 years that I had the pleasure of having a career in education, but I still see many of the single-parent students experiencing the same frustrations and roadblocks that plagued my mother when she started her college education thirty years ago. The solution to the problem, however, lies in determining what issues and life experiences present the largest barriers to single-parent student educational attainment and, once found, addressing those issues that lead to students making the decision to give up on their educational goals. While some research has been conducted into single-mother educational experience and attainment, precious little has been conducted into the experiences and attainment of the single-father student (Coccia, 1997; Institute for Women's Policy Research [IWPR], 2017; Katz, 2013; Mahaffey, Hungerford, & Sill, 2015; Reay, 2003; Yakaboski, 2010).

In this study, the title of single-father is assigned to anyone who identifies as male, has one or more children, and is raising their child(ren) by themselves; a single-father might be divorced, separated, widowed, or never married. A single-father student

is someone who identifies as male who has or is attending college, university, or trade school while also meeting the single-father title requirements listed previously. These are single-fathers who are or have attempted educational attainment while also raising children without the presence of another adult in the home with whom to share responsibilities.

Merriam-Webster (2021) provides multiple definitions for the word unicorn, including "something unusual, rare, or unique." This definition perfectly encapsulates the single-father student, a segment of the student population that is unusual and rare both in the classroom and the published research regarding single-parent students. As a reflection of this unusual and rare status, I have chosen to affectionately refer to single-father students as unicorns throughout this study.

In his student persistence model, Vincent Tinto (1975, 1988, 1993) proposed that student persistence towards educational attainment is impacted by factors both internal and external to the educational experience. Pre-entry attributes, such as family background, skills and abilities, and prior schooling are just one set of factors that Tinto proposed that impacts student persistence to academic goal attainment. In the case of single-parent students, these attributes have been frequently considered the primary causes of student attrition (Mahaffey et al., 2015). However Tinto (1975), suggested that additional factors relating to integration into the social and academic fabric of an institution also impacted student attrition, and that not only do these factors impact attainment, but that these factors can be impacted by a student's pre-entry attributes of family background, skills and abilities, and prior schooling.

Statement of the Problem

Single-parent students frequently have multiple responsibilities, such as those at home, work, and school (Brooks, 2012; Katz, 2013; Moreau, 2013). For many single-parents, this burden can lead to a decision to withdraw from school to focus on other responsibilities (IWPR, 2017; Taniguchi & Kaufman, 2005). Although research has been conducted into the various factors that influence single-mother student educational attainment, research regarding student-fathers, and their educational attainment in comparison to their various counterparts, including other male students and other single-parent students, is sorely lacking (Coccia, 1997; IWPR, 2017; Katz, 2013; Mahaffey et al., 2015; Reay, 2003; Yakaboski, 2010).

Research Questions

The following research questions guided this study:

RQ1: What effects do the parental status, marital status, and gender of a student have on educational attainment?

RQ2: What effects do Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling, have on educational attainment of the single-father student?

Significance of the Problem

With more single-parent students entering college programs it is important to understand what pre-existing factors, or pre-entry attributes potentially impact their educational attainment (Tinto, 1993, p.114). The Institute for Women's Policy Research published an enlightening briefing paper in 2017 that provided many interesting points regarding single-mother students, but which also stated that just over two million

currently enrolled undergraduates are single-parents, which means that 11% of all undergraduates are single-parents.

Understanding how a single-father's pre-entry attributes impact his educational attainment in comparison with other male students, and other single-parent students, can provide information needed to ensure that universities are providing the best support possible to single-father students as they progress towards educational attainment while simultaneously impacting student retention, a factor that impacts funding and tuition rates for public universities (Kerkvliet & Nowell, 2014). Beyond the concerns of the university, research has shown that increased educational attainment can have an inverse effect on poverty, a factor that impacts single-parent families with greater frequency than dual-parent families (Semega, Fontenot, & Kollar, 2017; Tilak, 2002). Additionally, the results of this study will contribute to the currently extremely limited body of literature regarding single-father students and the experiences and attributes that they bring with them when they join a college or university community.

Limitations and Delimitations

I am utilizing data from the National Longitudinal Survey of Youth 1997 (NLSY97) for this study. This limits data to that collected by the NLSY97 administrators which, while robust, does not include information relevant to some portions of Tinto's model. As such, one delimitation of this study is the focus on only the pre-entry attributes, any factors impacting a father-student that were present prior to his entry into higher education, portion of Tinto's model and the potential for those attributes to have a correlational impact on the educational attainment of single-father students.

An additional delimitation of this study is the decision to focus on single-father students, rather than all parent-students or all non-traditional students. This decision was made based on my desire to focus purely on this one rarely researched subset of students in order to enhance the general knowledge regarding these "unicorn" students. This will, necessarily, impact the generalizability of results to other parent-student and non-traditional student populations. Additionally, this will also draw attention to potential areas of future study in the application of Tinto's model, in particular its application to other parent-student and non-traditional student populations. There are also a variety of potential threats to internal validity, including experimental mortality, history, and maturation due to the long-term nature, at this point 17 iterations, of the National Longitudinal Survey of Youth 1997 (NLSY97) survey and potential for participants to cease responding.

Although the population of the NLSY97 study is relatively large, as discussed in more detail in chapter 3, the segment of the study that self-reported as fitting the sample needed for research question 2, those that can be identified as single-fathers, namely any male-identifying student who has never been married, is separated, divorced, or widowed, and is not living with someone, termed co-habiting in the data, and who has one or more biological child in the home, is a much smaller subset, affectionately labeled as "unicorns" in this research. This small sample size impacts the generalizability of this finding of this study as well.

Finally, although not necessarily a limitation, it is important to acknowledge that the data selected from the NLSY97 dataset, and the manipulations required to combine multiple NLSY97 fields into the dependent variable of Educational Attainment, has

created a requirement of only using statistical analyses that are appropriate for a non-parametric dependent variable. Based on this fact, this study will utilize Mann-Whitney U, Kruskal Wallis H, Spearman's rho, and other statistics that meet the needs of this study rather than the more widely used statistics that are appropriate for parametric data analyses.

Definition of Terms

In order to better understand the subjects and methodology of this study certain terms must be utilized and defined for clarity and understanding. To that end, the following definitions were utilized for this study:

Educational Attainment. The level of education attained by a member of the sample during or prior to survey year 2017. This will include partial or complete completion of high school, college, technical college, or university degrees, and trade school programs that prepare the respondent for a vocational trade.

Female Student. Any female-identifying participant regardless of marital status or parental status, who has completed high-school or higher educational attainment.

Male Student. Any male-identifying participant regardless of marital status or parental status, who has completed high-school or higher educational attainment.

NLSY97. An abbreviation of the title of the National Longitudinal Study of Youth 1997. The two terms will be used interchangeably in this study.

Pre-Entry Attribute. Represents any factor impacting a student that was present prior to their entry into higher education, based in Tinto's model.

Single-Father Student. Any male-identifying participant who has never been married, or is separated, divorced, or widowed, is not living with a partner, who has one

or more biological children in the home, and who has completed high-school or higher educational attainment.

Single-Mother Student. Any female-identifying participant who has never been married, or is separated, divorced, or widowed, is not living with a partner, who has one or more biological children in the home, and who has completed high-school or higher educational attainment.

Single-Parent Student. Any participant who has never been married, or is separated, divorced, or widowed, is not living with a partner, who has one or more biological children in the home, and who has completed high-school or higher educational attainment.

Tinto's Model. The student attrition and perseverance model designed by Vincent Tinto (1975) to show the relationship between multiple factors and student attrition.

Chapter II

REVIEW OF LITERATURE

In order to adequately address the research questions stated previously, it is important to understand what the related, previously conducted research regarding Tinto's model and parent-students has found. Within this literature review, the first area of focus is a review of the design and purpose of Tinto's model including a diagram of the model to provide a visual guide to the reader. Second, a timeline-based review of applications of Tinto's model to various student demographics and institutions has been included to delineate the breadth of use of the model and support the selection of this model to study educational attainment of single-father students. This review is followed by an analysis of the research that outlines concerns regarding the application of Tinto's model. Next, research regarding the needs and barriers experienced by single-parent students are addressed followed by single-father specific research. Finally, research regarding the dataset, the National Longitudinal Study of Youth 1997, is reviewed to provide information regarding previous uses of the dataset in research.

Tinto's Model

In 1975, Tinto developed his model as a tool to predict student attrition in higher education institutions. He found through his research that previously conducted research on student attrition did not differentiate between students who dropped out due to academic issues and those who dropped out by choice, including those who chose to no

longer attend due to lack of desire to continue as well as those who dropped out due to external factors such as work or family pressure. He also found that attention was not paid to the permanence of a student's decision to drop out and combined those who dropped out permanently with those who left with plans to return as well as those who didn't actually drop out entirely but rather transferred elsewhere. These shortcomings led to concerns regarding research that provided contradictory findings and the ability to find the true answers in existing research. A separate concern of Tinto's was the focus of models related to attrition on description of the dropout decision process rather than on explanation and prediction.

The model draws key ideas from the research of Durkheim (1961), specifically Durkheim's Theory of Suicide as Applied to Dropout, which Tinto (1975) paraphrased as the idea that "suicide is more likely to occur when individuals are insufficiently integrated into the fabric of society" (p. 91). The model also draws from Spady's (1970) work which postulated that a similar relationship exists between dropouts and the college environment, and that those who are unable to fit into the social structures and social system of college are more likely to drop out. Spady also suggested that the academic environment of a college is not the same as the social environment, and that both environments impact the student and require integration. However, Tinto postulated that integration into one environment does not equate to integration into both environments and it is entirely possible for a student to experience integration into one but not both.

Although Tinto (1975) agreed that Durkheim's model provides a descriptive model of the factors relating to egoist suicide, he alleged that there were other factors that

were needed to account for other variables and that a theoretical model would only be complete if it also accounted for those factors:

> In a similar manner, if one wishes to develop a theoretical model of dropout from college, one which seeks to explain the longitudinal process of interactions that lead differing persons to varying forms of persistence and/or dropout behavior, one must build into the model sets of individual characteristics and dispositions relevant to educational persistence. (Tinto, 1975, p. 93)

A visual illustration of Tinto's model is shown in Figure 1. Within the illustration, family background, individual attributes, and pre-college schooling are considered pre-existing attributes. Goal commitment refers to the student's commitment to achieving his or her educational goal since it is expected that those who are highly committed to their educational goals would be more likely to complete them. Institutional commitment represents a student's commitment to a specific institution, typically based on prestige or previous familial attendance. Academic system factors, such as grade performance and intellectual development, impact a student's academic integration; social system factors, such as peer-group interactions and faculty interactions, impact a student's social integration. Academic and social integration each impact a student's goal commitment and institutional commitment over time, having perhaps the greatest influence on the student's continual decision to persist or drop out.

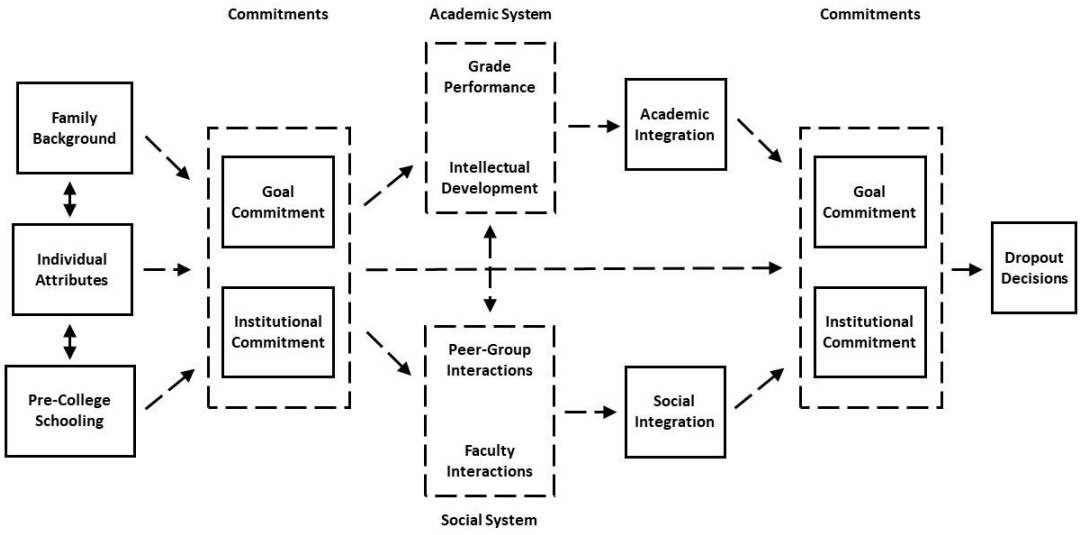

Figure 1: A visual illustration of Tinto's model (1975).

Based on this model, pre-existing attributes can have an initial impact on goal and institutional commitments, with academic and social integration having further impacts on goal and institutional commitment. If either of these levels of commitment dips too low, a decision to drop out would be more likely to occur (Tinto, 1975). These pre-existing attributes form the focus of this current research and dissertation.

History of the Application of Tinto's Model

Tinto's model has been utilized in the study of many student populations including undergraduate students, community college freshmen, students at the University of Papua New Guinea, a commuter campus, and nontraditional students (Ashar & Skenes, 1993; Halpin, 1990; Liu & Liu, 1999; Mannan, 2007; Pascarella & Terenzini, 1979). Tinto's model has also influenced other theories including a discussion of military veteran student persistence, a model for understanding financial strain, perceived stress, and their relationship to academic and social integration, as well as a model of major factors involved in dropout decisions of undergraduate online students in

South Korea to name a few(Adams, Meyers, & Beidass, 2016; Association for the Study of Higher Education [ASHE], 2011; Choi & Park, 2018).

In their 1979 study, Pascarella and Terenzini studied the voluntary withdrawal decisions of freshman college students and the potential interaction effects amongst the factors present in Tinto's model of student attrition. They found that pre-entry attributes did not make a significant impact on student persistence to completion for male or female freshmen, but academic integration and social integration each had an impact, although the amount of impact differed based on gender. Academic integration had a stronger impact on male students, while social integration had a stronger impact on female students, with both genders receiving at least some impact from both academic and social integration. This is particularly relevant due to the findings that pre-entry attributes did not make an impact on student persistence based on gender, a factor of interest in this current study.

