THE RELATIONSHIP OF PEER LEADERSHIP EMPLOYMENT TO ACADEMIC OUTCOMES IN TEXAS INSTITUTIONS OF HIGHER EDUCATION

Michelle L. Buggs, M. A.

Dissertation Prepared for the Degree of

DOCTOR OF EDUCATION

UNIVERSITY OF NORTH TEXAS

May 2015

APPROVED:

V. Barbara Bush, Major Professor
Pu-Shih Daniel Chen, Committee Member
Tiffany J. Davis, Committee Member
Janice M. Holden, Chair of the Department of Counseling and Higher Education
Jerry Thomas, Dean of the College of Education
Costas Tsatsoulis, Interim Dean of the Toulouse Graduate School

The purpose of this quantitative study was to examine the relationship of participation and involvement in an undergraduate student success program to academic success and persistence among students in three programs sponsored by the Texas Higher Education Coordinating Board (THECB): the G-Force Collegiate Work-Study Mentorship Program, the Advancement Via Individual Determination (AVID) for Higher Education (AHE) program, and the THECB work-study program. The sample was identified using data from the THECB during the 2009-2013 academic years. Compared to THECB work-study students, significantly more AHE and G-Force students persisted toward graduation while engaged in the program ($p < .001$). ANOVA indicated that AHE students had a higher average GPA compared to G-Force and THECB work-study students, controlled for gender, race/ethnicity, pre-program GPA, and length of time in the position. Regression analyses found no statistically significant relationship between program associations and persistence towards graduation or GPA. Results suggest that although participation in a peer leadership programs such as AHE and G-Force encourage greater academic achievement and persistence, there is no direct relation to the achievement of these outcome variables. Implications of the study suggest the need for a deeper analysis into elements of peer leadership programs that contribute to student success, an expanded analysis of outcomes across a wider range of demographic variables, and an exploration of peer leadership programs across campuses for comparison of persistence and GPA outcomes.
ACKNOWLEDGEMENTS

There are many individuals who have contributed to the preparation of this dissertation and have supported me in my educational journey thus far. First I would like to thank my Lord and Savior Jesus Christ, for without him I know I would not have made it this far. Thank you to my amazing family and friends, my mother Linda, sister Kasey, father Keiffer, and my dear friends and family for always being supportive and allowing me to vent when things got stressful! Many thanks to my colleagues at Texas Woman’s University for their continued support and encouragement while I completed this undertaking. Sincere appreciation goes to the Office of Intercultural Services and Undergraduate Studies staff for understanding the time dedicated to completing the process.

To my dissertation committee-Dr. V. Barbara Bush, Dr. Tiffany Davis, and Dr. Daniel Chen-thank you for your time and commitment to this research and continuing to support me along the way. I value each of you for your respective talents and contributions to this study so far.

Thank you to the Texas Higher Education Coordinating Board, the University of Texas at Austin LBJ School of Public Affairs, and the UT Education Research Center for your support and funding of this project. Special thanks to Claudette Jenks, Jerel Booker, Dr. Jane Lincoe, Dr. Cynthia Osborne, Dr. Celeste Alexander, and Jinseok Shin for pressing through to get this project completed. It is my hope that this research will significantly contribute to the field and education of all students.
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CHAPTER 1
INTRODUCTION

Since the massification and open access of education over the last century (Cohen & Kisker, 2010), higher education has been challenged to meet the various educational needs of increasing populations of students in order for them to meet the educational demands of an increasingly diverse and advanced society. Each year, more individuals are seeking the benefits of higher education, with over 21 million students enrolling in post-secondary institutions across the United States in fall 2010 (National Center for Education Statistics [NCES], 2012). Proponents of college degree attainment recognize the benefits of a post-secondary education for societal prosperity and are calling for an educational system that offers “high quality, credentialed, college-level learning” (Lumina Foundation, 2013, p. 2). Institutions of higher education have responded by continuing to offer programs and services that encourage and facilitate student success and achievement outcomes while challenging students to think creatively and critically. The overall focus of student success in higher education has spurred increased action by student affairs, academic affairs, and other entities with educational investment to focus on the quality of learning experiences that can help meet the necessary educational goals. With colleges and universities continuing to grow in size and diversity, fostering college student success has never been more important (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2007).

The topic of student success has been a growing focus of research and practice in higher education. College enrollment, grades, persistence toward graduation, credit hour attainment, length of time to graduation, standardized test scores, and graduation have all served as
primary indicators of college student success (Venezia, Callan, Finney, Kirst, & Usdan, 2005; Kuh et. al., 2007). Moreover, the achievement of these student success indicators for specific collegiate populations such as underrepresented students and first-generation college students has been a primary focus; many whom are low-income and are may not be prepared for the academic rigors of higher education (Pascarella & Terenzini, 2005; Tinto, 1988). The breadth of influences on student success is ever growing. The framework for describing what matters to students succeeding in college includes the areas of pre-college experiences, student behaviors, institutional conditions, and post-college outcomes (Kuh et al., 2007). Student engagement, or the point of intersection between student behaviors and institutional conditions, has become an increasingly important area of focus for higher education as it largely includes elements that institutions can marginally control (Kuh, Kinzie, Schuh, Whitt, & Associates, 2005). These elements, which may include purposeful student-faculty and peer-to-peer contact, inclusive campus environments, and active and collaborative learning environments, can significantly contribute to the achievement of anticipated college outcomes and overall satisfaction of the college experience (Astin, 1984, 1993b; Chickering & Gamson, 1987; Pascarella & Terenzini, 2005).

As previously mentioned, peer interactions have been identified as a component of the college experience that can positively (or negatively) influence student success (Kuh et al., 2007; Pascarella & Terenzini, 2005). These interactions can be developed in a variety of ways and are highly encouraged by the plethora of engagement activities available for students on college and university campuses. The combination of peer support through student involvement can provide educationally beneficial outcomes for the students involved, which
has spurred increased utilization of upper-class students in peer support and leadership roles in curricular and co-curricular activities, such as that of resident advisors (Powell, Pyler, Dickerson, & McClellan, 1969), peer advisors (Ganser & Kennedy, 2012), peer tutors (Cohen & Kisker, 2010), and peer mentors (Ender & Kay, 2001). The use of peers in teaching and support roles meets a variety of needs for institutions, such as the challenge of financing and employing large numbers of expert tutors or transitional support staff to meet the needs of growing enrollment numbers (Roscoe & Chi, 2008). However, it also provides a benefit to the students involved in these peer roles by placing them in engagement activities where they can learn from their teaching and assistance experiences while being involved in an educationally beneficial on-campus activity that also serves as a source of employment (Cohen, Kulik, & Kulik, 1982; Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller, 2003; Roscoe & Chi, 2008). As more students are seeking ways to fund their education while being involved in roles and opportunities that can facilitate student success, peer leadership and educator positions that meet both of these needs are increasingly more important.

The need to provide more dual involvement and employment opportunities has not gone unrecognized by educational institutions and entities because, for many individual states, increasing student success in higher education is a priority. The Texas Higher Education Coordinating Board (THECB) has responded to these national concerns by launching several initiatives since 2002 with the intention of contributing to the Closing the Gaps goals set by the 77th State Legislature and increasing overall student success and graduation attainment in Texas, specifically for African American, Hispanic, and male college students. Two primary programs initiated and supported by THECB are the Collegiate G-Force Work Study Mentorship
Program and the AVID Postsecondary Project. These two programs employ college students in peer leadership roles to positively influence student awareness, education, retention, and success in higher education. The Collegiate G-Force Mentorship Program utilizes peer mentors to “facilitate the dissemination of the college-going message” (TWU G-Force Training Manual, 2013, p. 1). The AVID Postsecondary Project, or AVID for Higher Education (AHE), utilizes peer mentors and tutors to serve as role models in the first-year seminar and tutoring centers on the campuses to first year students and students in need of additional academic support. Both of these programs were created by THECB to meet rising demands of promoting student success and college degree attainment while supporting college student financial and educational needs.

Statement of the Problem

While college enrollment continues to increase, an ongoing challenge is achieving the necessary college attainment rates in the United States higher education system so that the US can increase its competitive standing in the global society. The Lumina Foundation (2013) reported the number of 25 to 64 year old Americans with a two or four-year degree was 38.7% in 2011, an increase of 0.4% from the prior year. This is far from the foundation’s goal of reaching 60% of Americans holding a “high quality post-secondary degree or credential by 2025” (Lumina Foundation, 2013, p. 2). Degree attainment continues to be of national concern, as the 2011 graduation rate of full-time, first-time undergraduate students at four-year institutions was 59% (NCES, 2013). At two-year institutions, completion rates for full-time, first time undergraduates pursuing a certificate or associates degree was 31% in 2011 (NCES, 2013).
Furthermore, completion rates within six years of enrollment at four-year institutions for underrepresented and low-income student populations are significantly low, with African American students graduating at a rate of 40%, Hispanics at 47% and Pell Grant recipients at 45% (Complete College America, 2011). Many of these students are the first in their immediate family to go to college, which has shown to add additional areas of concerns for not only the students who are first-generation but also for institutions as they strive to meet the various needs of this population (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996; Pascarella, Pierson, Wolniak, & Terenzini, 2004). Factors that have been shown to affect overall college student retention include demographic characteristics (Reason, 2009), institutional characteristics (Tinto, 1998), personal finances (Cabrera, Nora, & Castaneda, 1992; Choy, 1999), and academic performance during the first year (Kuh et al., 2007). The retention of the diverse array of student populations pursuing higher education is critical, leaving a large demand for services at the secondary and collegiate level that will positively affect their educational outcomes. Over the decades, institutions have created services to address these concerns, such as student success and academic services targeting all or specific student populations in an attempt to positively influence college completion rates necessary for global competition.

One significant component of many of these institutional services is the utilization of peer tutors and mentors as a means of offering transitional and academic support for students who are in need of such services. Primarily upperclassmen and academically accomplished, many of these peer leaders are trained in academic and personal support strategies in order to meet the goals of program and institutional priorities. Many of these roles also serve as a source of employment for the students by offering a paid on-campus position that provides
flexible hours while working in a position that fosters peer interaction and skill development. This combination is uniquely beneficial for peer tutors and mentors in their learning process as they are engaged academically and socially in the program activities for which they were selected to assist other students while focusing on their own academic and personal responsibilities (Goldschmid & Goldschmid, 1976; Shook & Keup, 2012). Yet, regardless of their para-professional and peer leadership status, these individuals continue in their role as students. The learning and achievement of intended college outcomes for these students should continue to be a priority in the field as they continue to balance the demands of not only their peer leadership roles but also the rigors of educational attainment. It is through their achievement and success that overall college student achievement and as well as societal progress will move forward (Kuh et al., 2007).

Purpose of the Study

The purpose of this study was to examine the relationship of participation and involvement in a student success program to academic success to persistence of students serving in the peer support roles of G-Force peer mentor and AHE peer tutor. Specifically, the study focused on selected and trained G-Force peer mentors and AHE peer tutors at Texas institutions of higher education as compared to students awarded work-study through the Texas Higher Education Coordinating Board.

Conceptual Framework

The conceptual framework used to guide this research study was Astin’s I-E-O model
and theory of involvement (1984, 1993b). This model has been used to support the push for increased student involvement in curricular and co-curricular activities, which can result in achieving a number of desirable outcomes for students in higher education (Astin, 1993b; Kuh et al., 2007). Many student success and involvement programs and activities are based in Astin’s model, including student organizations, residential living and programs, tutorial programs, service learning, working on campus, faculty, and more (Hernandez, Hogan, Hathaway, & Lovell, 1999; Pascarella & Terenzini, 2005; Webber, Krylow, & Zhang, 2013). Given the role of peer tutors and mentors in higher education as positions of involvement, along with the foundation of AVID program, Astin’s theory of involvement provides an adequate fit for this study.

Astin’s theory of involvement and I-E-O model (1984, 1993b) explains how college students change and develop over time, postulating that collegiate outcomes are the functions of three elements: inputs, environment, and outcomes. Inputs include demographic characteristics, family backgrounds, and previous academic and social experiences. The college environment includes all experiences, programs, people, policies, etc. that students will interact with on and off campus during their college experience. Outcomes are the student characteristics, knowledge, skills, beliefs, behaviors, etc. that exist after college or as a result of the environment. All three elements are interconnected as “inputs are presumed to shape outcomes directly but also indirectly through the ways in which students engage with the multifaceted institutional environment” (Pascarella & Terenzini, 2005, p. 53).

Astin’s theory can be understood at the most basic level, students learn by becoming involved in student development activities (1985). Additionally, five basic postulates form the
model: (a) involvement requires psychosocial and physical energy; (b) involvement is continuous with students investing varying amounts of energy; (c) involvement has both quantitative and qualitative features; (d) the amount of learning and development is directly proportional to the quality and quantity of involvement; and e) educational effectiveness is related to its capacity to induce student involvement (Astin, 1985).

As research has developed on student involvement as well as student engagement in the field, several outcomes have been identified by higher education researchers such as Harper and Quaye (2009) and Pascarella and Terenzini (2005) as beneficial to students, including academic performance, persistence, psychosocial development, cognitive development, moral and ethical development, practical competence, college adjustment, skills transferability, and acquisition of social capital. These outcomes have increasingly become a primary focus of higher education programs, as they are critical in students becoming integrated into society after graduation. These researchers are among those who recognize Astin’s I-E-O model and theory of involvement (1984) as foundational in the field for the study of student involvement and engagement. This is why I chose Astin’s work as the conceptual framework of this study.

Research Questions

The following questions guided the research study:

RQ 1: What are the demographic characteristics of students who serve as AHE peer tutors, G-Force Work-Study peer mentors, and students in other work study programs in Texas?

RQ 2: Is there a difference in persistence among AHE peer tutors, G-Force peer mentors and students who participate in other work-study programs in Texas?
RQ 3: Is there a difference in grade point average among AHE peer tutors, G-Force peer mentors, and students in other work-study programs in Texas?

RQ 4: What is the relationship of being an AHE peer tutor or G-Force peer mentor position to student persistence, controlled for gender, race, ethnicity, pre-program GPA, and length of time in position, compared to students in other work study programs in Texas?

RQ 5: What is the relationship of being an AHE peer tutor or G-Force peer mentor position to student grade point average, controlled for gender, race, ethnicity, pre-program GPA, and length of time in position, compared to students in other work study programs in Texas?

Research Hypotheses

H1: There is a difference in demographic characteristics among students who serve as AHE peer tutors, G-Force peer mentors, and students in other work study programs in Texas.

H2: There is a positive difference in persistence among AHE peer tutors, G-Force peer mentors, as compared to work-study students.

H3: There is a positive difference in grade point average among AHE peer tutors, G-Force peer mentors, as compared to work-study students.

H4: There is a positive relationship between AHE peer tutor and G-Force peer mentor involvement and persistence for students who vary in gender, race, ethnicity, pre-program GPA, and length of time in position characteristics compared to work study students.

H5: There is a positive relationship between AHE peer tutor and G-Force peer mentor involvement and grade point average for students who vary in gender, race, ethnicity, pre-program GPA, and length of time in position characteristics compared to work study students.

Definition of Terms

The following definitions are used throughout the study as major components of the research:

- Advancement Via Individual Determination (AVID) is defined as a college readiness
program targeting elementary through higher education that targets students who are classified as low-achieving or in the academic middle yet hold high academic promise to pursue higher education in colleges and universities (AVID, 2013). The mission of AVID is to “close the achievement gap by preparing all students for college readiness and success in a global society” (AVID, 2013, np).

- AVID for Higher Education (AHE) is a component of the AVID system targeting higher education institutions through the Student Success Initiative (SSI) and the Teacher Preparation Program. The SSI is the area under which this research study focuses.

- Collegiate G-Force Work Study Mentorship Program or G-Force is defined as the THECB grant funded mentorship programs at Texas Higher Education institutions that selects and trains college students who meet the state and institutional requirements for membership to serve as peer mentors to college and high school students, focusing on the college information and application process and retaining students within higher education (THECB, 2014).

- Engagement is influenced in part by the Astin’s theory of involvement (1984), yet has two primary components (Wolf-Wendel, Ward, & Kenzi, 2009). The first is the “amount of time and effort students put into their studies and activities that lead to the experiences and outcomes that constitute student success” and the second is “how institutions of higher education allocate their human and other resources and organize learning opportunities and services to encourage students to participate in and benefit from such activities” (Wolf-Wendel, Ward, & Kenzi, 2009, p. 412-413)
• Grade point average (GPA) is defined as the cumulative GPA for each semester as reported by the institutional data reported to the THECB. The program GPA is defined as the average cumulative GPA of students while involved in the respective programs.

• Involvement is defined by Astin (1984) as the amount of psychological and physical energy a student devotes to their academic experience. This is measured by participation in activities deemed educationally purposeful and accounts for not only the time and energy given by students but also the contribution of the educational environment to creating and facilitating involvement in educationally purposeful activities.

• Peer leaders are defined as “students who have been selected and trained to offer educational services to their peers [that] are intentionally designed to assist in the adjustment, satisfaction, and persistence of students toward attainment of their educational goals” (Ender & Kay, 2001, p. 1). For the purposes of this study, peer leaders are students who engaged in peer leadership roles in a student services oriented organization.

• Peer mentoring is defined as a “helping relationship in which two individuals of similar age and/or experience come together, either informally or through formal mentoring schemes, in the pursuit of fulfilling some combination of functions that are career-related (e.g., information sharing, career strategizing) and psychosocial (e.g., confirmation, emotional support, personal feedback, friendship)” (Terrion & Leonard, 2007, p. 150).

