

## ABSTRACT

WICKLIFFE, KEITH A. An Exploration of the Effects of Student Involvement in Residential Programs on First-Year GPA, Retention and Persistence. (Under the direction of Dr. Paul D. Umbach).

This study examined how involvement in residential programs varied for students with different background characteristics. In addition, it explored the relationship that involvement in residential programs and three subtypes of residential programs had with first-year GPA, retention, and persistence. This study looked at an entire freshman class at a large, research-intensive institution in the mid-Atlantic region. First, I outlined the historical role of housing in higher education and summarized the research on the benefits of students living on campus. Astin's Input-Environment-Output and the ACREO Conceptual Framework served as conceptual frameworks for the study. Astin's (1984) Student Involvement, Tinto's (1993) Model of Student Departure, and Braxton's (2004) Revised Theory for Student Persistence in Residential Colleges and Universities served as theoretical frameworks for exploring residential program involvement's relationship with retention and persistence. Within these theories, residential involvement was connected with the social system (Tinto) and a psychosocial engagement (Braxton) that impacted social integration, which in turn impacted institutional commitment and persistence. Group differences by student characteristics were determined by using T-Tests and One-Way ANOVA tests. The relationship with first-year GPA was explored through OLS regression, while binary logistic regression examined the relationship with persistence.

Group differences demonstrated consistency with prior research on student involvement except for in the case of international students. Involvement in residential programs had a small but significant relationship with first-year GPA, with academic residential involvement having the strongest relationship among the three types but lacking consistency across both models.

Involvement in residential programs also had a significant relationship with persistence to graduation, with social involvement demonstrating the most compelling relationship with persistence. Social involvement in residential programs likely provided rich opportunities for students to form social connections with their residential peers and create positive social experiences that reinforced their sense of belonging and commitment to the institution. The results from this study supported prior research that indicated living on campus affected persistence primarily through promoting social interactions and integration. Institutions seeking to increase persistence should consider prioritizing the social offerings in their residential environment to increase student involvement, interactions with peers, and interactions with faculty/staff.

© Copyright 2020 by Keith A. Wickliffe

All Rights Reserved

An Exploration of the Effects of Student Involvement in Residential Programs on First-Year  
GPA, Retention and Persistence

by  
Keith A. Wickliffe

A dissertation submitted to the Graduate Faculty of  
North Carolina State University  
in partial fulfillment of the  
requirements for the degree of  
Doctor of Education

Higher Education Administration

Raleigh, North Carolina

2020

APPROVED BY:

---

Dr. Paul D. Umbach  
Committee Chair

---

Dr. Duane Akroyd

---

Dr. Barry Olson

---

Dr. Alyssa Rockenbach

## BIOGRAPHY

Keith A. Wickliffe was born in Temple, Texas but later graduated from high school in neighboring Belton, Texas. He grew up with a passion for computers so it was only natural to pursue a college degree in computer science. Enrolling in his first college of choice at Texas A&M University, he stumbled upon being a Resident Assistant despite hardly meeting or knowing his own. In his fourth year as an RA (thanks to a 5<sup>th</sup> year victory lap) and questioning a career as a “code monkey”, his supervisor suggested looking into a career in Student Affairs. After completing a Bachelor’s of Science in Computer Science in 2003, he applied and was admitted into the Student Affairs Administration in Higher Education program. In 2005, Keith received a Master of Science in Educational Administration and completed two years as a Graduate Hall Director for an all-male residence hall (Crocker Hall...may it rest in peace).

Keith’s first professional opportunity was at New Mexico State University as a Coordinator of Residential Communities where he first supervised a 1000 bed family housing and student apartment community. Next, he supervised Garcia Hall, a 900 bed freshman community where he learned how to manage a large staff, a high conduct case load, and provide a robust student experience in a “not so loved” residential community. Keith’s next opportunity was at NC State University as an Assistant Director coordinating a 1,100 bed area across four buildings that allowed him the privilege to work with three fantastic Residential Learning Communities (Exploratory Studies Village, Arts Village and the Global Village). In his first month, Keith applied to doctoral school on a lark...not expecting to be admitted (but surprised when he was!). Over eight years, Keith learned invaluable and foundational skills from NCSU’s unique, decentralized housing model. In addition, while not looking forward to the final papers, he thoroughly enjoyed all the coursework and all that he learned from the Education

Administration program faculty. For the past four years, Keith has had the opportunity to serve as the Associate Director at UNC Wilmington, providing direction and support to the housing staff responsible for the 4,500 Seahawks living on campus.