Pascarella and Chapman (1983) expanded on Pascarella's previous work with other researchers regarding the application of Tinto's model in various educational settings and found that Tinto's model had statistical validity in predicting student persistence in many types of educational institutions, including commuter schools, four-year schools, and two-year schools (Pascarella, Duby, & Iverson, 1983; Pascarella, Duby, Miller, & Rasnher, 1981; Pascarella & Terenzini 1979, 1980). However, Pascarella and Chapman found that in general, with the exception of the Pascarella et al. (1983) study in which the researchers observed the opposite effect on commuter students, commuter school students were more strongly impacted by academic integration, whereas residential students were more strongly impacted by social integration, a finding that may

reflect the somewhat less social aspect of commuter schools in the early 1980s. This study is of interest due to the commuter student status of many single-parent students (Markle, 2015).

Getzlaf, Sedlacek, Kearney, and Blackwell (1984) compared two types of student attrition, (a) withdrawing by choice and (b) withdrawing to transfer to another school, utilizing Tinto's model. These researchers utilized setwise discriminant analysis to compare two groups, students who withdrew after spring semester 1978 and those who returned for fall semester. The withdrawal group was composed of 237 former students and the control group was composed of 234 students; all students studied were students who had a GPA above 1.0, were considered full-time, and had not been suspended or dismissed from the university. The researchers found that "when academic aptitude and previous high school performance are controlled for, the change in cumulative GPA from high school to college differentiates withdrawers from persisters" (p. 265). They also found that those students who dropped out had lower goal commitment than the students who withdrew in order to transfer to another institution and that those who dropped out had lower social integration into the college community and that those who transferred had lower institutional commitment.

Fox (1986) applied Tinto's model to the study of disadvantaged students in a primarily non-residential university in a large urban center. Fox defined disadvantaged students as those who are at an economic or educational disadvantage within their institution. The sample studied was identified as 49% Black, 38% Hispanic, and 13% other, with other being white, Asian, and non-Hispanic Latin Americans. Students in the sample completed Pascarella and Terenzini's (1980) integration scales as well as other

survey instruments to gather information, although after a pilot study was conducted wording on some questions had to be adjusted to reflect the reading levels of the students being surveyed. Fox found that academic and social integration and intention were the most significant factors impacting persistence, with the strongest relationship being academic integration, and that student background did not significantly impact persistence. Fox additionally found that "Tinto's model was sensitive to the constellation of relationships characterizing student-institutional fit in this setting" (p. 421). This research is important due to the findings regarding student background, which is in part comprised of the pre-entry attributes of the students in the sample.

Sweet (1986) utilized Tinto's model to analyze student persistence in pre-Internet distance education in Canada. The sample consisted of 356 students who completed coursework utilizing mail order course materials and telephone-based support, a traditional correspondence course, due to their geographic location in rural Canada. Discriminant analysis was utilized for data analysis to determine how well the variables in Tinto's model predicted persistence and how well the model as a whole was able to identify completers versus non-completers. Sweet found that with this demographic sample goal satisfaction and institutional commitment, both factors in Tinto's model, had "direct effects on persistence" (p. 209), that "academic and social integration variables had a direct effect on goal satisfaction and institutional commitment" (p. 209), and that Tinto's model was supported by this sample group. This 1986 study is important in supporting the use of Tinto's Model for this current research.

In 1988 Tinto revisited his model to consider the longitudinal nature of a student's college experience and how that nature impacts the decision to depart. He stated that

college departure decisions during the first few weeks of a student's academic career are generally based on a different set of factors than the decision to drop out later in the academic experience, and that first-year retention might not adequately predict retention to graduation as earlier believed. Based on this, Tinto suggested that students must assimilate and integrate into the college community in order to have longitudinal academic and social integration, and that students who do not assimilate will be more likely to drop out rather than persist. Tinto also noted that students must detach from their pre-college communities such as high school and family in order to fully integrate into the social community of the university and that those students who were unable to do so, such as adult students, students who come from strong cultural backgrounds such as African American students, and students who are not able to financially afford all the activities and involvement inherent in the college experience would have a much harder time integrating and therefore would be more likely to drop out. This is of particular interest due to the inability of a parent-student to detach from their pre-college communities, including their parental obligations, in order to fully integrate into the university or college community.

In 1990 Halpin applied Tinto's model to community college freshmen, a group somewhat similar to, and in some cases composed of, commuter students. Data were collected from 287 first-time, full-time freshmen at a community college located in New York via a survey that was modeled after one created by Pascarella and Terenzini (1980). Halpin found that Tinto's model was useful for the study of student persistence in community college freshmen and that academic integration had a greater impact on

student persistence in this population although once again both social and academic integration had at least a small impact on persistence.

Nora, Attinasi, and Matonak (1990) also utilized Tinto's attrition model in analyzing community college students. They studied the effects of family background, pre-college schooling, getting ready, and encouragement by significant others, as well as initial commitment, academic integration, and social integration on student retention. From a sample of 1,036 freshmen attending a multi-campus Houston area community college the researchers achieved a 24% response rate, or 253 usable responses. Of the 253 responses, 113 were male, just under 84% were white, and 12% were Hispanic. Along with demographic data, path analysis was utilized to analyze the data as well as causal theory. The researchers found that family background and encouragement by significant others were the two external variables with statistical significance in regards to student retention; family background had a negative impact while encouragement by significant others had a positive impact. They also found that initial commitment and getting ready had direct effects on academic integration and social integration and that academic integration had a positive effect on retention. This research is particularly interesting due to the interest in family background and other pre-entry attributes on attrition, factors that are of importance to the current study.

Murguia, Padilla, and Pavel (1991) utilized qualitative analysis to study ethnicity and how it interacts with the social integration piece of Tinto's model. They interviewed 24 college juniors and seniors who self-identified as Hispanic or Native American at a university in the midwestern United States. These students felt that their ethnicity was a large part of who they were and how they identified with others, making this an important

factor in social integration. The researchers found that the students were able to socially integrate into the school by integrating into a smaller subset of the school that aligned with their ethnicity, thus creating a sort of home space in which to belong.

Ashar and Skenes (1993) were interested in the potential applicability of Tinto's model to nontraditional students within a cohort program with regard to academic and social integration and their role in student persistence. In this study, students were studied for their persistence within a specific class within a cohort program. Unlike previous studies, these students were part of a cohort-based program designed to assist individuals already employed in a business or managerial career in completing a bachelor's degree. They found that Tinto's model was partially appropriate for predicting persistence in this student group; social integration had a "significant and positive effect on retention," (p. 98) while academic integration did not. They suggest that this could be due to the nature of the program and that these findings may not be representative of all adult learners. Interestingly, they also found that "learning needs, either academic or career, might be strong enough to attract students to educational programs but not sufficient to maintain them in these programs" (p.98). This is of interest due to the adult learner categorization of participants and their sharing of space under the nontraditional learner umbrella with parent-students.

Milem and Berger (1997) utilized Astin's theory of involvement (1984), a theory that postulated that involvement is the investment of energy into experiences and that learning and development are directly related to involvement, as a tool to measure academic and social integration within Tinto's model for first-year university students at a "highly selective private residential university located in the southeastern United

States" (p. 392). They utilized a number of surveys, including Cooperative Institutional Research Program Student Information Form, the Early Collegiate Experiences survey, and the Freshman Year survey, each administered at different points during the freshman year. A working sample of 718 individuals returned responses to all three surveys, or about 46% of the freshman class being studied. Path analysis and ordinary least squares multiple regressions were utilized for data analysis. The researchers found that being white, African American, or female had a direct relationship to institutional commitment, and that having a liberal political ideology had a negative effect on institutional commitment. Additionally, early involvement with peers and the university community were solid predictors of persistence into the spring semester, and a good relationship with faculty led to a perception of institutional support. They also found that perceived institutional support led to a feeling of academic integration, and that academic integration did not predict institutional commitment, however, social integration did predict institutional commitment.

Berger (1997) also conducted a solo study on residence hall residency, social integration, and persistence in first-year students. This study utilized the same collection of data that was utilized in Milem and Berger (1997), that is, data collected by a series of surveys conducted during the freshman year at a private university in the southeastern United States and analyzed via path analysis. In looking at the concept of sense of community, Berger found that family income impacted sense of community within the residence hall and that white students were more likely to identify with their residential community than African American students. He also found that high school grade point average had a positive relationship with sense of community and that, similar to the

Milem and Berger study, liberal political ideologies had a negative impact on sense of community within the residence hall community. Berger pointed out that family income might impact sense of community by allowing a student to participate in costly extracurricular activities, such as Greek life, clubs, or other gatherings that build community, and that those with a higher high-school grade point average may have had more time to socialize and build community than those who were having to focus more of their energy on completing homework and studying. Similarly, those students who were politically liberal or African American may have needed to look for other subsets of community to engage with in order to feel a part of a group since they did not have as strong a sense of community within the residence hall as white, wealthy, conservative students. Berger also found that those students who felt a strong sense of community in the residence halls also felt a stronger sense of institutional commitment. This research is of interest due to its focus on the impact of external factors, such as finances or family needs, on educational attainment.

A 1997 study conducted by Schurr, Ruble, Palomba, Pickerill, and Moore studied the relationship between the Meyers-Brigg Type Indicator (MBTI) personality type survey and a variety of variables from Tinto's model of attrition. Specifically, they looked at the relationship between the MBTI survey and academic preparation for college, participation in campus activities, student grade point average, and attitude regarding completion of a college degree. A path analysis methodology was utilized to analyze the responses from the sample of 1,114 student respondents. The researchers found that student integration into the college environment and level of academic preparation, both factors in Tinto's model, affected a student's ability to persist towards

completion of a degree. They also found that higher levels of some factors, such as higher student integration into the college experience or a specific subculture on campus, can counterbalance the negative effects of other factors, such as the effect of a lower grade point average on persistence. In regards to the MBTI survey, they found that students with a J, or judging, preference had an "advantageous ongoing 'academic work ethic'" (p. 41), and that those with an N, or intuition preference, had higher levels of academic preparation which positively impacted graduation rates.

A study conducted by Liu and Liu (1999) at a commuter school in the midwestern United States studied various pre-existing characteristics, or Tinto's pre-entry attributes, and their impact on student persistence. They found that there was no significant difference in retention between male and female students; however, there was significant difference in retention based on race and age. Lower retention rates were found amongst underrepresented groups, namely African Americans and Latinxs, and adult students with other responsibilities were also found to have lower retention rates. Age related retention rates were found to have interactions with other variables as well, such as gender and race. They also found that transfer students had higher retention rates than new freshmen, potentially reflecting transfer students having already had some experience with education. This research is particularly relevant in its study of pre-entry attributes, a key factor in the current study.

Guarino and Hocevar (2005) utilized Tinto's model with a group of 641 community college students to see if locust of control, whether a person feels that they or an external force have more control over their lives, might be an appropriate addition to Tinto's pre-entry attribute variables. The Student Integration Scale developed by

Pascarella and Terenzini (1980) was utilized to assess commitment, social integration, and academic integration, and a questionnaire was utilized to gather gender, high school grade point average, and ethnicity. The researchers used logical regression and path analysis to analyze the persistence of the 479 students who persisted at the end of the semester versus the 162 who dropped out. Students with internal locusts of control, those who believed that their experiences were based on their own actions, were more likely to persist, but students with an external locust of control, those who believed that their experiences were influenced more by other external forces, who persisted earned better grades than those with internal locusts of control. They also found that female students and ethnic minority students were more likely to drop out. This comparison of female to male students is of interest due to its alignment with the current study.

Longwell-Grice and Longwell-Grice (2007) applied Tinto's model to a series of four case studies of white, male, first-generation, working class students attending an urban research university in the southern United States. The researchers found through interviewing the four participants that they each felt a degree of "fear and risk" (p. 416) in regarding to communicating with their faculty members, a type of communication that is a strong factor in academic integration within Tinto's model. This is an interesting finding in regards to single-father students, the topic of this current study.

Mannan (2007) applied Tinto's model to undergraduate students at the University of Papua New Guinea. Students were given a questionnaire modeled after Pascarella and Terenzini's (1980) and approximately 500 students returned the questionnaire for analysis. Mannan found that a strong negative relationship existed between social integration and academic integration in the students studied, which supported the idea of

a compensatory relationship between the two types of integration. Additionally, he found that a student's major program of study could also impact integration. The results of this study also led to the conclusion that Tinto's model is applicable in academic settings outside the developed, western world. This research speaks to the appropriateness of using Tinto's model to study a variety of students and academic institutions beyond the traditional, residential student and university scenario.

Tinto's model has also been used as a basis to suggest a modified model of student persistence in community colleges based on the economic value of their chosen degree program. Stuart, Rios-Aguilar, and Deil-Amen (2014) suggested that when students are considering persistence or dropping out of a community college program, one rarely discussed factor not addressed in Tinto's model is the economic impact of that decision based on the current labor market in their chosen field. They suggested that a student's goal commitment is impacted by the labor market; a student might not be as committed to a goal if they determine that the certificate or degree will not result in a solid enough return in the labor market, leading students to consider dropping out to go directly into the workforce in their chosen career field. Therefore, they suggested that the labor market as an influencing factor on goal commitment should be added to the model to support the differences between two-year and four-year students.

Concerns Regarding the Application of Tinto's Model

Some researchers have expressed concern regarding the application of Tinto's model to students who do not fit the mold of the traditional, residential student. In particular, many researchers have found that the focus on integration, especially social integration, does not adequately account for or support the needs of students who come

from non-European centric backgrounds such as African Americans (Guiffrida, 2006; Palmer, Davis, & Maramba, 2011; Tierney, 1999), and Native Americans and Alaskan Natives (Lee, Donlan, & Brown, 2010). Although parental status is not the same as ethnic or racial minority status, these concerns might also apply to single-parent students due to their parental responsibilities.