• Peer mentors are defined as upper-class students who are engaged in a peer mentoring relationship that meets the definition as listed above. G-Force peer mentors are trained to provide college access, readiness, and engagement services through high school or university Go Centers, community events, or institutionally sponsored activities.
• Peer tutors are defined as “people who form similar social groupings who are not professional teachers helping each other to learn and learning themselves by teaching” (Topping, 1996). Tutors as utilized and defined by AHE are students enrolled in an AHE institution who serve in a tutorial role in a tutoring or AVID center at an AHE institution, meeting the peer tutor definition described above. AHE tutors are tutors who have participated in at least one component of the AVID sponsored training at an AHE institution.

• Persistence is defined as the “desire and action of a student to stay within higher education from beginning through degree completion” (Seidman, 2005, p. 14). For the purposes of this study, persistence will be the same as persistence rate, which is defined by THECB as “the rate at which students persist in higher education, often measured by the percentage of students who continue in higher education from one year to the succeeding year” (THECB, 2012, p. 48). The operational definition of persistence used for the study is defined as the consistent enrollment of students after each fall semester census date until graduation, regardless of continuous program participation.

• Prior academic achievement or pre-program GPA is defined as the cumulative GPA prior to a student beginning their role as an AHE peer tutor, G-Force peer mentor, or THECB work-study student according to points awarded and credit hours attained as collected through the THECB data system.

• Times in program or length of time in position is defined as the number of years each student was identified to be a part of the programs of focus for the study. Number of times in the program could range from one to three years.
Significance of the Study

While the topic of student involvement in higher education has remained a focus of study in the field, evidence of the relationship between involvement and academic outcomes is lacking (Webber, Krylow, & Zhang, 2013). Additionally, roles such as peer tutoring and mentoring where interaction with peers, faculty, and increased time focused on academic related topics provide a unique combination tied to involvement in educationally purposeful activities and academic outcomes. This study is significant in that it will add to the growing literature on academic outcomes for students in peer leadership positions such as peer tutors and peer mentors. For example, a study on the perceived outcomes of involvement in peer leadership positions in higher education found that while a large majority of these positions are housed in an academic or academic support program or department, the self-reported academic skills and outcomes featured both positive and negative benefits. This prompted a closer look at the tie between involvement in educationally purposeful activities for peer leaders and achievement in student success and persistence factors (Keup, 2010; Shook & Keup, 2012). Therefore, while there are many benefits of students engaging in positions where they are able to model specific behaviors, there are also quantitative measures that can be assessed to see a potential relationship of involvement to a student’s learning or academic outcomes. This study will provide additional results in this area and encourage further research on the academic benefits to students in peer leadership roles.

Furthermore, higher education research has focused heavily on student persistence and the importance of student engagement and academic outcomes (Tinto, 2006). As theories of student retention and persistence developed over the years, the lack of model development for
institutions has been noticed, one that can specifically guide institutions in increasing student persistence and affecting student success (Tinto & Pusser, 2006). This study seeks to add to the higher education literature on effective strategies for student involvement and academic learning through peer leadership. The involvement and overall success of these peer educators should also be an area of focus when creating transitional and support programs. The benefit of involvement on peer tutor and mentor academic outcomes is an area of study that can serve institutional goals of achieving learning outcomes.

Since 1980, the AVID program has sought to bridge the gap between secondary and post-secondary education by providing research-based college readiness tools to steadily increase the college going rates of students who showed the academic promise to succeed but needed an extra push (AVID, 2013). AHE sought to expand the reach and benefits of AVID into higher education by targeting the areas of student success through the ongoing use of peer tutors in AVID tutoring centers and freshman seminar courses. It also provided intentional strategies to increase partnerships between the areas of academic affairs and student services by focusing on developing a “comprehensive, cross-divisional infrastructure” on AHE campuses (Cuseo, 2012b). Partnerships between academic affairs and student partnerships have shown to create seamless learning environment and offer higher levels of student engagement (Kuh, 1996; Kuh, Kinzie, Schuh, Whitt, & Associates, 2005). Similarly, the G-Force Work-Study Mentorship Program has provided a foundation for mentoring and providing college access and information in higher education, specifically in Texas, since 2002. This program links secondary education to post-secondary educational institutions through the use of students in a mentoring and information providing capacity, strengthening relations between community
partners invested in education. Both AVID and G-Force have established themselves as educational opportunities for students in higher education, therefore this study is significant in providing research on these programs and their benefit to the post-secondary environment.

Finally, the use of peers not only in leadership positions but also in assistance roles has continued to grow across colleges and universities in higher education. More specifically, peer leadership roles have become on-campus employment positions for students in need of financial assistance while gaining leadership experience. These roles allow for institutions to meet the challenge of reaching as many students as possible to assist in their social and academic needs, while dealing with the realities of limited financial and time resources (Hamid & VanHook, 2001). Utilizing students in roles such as peer mentors and tutors can meet these needs; however, their role as students also needs to be considered, especially in their learning achievement. As institutions continue to assess effective student success strategies, this study may be significant in providing an steady argument for the use of peer tutors and mentors across higher education, not only to meet the needs of institutions but more importantly the desired outcomes that can benefit these peer leaders.

Limitations

Limitations were identified that may influence the results of this study:

- Each grant-funded institution implements the Collegiate G-Force Work Study Mentorship Program and AVID for Higher Education program differently, catering to the needs of its community partners and campus environment. Because of the variation, peer tutors and peer mentors may differ in select elements related to their function in the respective programs.
across campuses. Additionally there may be differences across institutions based on levels of campus implementation.

- The level of campus implementation may affect the quality and quantity of specialized training for G-Force peer mentors and AHE peer tutors on higher education campuses. Campuses that have longevity in program establishment may be more familiar with student success strategies that can influence positive outcomes among peer mentors and peer tutors.

- Students who previously participated in AVID in the elementary or secondary level would enter into the AHE program with more familiarity with the AVID model than those new to the program. Longer lengths of time associated with the AVID model and strategies may have an effect on the results.

- Students involved in the peer tutor and mentor role may have a predisposition for academic achievement based on their prior input academic factors, limiting the actual impact of involvement in the G-Force and AHE program on their outcome variables.

- Students selected for the comparison group of the Texas Work-Study Program were identified through the Texas Financial Aid Database System from 2009-2011. All students who were awarded work-study through the THECB were included in the study; however, they may not have participated in a work-study position during the time frame, making use of the funds provided by the state. No record is provided to the state of who takes advantage of the work-study funding, only those who are awarded the funding through the program.

- Institutional type may affect the outcomes of the study based on the various differences across the technical, two-year, and four-year institutions included in the study.
Delimitations

Participants were limited to students who (a) met THECB and institutional qualifications for selection into the G-Force Mentorship Program and AHE tutor role (b) fulfilled the role of peer tutor or peer mentor as defined by their respective institutions (c) served in the role of peer tutor and peer mentor for at least one academic semester, and (d) completed the appropriate mentor/tutor intake form as designated by the THECB and had available data in the THECB data management system for analysis. Select participants were omitted from the sample if they (a) attended more than one institution leading to multiple levels of student data and (b) participated in more than one of the programs of focus in this study. Institutional participation was limited to select institutions that received funding from the Texas Higher Education Coordinating Board to implement the AHE program within the three year funding cycle and institutions that have an established G-Force Work Study Mentorship Program for at least three years. Institutions must have also submitted Mentor/Tutor Intake Forms as designated by THECB on a regular basis. The necessary student data must be available through these forms and the THECB data files in the Texas Education Resource Center. Additionally, Institutions must have also held a G-Force training program for peer mentors and AVID training for peer tutors within the research timeframe and have institutional data on the participants. Finally, institutional type was not included as an environmental variable in order to keep the scale of the study manageable.

Assumptions

The study was based on the following assumptions:
• All respondents were selected, hired, and trained for the role of either peer mentor or peer tutor.

• All AHE peer tutors were trained on AVID approved methodologies and strategies aimed at improving academic success by a certified AVID trainer.

• All G-Force peer mentors were trained on basic requirements to fulfill their role as designated by THECB and the respective institution.

• Peer mentors and tutors were provided opportunities to practice and model their respective strategies with mentees and tutees in the program and were provided opportunities to interact with peers through their respective roles.

• Peer mentors and tutors met all academic, financial, and personal qualifications and requirements of THECB and the grant-funded institutions.
CHAPTER 2
REVIEW OF THE LITERATURE

Introduction

Research literature has addressed issues of educational access, retention, degree completion, and persistence. Degree completion is a common indicator of success for higher education institutions; and over the years, many have created programs to support the need for increasing graduation rates. Much attention has been given to students who are on the receiving end of services aimed at increasing overall student success and outcomes; however, there is also an advantage in researching the benefits of students who offer the services. Peer tutors and peer mentors have been a widely used group in offering educational services to students in need of academic or transitional support. This review covers the literature on the topics of student success and persistence, financial aid and student employment, student involvement, peer leadership, and the utilization of peer tutors and mentors in higher education. Following is an overview of the Texas Work-Study and Texas Work-Study Mentorship programs founded through the Texas Higher Education Coordinating Board. Lastly an overview of research on the AVID program is presented along with a discussion on the training method utilizing the Socratic Tutorial and Peer Mentoring Paraprofessional Learning Series. Closing is a summary of the literature.

Student Success and Persistence

Retention, academic success, and the overall educational experience of students have served as the basis for many conversations and initiatives within higher education, each
contributing to the success of students in college. Student success as described in chapter one includes traditional measures of academic and student achievement, such as standardized scores on college entrance exams, grades, credit hours attained, enrollment patterns, length of time to degree, and graduation (Kuh et al., 2007; Venezia et al., 2005). It can also include the achievement of learning outcomes specific to their educational environment. Student persistence is the degree to which a student persists toward the completion of their educational goals, is an individual performance indicator, and is measurable (Levitz, Noel, & Richter, 1999). Recognizing the need to understand individual and institutional contributors affecting student success, persistence, and retention, student development theories were introduced to provide support for necessary strategies to increase retention rates of all college students while understanding the motives behind persistence and leaving the collegiate environment (Astin, 1975, 1984; Tinto, 1988). These theoretical foundations have been accompanied by the implementation of institutional practices in both academic and student affairs to help increase retention rates of target student groups. A majority of the research on persistence, however, has focused on the first year of college and key strategies for engagement and academic success that will result in higher retention and degree attainment (Tinto, 2006).

The literature has addressed aspects of the educational process that contribute to student learning and achievement in college, ways of facilitating and encouraging student success, and specific populations that benefit from intentional achievement and success strategies. The national conversation on student success has resulted in the implementation of many institutional policies and programs such as the National Survey of Student Engagement
(NSSE), the Community College Survey of Student Engagement (CCSSE), Achieving the Dream (Kostecki & Bers, 2008), federally-funded TRIO programs, and even AVID on individual college and university campuses. These initiatives have furthered the discussion on ways to foster student success, such as orientation programs, academic advising, freshman seminar courses, curricular and co-curricular activities, mentoring, and tutoring services. However testing the efficiency and overall value of these high profile and high impact strategies is still a constant work in the field (Kostecki & Bers, 2008).

In 1987, Chickering and Gamson identified seven effective practices that influence the overall process and quality of student learning and the collegiate experience. These seven categories are student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning. Most specifically, interaction with faculty and peers in an engaging and active learning environment can significantly contribute to student success (Pascarella & Terenzini, 2005). These engagement activities are highly encouraged for students as they have been shown to influence transition to college, learning and academic performance, and persistence (Astin, 1993b; Cuseo, 2010a; Kuh et. al, 2007; Tinto, 1993). The use of educationally purposeful activities such as those listed above can not only benefit the average traditional student but also student populations who have traditionally struggled in gaining access to and excelling within higher education. For instance, women and students of color expect to engage in educationally purposeful activities in the college environment that will ultimately contribute to their success (Kuh et al., 2007). This expectation can lead to ultimate engagement in these activities that have shown to positively affect student success.
Peer interactions have been found to be an effective and positive influence to the collegiate experience for students. Research has shown that peer interactions actually have a greater impact than faculty interactions (Bank, Slavings, & Biddle, 1990). Bank, Slavings, and Biddle (1990) also found that students were more influenced by the expectations and standards set by peers than by the desire to model the behavior of peers, suggesting there is a strong influence of the social climate set by students in the college environment. This social climate in turn has an effect on a student’s decision to persist and complete in college (Bonous-Hammarth, 2000; Milem & Berger, 1997). Astin’s (1993b) research on involvement also supports the intensity of the peer influence both psychologically and sociologically in students. For students, the peer relationships will play a major role in not only life decisions, but decisions related to their academic careers, thereby placing a large emphasis on not only the encouragement of building peer relations but also facilitating positive environments for the creation of those relationships.

Specific attention surrounding student success and persistence has been drawn to student populations who enter the collegiate environment under unique and often challenging circumstances while maintaining a strong desire to succeed and ultimately graduate with a higher education degree. It has been well documented that retention and completion rates for minorities, low-income, and first-generation students have not maintained the same competitive levels as their counterparts in higher education (Berkner, He, & Cataldi, 2002; Kuh et al., 2007; Pascarella & Terenzini, 2005). For example, the NCES (2011) report on attainment trends for students at high risk of non-completion reported, from 2004-2008, only 37% of low-income dependent students attained, with 18% attaining a bachelor’s degree in comparison to
41% no longer enrolled. Similarly, students whose parents did not go to college attained at 35%, with 11% receiving a bachelor’s degree compared to 47% no longer enrolled. Finally, Black and Hispanic students attained at 32%, with 11% completing a bachelor’s degree, compared to 47% no longer enrolled during the five-year cumulative persistence and attainment study. This data continues to support the need for educational programs and institutional policies that will positively affect the persistence of students in these at risk populations.

While there are concerns regarding the attainment of the general higher education population as well as specific student groups, research points to the benefit of participating in high impact practices that promote student success (Kuh, 2008; Kuh et al., 2007). These practices include initiatives such as first-year seminars, common intellectual experience, learning communities, writing-intensive courses, collaborative projects, undergraduate research, global/diverse learning, and service or community-based learning (Kuh, 2008). These strategies for student success have gained attention in the field as institutions continue to find ways of positively affecting overall learning and achievement for students. For instance, learning communities have become a standard student success program in higher education designed to “incorporate active and collaborative learning activities and promote involvement in complementary academic and social activities that extend beyond the classroom” (Zhao & Kuh, 2004, p. 116). Learning communities further encourage participation in educationally-purposeful activities such as peer interaction and collaboration, faculty and student interaction, and active learning, while contributing to intended outcomes of college such as higher GPAs (Zhao & Kuh, 2004), increased engagement academically and socially, and greater cognitive and social development (Shapiro & Levine, 1999; Zhao & Kuh, 2004).
Learning and tutoring centers have become a place on institutional campuses where the goal is to help facilitate student success. A comprehensive definition of a learning center is a “place where learners, learner data, and learning facilitators are interwoven into a sequential, cybernetic, individualized, people orientated system to service all students (learners) and faculty (learning facilitators) or any institution for whom learning by its students is important” (Christ, 1971, p. 39). This definition places focus on students as learners; however, it does not describe the environment constructed to facilitate learning. Another definition of a learning center is a place “concerned with [the] learning environment within and without; functioning primarily to enable students to learn more in less time with greater ease and confidence; offering tutorial help, study aids in the content areas, and referrals to other helping agencies” (Enright, 1975, p. 81). This definition describes the learning environment and ways in which the center supports student learning. Together, these two definitions describe how learning and tutoring centers are being used to facilitate student success in higher education. Yet, neither definition mentions the use of social engagement or peer support in the facilitating the process of learning through the centers.

In a study of 142 colleges and universities surveyed to answer the question of “What is a learning center in the 21st century?” responses included listing disability services, tutoring, academic advising, first year experience, academic improvement, women’s center, grand funded programs, and at-risk student services as areas providing learning center services (Truschel & Reedy, 2009). Tutoring and academic coaching comprised 88% of the responses for learning centers, with workshops following with 65% and at-risk student services and disability services totaling in 41.5% each. These services specifically assist in reaching out to students in
order to assist in their developmental and learning needs, a necessary element in achieving student success. The survey results were helpful in identifying the various ways institutions can provide services that contribute to student learning and student success while meeting the needs of their specific student populations and needs.

These examples are among many initiatives designed to promote student success and persistence for college students. Yet, these programs and services cannot be deemed educationally beneficial without the active participation of students. Engagement in educationally-purposeful activities is not only important inside the classroom but outside as well as students attempt to develop cognitively and socially through a variety of different avenues within higher education. Student engagement and involvement beginning in the first year of study has been shown to be a worthwhile contributor to student success and persistence, with many in higher education research supporting this form of learning (Kuh et al., 2007; Pascarella & Terenzini, 2005).

Financial Aid and Student Employment

While there are many benefits to pursuing higher education, the costs associated with attending a higher education institution continue to rise yearly, leaving many students seeking a variety of ways to fund their education. In the 2011-12 academic year, NCES (2013b) reports undergraduate tuition, room, and board to be at $14,300 at public schools and $37,800 at private nonprofit institutions, a rise of 40% and 28% respectively since 2001-02. For the state of Texas, average tuition and fees was $7,116 for public four year intuitions, $23,976 for private four year institutions, and $1,762 for public two-year institutions (THECB, 2014c). Yet even
though the cost continues to rise, overall college enrollment continues to grow. This relationship has spurred to ongoing need for alternative sources of financial aid and ways to pay for college among students.