Over the years, there have been moments of knocking it out of the park and others that humbled...but all great moments of learning. In particular, Keith continues refine his residential life philosophy: housing is a people profession (and if you don't have a passion and care to help students have a positive collegiate experience outside of the classroom, then it isn't the right job for you). Housing staff strive to create meaningful relationships, connect students to a community of belonging, care for residents going through difficult moments, challenge perspectives towards personal growth and connect them to the many resources of the institution. Accomplishing all five for each individual resident while mentoring our future professionals may be next to impossible, but striving to achieve as much as possible for as many as possible leaves a trail of impact...the ultimate reward for a job well done.

## ACKNOWLEDGMENTS

Completing this dissertation was a challenging task...90% of the time I question if it would even happen. The fact that it was completed has a lot to do with the many people that have knowingly or unknowingly helped along the way.

First, thanks to my family. Undoubtedly Charity Wickliffe had the largest contribution: always encouraging, always supportive and always a help! It wouldn't have been possible without your sole weekend care of the kids or the many nights putting the kids to bed alone. While our relationship's first decade was shared with this degree, the decades ahead can be enjoyed dissertation free! Also to Asa and Lucy, for your sacrifices of daddy time over the past 18 months (that you won't remember)...we will now have more time for play and memories in the days ahead! Finally, to the support of family; particularly to Curtis and Veeca for being parents of steady love, explicit care, devoted attention and constant support.

Second, to the many faculty and staff at NC State. Special thanks goes to Paul Umbach...who provided me a healthy balance of flexibility, letting me struggle, and encouragement to push on. I am indebted to your not giving up on me and your condemnation-free outreaches. From Org theory to finance and survey design to teaching in college...I enjoyed each of the half dozen courses you taught. My quantitative start was with Duane Akroyd and, his courses piqued my interest in data-driven research and assessment. Alyssa Rockenbach was my initial advisor and taught many of my first courses...I learned a lot early on about how to approach doctoral work through inquiry and critique. Barry Olsen has been a great cheerleader both in my professional work and in my academic study. I appreciate all of their support and help as committee members. Finally thanks to the many other faculty from whom I enjoyed the opportunity to learn including Joy Gayles, Malina Monaco, Tamara Young and others.

Third, to my many professional peers across the years. To Kathleen Ruppe, a huge thanks for the many years of personal, professional and academic support. Truly it was a pleasure to work under (and alongside) her for eight remarkable years. To my Central Campus co-AD, Ebony Hinton, thanks for six great years of work together and making Central great with me! I also have great appreciation for Peter Groenendyk, who has helped me in my transition to UNC Wilmington and has been very supportive of me finishing my degree despite our harrowing struggles. Also to the many UNCW HRL staff who helped...particularly Brittany Philbert and Christa Faison for their invaluable help in carrying me through to the end. Also to the many RCs (Andrew Murray, Anthony Pohorilak, Brittany Burroughs, Caitlin Grindall, Donovan Smith, Ileana Garcia, Jessica Gorgas, Kelly Hook, Mike Jefferson, O'Keefe Johnson and Teddy Howell) these past 18 months that did their best running their areas so I had time to finish.

Thanks to Nancy Welchel and Nancy Floyd at OIRP for their invaluable help with my institutional data requests, to Josh Williams for my housing data requests, and Lisa Miles and Ted Giro for creating PETS. To the dynamic duo Ross & Stephanie: the first a great study (and game) buddy and the second a great editor. To Verdi and Beethoven for the background music.

Finally, I would like to note this dissertation was completed despite two babies, a job change, three moves, four hurricanes (one causing a four week campus recovery effort), a pandemic and a triple trifecta (staff training and move-in in the middle of a pandemic) while finishing my final draft ...thanks to God for help in “weathering” the actual and metaphorical storms that life threw in the way of completing this final paper.