Tucker (1999) applied Tinto's model to an ethnographic study of students transitioning into the college community. Tucker found that two key factors were heavily influential in how a student transitioned into their role as a student, vision and sense of community, and that these factors impacted the student's decisions to stay or leave in the academic setting. Tucker also offered some criticism of Tinto's model, including the opinion that "he is not consistent in treating departure as an objective event" (p. 166), and "There is too much variability in his transition data to ascribe clear patterns. There are too many reasons for leaving and too many varieties of ways of attending." (p. 167). Tucker also, in line with his study of student transitions, stated that "The next major issue concerns Tinto's view of when transition begins, and who is responsible for fostering successful transitions" (p. 168). Tinto placed the burden of successful student transition on the receiving school, while Tucker believed that high schools should be more involved in the transition process and make certain that students know all their options to ensure they transition to the appropriate educational option for their needs instead of being told there is only one path that is correct. Finally, Tucker shows disagreement with Tinto's idea that social integration and academic integration are two distinct phenomena, instead he states:

> Tinto separates academic and social components as though they were two distinctly different things students were required to work on. In my study I discovered that students did not really distinguish between these components. They made friends in class. They went to class with friends. They sought connections for reasons which were neither particularly social or academic. (p. 169)

Tierney (1999) also expressed concerns regarding Tinto's model, particularly the 1988 longitudinal addition, and the impact of social integration into the university on the social and cultural identities of African American students. He argued that Tinto's model requires students to leave behind their previous communities in order to fully integrate into the white-centric university space, or, as he states, "To a large extent, African-American adolescents' cultural backgrounds differ in significant ways from the middle- and upper-class Eurocentric cultural framework upon which U.S. postsecondary education is based" (p. 82). He believed that if students assimilate into the university community, as Tinto suggested in order to be successful, that they would be committing "cultural suicide" (p. 82) and that Tinto's model treats a student's cultural identity and experience as irrelevant. He suggested that universities find ways to incorporate a student's culture into the university experience so that they can find ways to integrate without having to assimilate, and that this will take more than just offering a few culturally based clubs or celebrations. Given that parent-students are traditionally unable to fully detach from their non-academic lives and spaces, Tierney's concern is potentially applicable to the parent-student as well.

Guiffrida (2006) suggested updating Tinto's model to incorporate the idea that instead of focusing on integrating into the academic and social realms of the academic institution, a focus on creating connections would better support those students who come from ethnic minority or other non-European normative backgrounds. This would allow space for students to keep their existing connections to their home environments and communities while creating new social and academic connections that can lead to persistence within Tinto's model. Guiffrida also suggested that consideration of self-determination theory, a theory that considers motivation in the choices people make without external influence, and job involvement theory, the theory that a person's job or work is a key part of their identity, could help users of the model to better understand student academic goal commitment.

In a similar vein, a study by Palmer et al., (2011) found through interviews with a group of 11 African American males in a "doctoral research HBCU in a mid-Atlantic state" (p. 582) that their persistence was strongly tied to the relationship between the men and their mothers and the support and encouragement provided by their mothers. This supports suggestions to consider the role of family and pre-entry community on the persistence of students who come from ethnic minority or other close-knit communities.

In their study of persistence of Native American and Alaskan Native students at predominately white institutions (PWIs), Lee et al., (2010) found that financial difficulties and family obligations were the primary reasons for this group of students to withdraw from school. In the Native American and Alaskan Native communities from which the samples were selected, supporting one's family and being a part of a strong, close, extended-family unit were incredibly important pre-entry attributes to students.

This close family relationship and dependence on each other impacted the students' abilities to persist in a PWI without appropriate support in place for such students who might need a leave of absence or other flexibility to support their strong family connections.

In a review of articles written about Tinto's model, Davidson and Wilson (2013) found that while studies investigated the topics of academic integration and social integration, they do not all define those two variables in the same way. This lack of uniformity created issues when attempting to reach solid conclusions regarding the applicability of Tinto's model to various scenarios.

Single-Parent Students

Many factors affect the educational attainment, a focus of this current study, of single-parent and other non-traditional students. Taniguchi and Kaufman (2005) found that non-traditional students, defined as any student with dependent children or any student over the age of 25, who completed a degree were less likely to be part-time students than those who did not finish. It was also noted that part-time status may impact a student's interactions with their peers and instructors, factors that Tinto (1975) considered important for social integration, a strong factor in student completion. Taniguchi and Kaufman also found that, "noncompleters are likely to have more children (regardless of age) than completers" (p. 922), and that divorced non-traditional students were least likely to complete their degree programs. These findings align with those of Jacobs and King (2002) and the IWPR (2017) who found that married women were more likely than unmarried women to reach their educational attainment goals. Additionally, Taniguchi and Kaufman found that younger children had more effect on non-completion

than older children, stating that "one additional infant or toddler reduces the chance of degree completion by about 50 percent for both genders" (p. 924), but that there was no pattern to suggest that single-parents were more adversely affected by having young children in the home than married parents; this differs from the findings of the IWPR (2017) which found that married-mothers were more likely to complete than single-mothers. These family characteristics, marital status and number of children, are part of the family background pre-existing attribute in Tinto's model.

Much of higher education is geared towards the traditional, residential, full-time student. As the demographics of the student body have changed over the years policies and procedures have not kept pace, putting the single-parent student in a position that makes it harder to complete an educational attainment goal (Brooks, 2012; Estes, 2011; Moreau, 2016). For example, most campus offices are only open during the traditional business hours of 8:00 to 5:00 on Monday through Friday, which can create a barrier for single-parent students who need to find time to visit campus offices in between classes and family requirements (Markle, 2015). This has been found to lead to a loss of motivation and an increase in frustration for single-parent students trying to navigate the college or university process which can impact academic and social integration (Petty & Thomas, 2014; Yakaboski, 2010). Additionally, campus communications geared towards students are frequently distributed via a campus website or the campus e-mail system. This can create a disadvantage for single-parent students who are not always able to access the digital resources of their school due to financial barriers to technology, lack of access to public technology, or a lack of technological savviness (van Rhijn, Lero, Bridge, & Fritz, 2016). All of these concerns and issues have the potential to impact the

education attainment of the parent-student, emphasizing a potential relationship between educational attainment and parental status.

Beyond policies and procedures, the marketing materials and other media distributed on and off campus can also alienate and demotivate single-parent students. Frequently this group of students is left out of marketing materials and not included in student images on campus websites, which can lead to feelings of isolation and not belonging (van Rhijn, et al., 2016). These feelings of isolation and not belonging can lead to a lack of social or academic integration. Combining this feeling of isolation with the loss of motivation caused by the frustrations felt by students who feel as though they are constantly running into obstacles with regards to trying to navigate the processes involved in attending college creates a dangerous situation for parent-students who are already struggling with feelings of guilt over spending time with schoolwork and may impact persistence towards degree completion (Brooks, 2015; Goings, 2018; Markle, 2015).

Child care is by far the most pressing need of all student-parents, but especially single-parent students, and can be considered one of the most pressing pre-existing attributes of single-parent students in Tinto's model (Mahaffey et al., 2015; Miller, 2012). Student-parents have issues in finding quality child care and in being able to afford child care along with the costs of education and running a household (Goings, 2018; Nelson, 2007). Additionally, when pre-arranged child care falls through parent-students are faced with the decision between missing class time and instruction or bringing their children to class in hopes their faculty member will allow them to still attend lecture with children at their sides. Some colleges and universities have on-site child care, however there are

rarely enough spots to meet the needs of the campus community (Mahaffey et al., 2015; Miller, 2012). The growth of online education has provided one option for students who are trying to balance the competing needs of child care, employment, and education. While this growth has helped many parent-students in that balancing act, this option is not ideal for every parent-student. Unfortunately, the child care dilemma has forced many students to consider dropping out of their academic pursuits (Carter, 2016).

Parent-students also have social needs that are not always met by the same activities as traditional students but which can impact social integration (Katz, 2013). One of the goals of campus activities is to help students develop supportive relationships and social integration with their peers while enjoying the culture of being a college student. Historically, parent-students have been left out of this experience due to a lack of activities at times that allow participation or a lack of activities that are suitable for parent-students to attend with their children. This leaves parent-students in limbo with little opportunity to create friendships or interact with their peer group to develop social integration, a factor that is so important as to be labeled specifically in Tinto's model (Mahaffey et al., 2015).

Not all parent-students have the same needs. Kimmel, Gaylor, and Hayes (2014) surveyed a convenience sampling of approximately 500 adult learners, both undergraduate and graduate students, from six different four-year institutions to examine the differences of male and female students when considering perceived motivation and barriers to educational attainment. The researchers found that being a positive role model, seeking a new career, and responding to encouragement from a child were the main reasons the women gave for attending college. Women also showed more concern

regarding child care, loan repayment, and family responsibilities when discussing barriers to school attendance, while men were more deterred by concerns regarding schoolwork taking time away from their jobs.

Brooks (2015) conducted a study regarding the feeling of guilt amongst student parents in the United Kingdom and Denmark. Interviews were conducted with 64 parent students in four educational institutions, a "newer" and an "older" institution in each country. Many United Kingdom student-mothers mentioned feeling guilty about taking time away from child care, while only one student-father felt guilty about time away from child care. A few United Kingdom students felt guilty that they were not able to devote enough time to their studies due to family obligations. On the other hand, the students from Denmark did not feel as much guilt; none of the Danish students mentioned feeling guilty regarding their studies. Brooks suggests that this difference might be due to the different societal ideas in the two countries regarding childrearing and intensive mothering of children; the Danish students stated that not being at home with a child and relying on child care was considered a normal fact of life for Danish parents, with many returning to work quickly after childbirth as well.

Guilt is not the only mental and emotional concern for single-parent students. Shenoy, Lee, and Trieu (2016) analyzed the results of a Health Services Association of California Community Colleges survey to better understand the mental health status and needs of single-parent community college students in California. They collected data from 6,832 students, of whom 309 were single-parents, and conducted chi-square statistical tests on the data to study stress, depression, and other mental health concerns. They found that a large percentage of students reported issues when dealing with the

death of a loved one, 24%, or family problems, 49%. Additional issues that were reported included finances, intimate relationships, and sleep difficulties. They also found that single-parent students were more likely to consider suicide than the non-parent students, 11.5% versus 9%, and that a larger percentage of single-parents reported having attempted suicide than non-parent students, 5.3% versus 2.7%. On the other hand, single-parent students were more likely to seek help for their problems than non-parent students.

The Unicorn: Single-Father Students

Since 1970 the number of single-fathers, and single-father households, have grown significantly (U.S. Census Bureau, 2018). For the purposes of this study, the term single-father represents any male-identifying person who has never been married, is separated, divorced, or widowed, and is not co-habiting, and who has one or more biological children in the home. This definition is not, however, shared by all researchers; some researchers do not differentiate based on co-habitation or residence of the children of the single-father. Single-fathers become custodial single-fathers through a variety of situations including death, divorce, higher economic status, and incapacity of the mother to serve as custodial parent due to health issues or imprisonment (Grief & DeMaris, 1990). One of the goals of this current research is to provide an additional glimpse into how being a single-parent student impacts the educational attainment of this demographic group, our "unicorns."

The National Center for Family and Marriage Research at Bowling Green State University analyzed the 2016 Current Population Survey (Eickmeyer, 2017) and found a number of interesting single-father related statistics:

- Only 3% of children live in a single-father household; this is part of the 24% who live in a single-parent household.
- A large number of children, over 20 million, live in single-parent households.
- Single-fathers were more likely to have a bachelor's degree than single-mothers, with 23% versus 18% respectively.
- Single-fathers were more likely to have completed high school than single-mothers.
- Over half, 56%, of children living with a single-father identify as white.
- Children who identify as black are more likely to live with a single-mother, 32%, than a single-father, 13%.
- Children living with single-fathers are less likely to be living in poverty than those living with single-mothers, 19% and 39% respectively.
- Over half, 54%, of childing living with single-fathers are covered by private health insurance, such as that provided by their father's workplace.

Goings (2018) conducted a qualitative study of 13 black, male, non-traditional students who chose to return to college after a failed first attempt. Of the 13 men, two identified as single-father students, both stating that child care was an issue and that they frequently relied on family for child care. Goings also found that only one of the men mentioned their educational facility providing a program that helped adult learners transition into the educational arena, and two stated that their schools offered specific orientations for adult-learners. This supports findings from other researchers regarding single-parent students and adult learners (Mahaffey et al., 2015; Miller, 2012; Petty & Thomas, 2014; Yakaboski, 2010).

Coles (2001a, 2001b) conducted interviews with 10 African American fathers in the Wisconsin area regarding their experiences as single-fathers. She found that of the 10 fathers, six received help from family with raising and caring for their children, two of whom received child care from female relatives while they were at their full-time jobs (2001a). The other four either did not have family nearby to support them or did not feel comfortable asking for help; moreover, these fathers did not make use of available support groups for single-fathers for support or to help develop skills in raising their young and teenage children (2001a, 2001b). Fathers in the study also identified most with the roles of provider and nurturer when asked what roles they felt it was most important for them to provide to their children (2001a). When asked about the impact of custodial parenthood on their careers, the fathers mentioned having to turn down overtime and work-related travel and related concerns that their parenting responsibilities might be impacting workplace opportunities, although one father enjoyed being able to use his parenting responsibilities to avoid extra duties and overtime that he was not interested in pursuing (2001b). Many of the fathers also shared that their parenting duties and wanting to be a good example impacted their desire for educational attainment and workplace stability (2001b). The fathers also noted that custodial parenting impacted their social lives and dating opportunities by causing them to reconsider whom they would want around their children (2001b). All of the fathers felt they were close to their children and were good fathers, although those with daughters felt that there were topics about which they were not as comfortable communicating with their daughters and desired for their daughters to have a maternal figure with whom to have those discussions (2001b).

Hilton and Macari (1997) studied the involvement of grandparents in the lives of their grandchildren living in single-mother and single-father households. They used an analysis of covariance matrix to study 60 households total, 30 of each parental gender. The researchers found that custodial grandparents, identified as the parents of the custodial parent, had more contact with their grandchildren no matter the gender of the custodial parent. Grandmothers were more likely to be involved in caring for their grandchildren than grandfathers, parents of custodial fathers were more involved than parents of custodial mothers, and grandparents who lived closer to their child and grandchildren were more involved than those who lived further away.