The impact of finances on the pursuit of higher education is well documented in the literature, with students utilizing a variety of sources to access and fund their education. In the 2011-12 academic year, NCES found that 71% of undergraduates received some type of financial aid, with 59% receiving grants, 42% taking out student loans, and 6% receiving aid through federal work-study (NCES, 2013a). Forty-two percent of all undergraduates received federal Pell Grant funds, averaging $3,400. It is apparent there is an overwhelming need for aid among college going students, with this need being larger than the available sources of funding from federal, state, and institutional entities. However, the long-reaching effects to those seeking higher education, specifically those from low-income households, shows no signs of slowing down, making the urgency of finding alternative sources of financial aid and support more prevalent.

The benefits of financial aid also have effects on educational outcomes, specifically on persistence. In Pascarella and Terenzini’s (2005) extensive research on the effects of college, those receiving financial aid were just as likely to persist year-to-year and graduate as those who did not. However, when looking at the specific types of aid provided, the authors found in their research review that work-study is positively related to persistence net of student characteristics and other types of aid (p. 411). These positive benefits could be related to the “opportunities to interact with administrative staff and faculty members, enhancing their students’ social and academic integration” (p.410). However, as stated previously, only small
proportions of college students are receiving work-study opportunities, limiting the positive outcomes associated with this experience.

Student employment has become an increasingly popular form of funding higher education pursuits among college going students. The trend has been seen over the last several decades, with more students attending college full-time and working at least part time, making it an “educational fact of life” (Riggert, Boyle, Petrosko, Ash, & Ruder-Parkins, 2006, p. 64). According to NCES (2013c), 41% of full-time students and 71% of part time students were employed while enrolled in college. For full-time students, 15.1% worked less than 20 hours per week, 17.8% worked 20-34 hours per week, and 7.2% worked more than 35 hours. For part time students the percentages were 9%, 29.5%, and 32.1% respectively. From previous years, these numbers are declining, albeit minimally. However, the prevalence of students working while pursuing their educational goals does not go unnoticed.

The benefit of student employment during college has received opposing reviews in the literature. When looking at the relationship of maintaining employment while in college, most research points to a negative association between the two, with employment limiting time dedicated to academic pursuits and student involvement (Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1998; Pascarella & Terenzini, 2005). This is especially evident for students who work near full-time or full-time during college (Furr & Elling, 2000). Astin (1993a) also noted that full-time employment has overall negative effects on educational outcomes related to student satisfaction, except for facilities and willingness to re-enroll at the same institution. Tinto (1993) further supports this notion by stating “employment not only limits the time one has for academic studies, it also severely limits one’s opportunities for interaction with other students.
and faculty” (p. 269). Therefore, the more time spent working limits the opportunities to gain the appropriate educational outcomes created by social integration and time spent on academic related activities.

Although working while attending college may appear contradictory in terms of time and effort spent towards productive practices, limited work experiences has not been found to significantly derail student success (Pascarella & Terenzini, 2005). Limited is defined as working 15 hours or less on or off-campus, and is more positively associated with persistence towards completion (Choy, 1999). Holding a part-time position on campus has been linked to student retention, mirroring the influence of living on campus by allowing students more time on campus, therefore increasing the likelihood of interacting with peers, faculty, and staff as well as institutional resources (Astin, 1999). A longitudinal study by Pascarella, Bohr, Nora, Hagedorn, and Terenzini (1998) found no significant effects on a standardized measure of learning for students who worked on or off campus at the end of their first year. The second year produced a small negative impact on learning for students who worked on campus. The third year showed a significant, positive relationship between part-time on or off-campus employment but a negative impact for work in excess of 15 hours on campus and 20 hours off campus. Additionally, a study on the relationship of student employment to student role, relationships, social interactions and persistence found a positive correlation between persistence towards a degree and employment from a sample of 500 students age 19-24 (Kulm & Cramer, 2006). The author notes this finding is unusual, crediting a focus on graduation as motivation for completion. This study also finds a negative correlation between GPA and hours worked, maintaining consistency with prior research (King & Bannon, 2002). Overall, there is
evidence that the more hours worked beyond 15 hours negatively impacts college outcomes, specifically GPA, irrespective of the position. Yet, work-study positions continue to be a preference for students who wish to maintain focus on their academics while being able to work. Work-study provides the opportunity to work on campus for no more than 20 hours, but also provides interaction with faculty and administrative personnel which can support overall social and academic integration (Pascarella & Terenzini, 2005). In their extensive summary of college student research, Pascarella and Terenzini (2005) found work-study assistance positively related to persistence and degree completion. More specifically, studies found that persistence and learning were more likely when the work was related to the student’s academic work or interests (Broughton & Otto, 1999; King & Bannon, 2002). Overall, evidence has shown that on-campus employment has a positive effect on persistence, graduation, and probability of enrollment in professional or graduate school (Pascarella & Terenzini, 2005). Independent of the type of on-campus employment, this opportunity offers a larger chance of achieving academic goals for students.

Even though there are studies related to the impact of student employment on college outcomes, the amount discussing the topic is limited and dated (Pascarella et al., 1998). With employment during college becoming more of an expectation for students, additional studies relating to the effect would greatly benefit the field. Additionally, research on outcome measures beyond persistence (i.e. GPA, critical thinking, future employment) would provide valuable information on the impact of student employment during college. Lastly, research on the types of on-campus employment (i.e. work-study, peer leadership employment, part-time,
internships, assistantships, etc.) and its effect on academic and professional outcomes would be beneficial as well.

Student Involvement

Higher education has many with examples showcasing the importance of student involvement in achieving academic success for students. Astin’s theory of student involvement (1984) serves as the primary foundation of this study and has provided a strong basis for many institutional initiatives and programs focused on increasing overall student involvement and engagement in the educational environment. Birthed out of Pace’s (1982) theory on quality of effort, which placed emphasis on a student’s effort in educational activities in determining achievement of academic outcomes, Astin’s theory (1984, 1993b) emphasized the importance of involvement in the learning process of students in campus life towards meeting institutional and student success goals. Astin’s related I-E-O model (1993b) takes the theory on involvement a step further by considering a student’s input factors along with their collegiate environmental experience in reaching outcome goals. Since its inception, the theory on student involvement has served as a foundation for many studies in higher education.

Research in the field has confirmed the positive relationship between involvement and student outcomes. For instance, Hu and Kuh (2003) found in their multilevel analysis that student engagement in educationally purposeful activities had a strong effect on student-reported gains of academic outcomes. Educationally-purposeful activities as defined in this study included scholarly and intellectual activity, vocational preparation, and student perceptions of the quality of relations that exist among different groups (student-student,
student-faculty, and student-administration). Sampling over 44,000 full-time students at 120 four-year colleges and universities using data from the College Student Experiences Questionnaire (CSEQ), this study supported Astin’s theory by confirming the relationship between the amount of time and effort in becoming involved in educational activities and achieving academic outcomes. It also reported differences in student’s perceptions of progress toward their outcomes among those who maintained similar amounts of involvement in similar activities but which varied among different institutions in the study. This finding was supported by the argument that some institutions are more “learning efficient” (p. 197). It also showcases not only the overall importance of student involvement but also the critical element of the institutional environment on reaching educational outcomes.

A study conducted by Kuh, Cruce, Shoup, Kinzie, and Gonyea (2008) also supports Astin’s theory of student involvement and the I-E-O model. Utilizing a large sample from 18 colleges and universities that administered the NSSE, the study looked at the relationship between critical student success behaviors and the institutional practices that foster student success. Academic achievement and persistence were the primary outcomes of focus as well as the effects of engagement on these outcomes for students from various racial and ethnic backgrounds. Focusing specifically on first year students, the study concluded that engagement in educationally purposeful activities was positively related to academic achievement and persistence. Considering racial and ethnic descriptors and controlling for pre-college characteristics such as ACT/SAT scores and merit achievement, the effects remained positive for students engaged in educationally purposeful activities. Aspects of this study are significantly similar to this current research topic in its quantitative approach and underlying
research focus; however, the target population and utilized sample specifically addresses students in their first year of college and not subsequent years. Additionally, the benefit of engaging in specific educationally purposeful activities is not addressed.

When considering implementing student success and involvement programs, research shows there are key aspects to consider in ensuring their benefit towards student academic success. It is not simply enough to offer the services, but they must also be customized to the targeted student population, be high in quality, and be rooted in a student success campus culture (Kuh et al., 2005). Kuh et al. (2008) specifically encouraged the use of peers in establishing student learning opportunities and values development through programs such as the first-year seminar, freshman interest group, or living learning communities. Establishing opportunities for students to participate and own activities that require daily decision making and tasks will also facilitate increased engagement and commitment to meeting educational goals (Kuh et al., 2008, p. 557). This may include course or employment responsibilities that include interactions with peers, faculty, and staff in an educationally supportive environment. A key point of emphasis is not only on the student’s effort to engage in the educational environment but also the intentional facilitation of educationally purposeful activities by institutional leaders. With the identification of utilizing peers in the learning process as a benefit, an area of lack in the research is further identifying they type and purpose of peer support roles for students that facilitate learning and involvement for their own benefit.

Peer Leadership

Peer leadership has become a growing form of student involvement in higher education
and provides more opportunities for students to connect peer to peer in the educational environment inside and outside the classroom. Ender and Kay (2001) defined peer leaders as “students who have been selected and trained to offer educational services to their peers [that] are intentionally designed to assist in the adjustment, satisfaction, and persistence of students toward attainment of their educational goals” (p. 1). Emphasis is placed on students who are selected and trained for their role as they are placed in a unique and empowering position to assist their fellow students by serving as role models, advocates, and resources for student success. Cuseo (2010b) later offered a comprehensive description of ways a peer leader may be identified:

- **Individual:** promoting positive personal change or individual empowerment (e.g. as a peer tutor or peer counselor).
- **Group:** promoting collective change or empowering others (e.g. as an orientation group leader or a peer co-instructor for a first-year seminar course).
- **Organization:** promoting change in campus policies, programs, practices, or procedures (e.g. a student government officer or club president).
- **Community:** civic leadership or political change at a larger societal level (e.g. student service leadership in the local or regional community or at the national level) (p.4).

He also offered a typology of peer leadership roles including:

- **Role model**-lead by example
- **Personal support agent**-helping others identify and resolve personal problems
- **Resource-and-Referral agent**-knowing when and how to connect students with key support services and resources
- **Academic-success or learning coach**-empowering students specifically for academic success by supplying or modeling learning strategies
- **College-success or life-success coach**-empowering students’ overall success in college and life by supplying or modeling personal (holistic) development strategies (p. 4-5)
These descriptors of peer leadership roles and responsibilities provide a wide view of the ways in which peers can influence those they are selected to assist and serve as well as the responsibility level the peer leadership position has on impacting student success in college.

Within higher education, peer leadership has taken on a variety of roles and positions across institutions and is being utilized to their fullest capacity. Emerging first through residence life and orientation programs, peer leadership roles have come to be utilized in other student affairs areas such as student activities, judicial affairs, advising programs, counseling centers, religious centers, and crisis intervention programs (Ender & Kay, 2001). Cuseo (2010) went on to expand on the specific types of roles peer leaders can obtain, including student ambassadors, alumni mentors, individual mentors, community leader, organization leader, health and wellness educators, and transfer support agents. Peer leaders have also come to be utilized in the academic arena in instructional capacities, including tutors, Supplemental Instruction leaders, and first-year seminar assistants or co-instructors, although they are not as prevalent in the academics as in student affairs (Stone & Jacobs, 2008; Tobolowsky & Associates, 2008; Upcraft, Gardner, Barefoot, & Associates, 2005).

Literature reports a variety of benefits in utilizing peers in leadership roles on higher education campuses, specifically for institutions, the students in which they are selected and trained to serve, and for the peer leaders themselves. The use of peers in leadership roles on campuses has provided institutions with many benefits, including budget relief in the wake of tightened finances and growing student populations (Hamid & VanHook, 2001), a growing network of educational advocates and resources (Russel & Shinkle, 1990), and contributors to the achievement of intended student success outcomes and persistence (Astin, 1993b; Cuseo,
Peer leadership also provides a plethora of benefits for students who are on the receiving end of the services, summarized by Shook and Keup (2012) through the areas of community, greater social and academic integration, and a network of resource and referral agents dedicated to their success. The authors list programs such as mentoring, tutoring, outreach, and student organization among examples of peer leadership opportunities that can positively affect students, specifically those from specific populations such as African American and Hispanic students; lesbian, gay, bisexual, transgender, and queer (LGBTQ) students; first-generation students, and provisionally admitted students. In this light, a peer leader is “critical and should represent a person who shares a defining student characteristic, similar background, or common educational pathway, challenge or experience” (p. 7). This should also be a strategic notion for advisors and staff of these programs to consider when selecting peer leaders for these influential roles. Recent years have shown an increase in academic roles for peer leaders such as first-year seminar leaders, tutors, academic mentors, peer advisors, and teaching assistants (Keup, 2010), signifying the need for peer support and guidance in academic activities (Shook & Keup, 2012).

While there are clear benefits of peer leadership programs and positions for institutions and the students being served, the design of this resource creates a mutually beneficial circumstance for students serving in these peer leadership roles. Supported by Astin’s theory of involvement (1984, 1993), peer leaders dedicate time and energy into their roles, with the amount of learning and development gained being related to the quantity and quality of their
involvement. This investment of “training, time, and expertise in service to their fellow peers” results in the attainment of “true educational and personal benefits, including greater awareness of campus community, an enhanced sense of belonging, and meaningful interpersonal relationships within that institutional environment” (Shook & Keup, 2012, p. 10). Furthermore, peer leadership roles create the opportunity to gain and enhance skills deemed as twenty-first century collegiate learning objectives, such as self-direction, leadership, oral communication, intercultural skills, civic engagement, teamwork, and critical thinking (Association of American Colleges and Universities, 2011).

In 2009, the National Resource Center for The First-Year Experience and Students in Transition administered a Peer Leadership Survey, receiving responses from almost 2,000 students from 145 colleges and universities offering empirical evidence of peer leadership experience outcomes (Keup, 2010). Relevant to this research topic, the data showed that 57% of the respondents held a peer leadership position in an academic or academic support program or department, followed by 32% in orientation and 30% in residence halls. Eighty-nine percent of the student responses reported meaningful interactions with peers and 71% reported a desire to persist towards graduation, possibly an indication of their positive peer leadership experience. The students also self-rated change in six skill development areas, which included areas such as organization (81%), time management (80%), and academic (51%). The survey utilized an open-ended question to address how being a peer leader affective academic performance. Gains in academic skills were rated the lowest, which is particularly interesting given the high amount of peer leaders in academic support programs. Positive influences gathered through qualitative analysis of the open-ended question listed “improved leadership
skills, better time management skills, sharper career focus, the responsibility of being a role model, knowledge and use of campus resources, confidence in talking to faculty, and greater connection with the institutions” as areas of related to their academic experience (Shook & Keup, 2012, p. 11-12). However, negative impacts included over-involvement in their activities which served as a disadvantage to their grades, too much time dedicated to peer leadership roles, and associated stress (Keup, 2010). Shook & Keup (2012) suggest the data support a curvilinear relationship between engagement in peer leadership roles and student outcomes, versus a linear relationship, specifically with students suffering the negative consequences. Yet, this survey data provides ample support for the overall benefit of peer leadership roles for students engaged in the various program offerings and their effort toward attaining educational outcomes.

Peer Tutoring

Peer tutors serve as a type of peer leadership role utilized in higher education, particularly in the academic support area. The use of tutors in the educational setting has increased because higher quantities of students have begun enrolling in educational institutions, from elementary to post-secondary. Characterized by Topping (1996) as a “very old practice” (p. 322), tutoring has transitioned from a hierarchical relationship where a more informed and able individual (tutor) transmits knowledge and information to a less informed and able individual (tutee) into a process that has become harder to define due to the changing educational landscape. Steadily, the use of peers in the tutoring role has continued to grow, as limited expertise and funding dictate the increased usage of more knowledgeable students in
assisting their peers. Topping offered the following definition of the peer tutoring process:

“people from similar social groupings who are not professional teachers helping each other to learn and learning themselves by teaching” (p. 322). This definition points to the use of individuals on similar levels engaging in a learning partnership. It also indicates learning occurs on both ends, from the tutor and tutee perspectives. In this light, the tutorial experience can be deemed mutually beneficial and should focus on the learning benefits on both sides.

Tutoring, which is a form of peer assisted learning or peer learning, has foundations in social constructivism, which focuses on supported or scaffolded exploration through social and cognitive interaction (Topping, 1996; Vygotsky, 1978). The cognitive development that occurs for the tutors is facilitated through the teaching process in which they engage with the tutees, promoting the notion that tutors can learn from their teaching experiences, or simply learning by teaching (Cohen et al, 1982; Rohrbeck et al, 2003). As they prepare for their role as tutors, their cognitive processing is enhanced by activities such as reviewing existing knowledge and skills, re-organizing information, creating new associations and integrating them into new ideas (Roscoe & Chi, 2008; Topping, 1996). Not only does this extended cognitive development assist in their role of helping other students, but it also helps in their personal understanding of content and ideas, which can translate into higher academic outcomes. This tutor learning effect is present when both students benefit simultaneously (Roscoe & Chi, 2008). Goldschmid and Goldschmid (1976) outlined key pedagogical considerations in peer teaching, including the active involvement of not only the learner but also the tutor in the learning situation, creating an interactive environment versus a passive environment. This environment is strategic in
involving the tutors in the learning process, further supporting the idea that it is not only the
tutee but also the tutor who benefits in the learning environment.