## TABLE OF CONTENTS

LIST OF TABLES .....	viii
LIST OF FIGURES .....	ix
Chapter One: Introduction and Study Overview .....	1
Importance of the Study .....	3
Research Questions .....	7
Conceptual and Theoretical Frameworks .....	8
Research Design .....	11
Significance of the Study .....	12
Limitations of the Study .....	13
Summary .....	15
Definition of Terms .....	15
Chapter Two: Review of the Literature .....	17
Residential Program Involvement .....	18
Historical Perspectives on Residence as an Educational Environment .....	18
Research on Residential Living .....	21
Research on Living-Learning Programs .....	24
Residential Programming and Programming Models .....	28
Research on Involvement in Residential Programs .....	33
Input-Environment-Outcome Model as a Conceptual Framework .....	38
I-E-O Model .....	39
I-E-O in Research .....	41
ACREO Conceptual Framework .....	42
I-E-O and ACREO as Conceptual Frameworks .....	44
Resident Involvement as an Environmental Variable .....	44
Theory of Student Involvement .....	45
Literature and Research on Student Involvement .....	46
Surveys of Student Involvement .....	49
NSSE Usage, Support, and Critique .....	51
Cognitive Processing Concerns with Surveys .....	54
Student Involvement Summary .....	57
Persistence as an Outcome .....	59
Tinto's Model of Institutional Departure .....	59
Research and Critique of Tinto's Model of Student Departure .....	62
Braxton's Revised Theory .....	64
Summary on Persistence .....	68
Student Characteristics as Covariate Inputs .....	69
GPA and ACT/SAT .....	70
Gender .....	72
Race/Ethnicity .....	73
Education Level of Parents .....	75
Financial Aid and Socioeconomic Status .....	76
Student Characteristics Summary .....	78
Chapter Summary .....	78
Chapter Three: Methodology .....	80

Purpose of Study .....	80
Research Design.....	81
Data Collection .....	82
Study Sample and Population .....	85
Variables and Variable Transformations .....	86
Variables from University Housing.....	86
Variables from Institutional Records.....	90
Variables from Incoming Freshman Survey.....	91
Data Screening.....	94
Missing Cases .....	94
Outliers.....	95
Normality, Linearity, Homoscedasticity, and Multicollinearity.....	96
Descriptive Analysis .....	97
Method of Analysis.....	100
Analysis for Research Question 1.....	100
Analysis for Research Questions 2, 3, and 4 .....	101
Limitations .....	103
Chapter Summary .....	106
Chapter Four: Results .....	107
Results for Research Question 1 .....	109
Results for Research Question 2.....	114
Model 1: Overall Involvement and First Year GPA.....	115
Model 2: Academic Involvement and First Year GPA.....	117
Model 3: Developmental Involvement and First Year GPA .....	118
Model 4: Social Involvement and First Year GPA.....	120
Summary for Research Question 2 .....	122
Results for Research Question 3 .....	123
Results for Research Question 4.....	123
Model 5: Overall Involvement and Persistence .....	125
Model 6: Academic Involvement and Persistence.....	127
Model 7: Developmental Involvement and Persistence.....	128
Model 8: Social Involvement and Persistence .....	130
Summary for Research Question 4 .....	131
Investigation into the IFS Subsample .....	133
Chapter Summary .....	139
Chapter Five: Implications for Theory, Practice and Future Research.....	140
Summary of Findings by Research Questions.....	141
Implications for Theory .....	149
Implications for Practice and Policy .....	153
Implications for Future Research.....	156
Conclusion .....	159
Postscript.....	161
References.....	165
APPENDICES .....	183
Appendix A Incoming Freshman Survey .....	184