Lee and Hofferth (2017) conducted a study utilizing data collected by the 2003-2013 American Time Use Survey conducted by the United States Department of Labor Bureau of Labor Statistics (2020) to analyze the amount of time spent by custodial single-fathers in child care. By conducting an ordinary least squares regression, they found that, in each of four child care categories, single-fathers spent less time in child care than single-mothers. Single-fathers were found to spend, on average, 54 minutes a day in child care activities while single-mothers were found to spend 99 minutes, or almost twice as much time in child care activities. This analysis did not differentiate between single-parents who had other adults, such as parents, siblings, or non-married partners living with them and those who were the only adult in the household. When separated based on living with or without other adults in the household, it was found that those living without other adults spent more time in child care, but single-mothers still spent more time than single-fathers, potentially indicating that other adult household members are conducting some of the child care tasks.

Kramer, Myhra, Zuiker, and Bauer (2016) studied the rate of poverty in single-parent households from 1990 to 2010. They utilized data from the 1990 and 2000 US Census of Population and Housing, Public Use Microdata Sample and the 2010 American Community Survey that they narrowed down into a sample of over 500,000 single-parent households and conducted a hierarchical multiple-regression analysis to analyze the impact of a variety of independent variables on poverty status and income from work. The researchers found that both single-mother and single-father households in 2010 were experiencing higher rates of poverty than in 2000 and 1990. They also found that single-mothers worked fewer hours each week and received a great deal less pay, 21% less when controlling for education , on average than single-fathers while also having to care for more children in the home. Single-mothers were found to have lower earned income with more children in the home, while single-fathers were found to have higher earned income when more children were in the home. Additionally, non-white parents were found to have less income than white parents.

Santos and Alfred (2016) interviewed eight Hispanic single-fathers to discuss their role in developing literacy in their children, aged three to 14. All of the fathers in this qualitative study either worked full-time or attended college as a full-time student and all stated that this impacted their ability to provide time needed for literacy development. All of the fathers also expressed that support from their families, particularly mothers and sisters, in the day-to-day tasks of raising their children was important in being able to fulfill all of their distinct day-to-day roles as provider and caregiver.

Paulin and Lee (2002) analyzed the child-rearing expenditures of single-mothers and single-fathers. The researchers performed regression analysis on data gathered from the Consumer Expenditure Survey for 221 single-fathers and 1,660 single-mothers; the data sample was selected by "national probability samples of households in the U.S. population" (p. 18). Single-fathers were more likely to own their own homes and reported much higher income than the single-mothers who were surveyed. Single-fathers were found to be spending more on shelter and utilities than single-mothers, yet both were found to spend similar amounts on child care, food, and public transportation, although these expenditure amounts are larger portions of overall income for single-mothers than single-fathers. The researchers also found that they could not determine if the differences in expenditures between single-fathers and single-mothers were due to differences in gender specifically or differences in income due to single-mothers having lower incomes (Paulin & Lee, 2002).

National Longitudinal Survey of Youth 1997 (NLSY97)

The National Longitudinal Survey of Youth 1997, or NLSY97, is a longitudinal study conducted by the United States Department of Labor, Bureau of Labor Statistics (2020). The purpose of the study is to collect and analyze employment data from a sample of 8,984 people who live in the United States, who were born between 1980 and 1984, and who were between the ages of 12 and 16 on December 31st, 1996 (Aughinbaugh, 2008; Horrigan & Walker, 2001). The sample utilized for the NLSY97 are interviewed every other year to answer questions regarding employment, education, household structure including marital status and childrearing, household structure in childhood, income, health, substance abuse, crime, and attitudes and expectations

(National Longitudinal Surveys [NLS], 2020). The most recent round of the NLSY97 that is available to the public is round 18, which was administered in 2017-2018. This form of survey allows for a longitudinal look at the employment decisions, and those factors that affect those decisions, of the individuals included in the sample (Horrigan & Walker, 2001), which provides the Bureau of Labor Statistics a rich look at the employment practices of this representative segment of the workforce. The NLYS97 dataset has been used in multiple previous articles, dissertations, books, and studies (Aughinbaugh, 2008; Aughinbaugh, Pierret, & Rothstein, 2015; Bronte-Tinkew, Scott, & Lilja, 2010). As this dataset will also be used for this current study, a detailed discussion of sample selection, interview methods, confidentiality and consent will all be discussed in detail in Chapter 3 of this text.

The NLSY97 dataset has been utilized in a variety of ways to better understand the education and employment decisions of the sample members. Aughinbaugh (2008) utilized the data to conduct research into the college enrollment and first-year attendance patterns of sample members under 20. She found that approximately 49% of the NLSY97 sample went to college by age 20, 40% to a 2-year college and the other 60% to a 4-year college. The students who went to college were more likely to be female, white, or both. She also found that sample members who attended college by age 20 had parents with higher education levels than those who did not as well as higher family income, dual-parent households at age twelve, and mothers who were older when they became mothers. Additionally, Aughinbaugh found that high-school grades were a stronger predictor of first-year college completion than gender, race, ethnicity, or family background.

Bronte-Tinkew et al., (2010) utilized NLSY97 data to study the impact of living in a single-father household as a youth on the adult outcomes of members of the sample. They analyzed data from rounds 1, 3, 4, 5, and 7 of the survey to gather relevant information regarding parental situation in the childhood home as well as educational and employment outcomes as the sample members have moved into adulthood. The sample size for their analysis was n = 126, with 91 sample members who lived in a single-father only household and 35 who lived in a household with a single-father and his partner. The researchers found that children from both forms of single-father household "reported higher levels of disconnectedness" (p. 1115) and "lower levels of high school completion" (p. 1115) than sample members living in a two-parent household. They also found that sample members living in single-father households reported having an uninvolved parent more frequently than those in single-mother households and that they felt their fathers were more permissive in parenting style. They additionally found that sample members reported less closeness when they lived in households with single-fathers living with partners versus two-parents, single-mothers with or without a partner, or single-fathers without a partner. This suggests that attention in single-father with partner households is split between the children and the partner, creating a less close relationship between the child and the father.

Chapter III

METHODS AND PROCEDURES

Population and Sample

The National Longitudinal Survey of Youth 1997 (NLSY97) was first administered in 1997 to 8,984 individuals in the United States who were born between January 1, 1980 and December 31, 1984 and has been administered every other year thereafter by the Bureau of Labor Statistics. Data for round 18 was collected in 2017-2018 and currently data collected in rounds 1-18 is publicly available. Data collection is now collected biennially rather than the annual collection of the first few rounds (NLS, 2020). Data collected for NLSY97 is organized as outlined in Appendix A.

Some data were only collected during certain early rounds of the program. For example, data regarding parents, family process, and childhood were collected from the parents of the participants in a parental survey in round 1, after that only a subset of the data were collected in rounds 2 through 5, the data were no longer collected after round 5 (NLS, 2020).

According to NLS (2020), all NLSY97 participants were born in the years 1980 to 1984 and were between 12 and 16 years old when they were interviewed for round 1 of the longitudinal survey. Participants were between the ages of 32 and 38 during round 18 of interviews, which were conducted in 2017-2018; round 18 is the most recent round of data available to the public. The sample consisted of 8,984 individuals in round 1 and 6,734 in round 18, giving an attrition loss of approximately 25%. The sample consists of

4,599 participants who identified as male, and 4,285 participants who identified as female. The racial breakdown of the sample is shown in Table 1.

Table 1

NLSY97 Sample Demographics

Race	Number	Percentage of Sample
Non-black/Non-Hispanic	4,665	51.9%
Black/Non-Hispanic	2,335	25.9%
Hispanic or Latino	1,901	21.2%
Mixed	83	0.9%

A very detailed process was completed to ensure a robust and strong sample that represented all youth aged 12-16 within the United States, the scope of the eligible population. This process is outlined in great detail by Moore, Pedlow, Krishnamurty, and Wolter (2000) and will be summarized in the following paragraphs.

First, NLSY97 designers defined the eligible population to be studied as "persons aged 12-16 as of the reference day, December 31, 1996" (p. 12) and who lived within an in-scope housing unit, which was defined as "a single room or group of rooms intended as separate living quarters by a family, by a group of unrelated persons living together, or by a person living alone" (p. 12). This scope unfortunately does not include homeless youth or those living in group living arrangements such as group housing or agricultural farmworker dormitories.

The National Operational Research Center (NORC) assisted the NLS program in selecting a sample for use in NLSY97. First, a sample of 90,000 housing units were selected via area-probability sampling to receive screening interviews to determine if any eligible youth resided in the housing unit, then subsamples were selected from the eligible youth identified in the screening interviews to participate in the NLSY97 data

collection. Two subsamples were selected, a cross-sectional subsample that represented the population in the proper proportions and a second supplemental sample that oversampled Non-Hispanic Black and Hispanic youth. NORC chose to select two sample groups rather than one larger area-probability sample because they felt two groups would provide more precise statistical data.

The process to determine the two sample groups started with dividing the United States into primary sampling units (PSUs) representative of the 50 states in the United States, then dividing those units into segments, and then within the segments selecting household units (HUs). This process was done independently for each of the two samples, the cross-sectional sample was self-weighting, the supplemental sample was selected using stratification during the household unit stage to ensure the desired higher rate of Non-Hispanic Black and Hispanic sample members was selected. Additionally, a half-open interval procedure was conducted to include any household units that were missed during the initial listing of household units due to new construction and repurposing of existing spaces. Primary sampling units were designated differently for each of the sample groups. For the cross-sectional sample a PSU was defined as a metropolitan statistical area or in nonmetropolitan areas as counties with at least 2,000 HUs or clusters of counties that combine to equal 2,000 HUs if the number of HUs in a geographical area was not large enough. For the supplemental sample, PSUs were defined purely as single counties to improve targeting of the desired demographics; the PSUs were also stratified by sorting "first by minority youth density (number of blacks and Hispanics, aged 17 and under, per housing unit) grouped into thirds. Within each third we sorted by region, division, metropolitan status, state, and per capita income" (p.

24). Once the PSUs were identified for each sample 100 PSUs were selected for each sample based on a "systematic sampling scheme with the selection probability for a PSU proportional to the number of housing units counted in the 1990 census" (p. 20), designed to represent all the states as well as the District of Columbia.

Each of these PSUs were then divided into segments representing single census blocks when the blocks had at least 75 HUs or groups of blocks to add up to 75 HUs in cases of lower population areas as identified by the 1990 Census. There were 1,151 segments selected for the cross-sectional sample and 600 segments selected for the supplemental sample selected via a systemic sampling scheme that was conducted independently within each PSU, again with probabilities in line with the 1990 Census data. Within the 1,151 segments selected for the cross-sectional sample, 76 required further sampling efforts due to large growth in the number of HUs since the 1990 Census; the researchers called this process "chunking" (p. 21). These segments were subdivided into cells based on "visible, replicable boundaries" (p. 21) and the HUs in each cell were tallied; then one cell was selected randomly, with proportional probability to the segment as a whole, to serve as the sample from that segment. NORC fieldworkers then went to each of the 1,751 segments identified and made lists of all HU addresses within each segment utilizing maps based on the Census Bureau's Topologically Integrated Geographic Encoding and Referencing (TIGER) database.

Finally, addresses were selected from the created address lists for each segment and NORC fieldworkers went to each address to conduct initial in-person screener interviews. In total, it was estimated that 64,654 HUs would need to be surveyed in hopes of achieving the 5,833 Non-Hispanic, Non-Black youth desired for the cross-

sectional sample, as well as a proportional sample of Hispanic and Non-Hispanic Black youth. Likewise it was estimated that 31,753 HUs would need to be surveyed for the supplemental sampling in hope of achieving the 2,500 Non-Hispanic black youth and 1,667 Hispanic youth needed for NLSY97. During this third stage the supplemental group segments were reviewed to determine which had a higher or lower density of the targeted minority populations; higher density segments were oversampled by 10 times the sample rate in the low-density segments. Due to cost issues only 25,485 of the 31,753 HUs identified for the supplemental sample were included for screening; had those 25,485 HUs failed to produce enough possible youths for the sample the remainder of the HUs would have been screened. This was not needed as enough youth were identified from the 25,486 HUs screened.

Additionally, half-open interval procedures were used to incorporate any HUs missed due to new construction. In this process, which is commonly used by NORC when conducting area probability sampling, if less than three new HUs were discovered they were all added to the sample; if more than four were discovered then a systemic sampling of all the new units would be conducted to determine three new HUs to add to the screening sample. Table 2 outlines the sample sizes at this point of the cross-sectional and supplemental samples, it is recreated from the table provided by Moore et al. on page 15 of their report. A summary table of the design of the samples, based on the table provided by Moore et al. on page 28 of their report, is available in Appendix B.

Table 2

NLSY97 Sample Sizes

Stage of Sampling	Cross-Sectional	Supplemental	Total Sample
PSUs Selected	100	100	100
Segments Selected	1,151	600	1,751
Listed HUs	176,673	93,524	270,197
Selected HUs	65,269	25,688	90,957
Originally Selected HUs	64,654	25,458	90,139
HUs Obtained via Half-Open Interval Procedure	615	203	818

The screener interviews were designed as short interviews to solicit information from the adult at each HU regarding youth in the home who would qualify for NLSY97, namely those who would be between ages 12 and 16 on December 31, 1996; all identified youth from HUs in the cross-sectional segments were selected to participate in NLSY97. For the supplemental sample segments, only Non-Hispanic Black and Hispanic youth were selected for NLSY97 participation. The screener interviews involved two separate screening forms, first a short paper screening document to determine if anyone in the HU was eligible to participate in NLSY97, and then an extended Computer Assisted Personal Interview (CAPI) screening form that collected more specific data including date of birth, age, demographic characteristics, and grade in school for each eligible HU member. Screener interviews were done in person at the HU with a responsible adult from the HU; in cases where NORC fieldworkers could not make contact with someone at the HU they were allowed to ask specific neighbors for relevant information to determine if any eligible youth lived in the HU. Prior to the screener interviews HUs were sent a letter

from the project manager for the survey explaining what the survey was, why it was important, promising confidentiality, and providing an incentive of $10 to participate. After the letter, but before the screener interviews, a second letter with a brochure and additional information, as well as a promise of a $75 incentive for participating was sent by the NORC project director; a screening success rate of 94% was achieved, above the 91% expected.