In describing a typology of peer tutoring, Topping (1996) outlined ten dimensions of the
tutoring process. These dimensions include curriculum content, contact constellation, year of
study, ability, role continuity, place, time, tutee characteristics, tutor characteristics, and
objectives. In 2005, Topping added within or between institutions, voluntary or compulsory,
and reinforcement to the list of organizational dimensions or peer learning, which changed
from the earlier title of tutoring. No formula for selecting these dimensions was provided,
however, when considering the function and purpose of the tutoring process, these elements
can be considered critical in outlining factors for success through tutoring. In discussing the
effect of peer learning, Topping (2005) noted, “both tutees and tutors can gain—if the
organization is appropriate” (p. 635). He later argued that this caveat can “dispel concerns that
engagement in peer tutoring might be a ‘waste of time’ for more able tutors” (p. 635),
emphasizing the mutual responsibility of the institution in facilitating learning opportunities for
all students. While the tutoring process tends to focus majorly on curriculum content and
typically has an outline for the interaction between tutor and tutee, emphasis on the benefit of
training tutors is also in the literature. Formal training, which can be topic specific, general, or
both (Topping, 1996) has shown to improve eventual tutoring outcomes significantly, although
not for tutors specifically (Sharpley and Sharpley, 1981). Training topics for students in a tutor
and academic coaching function may include learning theory, study strategies, communication
strategies, learning preferences, diversity, change as a process, customer service, and content
strategies (Truschel & Reedy, 2009). Emphasis on training showcases the importance of the
tutor role and the various ways they can learn for the benefit of their role and their own learning.

It has long been assumed that the tutor or peer helper should be of the “best students” category, meaning those who were most like professional and trained teachers. Yet recently, more interest has been focused on providing tutoring opportunities to those who are nearer to the skill level of those needing to be helped, increasing the cognitive challenge for both the tutor and the tutee (Topping, 2005). These students not only gain the opportunity to assist their peers in a familiar subject matter, but also increase their own learning. Along with gaining skills associated with helping others and cognitive development, other side effects of peer teaching can be acquired, including increase in cooperation, decrease in competitive behavior, increase in motivation, and increase in self-esteem and self-confidence, in both the tutee and the tutor (Goldschmid & Goldschmid, 1976). Although largely self-reported through qualitative methods, these benefits can be deemed beneficial to a student’s overall learning.

Research has supported the idea that not only is there a positive effect on the educational outcomes of students who receive the tutoring but also on those who serve as tutors. One particular study by Annis (1983) focused on 130 female sophomore university students who were given a reading assignment with the intention of either reading the material to be studied only, reading the material in expectation of teaching it to a peer, and reading the material in expectation of teaching to a peer and then actually following through. The students were then tested using Bloom’s Taxonomy in measuring both content specific and general cognitive gains, resulting in greater gains for the students who read to teach and then actually taught to their peers. Greater gains for the tutors than the tutees were also reported. This
study emphasizes the benefits of the planning process in tutoring for the tutors in performing better academically. However, this study is over 20 years old and limited in generalizability. An updated study using the same method would provide new research and evidence on the benefit of learning to teach and the effect on tutor learning.

In a meta-analysis of elementary and secondary school tutoring programs, Cohen, Kulik, and Kulik (1982) found that academic achievement was higher for students who served as tutors than those in the control group. Statistical significance was found in favor of the tutors in 10/38 studies in the meta-analysis. In a more recent study on the effect of tutoring on student success, researchers found that when controlling for gender, age, race/ethnicity, level of education, and competencies in reading, writing, and math, tutoring has a statistically significant effect on GPA, success in courses, and persistence (Kostecki & Bers, 2008). This study is significant in its methodological approach to determining the effect of tutoring on student success, utilizing quantitative analysis to achieve its results. However, it specifically looks at students who sought out tutoring services at one community college, not those who offered the services. While there is research supporting the academic benefits of serving as a tutor in higher education, empirical studies on the topic is extremely lacking.

Peer Mentoring

Many definitions of mentoring have been researched and applied to the field of higher education in a variety of formats. A traditional definition of mentoring used in many fields is a hierarchal relationship in which an older individual serves either a task-related or psychosocial function in support of the development of a less experienced individual (Kram & Isabella, 1985).
Blackwell (1989) described mentoring as a “process by which persons of superior rank, special achievements, and prestige instruct, counsel, guide, and facilitate the intellectual and/or career development of persons identified as protégés” (p. 9). Schmidt & Wolf (1980) classified mentors as “colleagues and supervisors who actively provide guidance, support, and opportunities for the protégé. The functions of a mentor consist of acting as a role model, consultant/advisor, and a sponsor” (p. 45). A thorough definition of mentoring was provided by Shandley (1989) as follows

First, it is an intentional process of interaction between at least two individuals...Second, mentoring is a nurturing process that fosters the growth and development of the protégé...Third, mentoring is an insightful process in which the wisdom of the mentor is acquired and applied by the protégé...Fourth, mentoring is a supportive, often protective process. The mentor can serve as an important guide or reality checker in introducing the protégé to the environment he or she is preparing for. Finally...an essential component of serving as a mentor is role modeling. (p. 60)

These definitions of mentoring can long be seen in higher education, specifically in the development of students by more experienced faculty and staff.

While many definitions of mentoring in higher education are available, they are seen as broad and lacking (Crisp & Cruz, 2009). Jacobi (1991) listed two primary criticisms of mentoring research in higher education, one specifically being the absence of consistent definition that lacks clarification on “antecedents, outcomes, characteristics, and mediators of mentoring” (p. 505). In an update of Jacobi’s research, Crisp and Cruz (2009) add that a lack of theory to guide research on mentoring has contributed to a continued absence of a consistent mentoring definition. While mentoring continues to be a utilized method of helping others in a variety of fields, finding a relevant theoretical framework to apply to mentoring would be beneficial in furthering research and practice.
Peer mentoring within higher education has become a more widely used construct in recent decades as enrollment continues to climb and the demand for assistance inside and outside the classroom is needed. In connection, a need to increase retention rates, specifically for low-income and minority populations, has been a drive for more mentoring programs in higher education (Budge, 2006). Traditionally, mentoring services have been targeted to specific populations who were at risk of dropping out or historically had a difficult time transitioning into the college environment, such as minority students and women (Budge, 2006). However, institutions have now seen the benefit of mentoring and strive to offer the peer focused services to students who are still at risk of not persisting, which has grown to include not only minority students, but also low-income, minority males, and academically underprepared enrollees who can benefit from the peer interaction. A related definition of peer mentoring utilized in this study is described as a “helping relationship in which two individuals of similar age and/or experience come together, either informally or through formal mentoring schemes, in the pursuit of fulfilling some combination of functions that are career-related (e.g. information sharing, career strategizing) and psychosocial (e.g. confirmation, emotional support, personal feedback, friendship)” (Terrion & Leonard, 2007, p. 150). This definition covers the most pertinent aspects of mentoring, which involves a helping circumstance and relationship building. Most interestingly, it also involves the pursuit of personal and professional development in a broad range of functions, but fails to identify who particularly is targeted to benefit. This provides the argument that both the mentor and the mentee can seek to gain from a positive peer mentoring relationship.
In their review of the characteristics of student peer mentors in higher education, Terrion & Leonard (2007) found that prerequisites such as the ability and willingness to commit time, gender and race, university experience, academic achievement, and prior mentoring experience were all key components listed in 54 articles on mentoring. Specific attention is drawn to the academic achievement prerequisite, as it is often a requirement of selected peer mentors to maintain above average grades in order to serve as role models and guides for their peers and/or less experienced students. However, this prior academic achievement can limit the link between mentorship and academic performance due to potential characteristics of these students to be high achieving and self-motivated (Snowden & Hardy, 2013). Yet, serving as a peer mentor can still assist in facilitating and encouraging increased academic achievement.

A number of benefits have also been found to be associated with the mentoring process. Increased levels of interpersonal and communication skills have been found for mentors (Vaidya, 1994) as well time management, maturity, and ability to handle greater responsibility (McLean, 2004). These benefits can arguably be used in facilitating greater academic achievement in mentors. Yet, while it is obvious that mentors gain in the personal and professional development areas, quantitative measures of academic development in the literature is lacking.

In a qualitative study on the retention and academic benefits of participating in a mentoring relationship for both mentors and mentees in a British university health and social welfare program, Snowden and Hardy (2012) found that not only did mentees achieve higher grades than the comparable mentee cohort, but the mentors also achieve higher GPA’s than
those who did not serve as mentors. When considering validity, the authors do note that the sample consisted of nine dyads. Additionally, the authors share that when reviewing the mentors past academic performance, the group performed within their cohort average. However, during their mentoring experience, their GPA increased above the cohort average, strengthening reliability.

In their review of the mentoring literature between 1990 and 2007, Crisp and Cruz (2009) bring attention to empirical research of mentoring college students. They note that the majority of research focuses on undergraduate students (69%) and only two of the 42 studies focused on mentoring from the perspective of the mentor (Carlson & Single, 2000; Reddick, 2006). Nineteen of the studies reviewed utilized a quantitative methodology, with only a small amount using an experimental or quasi-experimental design (Rodger & Tremblay, 2003; Salinitri, 2005; Sorrento, 2007). Critiques of quantitative studies on mentoring centered primarily on methodological concerns, such as the lack of operational definition specific enough for replication, failure to test and/or report validity and reliability of survey items, reliance of self-reported benefits of mentoring as outcome, and absence of theory guiding the data collection and analysis (Jacobi, 1991; Crisp & Cruz, 2009). An increased focus on the methodological weakness and strengths of not only mentoring research, but also general research on student outcomes, would greatly serve the higher education community in validating programmatic efforts and their assessment.

Texas College Work-Study Program

As stated previously, financial aid continues to be an ongoing concern for college
students as costs of attending college continue to rise, leading the federal and many state
governments to institute programs, policies, and practices to ease this burden for students. The
state of Texas has implemented several initiatives over the last several decades to assist college
students in not only financing their education but gaining access and information to educational
information and opportunities. One such program organized by the state and The Higher
Education Coordinating Board was the Texas College Work-Study Program. Creating in 1989 by
the 71st Texas Legislature, the purpose of this program was to provide “eligible, financially
needy students with jobs, funded in part by the state of Texas, to enable those students to
attend eligible institutions of higher education, public or private in Texas” (Texas Higher
Education Code, Chapter 56.072). Administered by the THECB, the Texas College Work-Study
Program partners with colleges and universities to provide part-time work opportunities by
sharing the costs of employment with institutions. Students eligible for the program meet the
following criteria: 1) show a financial need (cost of attendance less family contribution is
greater than zero) 2) Texas resident 3) enrolled for at least half-time or six semester credit
hours 4) registered for Selective Service or exempt 5) not receiving an athletic scholarship and
6) not enrolled in a seminary institution or other program leading to licensure to preach for a
religious sect or order (THECB, 2014). Students awarded work-study funds are offered the
opportunity to search and apply for these part-time positions, the majority of which are on-
campus and provide no direct link to a student’s career choice. However, finding more
institutional and community collaborations to offer additional off-campus, career related jobs
continues to be a priority of THECB.
Funds awarded through the program vary year to year. No prescribed methodology is used in awarding work-study funds to students and can vary across institutions as they are able to award funds up to a student’s attendance cost. In FY2013, $7.5 million was earned by over 5,000 students through the program, which included the Work-Study Mentorship Program (described below) (THECB, 2014). The amount of awardees and funds distributed continues to fluctuate year to year, however, efforts are being made by the state to continue the reach and benefit of this program to Texas higher education students, including efforts to find more business to match funds distributed.

Texas Work Study Mentorship Program

The Texas Work-Study Mentorship Program was organized in 2005 under the 79th Texas Legislature and amended in 2007 under the 80th Legislature as an initiative to help achieve the Closing the Gaps goals set by the 77th Legislature in 2002. The G-Force Work Study Mentorship Program, or GO Program, was created through the THECB “College for All Texans” campaign in 2002 and has remained an ongoing initiative of the THECB Division of Outreach and Success. Currently housed at 33 state institutions, the GO Program consists of three primary components: the Collegiate G-Force Mentor Program, GO Centers, and the Mobile GO Center. The GO Center is described as a college and career information center located primarily at high schools and staffed primarily by Collegiate G-Force peer mentors. The Mobile GO Center is a trailer version of the GO Center, providing college readiness activities and services through community events and festivals. To date there are 22 Mobile GO Centers hosted by various institutions across the state.
The Collegiate G-Force Mentor Program is the “peer education component of the GO Center structure that utilizes students, both high school and college students, to facilitate the dissemination of the college-going message” (TWU G-Force Training Manual, 2013, p. 1). This program was designed to employ students who are enrolled at a participating institution and meet Texas employment requirements to mentor college and high school students in recognized “GO Centers” or similar recruiting and college centers in order to provide college information targeted towards improving access to higher education in the state. Through peer mentoring at the high school and college level, these students are involved in many facets of peer education, which requires a significant amount of training and oversight. Since its inception, this program has served as a source of information and support for college-going and degree attaining students.

These students form a group called Collegiate G-Force and service local high schools in their area, community, and their own college campuses. The mentorship program is distinct from the Texas Work-Study Program in that the funds provided by the mentorship program to students are not considered financial aid, but employment instead. However, students selected for the mentorship program must have a demonstrated financial need, which is based on their estimated family contribution and the cost of attending college. Selection for the program is left up to the participating institutions; however, they are encouraged to consider the need when selecting students to serve as mentors.

At the beginning of the program, outcomes anticipated for the program included the following as stated in the THECB G-Force manual:

- Increased participation of college students in Go Center activities and college-going outreach efforts
• Increase graduation/transfer rates of Collegiate G-Force mentors
• Continued academic success of Collegiate G-Force mentors based on continued academic progress/retention

These outcomes have been deemed critical elements in not only meeting the goals of the program but also monitoring the academic success and graduation of the collegiate mentors in the program. They are achieved through proper training and supervision from college and university personnel who oversee the program, however, the level of outcome achievement overall is not been assessed for the program participants as a whole.

While there are many programs centered on achieving and facilitating student success, this program is unique in its use of student involvement and mentoring to achieve the goals of the program, specifically to the benefit of the collegiate mentors. Having the program staff, institutional resources, and state funding to back the program provides a solid foundation in helping to achieve the program goals. Additionally, the program has proven stable through its ongoing usage in the college setting and in the community through events and high school GO Centers. However, research on the program participation effect is needed to assess whether the structure is meeting the intended outcomes of participation, retention, academic success, and graduation.

Advancement via Individual Determination

Another initiative of the THECB is the sponsorship of a system whereby instructors “hold students accountable to the highest standards, provide academic and social support,” which in turn intended to encourage students to rise to the educational challenge (AVID, 2013). This system is known as AVID, which was created in 1980 by Mary Swanson, a California high school
English teacher, in an attempt to provide academic support to students in the academic middle who are least served (AVID, 2013). Over the past 33 years, the AVID program has grown to partner with over 4,900 public schools in 46 states to impact over 700,000 students at the elementary through post-secondary levels (AVID, 2013). Students targeted for the AVID program are typically those who do not excel academically yet lack the need for remedial course work, leaving them in the “academic middle” (AVID, 2013). These students have been primarily first-generation college students, low-income, or students from populations traditionally underrepresented in higher education. However, students are not selected based on these characteristics but on their promise to pursue and excel in a college or university (Huerta, Watt, & Reyes, 2012). A key component of the AVID program at the elementary and secondary levels is the elective course, which students in grades 6-12 are enrolled for one period a day to “learn organizational and study skills, work on critical thinking and asking probing questions, get academic help from peers and college tutors, and participate in enrichment and motivational activities that make college seem attainable (AVID, 2013).

In 2009, AVID was extended to the higher educational field in hopes of continuing to bridge the gap between high school and college while providing adequate academic and social support for students in transition. The program, called AVID for Higher Education, or AHE, was built out of the organization’s relationship to higher education institutions and their desire to implement the program’s efforts into the higher education field (AVID, 2013). The relationship of the AVID goals and target population to the mission of higher education provides a seemingly good fit in an effort to supply needed academic and social support services for students in the academic middle or high scholastic promise and motivation to excel and complete their
educational goals. Texas utilizes AVID in the public school systems across the state and has chosen to move forward with implementing AHE in select higher education institutions. In 2010, the Texas Higher Education Coordinating Board (THECB) selected 15 institutions to implement the AVID Work-Study Mentorship Grant, providing funds to hire peer mentors and tutors to serve as role models utilizing AVID methodologies in the first-year seminar and tutoring centers on the campuses to first year students and students in need of additional academic support. Students selected for the peer mentor and tutor roles ideally mirror the student population they are hired to assist on their campuses through a “defining student characteristic”, such as race/ethnicity, gender, parental income status, and previous academic achievement (Shook & Keup, 2012, p. 7). The peer tutors and mentors also fit the profile of the rising groups of students in higher education, including first-generation, traditionally underrepresented populations, and low-income students, simultaneously meeting the target populations of the AVID program and institutions of higher education. The utilization of these peer educators in the program is especially critical to implementing AVID’s instructional methodologies while serving on the front lines of representing the program (AVID, 2013; Watt, Huerta, & Alkan, 2011).