## LIST OF TABLES

<b>Table 1.</b> <i>Program Type Categorization Examples</i> .....	90
<b>Table 2.</b> <i>Variables in the Study</i> .....	92
<b>Table 3.</b> <i>Descriptive Statistics for Dichotomous Variables</i> .....	99
<b>Table 4.</b> <i>Descriptive Statistics for Continuous Variables</i> .....	100
<b>Table 5.</b> <i>OLS Regression Models by Test, Dependent Variable and Independent Variable</i> .....	109
<b>Table 6.</b> <i>T-Test Results for Involvement Differences by Student Characteristic Groups</i> .....	111
<b>Table 7.</b> <i>ANOVA Results for Involvement Differences by Student Characteristic Groups</i> .....	112
<b>Table 8.</b> <i>OLS Regression Results for Involvement on First Year GPA</i> .....	116
<b>Table 9.</b> <i>OLS Regression Results for Academic Involvement on First Year GPA</i> .....	117
<b>Table 10.</b> <i>OLS Regression Results for Developmental Involvement on First Year GPA</i> .....	119
<b>Table 11.</b> <i>OLS Regression Results for Social Involvement on First Year GPA</i> .....	121
<b>Table 12.</b> <i>Logistic Regression Results for Involvement on Persistence</i> .....	126
<b>Table 13.</b> <i>Logistic Regression Results for Academic Involvement on Persistence</i> .....	127
<b>Table 14.</b> <i>Logistic Regression Results for Developmental Involvement on Persistence</i> .....	129
<b>Table 15.</b> <i>Logistic Regression Results for Social Involvement on Persistence</i> .....	130
<b>Table 16.</b> <i>ANOVA &amp; T-Test Results for Involvement Differences by Student Characteristics</i> ..	135
<b>Table 17.</b> <i>OLS Regression Results for Involvement on First Year GPA Sample Investigation</i> .	136
<b>Table 18.</b> <i>Logistic Regression Results Involvement on First Year GPA Sample Investigation</i> .	138

**LIST OF FIGURES**

<i>Figure 1.</i> Astin’s Input-Environment-Output Assessment Model.....	40
<i>Figure 2.</i> ACREO Conceptual Framework .....	43
<i>Figure 3.</i> A Longitudinal Model of Institutional Departure. ....	61
<i>Figure 4.</i> Tinto’s 1975 model with the 15 testable propositions .....	64
<i>Figure 5.</i> Revised theory for student persistence in residential colleges and universities .....	67

## Chapter One: Introduction and Study Overview

A week into the fall semester, Asa, a Resident Advisor (RA) for forty male students in a building of 360 freshmen, was brainstorming ideas for his first program. Asa was told in RA training that helping his residents create connections with peers and getting them involved in the residential campus community would increase the likelihood that they would return as sophomores and eventually graduate. Involving residents in intentional activities aimed at specific outcomes, what returners called a program, was one of the ways to support his residents. Asa's supervisor expected him to provide one social and one developmental or academic program for his residents each month. He decided his educational program will focus on how college studying and tests differ from high school while his social program would build floor community through a video game tournament. Asa planned to purchase cookies, ice cream, and sodas with his allocated \$50 that month to help entice his residents to attend his two programs.

Three months prior to this decision, Lucy, the new Executive Director of Housing, was working through \$200,000 in cuts to the budget due to a year of lower occupancy. With \$35,000 left to cut, Lucy debated between cutting the residential programming budget or postponing new carpet in the most worn-out residence hall. Lucy wondered, "What impact do my staff's social, developmental, and academic programs have on our residents?" She could not recall ever reading an article outlining their impact. Yet, she thought, programming was a near-sacrosanct part of living on campus. Lucy wondered, as she cut the carpet installation project, did the half-million dollars allocated to residential programming every year have an impact on her residents?

Considering the staff efforts and the resources put into such efforts, these are reasonable questions to ask. Does the residential programming have a meaningful and beneficial impact on the residents who live on campus? Does student involvement in residential programs positively

benefit a student in being more successful in achieving their degree? Historically, research has shown that living on campus had a positive impact on a wide range of outcomes (Astin, 1984; Astin, 1985; Pascarella & Terenzini, 2005). Astin (1984) noted that there was “consistent evidence that students living on campus are more likely to persist and graduate than students who commute” (p. 303). In particular, some studies have shown that simply living on campus has been found to impact a student’s likelihood to graduate (Astin, 1993). However, a review of recent research suggested that living on campus may simply act as a mediator for social integration and/or involvement that then influenced persistence (Mayhew, Rockenbach et al., 2016).