Youth identified for NLSY97 were also required to complete the Armed Services Vocational Aptitude Battery (ASVAB) test as well as the Interest Finder questionnaire. This process identified a total sample size, based on the combining of the cross-sectional and supplemental samples, of 9,808 youths; only 8,984 of those youths agreed to participate in the NLSY97 creating a total sample size of 8,984.

Due to the size of the sample, and to ensure the best representativeness possible, the sample was also weighted. The steps conducted to compute the weights are included in Table 3.

Table 3

NLSY97 Sample Weighting Computations

Step	Computation
1	Computation of the base weight, reflecting the housing unit's selection probability for the screening sample
2	Adjustment for household nonresponse to the screener.
3	Adjustment to reflect subsampling of youth in screened households.
4	Development of a combination weight to allow youths from CX and SU samples to be merged into one combined sample.
5	Adjustment for youth nonresponse in the main interview.
6	Poststratification of the nonresponse-adjusted weights.

For the purpose of my research, subgroups of the NLSY97 sample individuals were studied, namely male-students, single-father students, and single-mother students. Data regarding marital status, parental status, pre-entry attributes, and educational attainment was selected from the existing NLSY97 data. Due to the preexisting nature of this data, this research was exempted from the requirement of gaining Institutional Review Board approval at Valdosta State University, as shown in Appendix F.

Research Questions

The previously determined sample was analyzed in regards to the following research questions:

RQ1: What effects do the parental status, marital status, and gender of a student have on educational attainment?

RQ2: What effects do Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling, have on educational attainment of the single-father student?

Measures

Each of the research questions relied on a separate set of variables for analysis. All data for analysis was identified from the NLSY97 dataset described previously. Identification of the exact data from the dataset that was used for each variable has been outlined in the procedure section of this chapter.

For RQ1, "What effects do the parental status, marital status, and gender of a student have on educational attainment?", the dependent variable of educational attainment was analyzed to assess the relationship between educational attainment and the independent variables of parental status, marital status and gender. For the purposes of this study, educational attainment can have multiple meanings, including completion

of a high school diploma, technical certification or diploma, two-year degree, four-year degree, graduate, or terminal degree. Likewise, parental status can have multiple values based on the number of children residing in the household. Gender, as reported in the NLSY97 respondent surveys, has two values, male and female.

For RQ2, "What effects do Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling, have on educational attainment of the single-father student?", the dependent variable of educational attainment was studied in relation to independent variables that fit the definition of Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling for all respondents identifying as single-fathers. Educational attainment, again, means completion of a high school diploma, technical certification or diploma, associate's degree, bachelor's degree, master's degree, or professional or doctoral degree. Family background variables included number of children in the home, hours spent at work per week, and whether both biological parents lived in the same home as the respondent in survey round 1, collected in 1997. Skills and abilities included occupation and training programs in which respondents participated including professional certifications. Prior schooling included high school grade point average, and high school completion.

Procedures

Data selected from the NLSY97 survey dataset was analyzed using various statistical procedures within IBM SPSS Statistics (Version 26) predictive analytics software. First, the needed data was selected and extracted from the NLSY97 dataset; these data have been outlined in Appendix B. The data was then analyzed utilizing appropriate correlational measures, multiple regression techniques and related statistics.

This analysis assisted in developing potential answers regarding RQ1 and RQ2 which provided needed information regarding pre-entry attributes and their correlational impact on single-father educational attainment, RQ2, as well as comparison analysis to see how single-fathers fared in comparison to single-mothers, non-mother female-students, and non-father male-students, RQ1. This helped develop additional knowledge regarding the initial portion of Tinto's model, specifically the pre-entry attributes and their impact on student educational attainment or drop out decisions.

Data Analysis

In selecting which statistical tests to perform I relied on my previous education and exposure to statistical analyses, my dissertation committee, and the University of California Los Angeles: Statistical Consulting Group (n.d.) website. The non-parametric nature of the dependent variable in my research has guided the selection of statistical analyses to be conducted.

For RQ1, "What effects do the parental status, marital status, and gender of a student have on educational attainment?", statistical analyses were completed including Mann-Whitney U tests and Kruskal Wallis H tests dependent upon the number of levels in each independent variable. These statistical analyses were selected based on the non-parametric, ordinal nature of the dependent variable Educational Attainment. To do this, RQ1 was broken down into a series of four sub-questions to investigate the relationship between (a) educational attainment and gender, (b) educational attainment and marital status, (c) educational attainment and parental status, and (d) educational attainment and a created variable that assigns each individual a categorical value based on a combination

of their gender, marital status, and parental status. For all statistical results, a *p*-value of $p < 0.05$ was be required to prove statistical significance.

Due to the nature of the data, a series of created, or "dummy" variables was created for use in the statistical analysis of RQ1. First, the dependent variable Educational Attainment was created by analyzing a selection of NLSY97 data fields related to educational completion and transforming the information into an ordinal-scale variable. Fields selected from NLSY97 to represent educational completion have been outlined in Appendix C.

To create the dependent variable Educational Attainment each of these fields was changed to reflect a value of 0 if the respondent had not earned the credential and a value of 1 if they had earned the credential. Then, each respondent was evaluated to determine the highest attainment level and was assigned a value based on the highest educational credential awarded. For this step, training certificates, CVC_TRN_CERT, and Associate's degrees, CVC_AA_DEGREE, have been considered equal since both traditionally require two years of study, and doctoral degrees, CVC_PHD_DEGREE, and professional degrees, CVC_PROF_DEGREE, were also considered equal since both represent terminal degrees in their fields. Any respondent who earned multiple degrees, such as a bachelor's and a master's degree, was assigned only his or her highest earned degree. The values that were assigned based on highest educational attainment are outlined in Table 4.

Table 4

Educational Attainment Values

Value	Educational Attainment
0	Did not complete high school
1	Completed high school
2	Completed an Associate's degree or vocational training certificate
3	Completed a Bachelor's degree
4	Completed a Master's degree
5	Completed a terminal degree

This transcription of educational attainment data into an ordinal-scale field required the use of statistical analysis that were appropriate for non-parametric data. This, combined with the number of levels in each individual independent variable, lead to the selection of Mann-Whitney U and Kruskal Wallis H tests instead of more widely known correlation measures.

The independent variable of Gender did not require any form of transcription from the raw data found within the NLSY97 dataset in the field KEY!SEX. Any respondent who reported his gender as male was assigned a value of 1 via NLSY97 data collection and any respondent who reported her gender as female was assigned a value of 2 via NLSY97 data collection. Since this independent variable had only two levels, the Mann-Whitney U test was utilized to investigate the relationship between the dependent variable, Educational Attainment, and the independent variable, Gender. The goal of this analysis was to assess if there was any difference in educational attainment in respect to the gender of the respondent.

The independent variable of Marital Status was derived from the NLSY97 variable CV_MARSTAT which has 10 categories as described in Table 5.

Table 5

NLSY97 Marital Status

Category	Status
1	Never married, cohabiting
2	Never married, not cohabiting
3	Married, spouse present
4	Married, spouse absent
5	Separated, cohabiting
6	Separated, not cohabiting
7	Divorced, cohabiting
8	Divorced, not cohabiting
9	Widowed, cohabiting
10	Widowed, not cohabiting

For the purpose of my research, these 10 categories were transcribed into two categories; any respondents who reported being married and/or cohabiting were assigned the value 1, and any respondents who reported not having a spouse or partner living within the same house were assigned the value 2. This created a two-level categorical variable that, when analyzed in relation to the ordinal-scale dependent variable Educational Attainment, indicated that the use of a Mann-Whitney U test was appropriate. The goal of this analysis was to assess if there was any significant difference in educational attainment in response to the cohabiting versus single status of the respondents.

The third independent variable to be analyzed was Parental Status of the respondent. The NLSY97 field CV_BIO_CHILD_HH was utilized for this variable. This was a categorical variable that assigned values to each respondent based on the actual number of children reported as living in the household. The values of this variable ranged from 0 to 8. Since this independent variable had multiple levels a Kruskal Wallis

H test was conducted to analyze the relationship between the number of children in the household and the dependent variable of Educational Attainment.

Lastly, the fourth independent variable that was analyzed for RQ1 was a created variable, Demographic Factors, that created a categorical variable based on the values each respondent reported for CV_BIO_CHILD_HH, KEY!SEX, and CV_MARSTAT. A list and description of those values can be found in Table 6.

Table 6

Demographic Factor Values

Value	Description
1	Female, single, no children
2	Male, single, no children
3	Female, married or cohabiting, no children
4	Male, married or cohabiting, no children
5	Female, married or cohabiting, has children
6	Male, married or cohabiting, has children
7	Female, single, has children
8	Male, single, has children

Another Kruskal Wallis H test was conducted for this independent variable as well due to it having multiple levels and the ordinal-scale nature of the dependent variable, Educational Attainment.

For RQ2, "What effects do Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling, have on educational attainment of the single-father student?", a variety of statistical tests including an ordered logistic regression, Kruskal Wallis H test, non-parametric correlation, and Mann-Whitney U test were conducted to analyze the relationship between the dependent variable Educational Attainment of the single-father, and the independent variables as a group as well as individually. This analysis provided an opportunity to investigate the impact of a variety

of potential pre-entry attributes on educational attainment as theorized in Tinto's model. For all RQ2 statistical results, a *p*-value of $p < 0.05$ was required to prove statistical significance.

As with RQ1, the dependent variable Educational Attainment was created by analyzing a selection of NLSY97 data fields related to educational completion and transforming the information into an ordinal-scale variable. However, for RQ2 the dataset was manipulated to remove any respondents who were not single-fathers. This decreased the sample size to be utilized for RQ2 by removing all female respondents as well as any male respondents that reported having a partner, either spouse or cohabiting partner, in the home as well as those single men who reported having no children living in the home.

The first independent variable analyzed, Number of Children in Home, IV1, was a categorical variable that assigned values to each respondent based on the actual number of children reported. This variable is included as part of Tinto's pre-entry attribute of family background. The values of this variable ranged from 0 to 8. As in RQ1, the data for this field came from the NLSY97 field CV_BIO_CHILD_HH. This field was analyzed in relation to the dependent variable, Educational Attainment, as part of an ordered logistic regression. Additionally, a non-parametric correlation statistic was computed to evaluate the relationship between these two variables.

The second independent variable was Average Hours Worked per Week, IV2. This computed variable was created by dividing the total number of hours a respondent reported working during the year, NLSY97 field CVC_HOURS_WK_YR_ALL.16, by the total number of weeks a respondent reported working during that year, NLSY97 field

CVC_WKSWK_YR_ALL.16. This variable is included as part of Tinto's pre-entry attribute of family background. The variable Hours Spent at Work was an interval-scale variable, which allowed for the use of a Spearman's Rho test to analyze the relationship between the independent variable Hours Spent at Work and the dependent variable Educational Attainment. This variable was also included in the ordered logistic regression.

The next independent variable, Both Parents in Childhood Home, (IV3) was a categorical variable with a value of 1 if both parents were living in the childhood home of the respondent, and a value of 0 if only one or no parents lived in the childhood home of the respondent. This variable is included as part of Tinto's pre-entry attribute of family background. This variable drew its values from the NLSY97 field YOUTH_BOTHBIO.01 with no adjustment. A Mann-Whitney U test was conducted to analyze the relationship between the independent variable, Both Parents in Childhood Home, and the dependent variable, Educational Attainment. This variable was also included in the ordered logistic regression to analyze the overall relationship between Educational Attainment and the full selection of independent variables.

The fourth independent variable, Occupation, IV4, was based on the NLSY97 field YEMP_OCCODE2002.01. This variable is included as part of Tinto's pre-entry attribute of skills and abilities. This field categorized each respondent into the appropriate occupation field type from the 2002 Census Occupation Codes (Occupation Code List, 2002). These codes ranged from 0010 to 9990 and were grouped based on type of occupation. For the purpose of my research, these codes were transcribed into

single digit values to represent each of the occupation code groupings as shown in Table 7.

Table 7

Occupation Values

Value	Occupation Codes	Occupation Code Descriptions
1	0010-3540	Management, Professional, and Related Occupations
2	3600-4650	Service Occupations
3	4700-5930	Sales and Office Occupations
4	6000-6130	Farming, Fishing, and Forestry Occupations
5	6200-7620	Construction, Extraction, Maintenance, and Repair Occupations
6	7700-9750	Productions, Transportation, and Material Moving Occupations
7	9800-9840	Military
8	9920	Unemployed > 5 years or never worked

This field was also analyzed by utilizing a Kruskal Wallis H test due to the independent variable, Occupation, having multiple values and the ordinal nature of the dependent variable. Additionally, this field was included in the ordered logistic regression conducted to investigate the relationship between Educational Attainment and the multiple independent variables.

The fifth independent variable that was analyzed is Training Programs, IV5. This variable was utilized to see if there was a relationship between completion of training programs and educational attainment. This variable is included as part of Tinto's pre-entry attribute of skills and abilities. This variable was based on NLSY97 field CVC_TRN_CERT which was a categorical field with the value of 1 for yes and 0 for no. All respondents who had a value of 1 for this field automatically had a value of at least 2 for the dependent variable Educational Attainment, however a Mann-Whitney U test was conducted on this independent variable and dependent variable combination to see if

there were any relationship between training program and further educational attainment, ideally to see if completion of a training program was related to additional educational attainment beyond the training program such as a bachelor's or master's degree. This independent variable was also included in the ordered logistic regression as mentioned previously.

The sixth independent variable was High School GPA, IV6, and represented the NLSY97 field TRANS_GPA. This variable is included as part of Tinto's pre-entry attribute of prior schooling. This field was adjusted from the raw data to provide a set of single digit variables as shown in Table 8.

Table 8

High School GPA Values

Field Value	NLSY97 TRANS_GPA Value
0	0.00-0.99
1	1.00-1.99
2	2.00-2.99
3	3.00-3.99
4	4.00-4.99[a]

[a] To accommodate Advance Placement classes

A non-parametric correlation statistic was computed on the independent variable High School GPA and the dependent variable Educational Attainment to analyze any potential relationship between the two variables. The independent variable High School GPA was also included in the ordered logistic regression between the set of independent variables and the dependent variable Educational Attainment.