The majority of research on the AVID program centers around implementation at the elementary and secondary levels and classifies some of the benefits of the program, including increased GPAs, increased scores on state mandated tests, increased participation in Advanced Placement (AP) courses, and increased attendance rates (Watt, Yanez, & Cossio, 2003). The AVID elective course has shown to positively affect students enrolled in the program, with AVID instructors making a difference in their role as mediators and academic coaches (Guthrie &
Guthrie, 2000). However, the What Works Clearinghouse (WWC) reviewed 66 studies on AVID for adolescent learners and found only one met the evidence standards with reservations while the remaining did not meet the WWC evidence standards of eligibility (Institute of Education Sciences [IES], 2010). The one study reviewed found “no discernible effects on comprehension for adolescent learners” (p.4). Overall, the effects of AVID in the elementary and secondary educational environment are primarily positive, although an increase in sample sizes would provide better analysis of the program’s effect.

The influence of AVID extends into the post-secondary realm, with 90% of the 2012 AVID graduates indicating enrollment in a two-year or four-year institution of higher education (AVID, 2013). Quantitative studies of the AVID effect beyond the secondary level have shown that graduates of the AVID high school program have higher retention rates, are on track to graduate within six years, and are well-prepared for the rigors of higher education (Watt, Huerta, Alkan, 2011; Watt, Powell, Mendiola, 2004; Huerta, Watt, & Reyes, 2012). However, these studies are limited in sample size and include recommendations of studying entire graduating classes of AVID students to provide further research on the effect of AVID past the secondary level.

At the elementary, secondary, and now post-secondary level, AVID’s foundation for high engagement teaching and learning is the WICOR strategy, which stands for writing, inquiry, collaboration, organization, and reading to learn. According to AVID (2012), WICOR provides a “learning model that faculty can use to guide students to comprehend materials and concepts, and articulate ideas, at increasingly complex levels (scaffolding) within developmental, general education and disciplined-based curricula in their major” (p.73). The concept of scaffolding is
largely embedded in AVID’s methodologies where “learning is optimized by balancing challenge and support in a manner that allows academic rigor to be progressively increased and support gradually decreased as the student gains more experience, confidence, and proficiency in mastering increasingly-challenging learning tasks” (Cuseo, 2012b, p. 9). This process allows for continued cognitive growth in students while encouraging them to take more responsibility in their own learning. In working with largely low-income, first-generation, and underrepresented racial and ethnic groups, this method assists in providing them the challenge and support needed for student success.

AVID for Higher Education

AVID for Higher Education (AHE) was introduced into the post-secondary realm in 2009 and is described as a “holistic, integrated college-success system designed for students with the determination to succeed and for campuses committed to promoting student success” (Cuseo, 2012a, p. 1). Early implementation of the program shows limited research on the methods of implementation and potential effects on students. By 2013, 28 institutions of higher education implement the AVID program in the United States, most of which base their strategies on current offerings of student success strategies and the base system implemented by AVID (AVID, 2012). Cuseo (2012b) highlights six distinctive features of AHE that differentiate this initiative from other student success programs: holistic engagement of the whole student, a systematic infrastructure at the institution, a sustained plan for ongoing campus involvement, transformative design for organizational change, an empirical base of research evidence, and a customized fit for students and campuses.
The first feature, holistic engagement of the whole student, is supported by the research on student retention and persistence in encouraging the provision of academic and social support services for students, particularly low-income students (Engle & O’Brien, 2007). Engaging the whole student not only assists in keeping students in college with the goal of graduation, but also provides an effective way of promoting student learning (Cuseo, 2012b). AVID’s integrated system of engaging the student academically and socially in a holistic manner “should serve to advance learning, persistence to graduation, and the overall quality of education for undergraduate students, especially students from underserved or underrepresented populations” (Cuseo, 2012b, p. 7).

The second feature classifies AHE as systemic, focusing on creating a “comprehensive, cross-divisional infrastructure with the potential to generate synergistic effects on student success” (Cuseo, 2012b, p. 7). Research points to the benefit of developing initiatives that include collaborative efforts between academic and student affairs as they can positively affect retention and graduation rates (Kuh et al., 2005; Stodt & Keppler, 1987). AHE intentionally connects faculty and student support professionals in providing a bridge of services for students. This cross-campus, or horizontal, system is also joined by a cross-sector, or vertical, system, which creates a link between the high school AVID program and the post-secondary AHE program, further strengthening the systematic approach deemed to be beneficial towards facilitating student success (Cuseo, 2012b).

The third feature, a sustained plan for ongoing campus involvement, includes incorporating follow up support and assessment in the campus plan of implementing AHE. A key factor in AVID’s commitment to student success is its ongoing focus on the college
experience beyond the first year into subsequent years during the undergraduate experience (Cuseo, 2012b). This focus is supported by Kuh (2001) as he argues “colleges and universities must learn more about the nature of the student experience after the first year of college. This issue is important because while many colleges and universities have implemented an impressive array of interventions to smooth the first-year transition, most know little about the nature of the student experience after this period” (p. 37). This statement provides the argument that increased attention on the post first-year experience is needed to continue supporting student success and persistence. The second portion of the third feature is the ongoing use of assessment in sustaining the program from the beginning at initial conception and inception through the complete implementation process (Cuseo, 2012b). This includes consistent institutional staff support and professional development to continue the conversation and planning for longevity.

The fourth feature classifies AHE as transformative, “designed to catalyze organizational change and drive institutional movement toward the development of a student-centered, learning-focused culture” (Cuseo, 2012b, p. 10). The literature on student success emphasizes the importance of instilling a student success-focused campus culture by incorporating a variety of institutional constituents and emphasizing success focused beliefs and customs into day-to-day practices (Cuseo, 2012b; Engle & O’Brien, 2007; Kuh et al., 2005). AHE is supportive of this campus wide change by engaging faculty in AVID professional development (Huerta, Watt, & Alkan, 2008; Watt, Huerta, & Mills, 2009) and utilizing AVID trained students as role models for productive academic behaviors (Watt, Yanez, & Cossio, 2002). Specific mention is given to
engaging students, peers, faculty, staff, and administrators in the change process through AVID (Cuseo, 2012b).

The fifth feature focuses on AHE and AVID’s empirical foundation, from the elementary system through higher education. AVID and AHE’s foundation lies in the research literature on student success, persistence, and retention. The program utilizes rigorous research methods and analysis in validating its approach to student learning, receiving attention nationally and institutionally as its methodologies are replicated and disseminated within education (Cuseo, 2012b; Watt, Yanez, & Cossio, 2002). In implementing AHE’s assessment program, implementation fidelity, or the level to which a program is implemented to the developer’s intentions (Dusenbury, Brannigan, Falco, & Hansen, 2003) is a key focus in validating the program’s success. AHE’s certification process is based on the institution’s program fidelity and commitment to executing the AVID system “faithfully, which can affect the overall program assessment” (Cuseo, 2012b, p. 15). The data collection process for AHE seeks to assess not only the program’s effect but also improve the system’s featured practices. This feature further contributes to student success and longevity of the program in the field.

The sixth and final feature of AHE is that it offers a customized approach for students and individual campuses. The AVID program is based in offering services to those who are not only in the academic middle but also students who are low-income, first-generation, or traditionally underrepresented racial and ethnic groups (AVID, 2013). With the landscape of higher education consistently changing and the growth of these populations of students continuing to rise, AHE features a program and methodologies that allows for a customization to an individual institution’s student population and campus environment and resources.
(Cuseo, 2012b). It is through this approach that AVID offers “versatility and flexibility to interface seamlessly with existing campus practices” such as assessment programs, first year experience or seminar courses, supplemental instruction and peer tutoring, academic advising and career counseling, and support programs for at-risk students (Cuseo, 2012b, p. 20).

All of these features come together to create a unique system within higher education that connects constituents across campuses and institutions alike in a student success and learning-centered approach. Early implementation of the program will naturally feature growing pains in institutional approach and assessment, yet the foundation is solid with decades of implementation practice and research. The use of relevant higher education and student development theoretical foundations and research provides a strong argument for the use of AVID in higher education; however, the tie to the intended target population of assisting first-generation and low-income students is somewhat lost in the transition to the higher education field. A model for specifically assisting these students through AHE would strengthen the relevance and connection to utilizing AVID in the post-secondary environment. However, the AVID strategies and overall model provides a seemingly good fit into assisting all students in achieving higher academic and student success.

Socratic Tutorial Model

The learning model utilized by AVID in their tutorial sessions is known as the Socratic Tutorial Model. This model is collaborative in nature and is distinctive in supporting “student learning by asking probing questions” and encouraging the tutor to facilitate the “learning process by teaching and modeling the inquiry-based process to the students” (Custer, 2013, p.
Historically, the Socratic Method, of which the Socratic Tutorial Model is based, has been utilized within higher education as a method of questioning students in order to assist them in arriving at a correct conclusion in tutorial sessions (Lasiewicz, 2008). Socratic questioning was primarily used in the fields of English and Law as a method of instruction by focusing on “inquiry and debate between or among individuals with different viewpoints wherein asking and answering questions stimulates critical thought and illuminates ideas” (Custer, 2013, p. 2). As the change is teaching style drew more to the lecture format, the Socratic questioning began to lose merit. However, AVID found the use of questioning as a form of teaching and learning to be useful in the educational environment it sought to create for students in the program. Therefore, peer tutors in the AVID program are trained in this form of questioning utilized in tutorial sessions.

Peer tutoring through AHE is based on the concept of collaborative learning and engages both the tutee and the tutor in the learning process. A focus is given on developing analytical and critical thinking skills that can be used in a variety of academic settings, which is built in part through collaborative dialogue between those in the tutoring setting (Custer, 2013). AVID utilizes training to develop peer tutors in the necessary skills to not only assist students in need of additional academic assistance but also be beneficial to the tutors themselves. Training of peer tutors has been categorized as a feature of effective educational practices and critical to developing a strong tutorial program (Barefoot, Gardner, Cutright, Morris, Schroeder, Schwartz, Siegel, & Swing, 2005; Kuh et al., 2005). Specific to AVID, training serves as an avenue of educating peer tutors in Socratic and collaborative learning methodologies which they are expected to utilize in the AVID and AHE tutorial setting (Custer,
Custer (2013) further acknowledges the benefit of serving in the peer tutor role in gaining positive learning effects for the tutor.

The AVID tutorial model includes several features. First, the model requires a minimum of sixteen hours of tutor training, including a variety of relevant topics instructed by a certified AVID trainer. Next, the system is based on four principles adapted from Reigstad and McAndrews’ (1984) work on an inquiry-based writing tutorial system. The four principles adapted by AVID are 1) establish and maintain rapport with the students, 2) make sure the students do the work, 3) remember the tutors do not have to be the experts, and 4) establish three forms of tutorials—student centered, collaborative, and teacher-centered (p. 98-99).

Additionally, AVID utilizes Costa’s (2001) revision of Bloom’s (1956, 2000) taxonomy of intellectual inquiry. Bloom’s original taxonomy as revised in 2000 divided a set of educational objectives into six levels of understanding: remembering, understanding, applying, analyzing, evaluating, and creating. Costa (2001) then revised Bloom’s taxonomy into three levels of thinking skills classified as input (gathering information), processing (processing information), and output (applying information). In adapting Costa’s revision, AVID describes these levels as Level One, Level Two, and Level Three, each encouraging a higher level of thinking and application of knowledge (AVID, 2013; Custer, 2013). Along with AVID’s WICOR strategies and Socratic questioning, the tutorial principles and Costa’s Levels of Thinking combine to create an “intentional design” which utilizes a well-integrated and collaborative system to achieve student success (Custer, 2013).

A critique of the tutorial process through AVID is the use of the same methodologies in the higher education program as used in the elementary and secondary programs. While there
will naturally be a difference in the learning environment and styles of students from elementary to high school to college, the use of the same methodologies might stagnate the learning process as facilitated by AVID. However, AVID’s approach does encourage customization and flexibility in utilizing the necessary strategies that will assist in student learning, allowing for institutions and professionals to assess which ones are most beneficial to their educational environment. Additionally, limited focus is given to the learning and benefit to the tutor in the process. While it is noted that tutors can gain in the learning or tutoring environment, little information is provided on how the AVID methodologies assist in tutor learning outside the tutorial process and training requirements. Greater research in this area will further support the use of AVID in higher education.

Peer Mentoring Paraprofessional Learning Series

Similar to the tutorial training, peer mentors in the AVID work-study mentorship program are required to participate in a mentor training, facilitated by a full-time AVID for Higher Education professional. The foundation of the peer mentoring learning series is Borton’s Process and Reflection Model of Learning (Borton, 1970), which challenges participants to reflect on their role as peer mentors, focus on how they perform the role, transform their practice, and using this transformation to inspire future action (AVID, 2013). The training is broken into three distinct sessions and is implemented with the following learning outcomes as a guide:

Part I:

• Understand the peer mentor’s role in student persistence
• Define healthy interactions with peers
• Understand basic communication skills (e.g. listening)
• Understand how to facilitate effective group interactions
• Apply AVID strategies to foster individual reflection, problem solving, group collaboration, and inquiry with peers

Part II:
• Understand diverse student needs (culture, race, sexual orientation, age, learning style, ability) and basic issues in college student development
• Identify strategies to maintain healthy interactions with peers
• Practice interpersonal helping skills
• Apply AVID strategies to foster individual reflection, problem solving, and inquiry with peers

Part III:
• Understand different types of verbal and nonverbal intercultural communication
• Examine how personal values and communication influence rapport with mentees
• Practice helping skills, including communicating in culturally proficient ways

Part IV:
• Practice helping skills, including communicating in culturally proficient ways
• Understand how to communicate across cultures effectively in times of stress

These learning outcomes guide the curriculum of the peer mentoring paraprofessional learning series and naturally build on top of previous trainings sponsored by AVID or through the institution. Limited research outside of standard mentoring research is provided by AVID in supporting the use of AVID methodologies in the mentoring process that will assist in student learning and growth. This is one area of development for the program as institutions utilize
AVID mentors in success initiatives such as living learning communities and first-year seminar courses.

Summary

While attendance rates throughout higher education have continued to rise over the last several decades, the academic preparedness and persistence rates of certain populations of students, such as first-generation, low-income, and racial/ethnic underrepresented populations, continue to flounder. National and institutional programs have been implemented to effect change in this area; however, there is still a need for more empirical research and effective institutional practice in order for there to be long reaching difference. Student involvement has been shown to positively influence student success, persistence, and retention factors for students and institutions, with a growing number of programs encouraging involvement inside and outside the classroom continuing to emerge. Peer leaders have become a utilized source of knowledge and support for students as institutions continue to develop ways to positively affect student success and persistence. Yet, while these peer leaders invest time and energy in assisting their fellow students, they are also engaged in an educationally purposeful activity that serves a mutual benefit to their own education. Their status as peer leaders and as students combines to create a unique learning and development situation that should be a focus for institutions and higher education research.

Little research has surfaced focusing on outcomes of students who serve in the peer leadership roles in higher education, with the primary focus of research being placed on the benefits of mentoring or tutoring to those on the receiving end of the service. Most
specifically, peer tutors and mentors are a highly utilized form of peer leadership that have been employed in the field for over a century and have shown to not only provide positive outcomes of those with whom they interact but also on their own personal and professional development. The THECB has supported the usage of these roles through the creation of the Collegiate Work-Study Mentorship Program and AVID for Higher Education by training students in relevant learning and assistance strategies and methodologies, such as WICOR, the Socratic Tutorial, and peer mentoring professional development, while engaging them in the respective program’s environment. This, in turn, provides an effective student success intervention strategy for college students in these peer assistance roles.

The purpose of this study is to examine the relationship of participation and involvement in these student success programs to academic success, persistence, and retention of students serving in the peer support roles of G-Force peer mentor and AHE peer tutor, as compared to students awarded work-study through the Texas Higher Education Coordinating Board. It is my hope that the study will add to the body of knowledge regarding students in peer leadership roles and their academic success.
CHAPTER 3

METHOD

Introduction

The purpose of this study was to examine the relationship of participation and involvement in a student success program to academic success, persistence, and retention of students serving in the peer support roles of G-Force peer mentor and AHE peer tutor. The study focused on selected and trained G-Force peer mentors and AHE peer tutors at selected Texas institutions of higher education as compared to students awarded work-study through the Texas Higher Education Coordinating Board. The research used quantitative methodology using numeric statistics (Bryman, 2008). The data gathered from the study will add to the literature on effective tutorial and academic intervention strategies in order to improve overall learning, persistence, and academic success in higher education.

Chapter 3 includes the following topics: restatement of the research questions, research hypothesis, research methodology, research design, population description, sample description, validity, reliability, data collection, data analysis, and summary of the method.

Restatement of the Research Questions

The following questions guided the research study:

RQ 1: What are the demographic characteristics of students who serve as AHE peer tutors, G-Force peer mentors, and students in other work-study programs in Texas?

RQ 2: Is there a difference in persistence among AHE peer tutors, G-Force peer mentors and students who participate in other work-study programs in Texas?

RQ 3: Is there a difference in grade point average among AHE peer tutors, G-Force peer mentors, and students in other work-study programs in Texas?
RQ 4: What is the relationship of being an AHE peer tutor or G-Force peer mentor position to student persistence, controlled for gender, race, ethnicity, pre-program GPA, and length of time in position, compared to students in other work study programs in Texas?

RQ 5: What is the relationship of being an AHE peer tutor or G-Force peer mentor position to student grade point average, controlled for gender, race, ethnicity, pre-program GPA, and length of time in position, compared to students in other work study programs in Texas?

Research Hypothesis

H1: There is a difference in demographic characteristics among students who serve as AHE peer tutors, G-Force peer mentors, and students in other work study programs in Texas.

H2: There is a positive difference in persistence among AHE peer tutors, G-Force peer mentors, as compared to work-study students.

H3: There is a positive difference in grade point average among AHE peer tutors, G-Force peer mentors, as compared to work-study students.