There is strong historical evidence that student involvement in educationally meaningful activities has a positive influence on a wide range of positive student outcomes (Astin, 1984, Astin, 1993, Astin, 1999; Kuh, 2003). Almost all housing programs at four-year institutions provide opportunities for student involvement with intentional learning experiences through passive and active programming (Blimling, 2010; Blimling, 2015). But what influence does residential involvement have on student outcomes? One might expect involvement in residential programs to have an influence on outcomes similar to general student involvement. There have been a few systematic, multi-institution (Mayhew et al., 2019; Gonyea et al., 2020) and single-institution studies (Soria & Taylor, 2016; Zúñiga, Williams & Berger, 2005; Schall, 1991; Sirmans, 2015) examining the relationship between student involvement in residential programs and academic outcomes. However, they often include other kinds of involvement, focus on non-academic outcomes or do not investigate its relationship with persistence.

This study sought to fill that gap, investigating the relationship that involvement in residential programs had with the outcomes of first-year GPA, retention to the second year, and

persistence to graduation. For the remainder of this chapter, I introduce the purpose of the study, highlight the study's conceptual and theoretical frameworks, outline the research questions to be investigated, provide an overview for the study, and define the study's key terms.

### **Importance of the Study**

In the United States, there are roughly 3,000 four-year, degree-granting colleges and universities that enroll 11.2 million students in public, private not-for-profit, and private for-profit education (Snyder, de Brey, & Dillow, 2019). Across much of early U.S. history, only a small percentage of the population enjoyed the opportunity to participate in higher education. However, college access and enrollment grew sharply over the past 150 years (Snyder, 1993). In 1940, only 10.4% of men and 9.9% of women attended college. Those rates jumped to 18.3% and 14.8% by 1960 and to 42.2% and 36.4% by 1990. The rates of attendance continued to grow, however this enrollment growth has slowed and at times declined (Snyder et al., 2019).

As a result, institutions and policy makers sought to shore up stagnant enrollment rates and improve government investments by focusing attention on increasing freshman retention to the second year and persistence to graduation (Cook & Hartle, 2011). This focus on retention and persistence has its roots in the early 2000s when, in 2006, the Commission on the Future of Higher Education focused attention on the graduation gap between low-income and affluent students. A few years later, President Obama promised resources to ensure that the US would have the highest proportion of college graduates in the world. In addition, several prominent foundations such as the Bill & Melinda Gates Foundation, the Lumina Foundation, and the College Board Advocacy & Policy Center focused attention and resources on increasing graduation rates (Shapiro et al., 2017). Over the past fifteen years, the U.S. graduation rate has fluctuated: the highest graduation rate (56.4%) was in 2000 and the lowest (53.8%) in 2009. The

2010 college student cohort had a 54.9% six-year graduation rate (U.S. Department of Education, 2019).

Residing on campus provides college students with a rich environment for social and (to a smaller degree) academic experiences for interactions with peers/faculty/staff. As a result, it is little surprise that past research indicated residential living had a significant impact on student success and academic achievement (Pike & Kuh, 2005; Terenzini, Pascarella, & Blimling, 1996). Living on campus was associated with higher first year GPA (Astin, 1993; Jamelske, 2009, Nicpon et al., 2006), increased retention to the second year (Astin, 1993; Schudde, 2011) and increased likelihood to persist to graduation (Astin, 1984; Astin, 1993; Astin, 1993). The 2016 IPEDS dataset showed that 76% of public four-year institutions and 74% of private, not-for-profit four-year institutions provided housing accommodations for more than three million college students in a year (U.S. Department of Education, 2018). Thus, a significant percentage of the four-year college population had one or more years of experience living on a college campus. Those students would have all benefited from the positive outcomes associated with living on campus.