Finally, the seventh independent variable was Completed High School, IV7. This variable is included as part of Tinto's pre-entry attribute of prior schooling. This variable was based on the NLSY97 field CVC_HGC_EVER which showed highest grade

completed by respondents. This variable was transformed from a categorical scale that listed each respondent's highest grade completed to a two-level categorical variable with the value of 1 for high school completion and 0 for non-high school completion. In addition to being included in the ordered logistic regression, a Mann-Whitney U test was conducted on this variable and the dependent variable Educational Attainment. As with the Training Programs independent variable, the goal was to see if the completion of high school had any relationship with the completion of higher degrees or further educational attainment. Likewise, any respondent with a value of 1 for this variable automatically had a value of 1 or higher on the dependent variable.

Prior to conducting any statistical analysis for RQ1 and RQ2, all data was analyzed for accuracy to ensure no mistakes were made in transcription of any variables that were modified from their original NLSY97 form. A random number generator was utilized to generate a series of 225 unique numbers that were used to check the accuracy of the full dataset utilized for RQ1, n = 8984. Additionally, all records, n = 165, for RQ2 were analyzed for accuracy. Any records that were missing a value in one of the independent variable fields were removed from the computation.

Chapter IV

RESULTS

Statistical Results

After completion of the previously outlined Mann-Whitney U, Kruskal Wallace H, ordered logistic regression, and Spearman's Rho non-parametric correlation statistics a variety of results were found in regards to the research questions guiding this study. The two research questions under analysis were:

RQ1: What effects do the parental status, marital status, and gender of a student have on educational attainment?

RQ2: What effects do Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling, have on educational attainment of the single-father student?

For RQ1 multiple statistical analyses, namely Mann-Whitney U and Kruskal Wallace H tests, were conducted to study the relationships between the dependent variable, Educational Attainment, and each of the independent variables, Gender, Parental Status, Marital Status, as well as the relationship between the dependent variable and a created combination independent variable, Demographic Factors. The results of these statistical analyses are reported in the following paragraphs.

The first analysis conducted was a Mann-Whitney U test, conducted to analyze the relationship between the dependent variable Educational Attainment and the independent variable Gender; this statistic was selected due to the non-parametric value of the Educational Attainment variable and the fact that the independent variable, Gender

had only two values. Educational Attainment response values ranged from 0, did not complete high school, to 5, completed a doctoral or other professional degree. The independent variable Gender was directly based on the NLSY97 variable KEY!SEX and had two response values, 1 for male and 2 for female. The sample size for this statistical analysis was n = 8,921, split between male respondents, n = 4,561, and female respondents, n = 4,360. Educational Attainment values for male respondents had a median of 2.00 which corresponds to a technical certification or an associate's degree. Educational Attainment values for female respondents also had a median of 2.00. A Mann-Whitney U test was conducted to determine whether there was a difference in educational attainment of male and female respondents. Results of that analysis indicated that there was a difference, $U = 11{,}310{,}361.500$, $p = .000$ with female respondents having higher educational attainment than male respondents.

The second analysis conducted was also a Mann-Whitney U test and analyzed the relationship between the dependent variable Educational Attainment and the independent variable Marital Status. This statistic was selected based on the non-parametric nature of the Educational Attainment dependent variable and the two response values for Marital Status that were created by transcribing the 10 categories from the NLSY97 variable CV_MARSTAT into two values, 1 for married and/or cohabiting respondents and 2 for those who reported not having a spouse or partner living within the same house. Educational Attainment responses ranged from 0, did not complete high school, to 5, completed doctoral or other professional degree. The sample size for this statistical analysis was n = 6,631, split between married or otherwise cohabiting respondents, n = 4,167 , and single or non-cohabiting respondents, n = 2,464. Educational Attainment

values for married respondents had a median of 2.00 which corresponds to a technical certification or an associate's degree. Educational Attainment values for single respondents had a median of 2.00. A Mann-Whitney U test was conducted to determine whether there was a difference in educational attainment of married and single respondents. Results of that analysis indicated that there was a difference, U = 7,717,755.00, p = .000 with married respondents having higher educational attainment than single respondents.

The third analysis conducted was a Kruskal Wallis H test and analyzed the relationship between the dependent variable Educational Attainment and the independent variable Parental Status which was based on the NLSY97 variable CV_BIO_CHILD_HH. A Kruskal Wallis H test statistic was selected for this analysis based on the non-parametric nature of the dependent variable Educational Attainment and the existence of more than two values, nine values specifically, for the independent variable Parental Status. Educational Attainment responses ranged from 0, did not complete high school, to 5, completed doctoral or other professional degree. Parental Status responses ranged from 0 to 8 and represented the actual number of children living in the household. The sample size for this statistical analysis was n = 4,760, split amongst respondents with the following variable values: 664 reporting 0 (children); 1,270 reporting 1; 1,538 reporting 2; 842 reporting 3; 317 reporting 4; 91 reporting 5; 31 reporting 6; five reporting 7; and two reporting 8 with a median of 2.00 (children). The Kruskal Wallis H test was conducted to determine whether there was a difference in educational attainment in relation to number of children in the home. Results of that analysis indicated that there was a difference, $H(8) = 323.504$, p = .000 in educational

attainment amongst respondents with different levels of parental status. These results are reported in Table 9. Respondents with one child (*Mdn* = 2.00), two children (*Mdn* = 2.00), three children (*Mdn* = 2.00), or four children (*Mdn* = 2.00) reported higher educational attainment, than those with eight children (*Mdn* = 1.50), zero children (*Mdn* = 1.00), five children (*Mdn* = 1.00), six children (*Mdn* = 1.00), or seven children (*Mdn* = 0.00).

Table 9

Parental Status Analysis Results

Ranks

	Parental Status	N	Mean Rank
Educational Attainment	0	664	1689.28
	1	1270	2566.74
	2	1538	2649.12
	3	842	2386.62
	4	317	1996.03
	5	91	1847.54
	6	31	1801.58
	7	5	971.00
	8	2	2143.25

Test Statistics

	Educational Attainment
Kruskal-Wallis H	323.504
df	8
Asymp. Sig.	.000

The final analysis conducted for RQ1 was another Kruskal Wallis H test and analyzed the relationship between the dependent variable Educational Attainment and the independent variable Demographic Factors. The Kruskal Wallis H test was selected for this analysis due to the non-parametric, ordinal-scale nature of the dependent variable Educational Attainment and the eight different values for the independent variable Demographic Factors. The variable Demographic Factors was a created categorical

variable based on the values from the NLSY97 variables of CV_BIO_CHILD_HH, KEY!SEX, and CV_MARSTAT. Educational Attainment values ranged from 0, did not complete high school, to 5, completed doctoral or other professional degree. The sample size for this statistical analysis was n = 4,712, split amongst respondents as shown in Table 10.

Table 10

Distribution of Demographic Factor Values

Value	Description	Number of Respondents
1	Female, single, no children	55
2	Male, single, no children	361
3	Female, married or cohabiting, no children	47
4	Male, married or cohabiting, no children	188
5	Female, married or cohabiting, has children	1739
6	Male, married or cohabiting, has children	1370
7	Female, single, has children	789
8	Male, single, has children	163

A Kruskal Wallis H test was conducted to determine whether there was a difference in educational attainment in relation to the combined demographic factors of each respondent. Results of that analysis indicated that there was a difference, $H(7) = 338.450$, $p = .000$ in educational attainment amongst respondents with different combinations of demographic factors. These results are reported in Table 11. Respondents with variable values 1 female, single, no children (*Mdn* = 2.00), 5 female, married or cohabiting, has children (*Mdn* = 2.00), 6 male, married or cohabiting, has children (*Mdn* = 2.00), and 7 female, single, has children (*Mdn* = 2.00) reported higher educational attainment, than those with variable values of 2 male, single, no children (*Mdn* = 1.00), 3 female, married or cohabiting, no children (*Mdn* = 1.00), 4 male, married or cohabiting, no children (*Mdn* = 1.00), and 8 male, single, has children (*Mdn* = 1.00).

Table 11

Demographic Factors Analysis Results

Ranks

	Demographic Factors	N	Mean Rank
Educational Attainment	1	55	1751.56
	2	361	1617.88
	3	47	1507.22
	4	188	1754.91
	5	1739	2657.38
	6	1370	2489.35
	7	789	2143.76
	8	163	1838.33

Test Statistics

	Educational Attainment
Kruskal-Wallis H	338.450
df	7
Asymp. Sig.	.000

For RQ2 the sample population was narrowed down to include only single-fathers, that is, only those NLSY97 respondents who reported being male, single and non-cohabiting, and having at least one child in the home. This created a sample size for RQ2 of n = 165. Additionally, the independent variables in question for RQ2, family background, skills and abilities, and prior schooling, varied from those in RQ1, parental status, marital status, and gender, in order to investigate specifically the experiences of single-fathers, or "unicorns," and the selected pre-entry attributes from Tinto's model that might have an impact their educational attainment. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a doctoral or other terminal degree. For RQ2 a variety of statistical analyses were conducted to study the relationships between the dependent

variable, Educational Attainment, and each of the independent variables including IV1: Number of Children in the Home, IV2: Average Hours Worked per Week, IV3: Both Parents in Childhood Home, IV4: Occupation, IV5: Training Program, IV6: High School GPA, and IV7: Completed High School. The analyses include multiple Mann-Whitney tests, a Kruskal Wallis H test, multiple non-parametric correlations, and an ordered logistic regression. The results of these statistical analyses are reported in the following paragraphs.

The first analysis for RQ2 was a non-parametric correlation, specifically Spearman's Rho, to study a potential relationship between IV1, Number of Children in the Home, and the dependent variable, Educational Attainment. Spearman's Rho was selected based on it being a correlation statistic that works with the non-parametric nature of the dependent variable Educational Attainment. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a doctoral or other terminal degree. The independent variable Number of Children in the Home was created from the NLSY97 field CV_BIO_CHILD_HH which was a categorical field that assigned values to respondents based on actual number of children reported to be living in the household. For this analysis the sample size of single-fathers is n = 165, and the values for the independent variable Number of Children in the Home range from 1 to 5 with no single-fathers having more than five children in the home. The result of the Spearman's rho non-parametric correlation, r_s = -.103, p = 0.189, reports a statistically non-significant, inverse relationship between the independent variable, Number of Children in the Home, and the dependent variable, Educational Attainment. A Kendall's tau statistic was also computed

with similar results, $\tau = -.092$, $p = .182$, which also suggests a statistically non-significant, inverse relationship between the dependent variable Educational Attainment and the independent variable Number of Children in the Home.

The second analysis for RQ2 was another non-parametric correlation statistic, Spearman's Rho, conducted to measure the potential correlation between IV2, Average Hours Worked per Week, and the dependent variable, Educational Attainment. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a doctoral or other terminal degree. The independent variable Average Hours Worked per Week was a computed variable created by dividing the total number of hours a respondent reporting in a year, based on the NLSY97 field CVC_HOURS_WK_YR_ALL.16 by the total number of weeks a respondent reported working during that year, based on NLSY97 field CVC_WKSWK_YR_ALL.16. The sample size for this analysis was n = 165, and the independent variable values ranged from 0 to 150. The results of the Spearman's Rho non-parametric correlation, $r_s = .182$, $p = .052$, and the Kendall's tau, $\tau = .146$, $p = .052$, both showed a small positive correlation between the independent variable, Average Hours Worked per Week, and the dependent variable, Educational Attainment. However, the *p*-values show that in both the Spearman's rho and the Kendall's tau analyses this correlation is not statistically significant.

The third analysis for RQ2 was a Mann-Whitney U test to evaluate the potential relationship between IV3, Both Parents in Childhood Home, and the dependent variable, Educational Attainment. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a

doctoral or other terminal degree. The independent variable, Both Parents in Childhood Home has two categorical values, 0 for no, or only one parent present in the childhood home, and 1 for yes, both parents present in the childhood home of the single-father and was based on the NLSY97 field YOUTH_BOTHBIO.01 with no adjustment to the values. The Mann-Whitney U statistic was selected based on the independent variable of Both Parents in Childhood Home having only two values and the non-parametric nature of the dependent variable Educational Attainment. The sample size for this test was n = 164, with one respondent being removed from the computation due to a null-value response for the independent variable Both Parents in Childhood Home. Results of the Mann-Whitney U test, $U = 3{,}681.500$, $p = .140$, indicated a statistically non-significant difference between single-fathers raised in a household with both parents and those raised in a household with one parent with regards to educational attainment.

The fourth analysis for RQ2 was a Kruskal Wallis H test to measure the potential relationship between IV4, Occupation, and the dependent variable, Educational Attainment. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a doctoral or other terminal degree. The independent variable of Occupation was based on the NLSY97 field YEMP_OCCODE2002.01; the values from YEMP_OCCODE2002.01 were grouped into six categories based on higher-level 2002 Census Occupation Codes and has values ranging from 1 to 6, with 1 representing those who reported occupations in management, professional, and related occupations, 2 representing service occupations, 3 representing sales and office occupations, 4 representing farming, fishing, and forestry occupations, 5 representing construction, extraction, maintenance, and repair

occupations, and 6 representing productions, transportation, and material moving occupations. The sample size for this analysis was n = 141 split amongst the Occupation categorical independent variable values ranging from 1 to 6. As displayed in Table 12, the results of the Kruskal Wallis H test, $H(5) = 8.798$, $p = .117$, showed that there was no statistically significant difference in educational attainment between the values of the independent variable, Occupation.