H4: There is a positive relationship between AHE peer tutor and G-Force peer mentor involvement and persistence for students who vary in gender, race, ethnicity, pre-program GPA, and length of time in position characteristics compared to work study students.

H5: There is a positive relationship between AHE peer tutor and G-Force peer mentor involvement and grade point average for students who vary in gender, race, ethnicity, pre-program GPA, and length of time in position characteristics compared to work study students.

Research Methodology

This study utilized quantitative methodology in order to make inferences about the data. Bryman (2008) described quantitative research as a “research strategy that emphasizes quantification in the collection and analysis of data” (p. 22). He also described it as using a deductive approach to testing theories and “incorporates the practices and norms of the
natural scientific model and of positivism in particular” (p. 22). The findings of the data can be reported objectively through this methodology (Bryman, 2008).

Research Design

The quantitative study used secondary data for analysis purposes. Utilizing Astin’s I-E-O model (1985) as a conceptual framework, participants were categorized as either a peer tutor in the AHE program or peer mentor in the G-Force Work-Study Mentorship Program or students awarded work-study through the THECB work-study program. The categorical variables measured included racial and ethnic background, gender, number of years in the program, and pre-program GPA. Data were gathered from the Education Research Center (ERC) at the University of Texas in Austin, TX. These variables were included in the data analysis in order to make inferences about the persistence and program GPA outcome variables.

Population

The population for the study includes all students who are selected as peer tutors through AHE and peer mentors through G-Force work-study mentorship program at grant funded institutions in Texas during 2009-2013. AHE peer tutors and G-Force peer mentors were specifically selected and trained in the respective methodologies and skill sets in order to serve in their hired roles on their campuses. Each AHE institution implemented the AHE program and worked with AVID to offer training on the Socratic Tutorial Method and Peer Mentoring Paraprofessional Learning Series to peer tutors during their tenure. Each G-Force program organized regular trainings on the mentor role and college access information. The comparison
group comprises of all students awarded work-study aid through the THECB work-study program during 2009-2013. This group was chosen because work-study offers the opportunity for employment primarily on-campus for enrolled students, yet differing from the AHE peer tutor and G-Force peer mentor positions in that the employment is not specifically academic or engagement based. The differences in roles among the three groups allowed for an adequate comparison. The researcher facilitated no control over the design or training implementation of the comparison groups.

The population group was identified utilizing data gathered through mentor/tutor intake forms utilized by THECB to collect relevant information from students hired as peer tutors and mentors at the grant funded institutions. Data from the THECB through the ERC included descriptive and outcome variable information on the sample and comparison groups. Working in collaboration with the Assistant Director of P-16 Initiatives for THECB and the LBJ School of Public Affairs at the University of Texas at Austin, I gained access to the ERC database to gather the data from the mentor/tutor intake forms merged with the population data from the ERC in order to select a valid sample within the study parameters. Data for the comparison group were also collected from the ERC through information provided by institutions during regular reporting cycles.

Sample

The entire population was used for the various statistical analyses appropriate to the research study. When a smaller sample was needed, the formula developed by Green (1991) to determine the appropriate number of subjects needed for multiple regression analysis, \( N \geq \)
50+8p, where p is the number of predictors, was used. With a total of five predictors (program association, race/ethnicity, gender, pre-program GPA, and length of time in the program), a minimum number of 90 for the sample were required for each comparison group. However, because of the size of the population, this number was increased to a minimum of 100 for each program group in the study. The sample was used to make inferences about the outcome variables to the target population.

Data Collection

For each year of grant funding support from THECB, participating institutions submitted a mentor/tutor intake form for each student in the G-Force Work-Study Mentorship Program and AVID for Higher Education program. These forms were submitted in the spring semester of each academic year to the THECB and are entered into a database. The mentor/intake forms include student name, identification number, classification, average hours worked, GPA at the beginning of program participation, and current GPA at the time of form submission. This form was used to identify students in the program and coordinating yearly participation in the respective programs. The data were entered into a dataset by THECB staff and sent to the ERC for the purposes of this study, but only included the student THECB ID, institution, program, and years of program participation. Institutional data on the student, including independent variables (race/ethnicity, gender, pre-program GPA) and dependent variables (program GPA and persistence) were collected utilizing data housed at the ERC. The data from the mentor/tutor intake forms were de-identified and sent to the ERC to be merged with the related ERC data into one usable dataset. As a part of a contract under the THECB and the LBJ
School of Public Affairs at UT Austin, I gained access to this dataset for research purposes. An additional aspect included the assistance of a UT Austin graduate student who merged and cleaned the dataset for analysis in SPSS. Once the dataset was completed, I traveled to UT Austin to run the appropriate data analysis for the study.

Data Analysis

The secondary data were analyzed utilizing version 20 of the SPSS statistical software used by the ERC on the research computer. In order to address the research questions presented in the study, various univariate and bivariate statistical analyses was used in data analysis. Research Question 1 addressed four primary descriptive characteristics, including ethnicity, race, gender, pre-program GPA, and role as AVID peer tutor, G-Force peer mentor, or work-study student. To measure the descriptive characteristics of the sample in research question one, descriptive statistics were used. The total number and percentage distribution was presented for each of the descriptive characteristics. Mean and standard deviation were used as measures of central tendency for the pre-program GPA and program GPA variables. This allowed for an overall view of the population in terms of their descriptive variables.

Research Question 2 proposed a difference in the persistence outcome variable between AVID program peer tutors and G-Force peer mentors as compared to work-study students. To address this hypothesis and research question two, a chi-square test was used to measure the difference in persistence for peer tutors and peer mentors compared to work-study students. Because the persistence outcome variable is a dichotomous (categorical) variable, the chi-square test was most appropriate to test the difference in distribution
between the comparison groups. The chi-square test assessed the differences in persistence across the descriptive variables of race, gender, and employment status. Outside of the condition that the variables must be qualitative, other conditions were met, one being that all observations must be independent of each other, meaning no individuals can overlap in the variable categories. These variable categories must also be measured on the same individuals under the assumption of no relationship between the variables. Assumptions of the chi-square test include 1) observations made are independent and randomly sampled from the population and 2) the expected frequency for each cell is non-zero (Jaccard & Becker, 2002). Given that the sample size for the study was N=7707, the expected frequency for each cell in the chi-square distribution was above 0, meeting the assumption.

Research Question 3 proposed a difference in the grade point average outcome variable among the AHE program peer tutors, G-Force peer mentors, and work-study students. To address this research question, an ANOVA was used to test the difference in program GPA between the three groups, analyzing for any statistical significance. The ANOVA is used to measure whether the means of two or more independent groups are statistically significant from each other and is used under the assumption that the sample data for all groups have been randomly sampled and is normally distributed. It is also most appropriately used when measuring a continuous variable, such as GPA. In this case, all relevant assumptions were met, making it a fitting statistical test for research question three. Additionally, the Levene’s Test of Equality of Variances was used to ensure the variances for each group are equal. Effect sizes and confidence intervals were also measured to test for practical significance and offer a holistic view of the results.
Research Question 4 proposed a relationship between persistence and involvement in the AVID program as a peer tutor or G-Force program as a peer mentor while controlling for the racial/ethnic, gender, and pre-program GPA descriptive variables. Data analysis to support these hypotheses and research question four utilized logistic regression analysis to infer the relationship between involvement in AVID and G-Force and persistence towards graduation for the participants, while controlling for descriptive characteristics, in comparison to work-study students. Because the persistence dependent variable is categorical, logistic regression was the most appropriate statistical analysis to determine relationship among the variables. Logistic regression is most suitable for measuring the relation and strength of relationship between a categorical variable and one or more predictor variables (Peng & So, 2002). For this research question, the independent variables had a mix of categorical and continuous variables, which requires the use of logistic regression for the analysis. Assumptions for logistic regression include 1) no assumption of a linear relationship between the dependent and independent variables 2) the dependent variable is dichotomous (2 categories) 3) the independent variables do not need to be interval, normally distributed, linearly related, or of equal variance 4) the categories must be mutually exclusive and 5) larger samples are required than for linear regression (Burns & Burns, 2008). The chi-square goodness-of-fit test was used to ensure the assumptions for logistic regression were met. For this research question, the statistical program STATA was used through the ERC to run the analysis. The version of SPSS on the ERC programs did not have the logistic regression function, therefore, the analysis was run using a different program.
Research Question 5 proposed a relationship between grade point average and involvement in the AVID program as a peer tutor and G-Force program as a peer mentor while controlling for the racial/ethnic, gender, and pre-program GPA descriptive variables. Data analysis to support these hypothesis and research question five utilized multiple regression analysis to examine the relationship between the involvement in the AVID and G-Force program and the descriptive variables on GPA for the participants, compared to work-study students. Multiple regression is used when you want to predict the value or relationship of a continuous variable based on the value of two or more independent variables (Jaccard & Becker, 2002). The parameters of Research Question 5 fit the definition of multiple regression, making it the most appropriate statistical tool for analysis. Eight primary assumptions are necessary to meet to ensure appropriate results. The first assumption is that the dependent variable is measured on a continuous scale. In this case, program GPA is the dependent variable and is therefore continuous. The second assumption is there are two or more independent variables. Race, gender, prior academic achievement, and employment status all serve as the independent variables; therefore the second assumption is met. The third assumption is there is an independence of observation, which can be checked using the Durbin-Watson statistic in SPSS. The fourth assumption is there needs to be a linear relationship between the dependent variable (program GPA) and each of the independent variables, which can be checked by graphing scatterplots in SPSS. The fifth assumption is the data need to show homoscedasticity. The sixth is that the data must not show multicollinearity, or two or more of the independent variables must not be highly correlated to each other. The seventh assumption is no significant outliers, high leverage points, or highly influential points. The last and eighth assumption is that
the errors are normally distributed, which can be checked using a histogram in SPSS.

Assumptions three through eight can all be checked using the appropriate statistical tests in
SPSS. Assumptions one and two must be checked prior to, but were already been met given the
parameters of the research question.

Summary

This chapter presented the primary functions of the research method for the study,
information on the study population and sample, as well as a description of the data collection
and analysis process. Utilizing a quantitative methodology and relevant statistical analysis, the
research method addressed the proposed research questions and goals of the study. The next
chapter will discuss the results of the data analysis.
CHAPTER 4

RESULTS

Introduction

As stated in chapter 1, the purpose of this study was to examine the relationship of participation and involvement in a student success program to the academic success and persistence of students serving in the peer support roles of G-Force peer mentor and AHE peer tutor as compared to students awarded work-study through the Texas Higher Education Coordinating Board. The study was based conceptually on Astin’s I-E-O model and theory of student involvement (1984). Utilizing data from THECB and the UT Austin ERC, I conducted various analyses to address the research questions that guided the study. This chapter will review the results of the data analysis conducted to address the proposed research questions and will be organized by the required statistical analysis for each research question. For analysis purposes the AVID for Higher Education peer tutors are identified as AVID, Collegiate G-Force Work-Study Mentorship Program as Work-Study Mentor (WSM), and Texas Work-Study Program as TX Work-Study (TX WS).

Demographics

Research Question 1 asked the question, “What are the demographic characteristics of students who serve as AHE peer tutors, GO Center Work-Study peer mentors, and students in other work-study programs in Texas?” The corresponding hypothesis stated that there is a difference in demographic characteristics among students who serve as AHE peer tutors, G-Force Work-Study peer mentors, and students in other work study programs in Texas. The
primary demographics of focus for this study were the program distribution along with gender and ethnic/racial profiles. After removing students who were listed in more than one program and more than one institution, the remaining total sample was 7707 ($N = 7707$). Table 1 shows the overall program distribution as well as the gender distribution by program and overall. Of the overall sample, Texas Work-study comprised the majority, making up 89.4% of the distribution, skewing the distribution significantly. AVID had the smallest group, taking up only 2.9% of the total sample. Each program was comprised majorly of females with each group having less than 40% of the group consisting of males.

Table 1

*Program and Gender Distribution by Total Sample and by Program*

<table>
<thead>
<tr>
<th>Program</th>
<th>$N$</th>
<th>Percent</th>
<th>Male</th>
<th>Percent</th>
<th>Female</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVID</td>
<td>226</td>
<td>2.9%</td>
<td>76</td>
<td>33.6%</td>
<td>150</td>
<td>66.4%</td>
</tr>
<tr>
<td>WSM</td>
<td>588</td>
<td>7.6%</td>
<td>198</td>
<td>33.7%</td>
<td>390</td>
<td>66.3%</td>
</tr>
<tr>
<td>TX WS</td>
<td>6893</td>
<td>89.4%</td>
<td>2512</td>
<td>36.4%</td>
<td>4381</td>
<td>63.6%</td>
</tr>
<tr>
<td>Total</td>
<td>7707</td>
<td>100%</td>
<td>2786</td>
<td>36.1%</td>
<td>4921</td>
<td>63.9%</td>
</tr>
</tbody>
</table>

Texas Higher Education Coordinating Board separates ethnic and racial profiles in their data collection; therefore the corresponding data for the study are listed separately. Table 2 shows the breakdown according to ethnicity overall and by program. Per the table distribution, students of Hispanic or Latino descent are the majority in not only the total sample but also in the AVID and Work-Study Mentor programs. For the Texas Work-Study program Hispanics are a
few percentage points behind non-Hispanics, yet still make up a large portion of the group. Smaller portions declined to answer, however Texas Work-Study had the largest percentage in this area.

Table 2

*Ethnic Distribution by Total Sample and by Program*

<table>
<thead>
<tr>
<th>Program</th>
<th>N</th>
<th>Percent</th>
<th>AVID</th>
<th>Percent</th>
<th>WSM</th>
<th>Percent</th>
<th>TX WS</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic or Latino Origin</td>
<td>3471</td>
<td>45%</td>
<td>134</td>
<td>59.3%</td>
<td>388</td>
<td>66%</td>
<td>2949</td>
<td>42.8%</td>
</tr>
<tr>
<td>Not Hispanic or Latino Origin</td>
<td>3418</td>
<td>44.3%</td>
<td>86</td>
<td>38.1%</td>
<td>157</td>
<td>26.7%</td>
<td>3175</td>
<td>46.1%</td>
</tr>
<tr>
<td>Not Answered</td>
<td>818</td>
<td>10.6%</td>
<td>6</td>
<td>2.7%</td>
<td>43</td>
<td>7.3%</td>
<td>769</td>
<td>11.2%</td>
</tr>
<tr>
<td>Total</td>
<td>7707</td>
<td>100%</td>
<td>226</td>
<td>2.9%</td>
<td>588</td>
<td>7.6%</td>
<td>6893</td>
<td>89.4%</td>
</tr>
</tbody>
</table>

As discussed above, racial categories are listed separately in the THECB data output. Table 3 shows the racial distribution of the overall sample and individual groups in the study. Specific attention is aimed at the total for the race and program columns, resulting in a total $N = 7897$. The difference between this number and the sample $N$ of 7707 is 190 and may be a result of students entering more than one racial category on their student profile compiled by the THECB. In summary, the largest groups comprise of White, Black, and Unknown racial categories. The large percentage of students identified as Unknown is particularly interesting and brings into question the thoroughness of the categories or self-identification tactics of students completing the profiles.
Table 3

*Racial Distribution by Total Sample and by Program*

<table>
<thead>
<tr>
<th></th>
<th>AVID</th>
<th>WSM</th>
<th>TX WS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>3203</td>
<td>109</td>
<td>199</td>
<td>2895</td>
</tr>
<tr>
<td>Black</td>
<td>1684</td>
<td>21</td>
<td>91</td>
<td>1572</td>
</tr>
<tr>
<td>Asian</td>
<td>405</td>
<td>3</td>
<td>29</td>
<td>373</td>
</tr>
<tr>
<td>Native American</td>
<td>185</td>
<td>5</td>
<td>10</td>
<td>170</td>
</tr>
<tr>
<td>International</td>
<td>19</td>
<td>0</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>26</td>
<td>0</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>Unknown</td>
<td>2375</td>
<td>91</td>
<td>260</td>
<td>2024</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7897</td>
<td>229</td>
<td>601</td>
<td>7067</td>
</tr>
</tbody>
</table>

Pre-program GPA and program GPA averages were also analyzed. Table 4 shows the breakdown overall and by program of the GPA prior to program participation and GPA while involved in the program for students who had data for both pre-program GPA and program GPA (N = 3552). The GPA obtained prior to program participation was slightly lower than the GPA while in the respective programs. The average GPA went up for students in the AVID and Work-Study Mentorship programs yet went down slightly for students awarded TX Work-Study. Overall there was a negative difference in average GPA for all the programs as well as with the Texas Work-Study group. AVID and Work-Study Mentorship both had positive changes, with
Work-Study Mentorship rising .06 points. This shows a beginning analysis towards the
difference in overall GPA among the three groups.

Table 4

Means for Pre-Program GPA and Program GPA Variables by Total Sample and by Program

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>AVID</th>
<th>WSM</th>
<th>TX WS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
</tr>
<tr>
<td>Pre-Program GPA</td>
<td>2.83 .663</td>
<td>3.25 .569</td>
<td>2.97 .681</td>
<td>2.81 .660</td>
</tr>
<tr>
<td>Program GPA</td>
<td>2.85 .757</td>
<td>3.27 .575</td>
<td>3.03 .650</td>
<td>2.78 .828</td>
</tr>
<tr>
<td>Difference</td>
<td>+.02 +.02</td>
<td>+.06 -.03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The outcome variable for persistence was also calculated for distribution purposes in
the overall sample and the individual groups, shown in Table 5. A majority of the overall group
persisted (79.7%), meaning they were either enrolled after the time frame of the study or they
graduated from their institution. AVID and Work-Study Mentorship were similar in percentage
points for the persistence distribution. Texas Work-Study was almost ten percentage points
difference from the other two programs in persistence, showing the AVID and Work-Study
Mentorship had a greater difference in students who persisted towards completion.
This section reviewed the descriptors of the overall sample as well as the individual programs to give a better idea of the differences among the groups. In most of the categories there were differences among the groups, meeting the assumption of the hypothesis for Research Question 1.