The findings of these older studies (that found living on campus was positively related to academic achievement) have lately been called into question. Recent research suggested that living on campus continues to have a beneficial relationship with persistence, but the mechanism may not be through direct influence (Mayhew, Rockenbach et al., 2016). Instead, living on campus likely increased student involvement and social integration, both of which have been found to positively affect retention. It is possible some of these mixed findings were due to earlier researchers treating “living on campus” as a broad independent/covariate variable despite living on campus encapsulating a wide variety of informal and formal experiences. Living on

campus is not a monolithic experience equitably affecting all students in similar ways. There are a variety of residential experiences, largely informal and unguided by the institution that residents encounter as they go about their collegiate lives. However, there are also many residential experiences that are formal and guided by the institution. Such formal residential experiences include living-learning programs that intentionally integrate learning experiences into the living environment. Evidence on living-learning programs demonstrated that they provide a positive benefit to a variety of student outcomes (Dahl et al., 2020; Inkelas et al., 2008; Mayhew, Dahl et al., 2016) and have a positive relationship with persistence (Mayhew, Dahl et al., 2019).

Another residential experience includes the residential programs developed and provided by the professional and student housing staff members. One study suggested that “on-campus housing works best when students engage in [residential] learning activities” and so encouraged institutions to “engage [residents] in academic, social, and co-curricular learning activities in their place of residence” (Gonyea et al., 2020, slide 31). Almost all housing programs at four-year institutions provide opportunities for student involvement with intentional learning experiences through passive and active programming (Blimling, 2010; Blimling, 2015). In regard to residential programs, it has been argued that “further research is necessary to parse out the sources of positive impact, further investigating...programming...to improve practice” (Graham et al., 2018, p. 265). Involvement in residential programming is poorly understood, and research is lacking on its relationship to outcomes of student success. This research oversight is likely due to the topic’s small niche, but it may also be due to the difficulty in collecting accurate data on involvement in residential programs.

Historically, researchers have relied upon student surveys to collect self-reported involvement behaviors and patterns. A variety of survey instruments have been created to inform educational practice through measuring the type and level of student involvement. Several surveys rose to national prominence from the 1960s to the 1990s, such as the Cooperative Institutional Research Program (Astin, 2003; Higher Education Research Institute, 2014) and the College Student Experiences Questionnaire (CSEQ Assessment Program, 2007). In 1998, the National Survey of Student Engagement (NSSE) was conceived (National Survey of Student Engagement, 2019a). NSSE provided participating institutions with their students' responses on ten engagement indicators and six high-impact practices, as well as the ability to benchmark against results from other participating institutions.

Although researchers often use surveys to collect data on student involvement, this does not imply that surveys are the best method for collecting data on involvement in residential programs. First, none of the national surveys ask specific questions regarding involvement in residential programs. Second, even if NSSE added questions to solicit data for involvement in residential programs, the usage of student involvement surveys like NSSE is only appropriate provided the survey is both a valid and reliable tool for measuring concepts of involvement and that the questions correspond to the appropriate outcomes (Carle et al., 2009). Some researchers have found concerns with NSSE's applicability (Campbell & Cabrera, 2011; Gordon, Ludlum, & Hoey, 2008; Pike, 2006a), limitations (Gordon, Ludlum, and Hoey, 2008), and outright validity (Porter, 2011).

An alternative approach to collecting involvement data through surveys is to measure a student's actual involvement. However, it is both expensive and logistically challenging to observe and record all student involvement, and not all involvement can be observed or tracked

(Kuh, 2001). However, institutions are starting to harness technology in ways that are already creating data points of student involvement: access times to the dining facility, when and how often students use the recreation center, recording attendance at campus events, tracking students at housing programs, tracking the number and type of books accessed at the library, etc. In addition, a variety of software vendors (e.g., Campus Labs, Orgsync, WaveLink, etc.) have added functionality for institutions to track student involvement in institutional activities and events. One recent campus recreation study used entry and exit swiping data to explore how health-related content by academic discipline impacted the amount of physical activity and markers of health (Gathman et al., 2017). Another study recently presented at the 2019 American Educational Research Association outlined how researchers utilized dining hall swipe data to determine social connectedness and that higher levels of connectedness related to statistically significant higher levels of persistence (Patel, 2019).

Conducting research using actual involvement data is still in its infancy, and, even once established, it will take six years from the time of collection before a cohort upon which to study reaches graduation. Thus, it may be a while before student involvement research using actual involvement is prominent in research. However, due to one institution tracking residential program involvement for the past decade it is possible to explore the relationship involvement in residential programs has with persistence to graduation. As a result, this research study was the first to offer a systematic study of the relationship that residential programs has with academic outcomes and doing so with actual involvement data.