Table 12

Occupation Analysis Results

Ranks

	Occupation	N	Mean Rank
Educational Attainment	1	22	90.34
	2	21	62.21
	3	28	73.46
	4	1	101.50
	5	28	63.32
	6	41	67.94

	Educational Attainment
Kruskal-Wallis H	8.798
df	5
Asymp. Sig.	.117

The fifth analysis for RQ2 was a Mann Whitney U test statistic to measure a potential relationship between IV5, Training Program, and the dependent variable, Educational Attainment. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a doctoral or other terminal degree. The independent variable for this analysis, Training Program, was based on the NLSY97 field CVC_TRN_CERT which was a categorical value that had two values, a value of 0 for anyone who did not report completing a training program, and a value of 1 for anyone who did report completing a training

program. The sample size for this analysis is n = 105, with 60 respondents being removed from the computation for null-value responses for the independent variable, Training Program. The results of the Mann Whitney U test, $U = 2{,}241.000$, $p = .000$, showed a difference in educational attainment between those who completed a training program and those who did not with those who completed a training program having higher educational attainment.

The sixth analysis for RQ2 was a Spearman's rho non-parametric correlation statistic to measure potential correlation between IV6, High School GPA, and the dependent variable, Educational Attainment. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a doctoral or other terminal degree. The High School GPA independent variable values for this computation were categorical and ranged from a value of 0 to a value of 3 and were based on the NLSY97 field TRANS_GPA. Respondents with a NLSY97 TRANS_GPA field value of 0.00 to 0.99 were assigned an independent variable value of 0, those with a NLSY97 TRANS_GPA filed value of 1.00 – 1.99 were assigned the variable value of 1, those with a NLSY97 TRANS_GPA field value of 2.00 – 2.99 were assigned a variable value of 2, and those with a NLSY97 TRANS_GPA field value of 3.00 – 3.99 were assigned a variable value of 3. The sample size for this computation was n = 165 single-fathers. Computation of a Spearman's rho statistic, $r_s = .147$, $p = .141$, as well as a Kendall's tau statistic, $\tau = .131$, $p = .141$, concluded that there was a small, but statistically non-significant, positive correlation between the independent variable, High School GPA, and the dependent variable, Educational Attainment.

The seventh analysis for RQ2 was a Mann Whitney U test statistic to measure a potential relationship between IV7, Completed High School, and the dependent variable, Educational Attainment. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a doctoral or other terminal degree. The independent variable Completed High School is a categorical variable directly based on the NLSY97 field CVC_HGC_EVER and has two values, with 0 representing those that did not complete high school and 1 representing those that did complete high school. The sample size for this analysis was n = 163, with two respondents having been removed from the sample due to a null-value response for the independent variable of Completed High School. The results of the Mann Whitney U test, $U = 3{,}930.000$, $p = .00$ indicate that there was a difference in the dependent variable Educational Attainment between those who completed high school and those who did not with those who completed high school having higher educational attainment than those who did not.

The final analysis for RQ2 was an ordered logistic regression statistic that was chosen to study the relationship between the collection of all of the independent variables, Number of Children in Home, Average Hours Worked per Week, Both Parents in Childhood Home, Occupation, Training Programs, High School GPA, and Completed High School and the dependent variable, Educational Attainment. Each of these variables is based on an NLSY97 field either directly or through computations and transcriptions described previously. The dependent variable of Educational Attainment was computed to have a value range of 0, did not complete high school, to 5, completion of a doctoral or other terminal degree. This ordered logistic regression analyzed all the independent

variables to study potential relationships between the independent variables and the dependent variable as well as to investigate potential relationships between the independent variables. Due to the removal of any respondents who reported null-value responses for any of the collection of independent variables the sample size for this regression was n = 44, a significant decrease from the sample sizes utilized in the other analyses. Correlation and covariance tables were created utilizing the data, and neither indicated correlation or covariance amongst the independent variables. The ordered logistic regression developed the model X^2 (11) = 54.371, p = .000, as shown in Table 13. Having an Occupation independent variable value of 1, representing management, professional, and related occupations, β = 2.958, p = .026 had a positive statistically significant value in predicting the dependent variable Educational Attainment. Moreover, having a Training Program independent variable value of 0, or not completing a training program had a negative, but statistically significant relationship to Educational Attainment, β = -4.632, p = .000. Having a Completed High School variable value of 0, which represented not completing high school, had a negative, but statistically non-significant relationship with Educational Attainment, β = -2.261, p = .169, in comparison to having completed high school. Having a Both Parents in Childhood Home, value of 1, representing having both parents in the childhood home, had a positive, but statistically non-significant relationship with Educational Attainment, β = .068, p = .930, compared to having only one parent in the childhood home. An increase in the independent variable Number of Children in Home, had a negative, but statistically non-significant impact on Educational Attainment, β = -.017, p = .977. Likewise, an increase in the independent variable Average Hours Worked per Week, had a negative, but statistically non-

significant impact on the dependent variable Educational Attainment β = -.012, p = .427. Additionally, an increase in the independent variable High School GPA had a negative but statistically non-significant impact on the dependent variable Educational Attainment β = -.085, p = .921. A full table of these results has been included in Appendix F.

Table 13

Regression Model

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	87.947			
Final	54.371	33.576	11	.000

CONCLUSIONS

The analyses conducted for RQ1, "What effects do the parental status, marital status, and gender of a student have on educational attainment?" found the following:

1. The Mann-Whitney U test conducted to analyze the relationship between the dependent variable Educational Attainment and the independent variable Gender found that gender had an effect on educational attainment with female respondents having higher educational attainment than male respondents.
2. The Mann-Whitney U test conducted to analyze the relationship between the dependent variable Educational Attainment and the independent variable Marital Status found that marital status had an effect on educational attainment with married respondents having higher educational attainment than single respondents. The ability to share responsibilities and the potential for higher financial stability in a married household creates a support system that is not available to those in a single adult household.

3. Indicated a statistically non-significant difference between single-fathers raised in a household with both parents and those raised in a household with one parent with regards to educational attainment.

4. The Kruskal Wallis H test conducted to analyze the relationship between the dependent variable Educational Attainment and the created, combined independent variable Demographic Factors found that when combined demographic factors as a whole slightly different results, with single males with or without children, and married males or females with no children having lower educational attainment than their counterparts.

The analyses conducted for RQ2, "What effects do Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling, have on educational attainment of the single-father student?" found the following in regards to the single-father subset of the NLSY97 dataset, n = 165:

1. The Spearman's rho non-parametric correlation statistic computed to analyze the relationship between the dependent variable Educational Attainment and the independent variable Number of Children in the Home found that the number of children in the home had a statistically non-significant, inverse relationship, r_s = -.103, p = 0.189, with educational attainment. A Kendall's tau statistic was also computed , τ = -.092, p = .182, which supported the results of the Spearman's rho statistic.

2. The Spearman's rho non-parametric correlation statistic computed to analyze the relationship between the dependent variable Educational Attainment and the independent variable Average Hours Worked per Week found that the number of

hours worked each week had a statistically non-significant, positive relationship, $r_s = .182$, $p = 0.052$, with educational attainment. A Kendall's tau statistic was also computed , $\tau = .146$, $p = .052$, which supported the results of the Spearman's rho statistic.

3. The Mann-Whitney U test conducted to analyze the relationship between the dependent variable Educational Attainment and the independent variable Both Parents in Childhood Home indicated a difference between single-fathers raised in a household with both parents and those raised in a household with one parent in regards to educational attainment with those raised by both parents having higher educational attainment.

4. The Kruskal Wallis H test conducted to analyze the relationship between the dependent variable Educational Attainment and the independent variable Occupation found that there was no statistically significant difference amongst the various Occupation variable values in regards to educational attainment.

5. The Mann-Whitney U test conducted to analyze the relationship between the dependent variable Educational Attainment and the independent variable Training Program indicated a difference between respondents who completed a training program and those who did not with those who completed a training program having higher educational attainment.

6. The Spearman's rho non-parametric correlation statistic computed to analyze the relationship between the dependent variable Educational Attainment and the independent variable High School GPA found that a respondents high school GPA had a statistically non-significant, positive relationship, $r_s = .147$, $p = 0.141$,

with educational attainment. A Kendall's tau statistic was also computed , τ = .131, p = .141, which supported the results of the Spearman's rho statistic.

7. The Mann-Whitney U test conducted to analyze the relationship between the dependent variable Educational Attainment and the independent variable Completed High School indicated a difference between respondents who completed high school and those who did not with those who completed high school having higher educational attainment.

8. The ordered logistic regression statistic computed to analyze the relationship between the dependent variable Educational Attainment and the independent variables Number of Children in Home, Average Hours Worked per Week, Both Parents in Childhood Home, Occupation, Training Programs, High School GPA, and Completed High School created a regression model X^2 (11) = 54.371, p = .000. No correlation or covariance was found amongst the independent variables. Respondents who had an Occupation value of 1, representing management, professional, and related occupations had a statistically significant positive relationship with educational attainment. Respondents who had a Training Program value of 0, representing those who did not complete a training program, had a statistically significant negative relationship with educational attainment as did those who had a Completed High School variable of 0, representing those who did not complete high school. Respondents who reported a Both Parents in Childhood Home value of 1, representing having both parents in the home, had a statistically non-significant but positive relationship with educational attainment.

Higher values for Average Hours Worked per Week and High School GPA also had statistically significant but negative relationships to educational attainments.

Finally, in regards to both research questions, it is important to acknowledge that the validity and reliability of these findings have been impacted by many factors. The age of the data, the longitudinal nature of the NLSY97 data collection process, and, particularly in regards to RQ2, the small sample size all make for findings that are interesting and a good jumping off point for further research, but not appropriate for application to the study of other sample groups.

Chapter V

DISCUSSION

Overview

The purpose of this study was to increase the amount of information available about single-father students, a demographic that is traditionally underrepresented in the literature regarding parent-students and non-traditional students. The research questions that were addressed in this study are:

RQ1: What effects do the parental status, marital status, and gender of a student have on educational attainment?

RQ2: What effects do Tinto's pre-entry attributes of family background, skills and abilities, and prior schooling, have on educational attainment of the single-father student?

The framework for this study was based on Tinto's model of student attrition that attempts to understand student attrition in educational attainment as a factor of pre-entry attributes, goal and institutional commitments, and academic and social systems within the educational setting. Specifically, the goals of this research were to (a) study the pre-entry attributes that affect single-father students and their educational attainment, and (b) analyze the relationships between gender, parental status, and marital status and educational attainment as each of these are one part of the triumvirate of characteristics that make up a single-father student. Data for this analysis was selected from the NLSY97 Longitudinal Study of Youth which provided a robust sample of Americans,

n = 8984, born between 1980 and 1984 (Aughinbaugh, 2008). Specific NLSY97 data fields were selected to provide, either individually or in combination, the values for the dependent variable as well as each independent variable utilized in the analyses for the two research questions; a full outline of which NLSY97 fields were utilized can be found in appendices C, D, and E.

Summary of Findings

The results of the analyses conducted to answer RQ1 showed that female students, married students, and students with a small number of children in the home, one to four children, had higher educational attainment than those to whom they were compared in each of the three single-variable analyses that were conducted. When the three independent variables were combined to create a new independent variable, Demographic Factors, similar results were found. In this case higher educational attainment was recorded for single, childless, female respondents, but identical median scores were also found for female married-parents and male married-parents as well as for female single-parents. This does not, however, suggest whether any of these independent variables directly led to the educational attainment in question as correlation does not indicate causality. The finding that married parents had identical median scores for educational attainment supports Pascarella and Terenzini's (1979) finding that the pre-entry attributes outlined in Tinto's model did not make a difference in persistence between the two genders. Additionally, the finding that single, childless respondents had higher educational attainment than those with family needs supported the previous findings of Berger (1997), Brooks (2012), Estes (2011), Markle (2015), Petty & Thomas (2014), van Rhijn et al., (2016) and Yakaboski (2010).

The results of the analysis of RQ2 provided a look into a variety of Tinto's pre-entry attributes and their relationship with the educational attainment of single-fathers. As with research question 1, each independent variable was analyzed independently as well as in a final ordered logistic regression analysis to determine if there might be any correlation amongst the independent variables. The findings from this research question were primarily statistically non-significant and, when combined with the small sample size of n = 44 for the ordered logistic regression analysis, are not appropriate for generalization to a larger population. None-the-less, the results were still interesting. While the results of research question 1 found that males who were married with a small number of children in the home had higher educational attainment than those to whom they were compared, research question 2 found that as the number of children under the care of a single-father student grew, the educational attainment level of the single-father decreased. Although this finding was non-significant in both the non-parametric correlation that was conducted for IV1 and the ordered logistical regression, it does work in concert with the findings from research question 1. This also supported the 2005 findings of Taniguchi and Kaufman that non-completing students, who by nature have lower educational attainment, are more likely to have more children in the home than completers and that younger children had a stronger impact on non-completion of degree programs, potentially due to the higher time-commitment of caring for younger children.

Another interesting, but non-significant, finding was the positive correlation between average hours worked and educational attainment; this finding became more puzzling however when the same independent variable showed a non-significant but negative relationship to educational attainment in the ordered logistic regression.

Although both statistics showed a non-significant result, the *p*-value of the two correlation measures, $p = .052$ for both Spearman's Rho and Kendall's tau is just slightly outside the $p \leq .05$ threshold, while the *p*-value for average hours worked in the regression results is much further from the threshold at $p = .427$. I was at first surprised by this result due to my own experience with completing coursework while working but after additional consideration a second explanation came to mind: is it possible that the educational attainment led to more hours at work? Due to the longitudinal nature of this dataset that question is unanswerable, which reflects back to the limitations of this study as outlined in chapter 1 and also suggests one area in which future research could be conducted.

When considering the impact of having both parents in the childhood home, the Mann Whitney U test conducted to study the relationship between just this variable and the dependent variable found a non-significant, but positive relationship between living with both parents and educational attainment. The ordered logistic regression showed similar results for this independent variable. Nora et al., (1990), and Palmer et al., (2011) found that family background and encouragement were two significant external factors in regards to student retention, and the findings of the current study support that finding.

Although the Kruskal Wallis H test found no significant difference in educational attainment amongst the different categorical values for Occupation, the regression analysis found a positive, significant relationship between one particular value of Occupation, the management, professional, and related occupations, and educational attainment. This aligns somewhat with Stuart et al.'s 2014 suggestion that the labor market and economic impact of a specific degree program impacts student persistence.

The occupations in the management, professional, and related occupations group all tend to be higher-paying and also typically require the completion of at least a four-year degree. This result also led me to consider whether the educational attainment led to respondents being in this occupation category, or whether this occupation category led to the educational attainment since many management and professional occupation require specific academic credentials such as an M.D., J.D., or Ph.D. This is another situation where the longitudinal nature of the dataset has created an unanswerable question.