Chi-Square

Research Question 2 asked the question “Is there a difference in persistence among AHE peer tutors, GO Center peer mentors and students who participate in other work-study programs in Texas?” The corresponding hypothesis stated that there is a positive difference in persistence among AHE peer tutors, G-Force Work-Study peer mentors, as compared to work-study students. To address this question, chi-square analysis was utilized to interpret the difference in the persistence outcome variable among the AVID, Work-Study Mentor, and TX Work-Study input variables.
The Chi-Square test of independence showed there was a significant association between the program membership and whether or not a student persisted towards graduation \(\chi^2 (2, N = 7707) = 43.141, p < .001\). A calculation of Cramér’s V showed an effect size of .075, indicating a high association between persistence and program association. This value is highly significant \((p < .001)\), demonstrating the strength of the relationship between persistence and program association is significant.

The standardized residuals show significance in expected values of persistence. Using a baseline of \(\pm 2.58\) at \(p < .01\), there were significantly less students who did not persist in AVID \((z = -2.9)\) and Work-Study Mentorship \((z = -4.7)\) than expected. All other standardized residuals showed a moderate level of expectancy. Table 6 shows the summarized output of the analysis.

Table 6  
Chi-Square Analysis-Differences in Persistence by Program

<table>
<thead>
<tr>
<th>Program</th>
<th>AVID</th>
<th>WSM</th>
<th>TX WS</th>
<th>(\chi^2)</th>
<th>(\Phi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>26</td>
<td>68</td>
<td>1471</td>
<td>43.141**</td>
<td>.075</td>
</tr>
<tr>
<td></td>
<td>(-2.9)</td>
<td>(-4.7)</td>
<td>(1.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>200</td>
<td>520</td>
<td>5422</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.5)</td>
<td>(2.4)</td>
<td>(-1.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>226</td>
<td>588</td>
<td>6893</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. **\(p < .001\). Standardized residuals appear in parenthesis below group frequencies.

Overall, the analysis showed there were differences in the number of students who persisted towards graduation among the AVID program as compared to the G-Force Work-Study Mentorship and Texas Work-Study programs. The results indicated the differences were
significant among the groups due to program association, therefore meeting the assumption of the hypothesis for Research Question 2.

ANOVA

Research Question 3 asked the question, “Is there a difference in grade point average among AHE peer tutors, G-Force peer mentors, and students in other work-study programs in Texas?” The corresponding hypothesis states that there is a positive difference in grade point average among AHE peer tutors, G-Force peer mentors, as compared to work-study students.

To address this question, ANOVA analysis was used to determine a difference in GPA among the three groups. For analysis purposes random samples of the three groups were drawn to obtain near equal sample numbers. The descriptive output is listed in Table 7.

Table 7

ANOVA Descriptives

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVID</td>
<td>194</td>
<td>3.2719</td>
<td>.57367</td>
<td>.04119</td>
<td>3.1906</td>
<td>3.3531</td>
</tr>
<tr>
<td>WSM</td>
<td>193</td>
<td>3.0340</td>
<td>.68822</td>
<td>.04954</td>
<td>2.9363</td>
<td>3.1317</td>
</tr>
<tr>
<td>TX WS</td>
<td>221</td>
<td>2.79691</td>
<td>.84154</td>
<td>.05661</td>
<td>2.6845</td>
<td>2.9077</td>
</tr>
<tr>
<td>Total</td>
<td>608</td>
<td>3.0234</td>
<td>.74143</td>
<td>.03007</td>
<td>2.9644</td>
<td>3.0825</td>
</tr>
</tbody>
</table>

The Levene’s statistic resulted in a significant $p$ value of .000, therefore equal variances were not assumed. The Welch statistic was used instead to provide a test for the equality of means resulting in a statistically significant difference among the groups as determined by the
one-way ANOVA ($F(2,399.647) = 23.806, p = .000$). Both eta squared and omega squared were calculated as a measure of effect size. Using $\eta^2$ as the measure of effect size, the proportion of variance in program GPA that can be attributed to group association in the sample is 7%. Using $\omega^2$ the effect size was 6.8%, resulting in a similar effect as calculated by eta squared. Using the suggested values of .01, .06, and .14 as representing small, medium, and large effects respectively (Kirk, 1996), the effects suggest a moderate level of variability due to program association. A Games-Howell post-hoc test revealed that there was a high statistically significant difference between the AVID and Texas Work-Study groups ($p = .000$). The AVID and Work-Study Mentor groups also had a statistically significant difference ($p = .001$) along with Work-Study Mentor and TX Work-Study ($p = .005$).

Overall, there was a difference in the outcome variable program GPA among the three groups, therefore meeting the assumption of the hypothesis for Research Question 3.

**Logistic Regression**

Research Question 4 asked the question, “What is the relationship of being an AHE peer tutor or G-Force peer mentor position to student persistence, controlled for gender, race/ethnicity, prior academic achievement, and length of time in position, compared to students in other work study programs in Texas?” The corresponding hypothesis stated there is a positive relationship between AHE peer tutor and G-Force peer mentor involvement and persistence for students who vary in gender, race/ethnicity, prior academic achievement, and length of time in position characteristics compared to work study students. Because the SPSS program used for the purposes of this study did not have the logistic regression function, the
STATA statistical analysis program was used instead, which offers a different type of output for analysis but runs the same metrics for the overall analysis.

Table 8

*Logistic Regression Analysis for Persistence*

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>B</th>
<th>SE</th>
<th>z</th>
<th>P &gt;z</th>
<th>Exp(B)</th>
<th>95% C.I. for Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Limit</td>
</tr>
<tr>
<td>AVID</td>
<td>-.071</td>
<td>.311</td>
<td>-.23</td>
<td>.820</td>
<td>.93</td>
<td>-.680</td>
</tr>
<tr>
<td>WSM</td>
<td>.413</td>
<td>.233</td>
<td>1.77</td>
<td>.076</td>
<td>1.51</td>
<td>-.044</td>
</tr>
<tr>
<td>TX WS</td>
<td>Baseline group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.117</td>
<td>.099</td>
<td>-1.18</td>
<td>.238</td>
<td>.89</td>
<td>-.311</td>
</tr>
<tr>
<td>Pre-Program GPA</td>
<td>.841</td>
<td>.075</td>
<td>11.28</td>
<td>.000</td>
<td>2.32</td>
<td>.694</td>
</tr>
<tr>
<td>Length of Time</td>
<td>.434</td>
<td>.106</td>
<td>4.08</td>
<td>.000</td>
<td>1.54</td>
<td>.226</td>
</tr>
<tr>
<td>Latino/a</td>
<td>.161</td>
<td>.102</td>
<td>1.57</td>
<td>.117</td>
<td>1.17</td>
<td>-.040</td>
</tr>
<tr>
<td>White</td>
<td>-.404</td>
<td>.406</td>
<td>-1.00</td>
<td>.319</td>
<td>.67</td>
<td>-1.20</td>
</tr>
<tr>
<td>Black</td>
<td>-.332</td>
<td>.410</td>
<td>-.81</td>
<td>.418</td>
<td>.72</td>
<td>-1.14</td>
</tr>
<tr>
<td>Asian</td>
<td>.311</td>
<td>.458</td>
<td>.68</td>
<td>.496</td>
<td>1.37</td>
<td>-.586</td>
</tr>
<tr>
<td>Native American</td>
<td>.367</td>
<td>.435</td>
<td>.84</td>
<td>.399</td>
<td>1.44</td>
<td>-.486</td>
</tr>
<tr>
<td>Unknown</td>
<td>-.265</td>
<td>.426</td>
<td>-.62</td>
<td>.533</td>
<td>.77</td>
<td>-1.10</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-1.033</td>
<td>.516</td>
<td>-2.00</td>
<td>.045</td>
<td>.36</td>
<td>-2.04</td>
</tr>
<tr>
<td>Model $\chi^2$</td>
<td>181.26</td>
<td></td>
<td></td>
<td></td>
<td>$p &lt;.001$</td>
<td></td>
</tr>
<tr>
<td>McFadden’s $R^2$</td>
<td>.0596</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>3572</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* TX WS omitted because of collinearity. International predicted success perfectly therefore was dropped and four observations were removed. Pacific Islander was not included in the count due to small numbers.

From Table 8 it is shown that all independent variables were included in the model, however not all were significant. Texas Work-Study served as the baseline group because of collinearity. The analysis shows no statistical significance in the relationship between
membership in AVID and Work-Study Mentorship and persistence. Pre-program GPA and number of times in the program both resulted in statistical significance at $p < .001$. The odds ratio, or $\text{Exp}(B)$ in table eight, for the Pre-program GPA coefficient is 2.32 with a 95% confidence interval of (.69, .99). This suggests that students who have a high GPA prior to participating in the program are almost two and a half times more likely to persist than those who have a lower GPA. None of the ethnicity or racial factors resulted in statistical significance in the model, indicating no relationship between persistence and the related independent variables. The independent variables Work-Study Mentor, length of time in the program, Asian and Native American were all close to one and a half more times likely to persist according to the model. The overall model was shown to be statistically significant $\chi^2 (12, N = 3572) = 181.26, p < .001$. The McFadden’s $R^2$ resulted in a value of .0596, which means roughly 6% of the variance in persistence can be attributed to the model. Therefore 94% of the variance is accounted for by other factors.

The logistic regression analysis produced a positive significant relationship between persistence and the model indicating the model was reliable in measuring the relationship between the variables and the persistence outcome. However, the results showed there was no significant relationship between the AVID and WSM groups to persistence, therefore failing to meet the assumption of the hypothesis for Research Question 5.

Multiple Regression

Research Question 5 asked the question, “What is the relationship of being an AHE peer tutor or GO Center peer mentor position to student grade point average, controlled for gender,
race/ethnicity, prior academic achievement, and length of time in position, compared to students in other work study programs in Texas?” The corresponding hypothesis stated that there is a positive relationship between AHE peer tutor and G-Force peer mentor involvement and grade point average for students who vary in gender, race/ethnicity, prior academic achievement, and length of time in position characteristics compared to work study students. A multiple regression analysis was conducted to see if the independent variables listed above predicted GPA for students in the various programs.

The total sample size for the multiple regression analysis was 3552, meaning this number of students had data for pre-program GPA and GPA while in the program. The average GPA while in the various programs was slightly higher than before they entered the program, showing there was a positive difference in GPA after serving in the role. Pearson correlation showed a strong significant relationship between pre-program GPA and program GPA \( (r = .564, p < .001) \). No other indicators resulted in a significant relationship between GPA. This indicates pre-program GPA is the best indicator of GPA performance while in the program.

Table 9

*Multiple Regression Descriptives*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Program GPA</td>
<td>3552</td>
<td>2.8346</td>
<td>.66273</td>
</tr>
<tr>
<td>Program GPA</td>
<td>3552</td>
<td>2.8480</td>
<td>.75745</td>
</tr>
</tbody>
</table>

When reviewing the correlations among the predictor variables, all had low correlations except the Work-Study Mentor and Texas Work-Study variables \( (r = -.825) \). This relationship
results in multicollinearity between the variables, which can cause problems for the multiple regression model. However, the variance inflation factor (VIF) and tolerance statistic show values of 1.427 and .701 for Texas Work-Study respectively, which provides a more appropriate diagnosis of multicollinearity. The White, Black, and Unknown racial descriptors produced a high VIF and low tolerance value, making the B coefficient less reliable when aiming to generalize to the overall population. Gender \( (t = -5.369, p < .001) \) and Pre-program GPA \( (t = 37.811, p < .001) \) were shown to be significant and had reliable collinearity statistics, therefore can be generalized to the overall population. The programs of focus, AVID and TX Work-Study had no significance individually to the outcome program GPA variable. Table 10 shows a summary table for the coefficient output ran through the multiple regression analysis in SPSS.

Table 10

*Multiple Regression Coefficients*

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>( B )</th>
<th>( SE )</th>
<th>( t )</th>
<th>( Sig. )</th>
<th>( Collinearity Statistics )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>AVID</td>
<td>.030</td>
<td>.078</td>
<td>.39</td>
<td>.697</td>
<td>.713</td>
</tr>
<tr>
<td>WSM Baseline group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TX WS</td>
<td>-.061</td>
<td>.045</td>
<td>-1.366</td>
<td>.172</td>
<td>.701</td>
</tr>
<tr>
<td>Gender</td>
<td>-.188</td>
<td>.022</td>
<td>-5.369</td>
<td>.000</td>
<td>.983</td>
</tr>
<tr>
<td>Pre-Program GPA</td>
<td>.618</td>
<td>.016</td>
<td>37.811</td>
<td>.000</td>
<td>.927</td>
</tr>
<tr>
<td>Length of Time</td>
<td>.027</td>
<td>.020</td>
<td>1.334</td>
<td>.182</td>
<td>.986</td>
</tr>
<tr>
<td>Latino/a</td>
<td>.008</td>
<td>.022</td>
<td>.352</td>
<td>.725</td>
<td>.478</td>
</tr>
<tr>
<td>White</td>
<td>.077</td>
<td>.089</td>
<td>.870</td>
<td>.384</td>
<td>.061</td>
</tr>
<tr>
<td>Black</td>
<td>-.061</td>
<td>.090</td>
<td>-.676</td>
<td>.499</td>
<td>.075</td>
</tr>
<tr>
<td>Asian</td>
<td>.142</td>
<td>.095</td>
<td>1.488</td>
<td>.137</td>
<td>.215</td>
</tr>
<tr>
<td>Native American</td>
<td>.068</td>
<td>.087</td>
<td>.778</td>
<td>.437</td>
<td>.778</td>
</tr>
<tr>
<td>Unknown</td>
<td>.002</td>
<td>.093</td>
<td>.019</td>
<td>.985</td>
<td>.054</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.125</td>
<td>.121</td>
<td>9.330</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

*Dependent Variable: Cumulative Program GPA*
Table 11 shows the model summary of the multiple regression analysis. Model 6 is the model of interest because it includes all of the predictor variables of focus in the study. The $R$ has a value of .575, which shows a strong positive relationship between the model and the program GPA outcome variable. The $R^2$ resulted in a value of .330, meaning 33% of the variation in the results can be explained by the model. This also means that 67% of the variation in the outcome variable is not associated with the predictor variables. However, the change in the F statistic from the previous model resulted in a significance of $p < .001$, showing that the change in the model is significant. It is interesting to note that the biggest change in the F statistic comes between Models 1 and 2 when GPA was added to the model. This further supports earlier results that pre-program GPA has a significant effect on GPA while in the program. The Durbin-Watson statistic shows a value of 2.019 which is close to the recommended value of 2 (Field, 2009), which shows that the assumption of independent errors is reasonable.

Table 11

**Multiple Regression Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R$ Square</th>
<th>Adjusted $R$ Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$R$ Square Change</td>
<td>$F$ Change</td>
</tr>
<tr>
<td>1</td>
<td>.086$^a$</td>
<td>.007</td>
<td>.007</td>
<td>.75484</td>
<td>.007</td>
<td>13.296</td>
</tr>
<tr>
<td>2</td>
<td>.565$^b$</td>
<td>.319</td>
<td>.318</td>
<td>.62546</td>
<td>.311</td>
<td>1621.104</td>
</tr>
<tr>
<td>3</td>
<td>.565$^c$</td>
<td>.319</td>
<td>.318</td>
<td>.62547</td>
<td>.000</td>
<td>.878</td>
</tr>
<tr>
<td>4</td>
<td>.565$^d$</td>
<td>.319</td>
<td>.318</td>
<td>.62546</td>
<td>.000</td>
<td>1.150</td>
</tr>
<tr>
<td>5</td>
<td>.569$^e$</td>
<td>.324</td>
<td>.323</td>
<td>.62336</td>
<td>.005</td>
<td>24.920</td>
</tr>
<tr>
<td>6</td>
<td>.575$^f$</td>
<td>.330</td>
<td>.328</td>
<td>.62103</td>
<td>.006</td>
<td>4.813</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), TX Work-Study, AVID
b. Predictors: (Constant), TX Work-Study, AVID, pre_gpa
c. Predictors: (Constant), TX Work-Study, AVID, pre_gpa, Ethnic Origin
d. Predictors: (Constant), TX Work-Study, AVID, pre_gpa, Ethnic Origin, times
e. Predictors: (Constant), TX Work-Study, AVID, pre_gpa, Ethnic Origin, times, gender
f. Predictors: (Constant), TX Work-Study, AVID, pre_gpa, Ethnic Origin, times, gender, native_american, pacific_islander, international, white, asian, black, unknown
Table 12 shows the output for ANOVA under multiple regression. Similar to the model summary is shows analysis for all models ran to predict the program GPA outcome variable.

Model 6 includes all of the independent variables shows of F-ratio of 134.191, meaning the model improved overall prediction of the program GPA outcome variable compared to the inaccuracy of the model, which is significant at \( p < .001 \). Yet, similar to previous analysis, the biggest improvement comes when adding the pre-program GPA variable to the model, resulting in an \( F \) of 553.278 and significance at \( p < .001 \).