### **Research Questions**

The purpose of this study was to provide descriptive information regarding student involvement in residential programs and examine the relationship that residential programs have

with academic outcomes. The academic outcomes that were explored included the cumulative GPA at the end of the freshman year, retention from first year to second year, and persistence to graduation within six years. This study was unique because it explored residential involvement using data of actual involvement rather than self-reported involvement. Specifically, it sought to answer the following four research questions:

1. To what extent are freshman students involved in residential programs, and does this involvement vary between students with different background characteristics (e.g., gender, race/ethnicity, family income)?
2. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to first-year GPA?
3. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to retention to the second year?
4. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to persistence to graduation?

### **Conceptual and Theoretical Frameworks**

I framed this study within several conceptual and theoretical frameworks. First, Astin's (1991) Input-Environment-Outcome (I-E-O) served as an overarching conceptual framework. The I-E-O Model was developed as a framework to help researchers study how the educational environment affected student outcomes while controlling for student inputs (Astin, 1991). Student inputs are the "qualities the student brings initially to the educational program" (p. 18). Student characteristics include a wide range of factors such as high school GPA, gender, race/ethnicity, financial status, etc. Input variables impact outputs both directly and indirectly through the college environment that the student experiences. The environment relates to "the

student's actual experiences during the educational program" (p. 18). Using the I-E-O model, researchers can measure the relationship between the institutional environment and institutional outcomes while controlling for incoming student characteristics. Astin (1991) noted that the I-E-O Model provided a "powerful framework for the design of assessment activities and for dealing with even the most complex and sophisticated issues in assessment and evaluation" (p. 16).

The study also utilized the ACREO Conceptual Framework, which contextualized how the residential experience influenced a student's development across several different student outcomes (Mayhew, Dahl, & Hooten, 2019). The framework's social experiences component featured an aspect of co-curricular engagement, which directly related to involvement in residential programs. The ACREO conceptual framework served as a residentially-focused I-E-O model to contextualize this study's residential experience (involvement in residential programs as a social experience). Within the context of this study, the inputs were the student background characteristics that the student brought to college. The environment under consideration was the student involvement in residential programs. The output in this study was the students' first-year GPA, retention from first year to second year, and persistence to graduation within six years. I-E-O and the ACREO Conceptual Framework served as useful conceptual frameworks as the research study investigated the relationship that an activity within the educational environment (residential programs) had with an educational outcome (retention and persistence), using student characteristics as covariate inputs.

In addition, this study drew upon several theories related to student retention, persistence, and involvement. Tinto (1993) developed the Model of Student Departure to explain why students departed from college. Tinto argued that students entered college with specific backgrounds, skills, and abilities that influenced their goals and commitments. While at college,

students had formal and informal academic and social experiences. These experiences integrated with their prior goals and commitments and reshaped them. These integrated goals and commitments impacted their likelihood to depart or to persist to graduation. Thus, positive social and academic experiences increased a student's institutional and academic goal commitments, leading to an increased likelihood to persist, whereas negative (or a lack of) experiences led to an increased likelihood to depart.

Braxton, Hirschy, and McClendon (2004) proposed revisions to the Model of Student Departure based on an empirical study that only found support for five of the 13 tested elements. Based on their results, they developed a Revised Theory for Student Persistence in Residential Colleges and Universities. The revised theory eliminated academic integration and focused entirely on social integration that was supported by six factors. One of these factors was the psychosocial energy students invested by engaging in social interactions with peers and by engaging in campus activities. One of the primary components of psychological engagement was a sense of community in the residence halls, which itself was composed of community identity, solidarity with peers, and frequency/intensity of interactions with peers. Social integration and subsequent institutional commitment were key components, as they both had a direct effect on student persistence at a residential institution.

A highly influential work on student involvement was Astin's Theory of Student Involvement (Astin, 1984; Astin, 1993). Student involvement related to the "amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1984, p. 297). The quality, quantity, and type of involvement along with the amount of time and energy they spent on the involvement impacted the students' social and academic experiences. Involved students spent time and energy on the social and academic activities that comprised their

collegiate experiences. Since students' time is finite, an institution should consider ways to encourage their students to spend their time and energy in educationally meaningful experiences (Astin, 1984; Astin, 1993).