Finally, the Mann Whitney U test results for two independent variables, Training Program Completion and Completed High School both show a positive, significant relationship between completion of the related academic credential and educational attainment. This should be no surprise, since these are both values of the dependent variable, Educational Attainment, with high school diploma being value 1 and training program certificate being value 2. Therefore completing them would provide higher educational attainment than not completing them. In both cases, this is supported by the regression results as well; however, the regression results for high school completion were not significant while the results for training program completion were significant. These results connect to the fact that attainment of a training program certificate is represented by a higher value than attainment of a high school diploma in the dependent variable values. Another consideration regarding completion of high school and training programs, the two levels of academic attainment that can potentially be acquired in the shortest amount of time when compared to a professional or four-year degree, is that they are potentially more likely to be completed prior to a respondent becoming a parent. This

could suggest that academic endeavors were halted by the transition into parenthood, or it could be completely unrelated and just a coincidence.

In regards to the pre-entry attributes outlined in Tinto's model and at the center of RQ2, it has been found that the pre-entry attribute of family background, represented by the independent variables Number of Children in Home, Hours Spent at Work per Week, and Both Parents in Childhood home overall have a positive, although not statistically significant effect on the dependent variable Educational Attainment. Tinto's pre-entry attribute of skills and abilities, represented by the dependent variables Occupation and Completed Training Program has a positive, although not-statistically significant effect on the dependent variable Educational Attainment. The final pre-entry attribute of prior schooling, represented by the variable High School GPA and Completed High School, had a positive but not statistically significant effect on the dependent variable Educational Attainment. Taken in conjunction, this supports the idea that pre-entry attributes have an effect on educational attainment.

Overall, the results of this research provide further support to the findings of other authors that married-parents tend to have higher educational attainment than single-parents, that female students have higher educational attainment than male students, and that having a smaller number of children in the home also correlates to higher educational attainment (IWPR, 2017; Murguia et al., 1991; Nora et al., 1990; Taniguchi & Kaufman, 2005). While this research did not provide strong, significant results in the analysis of Tinto's pre-entry attributes and single-father educational attainment, it did provide a first, small look at a selection of those pre-entry attributes and the educational attainment of the NLSY97 respondents. This could serve to support Fox's 1986 findings that student

background does not significantly impact persistence; however, more research with a larger sample size would be needed before being able to definitively make that statement of support. Although this research does not fill the void where research about single-fathers should reside, it does provide a few small nuggets of information to begin the process.

Recommendations for Further Research

This research was intended to help address the lack of existing research in regards to single-father students. While I believe that this study has begun to address that shortcoming in the existing literature, there is still so much more to be done to truly understand the needs of the single-father student in their pursuit of educational attainment.

One suggestion for further research is to conduct interviews with single-father students who are enrolled at a variety of educational institutions to identify what they consider to be their biggest concerns and roadblocks in regards to educational attainment. Ideally this would encompass single-father students in technical colleges, community or two-year colleges, four-year colleges, and universities that are both private and public. This would potentially create a list of themes that cross the boundaries between the different educational settings to be further researched for development of a basic level of knowledge about the single-father student. This approach would create a rich collection of knowledge about the single-father students in the study; however, it might not necessarily create a springboard for the study of how educational institutions can better meet the needs of the single-father student.

A second recommendation for future research is to conduct surveys of currently enrolled single-father students at various colleges and universities regarding how well they feel their educational institution meets their needs as single-father students. Previous studies by Lee et al. (2010), and Tucker (1999) look at the impact of sense of community and institutional support on segments of the student body that don't fit the traditional student mold, and conducting these surveys could expand that existing knowledge to include the single-father student. That knowledge could be utilized by individual institutions to guide future changes to better meet the needs of their students and they could also be used to develop a more robust basic level of knowledge to further enhance information gathered from qualitative studies about single-father students. This could potentially create a dataset that does not have the shortcomings of the NLSY97 dataset, namely the experimental mortality and maturation of the dataset due to the longitudinal nature of the NLSY97 data collection process.

Finally, this study focused on the pre-entry attributes portion of Tinto's model of student attrition, and while these attributes are clearly important, they are not able to tell the complete story of students' decisions to persist or desist in their quest for educational attainment. Further research needs to be conducted to understand the academic systems and social systems that a single-father student encounters during his time in the educational setting and how those systems integrate, or stigmatize, students with different backgrounds. Much like the students studied by Tierney (1999), single-father students cannot leave their backgrounds at the door upon entering the university campus. Integrating those background factors into serving this student group should be important to all institutions serving this student group. This research should include all educational

settings and modalities from community college campuses to research universities, from online to in-person, to provide a more complete view of how Tinto's model applies to single-father students, the "unicorns."

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APPENDIX A:

NLSY97 Data Categories

Category	Data Collected
Education	College experience, college choice, educational status and attainment, school-based learning programs, school experience (high school), school & transcript surveys, training, achievement tests, CAT-ASVAB scores, and the PIAT math test
Employment	Employers and jobs, fringe benefits, gaps in employment, industry, job search, labor force status, occupation, self-employment characteristics, tenure, hours spent at work, wages, and work experience
Household, Geography, & Contextual Variables	Age of respondent, gender, geographic indicators, household and neighborhood environment, household composition, race, ethnicity, and citizenship, and youth residential history
Parents, Family Process, & Childhood	Parental characteristics, autonomy and parental control, and characteristics of non-residential relatives
Dating, Marriage & Cohabitation; Sexual Activity, Pregnancy & Fertility; Children	Sexual activity and dating, marital and marriage like relationships, fertility, pregnancy, and children, and child care
Income, Assets & Program Participation	Assets and debts, income, and program participation (government assistance programs)
Health	Health status and conditions
Attitudes, Expectations, Non-Cognitive Tests, & Activities	Attitudes, expectations, religion, preferences, belief, and practices, time use, political participation, computer and Internet access, community participation and volunteerism, and speech data
Crime & Substance Use	Crime, delinquency and arrest, alcohol use, cigarette use, and drug use

APPENDIX B:

Summary of the Sample Design

Design	Cross-Sectional Sample	Supplemental Sample
First Stage		
Number of Selections	100 PSUs	100 PSUs
Measure of Size	Housing Units (HUs)	Weighted sum of black and Hispanic youths, aged 17 and below
Minimum Size	2,000 HUs	2,000 HUs
Method of Selection	Systematic selection with probabilities proportional to size (pps)	Systematic pps selection
Sort (implicit stratification)	Metropolitan status, division/state, percent minority quartile, per capita income	Minority youth density thirds, region, division, metropolitan status, state, per capita income
Second Stage		
Number of Selections	1,151	600
Measure of Size	HUs	Weighted sum of black and Hispanic youths, aged 17 and below
Minimum Size	75 HUs	75 HUs
Method of Selection	Systematic pps selection	Systematic pps selection
Sort (implicit stratification)	PSU, central city, state, county, place, percent minority quartile, census tract/BNA	PSU, minority youth density thirds, percentage of minority youths who are Hispanic, place within county, percent minority quartile, census tract/BNA
Third Stage		
Actual Number Of HUs	64,654	25,485

APPENDIX C:

Institutional Review Board Exemption Report

Institutional Review Board (IRB)
For the Protection of Human Research Participants

PROTOCOL EXEMPTION REPORT

Protocol Number: 04121-2020 **Responsible Researcher:** Corrine Sweet

Supervising Faculty: Dr. Christopher Waugh

Project Title: *Studying Unicorns: Single-Father Student Educational Attainment and Tinto's Model.*

INSTITUTIONAL REVIEW BOARD DETERMINATION:

This research protocol is **Exempt** from Institutional Review Board (IRB) oversight under Exemption **Category 4**. Your research study may begin immediately. If the nature of the research project changes such that exemption criteria may no longer apply, please consult with the IRB Administrator (irb@valdosta.edu) before continuing your research.

ADDITIONAL COMMENTS:

- *Upon completion of this research study collected data must be securely maintained (locked file cabinet, password protected computer, etc.) and accessible only by the researcher for a minimum of 3 years.*

☒ ***If this box is checked, please submit any documents you revise to the IRB Administrator at irb@valdosta.edu to ensure an updated record of your exemption.***

Elizabeth Ann Olphie *12.10.2020*
Elizabeth Ann Olphie, IRB Administrator

Thank you for submitting an IRB application.
Please direct questions to irb@valdosta.edu or 229-253-2947.

Revised: 06.02.16

APPENDIX D:

NLSY97 Data Fields for Educational Attainment

NLSY07 Fieldname	NLSY97 Definition (from NLSY97 Codebook)
CVC_HGC_EVER	The highest grade completed.
CVC_AA_DEGREE	Date received an associate's degree in a continuous month scheme If more than one associate's degree is reported, this variable presents the earliest valid date.
CVC_BA_DEGREE	Date received a bachelor' s degree in a continuous month scheme. If more than one bachelor's degree is reported, this variable presents the earliest valid date.
CVC_PROF_DEGREE	Date received professional degree (e.g., M.D., J.D.) in a continuous month scheme. If more than one professional degree is reported, this variable presents the earliest valid date.
CVC_MA_DEGREE	Date received master's degree in a continuous month scheme. If more than one master's degree is reported, this variable presents the earliest valid date.
CVC_PHD_DEGREE	Date received doctoral degree in a continuous month scheme.
CVC_TRN_CERT	Respondent has ever received a training certificate or vocational license.

APPENDIX E:

RQ1 Variables Matched to NLSY97 Fields

Variable	NLSY97 Fieldnames and Definition (from NLSY97 Codebook)
DV: Educational Attainment	CVC_HGC_EVER: The highest grade completed. CVC_AA_DEGREE: Date received an associate's degree in a continuous month scheme. If more than one associate's degree is reported, this variable presents the earliest valid date. CVC_BA_DEGREE: Date received a bachelor' s degree in a continuous month scheme. If more than one bachelor's degree is reported, this variable presents the earliest valid date. CVC_PROF_DEGREE: Date received professional degree (e.g., M.D., J.D.) in a continuous month scheme. If more than one professional degree is reported, this variable presents the earliest valid date. CVC_MA_DEGREE: Date received master's degree in a continuous month scheme. If more than one master's degree is reported, this variable presents the earliest valid date. CVC_PHD_DEGREE: Date received doctoral degree in a continuous month scheme. CVC_TRN_CERT: Respondent has ever received a training certificate or vocational license.
IV: Parental Status	CV_BIO_CHILD_HH: Number of biological children born and residing in the household as of the survey date.
IV: Marital Status	CV_MARSTAT: Marital or cohabitation status as of the survey date.
IV: Gender	KEY!SEX: Gender of Youth

APPENDIX F:

RQ2 Variables Matched to NLSY97 Fields

Variable	NLSY97 Fieldnames and Definition (from NLSY97 Codebook)
DV: Educational Attainment	CVC_HGC_EVER: The highest grade completed. CVC_AA_DEGREE: Date received an associate's degree in a continuous month scheme. If more than one associate's degree is reported, this variable presents the earliest valid date. CVC_BA_DEGREE: Date received a bachelor' s degree in a continuous month scheme. If more than one bachelor's degree is reported, this variable presents the earliest valid date. CVC_PROF_DEGREE: Date received professional degree (e.g., M.D., J.D.) in a continuous month scheme. If more than one professional degree is reported, this variable presents the earliest valid date. CVC_MA_DEGREE: Date received master's degree in a continuous month scheme. If more than one master's degree is reported, this variable presents the earliest valid date. CVC_PHD_DEGREE: Date received doctoral degree in a continuous month scheme. CVC_TRN_CERT: Respondent has ever received a training certificate or vocational license.
IV1: Number of Children in Home	CV_BIO_CHILD_HH: Number of biological children born and residing in the household as of the survey date.
IV2: Hours Spent at Work	CVC_WKSWK_YR_ALL.16: Number of weeks the respondent worked at any civilian job during the year. CVC_HOURS_WK_YR_ALL.16: Total annual hours worked at all civilian jobs during the year.[a]
IV3: Both Biological Parents in Childhood Home	YOUTH_BOTHBIO.01: Does Youth live with both biological parents? Data collected in first round of NLSY97 data collection.
IV4: Occupation	YEMP_OCCODE-2002.01: These are 2002 Census Occupation Codes.

Variable	NLSY97 Fieldnames and Definition (from NLSY97 Codebook)
IV5: Training Programs	CVC_TRN_CERT: Respondent has ever received a training certificate or vocational license.
IV6: High School GPA	TRANS_GPA: Grade-point average as calculated by the school in its metric for last year of youth's enrollment.
IV7: High School Completion	CVC_HGC_EVER: The highest grade completed.

[a] Total annual hours will be divided by number of weeks to determine an average hours worked per week.

APPENDIX G:

Ordered Logistic Regression Results

							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	Educational Attainment = 0	-8.557	2.855	8.987	1	0.003	-14.152	-2.963
	Educational Attainment = 1	-3.797	2.237	2.881	1	0.090	-8.181	0.588
	Educational Attainment = 2	1.096	2.064	0.282	1	0.595	-2.948	5.141
Location	Number of Children	-0.017	0.574	0.001	1	0.977	-1.141	1.108
	AVG Hours Per Week	-0.012	0.016	0.630	1	0.427	-0.043	0.018
	GPA_Values	-0.085	0.855	0.010	1	0.921	-1.760	1.591
	Both Parents in Home	0.068	0.775	0.008	1	0.930	-1.451	1.587
	Occupation=1	2.958	1.330	4.949	1	0.026	0.352	5.564
	Occupation=2	1.245	1.432	0.756	1	0.385	-1.561	4.051
	Occupation=3	0.364	1.058	0.119	1	0.730	-1.708	2.437
	Occupation=5	2.812	3.661	0.590	1	0.442	-4.364	9.987
	Occupation=5	-1.320	1.417	0.868	1	0.351	-4.097	1.457
	Did Not Complete Training	-4.632	1.162	15.896	1	0.000	-6.909	-2.355
	Did Not Complete High School	-2.261	1.643	1.894	1	0.169	-5.481	0.959