Table 12

*Multiple Regression ANOVA* by Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>( F )</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>15.151</td>
<td>2</td>
<td>7.576</td>
<td>13.296</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>2022.157</td>
<td>3549</td>
<td>.570</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2037.309</td>
<td>3551</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Regression</td>
<td>649.328</td>
<td>3</td>
<td>216.443</td>
<td>553.278</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1387.980</td>
<td>3548</td>
<td>.391</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2037.309</td>
<td>3551</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Regression</td>
<td>649.672</td>
<td>4</td>
<td>162.418</td>
<td>415.164</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1387.637</td>
<td>3547</td>
<td>.391</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2037.309</td>
<td>3551</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Regression</td>
<td>650.122</td>
<td>5</td>
<td>130.024</td>
<td>332.375</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1387.187</td>
<td>3546</td>
<td>.391</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2037.309</td>
<td>3551</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Regression</td>
<td>659.805</td>
<td>6</td>
<td>109.967</td>
<td>283.001</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1377.504</td>
<td>3545</td>
<td>.389</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2037.309</td>
<td>3551</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Regression</td>
<td>672.800</td>
<td>13</td>
<td>51.754</td>
<td>134.191</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1364.509</td>
<td>3538</td>
<td>.386</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2037.309</td>
<td>3551</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: gpa
b. Predictors: (Constant), TX Work-Study, AVID
c. Predictors: (Constant), TX Work-Study, AVID, pre_gpa
d. Predictors: (Constant), TX Work-Study, AVID, pre_gpa, Ethnic Origin
e. Predictors: (Constant), TX Work-Study, AVID, pre_gpa, Ethnic Origin, times
f. Predictors: (Constant), TX Work-Study, AVID, pre_gpa, Ethnic Origin, times, gender
g. Predictors: (Constant), TX Work-Study, AVID, pre_gpa, Ethnic Origin, times, gender, native_american, pacific_islander, international, white, asian, black, unknown
Summary

This chapter reviewed the results of the statistical analysis run to address the research questions that guided the study. Chapter 5 will provide a discussion on the results as well as implications for future research and practice.
CHAPTER 5
DISCUSSION AND IMPLICATIONS

Introduction

As mentioned in previous chapters, the purpose of this study was to examine the relationship of participation and involvement in a student success program to academic success, persistence, and retention of students serving in the peer support roles of G-Force peer mentor and AHE peer tutor, focusing on selected and trained G-Force peer mentors and AHE peer tutors at selected Texas institutions of higher education as compared to students awarded work-study through the Texas Higher Education Coordinating Board. This chapter includes a discussion on the research findings presented in chapter 4 as it relates to previous research on the topic. Implications for future research are also discussed.

Discussion of Findings

Student success continues to be a pressing topic in higher education as more colleges and universities are seeking ways to facilitate academic success and progression towards completion of the college degree. Astin’s (1993b, 1999) empirical research showcased the linkage between student success and building campus connections, offering a framework for involving students in co-curricular programs that can positively impact college success. Programs such as the Collegiate G-Force Mentorship Program and AVID for Higher Education were funded by the Texas Higher Education Coordinating Board to bring additional resources to college and university campuses that could support overall student success for not only the students in need of strategic educational services but also the students hired to provide the
services. AHE peer tutors and G-Force peer mentors in these programs are placed in a unique position to offer educational and academic services to their fellow students through not only an employment opportunity but also a student involvement and leadership role. These peer leadership positions also offer an opportunity for not only student involvement but also a way to engage with curriculum and peers outside of the classroom environment. Kuh (1995) referred to these opportunities as the “other curriculum,” where students are learning through their extracurricular activities in college (p. 124). He pressed for more research to identify specific out of class experiences that directly influenced desired outcomes for college students and since that time, higher education research has taken a closer look to redefine how college students learn inside and outside the classroom and the environments that can contribute to college student success (American College Personnel Association, 1996; Council for the Advancement of Standards in Education, 2008; Keeling, 2006). This study sought to examine the relationship between these roles and achieving student success indicators such as GPA and persistence.

The research questions presented attempted to identify the demographic characteristics of students in the population, differences in GPA and persistence among the three groups, and the relationship of the program GPA and persistence outcome variables to program association when considering the gender, ethnicity/race, pre-program GPA, and length of time in program position. The results of the study answered the questions based on quantitative analysis and are used in this chapter to support the research literature on peer leadership as it relates to the achievement of academic outcomes.
The demographic characteristics presented in the study provided a view of the gender, ethnic and racial identities of the students in the population. Similar to the national scale, the majority of students in the population consisted of females. The NCES reported 56.8% of fall 2012 enrollment consisted of females (NCES, 2013d), while in Texas the percentage of females versus males enrolled was 56.9% in fall 2013 (THECB, 2014b). The Work-Study Mentorship program was created in an effort to meet the Closing the Gaps goals in 2015 set by the Texas Legislature, which in part was to increase the number of males participating in higher education. Only 34% of the Work-Study Mentorship and AHE programs consisted of male students, which is about a 9% difference compared to the state and national level. This suggests fewer male students are taking advantage of these leadership opportunities, all the while falling behind women on the enrollment front. Additionally, the population boasted a large percentage of students who identified as Hispanic or Latino. For the AVID and Work-Study Mentorship programs specifically, this group consisted of 59% and 66% Hispanic or Latino/a students, indicating there is interest from the Hispanic population to engage in leadership opportunities on campus. These percentage rates are on par with the intention of meeting the Closing the Gaps goals set by the THECB for 2015, which set a goal of enrolling 439,000 more Hispanic students from the 2000 baseline of 241,418 (THECB, 2014b). In 2013 only 284,894 more Hispanic students were enrolled, leaving a fairly large gap to bridge. Given that Hispanics are the fastest growing ethnic population in not only Texas but also the United States, the need to increase Hispanic enrollment and degree attainment in higher education is dire. As higher education institutions work towards building the necessary college attainment rates for global competition, the Hispanic student population will make up a large percentage of those who will
go on to become college educated citizens. Both the AVID and Work-Study Mentorship programs target ethnic minorities, which include students of Hispanic or Latino decent, therefore their ethnic distribution is aiming to meet student success goals of not only Texas but the nation.

For the racial demographic, the largest percentage consisted of white students, landing at 41% for the overall group. This is comparable to the state wide percentage of 40% White students in 2013 (THECB, 2014). The Unknown category however, had the second largest percentage in not only the overall group but also in the AVID and Texas Work Study programs. The Work-Study Mentorship program had 43% who marked Unknown. This could be because a majority of the participants listed themselves as Hispanic or Latino in the ethnic category and did not see a similar category under race, therefore marking Unknown. Due to this selection process, it is hard to get an appropriate view of the overall ethnic and racial breakdown as one because they are classified as two separate fields. Additionally, some of the students may have marked more than one racial indicator, leading to the larger $N$ of 7897 when totaling the racial numbers. In the 2014 Texas Higher Education Almanac, it is noted that the category Multiracial will be included in the racial category of African American when collecting student information, which can possibly give a more accurate view of the ethnic and racial profiles of students in the future.

The study aimed to measure the differences among the three groups in terms of program GPA and persistence as well as the relationship between the outcome variables and program association. The results found that while there were differences among the three groups in program GPA and persistence, there was no relationship between being a part of the
AHE, G-Force, or work-study program and whether a student received a high GPA while in the program or persisted toward graduation. The average GPA prior to program participation was slightly less than the GPA during program participation, showing that overall there were positive differences after participating in the AVID, Work-Study Mentorship, or Texas Work-Study program. On average, AHE peer tutors and G-Force peer mentors showed positive changes in GPA while work-study students decreased in GPA. While these differences are noted, program participation cannot fully explain changes in GPA during program participation. However, these changes should be identified as areas of interest given that previous research has found a statistically significant effect on success outcomes for peer tutors (Kostecki & Bers, 2008). Yet, the increase in GPA for G-Force peer mentors specifically is an additional area of interest and should prompt further research on elements of the program that may encourage high scholastic achievement. Overall, the differences in GPA indicate there may be elements of the student success programs that encourage and/or facilitate improved scholastic achievement.

Similarly, a high percentage of the population was marked as persisting towards graduation, meaning they either graduated or were continuously enrolled in their college or university during program participation. As was the case with GPA, there were differences between the groups in the persistence variable, yet there was no direct relationship between program association and whether a student persisted toward graduation. Therefore, whether a student participates in a peer leadership program or a work-study program is not a strong factor in whether they will continue towards graduation year after year. Yet, the differences between the AHE peer tutors and G-Force peer mentors as compared to the work-study
students may suggest the idea that being a part of a student success initiative lends itself toward encouraging persistence and ultimately degree completion among its students at a higher rate. The AVID and Work-Study Mentorship programs had significantly less students fail to drop out than expected, which is positive for the purposes of this study and the goals of the program. However, the regression analysis found that a direct relationship between program association and persistence did not exist. The analysis cannot imply causation, however, the AVID and Work-Study Mentorship programs are shown to contribute more significantly to student persistence than those not involved in the program. Additionally, the fact that all three programs serve as an employment opportunity for students should be considered when looking at the persistence given that on-campus employment has been positively associated with persistence toward completion (Choy, 1999). Through employment students are able to gain a source of funding for their educational and personal responsibilities, which could serve as an independent factor for persistence.

The logistic regression analysis examined the relationship between persistence and program association while controlling for the ethnicity, racial, gender, pre-program GPA, and times in the program predictor variables. Both pre-program GPA and length of time in the program produced a statistically significant relationship to persistence. This suggests that the GPA prior to being admitted to one of the three programs is significant in its relation to persisting towards graduation, further supporting the idea that prior academic achievement has a strong influence on academic achievement as a student gets deeper into their studies (Kuh et al., 2008). Additionally, the length of time a student participates in the programs is significant in predicting if a student will persist towards graduation. This result reinforces Hu and Kuh (2003)
earlier study which found a relationship between amount of time involved and achieving academic outcomes. Therefore, the longer a student can participate in the AVID, Work-Study Mentorship, or the Texas Work-Study program, the more likely they are to graduate from college. However, there was not a significant correlation between the particular programs and persistence, suggesting that consistency and repetition in program participation is more relevant to persistence than the particular program in which they are associated. Furthermore, how they start the program is a strong indicator of the likelihood they will ultimately graduate. Yet, students in the Work-Study Mentorship program were more likely than students in the AVID program to persist towards graduation, suggesting there may be fundamental differences between the programs that lends itself to more successful completion of its students than the other two programs. The model was shown to be significant, nevertheless only six percent of the change in persistence could be explained by the variables. This is a relatively small percentage, suggesting there are other significant factors that contribute to a student’s ultimate completion. Considering the vast amount of potential variables that can affect a student’s desire or motivation to persist, this could produce a wide range of options when reflecting on student persistence.

The multiple regression analysis measured the relationship between program GPA and program association while controlling for the ethnicity, racial, gender, pre-program GPA, and times in the program predictor variables. The only significant predictor variable for program GPA was the pre-program GPA indicator, again suggesting that pre-program GPA is not only a strong positive indicator for persistence, but also how successful academically a student will be. While engagement in educationally purposeful activities such as mentoring and tutoring
programs has been linked to higher GPA’s (Webber, Krylow, & Zhang, 2013), the results of this study produced opposite results. As stated previously, the programs AVID, Work-Study Mentor, and Texas Work-Study produced no significant relationship with GPA individually on their own. However, when looking at the overall model, there was a strong positive relationship between the combined variables and GPA, meaning that when looked at as a whole, these indictors can reliably predict GPA. The most significant changes in the model occurred when adding the pre-program GPA and gender variables, therefore these variables were most significant in the model overall. Institutions with these programs should pay attention to not only the GPA prior to program admittance but also the differences in gender and providing appropriate services for male and female students to encourage academic success.

Implications for Practice and Future Research

The study aimed to address any relationship participation in the AVID for Higher Education and Collegiate G-Force Work-Study Mentorship programs had on GPA and persistence towards graduation. The results of this study presented various findings that may influence practical application in the development of similar student success programs as well as opportunities for further research in the area of student success for students in peer leadership positions.

While there is no direct linkage between program association and persistence and higher GPA, the peer leadership programs continue to provide an environment that engages students in educational activities. Thus, it would be beneficial to encourage participation in these specific student success programs or similar tutoring or mentoring programs because
they are still deemed as educationally purposeful activities. Additionally, practitioners in academics and student affairs should continue to highlight the importance of high academic achievement early in the collegiate experience. Grades and GPA are measures of achievement and are a part of the common language in education. Pascarella and Terenzini (2005) noted that grades are the single best indicator of persistence, degree completion, and graduate school enrollment, therefore its emphasis among students and in higher education research is warranted. First-year GPA is a critical starting point for students as they prepare to their academic goals and plan to get involved in student leadership and engagement opportunities. Transparency with students at this stage is paramount to their knowledge of how best to be successful as a college student, which includes not only academic achievement but also social integration and interaction with the collegiate environment. Programs such as AHE and the G-Force Work-Study Mentorship program facilitate and aide in these areas for students as they aim for college completion and academic success.

Based on the results of this study, practitioners should also encourage participation in an involvement or employment opportunity beyond one year in order to facilitate an environment where persistence towards graduation is encouraged. It is through this continued participation that students may build a sense of community and responsibility to their peer leadership position; therefore the longer they participate in the program, the closer they draw to graduation. This length of time also allows for students to become more engaged in the program and their institution by solidifying peer relationships and faculty/staff interactions, which has been shown to positively contribute toward student success (Astin, 1993b, Kuh et al., 2007). However, considering Shook and Keup’s (2012) research on peer leadership,
practitioners should encourage a healthy level of involvement so as to not be a detriment to student’s achievement of the intended educational outcomes due to over-involvement and associated stress.

The results also showed there was a moderate level of effect on GPA due to the individual programs; therefore another implication for practice would be to review elements of the programs, specifically AVID and Work-Study mentorship because there were significant differences in GPA, to see how they may contribute to improve GPA while in the program, if at all. The literature review discussed the foundations of each program as they are funded by the THECB; however, both the AHE and Work-Study Mentorship programs are spread across several campuses in the state of Texas that each provides a unique environment to the students they serve. Practitioners looking to positively affect student success outcomes should review elements of various programs that may support and encourage a student’s desire to persist and achieve better grades. Furthermore, valuable research would be gained from delving into student’s perceptions of their participation experience to study whether there is a true program effect, institutional effect, or personal indicators that may affect student success. It is by taking a deeper look that researchers and practitioners can gain a better understanding of which student, institutional, or program characteristics mediate the college impact (Kuh, 1995).

Because this study specifically reviewed the AVID and Work-Study Mentorship programs on a state-wide level based on general guidelines set by THECB for funding purposes, the scale was limited intentionally. Individual programs were not measured in order to keep the size of the study reasonable. Yet just as significant differences between the AVID and Work-Study Mentorship programs occurred, there may also be significant differences between the
programs across various campuses. A future opportunity for research study would be the comparison across institutional type, longevity of the program, program size, admission requirements, training requirements, etc. to provide a deeper look at the elements that contribute to the differences in persistence and GPA.

When looking at the regression analysis conducted to measure the relationships between the outcome variables and the prediction models, the models only predicted 6% of the change in persistence and 33% of the change in GPA. For both predictions, there is a significant amount of variability that is not explained by the models, meaning that there are other elements affecting whether a student persists and improves their GPA. This is not an uncommon notion as higher education research is constantly filled with questions surrounding the ever growing list of variables that may contribute to college student success (Pascarella and Terenzini, 2005, Kuh et al., 2007). When considering Astin’s I-E-O model, there are various other elements in the Environment factor that may contribute to successful completion of college and affecting the overall output. Practitioners and future researchers would benefit from taking a closer look at the factors that may contribute to the 94% persistence variability and 67% GPA variability for the populations that are involved in the AVID, Work-Study Mentorship, and the Texas Work-Study programs. These environmental factors may include other student success initiatives/services, student involvement, program/degree requirements, faculty/staff/peer relationships, financial considerations, etc. that ultimately may have a larger effect on persistence and GPA as opposed to participation in AVID or Work-Study Mentorship. Further research study using a student survey, focus groups, or individual interviews to gain a
deeper look at these various factors would provide great insight on the influential elements to student success, specifically for the diverse groups taking advantage of these programs.

In reviewing demographics of the students involved in the programs, these results show that the individual indicators do not make much difference in whether a student will persist or not towards graduation, or if there is a relationship to increasing their GPA. The study included various demographic characteristics but did not go to the extent of looking at the differences in persistence and GPA among the various ethnic, racial, and gender characteristics as well as other input factors that may address who the students are individually. The AVID and Work-Study Mentorship programs are geared primarily toward the success of minority and first-generation college students, therefore it would be beneficial for future research to look at the differences in outcome achievement among a wider range of descriptive variables for further understanding on who is benefitting from program participation and how to increase the overall success of all students involved in the programs.

Conclusion

The primary focus of this research was selected because of the vast amounts of time, energy, and funding dedicated to student success programs such as AVID for Higher Education and the Collegiate Work-Study Mentorship programs. These programs, and similar programs across college and university campuses, were created to positively affect educational outcomes such as enrollment in higher education and graduation, but also provide an on-campus resource for students who are in need of additional financial and academic support to achieve their personal and professional goals. The strategies behind these programs are based in higher
education research; however, it is through additional research on the achievement of academic outcomes that the futures of programs that have helped so many students attend and complete college is justified. It is my hope that this research provides a foundation for future research on student success initiatives aimed at not only engaging students in educationally purposeful activities but are also contributing to the academic, professional, and personal success.
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