### **Research Design**

This research study used a variety of input and environmental variables to describe and model student academic outcomes. It utilized freshman data at a large, research-extensive institution in the mid-Atlantic region with the intent to generalize the relationship to the broader college population. A quantitative methodology is appropriate for testing a hypothesis using numerical data to examine relationships among variables and using the results of statistical tests on a sample to draw inferences about the larger population (Creswell, 2014). This research study utilized a quantitative methodology to test the four research questions. The full sample data for this study came from four different sets of secondary data sources. Two datasets came from the housing department: data on the residential programs and data on the involvement in the residential programs. A third dataset consisted of institutional student background characteristics. A final dataset included additional background characteristics from a post-orientation freshman survey called the Incoming Freshman Survey.

This study utilized three statistical methods to analyze the data and answer the four research questions. First, the study sought to describe group differences by student characteristics for residential program involvement. T-Tests and One-Way Analysis of Variance were used as they were suitable for analyzing significant differences between group means on independent variables with two (T-Tests) or more categories (ANOVA) (Mertler, Craig, & Reinhart, 2016). Second, the study investigated to what extent involvement in residential programs and the types of involvement had a relationship with three academic outcomes: first-year GPA, retention to the

second year, and persistence to graduation. Ordinary Least Squares (OLS) regression was used to investigate the relationship between residential program involvement and first-year GPA because first-year GPA is a ratio-scaled dependent variable. Binary logistic regression was used to model the relationship between residential program involvement and the outcomes of retention and persistence, as retention and persistence were dichotomous dependent variables.

### **Significance of the Study**

The significance of this study lay in three primary areas: (a) providing a descriptive understanding of residential involvement, (b) understanding the relationship that a long-standing housing practice has with academic success, and (c) examining how actual involvement data can be used to study student involvement. First, it is helpful to descriptively understand a topic when conducting research on it. However, there is no descriptive information on who is involved in residential programs and how groups differ by student characteristics. In addition, there is lack of information on how residential involvement differs from general student involvement.

Second, recent studies have found living on campus has mixed and/or unclear relationships with outcomes found in earlier studies (Graham et al., 2018; Mayhew, Rockenbach et al., 2016; Turley & Wodtke, 2010). Mayhew, Rockenbach et al. (2016) suggested living on campus acts as an intermediate for increased social integration and involvement. Two formal experiences coordinated by the institution in the residential environment are LLPs and residential programs. There is clear and strong evidence demonstrating LLPs provide a wide range of positive benefits (Dahl et al., 2020, Inkelas et al., 2008, Mayhew, Dahl et al., 2016). Despite the lengthy history to residential programs, there is little research on their benefits to persistence. Currently, research on involvement in residential programs also incorporates other activities (Gonyea et al., 2020), doesn't include persistence (Mayhew et al., 2019) or fails to capture the

totality of involvement (Schall, 1991; Sirmans, 2015; Soria & Taylor, 2016; Zúñiga, Williams & Berger, 2005).

Third, this research filled a void in the literature on the relationship that student involvement in residential programs had with academic outcomes of first-year GPA, retention, and persistence. An institution's ability to retain students through graduation is one important measure of its effectiveness and is essential to maintaining healthy enrollment numbers. This study provided a better understanding of the relationship that residential programs had with retention and persistence.

Finally, this research contributed to the small but undoubtedly growing body of literature studying student outcomes using actual student involvement data. The use of technology as a tool for tracking student involvement is still in its infancy. However, within the near future, such data and their usage will begin to grow rapidly as technology increases their ease of collection. This study provided an early investigation into their use in regards to student and institutional outcomes. In addition, these successful results may inform or encourage other researchers to either start collecting such data or to dust off unused data sitting in offices across the nation's institutions.

### **Limitations of the Study**

Although the study was conducted in a rigorous manner, there were several limitations to consider. First, the study used a natural setting design. Natural setting designs have limitations in that "many extraneous variables that contribute to student outcomes can escape measurement" (Astin, 1991). However, this study utilized a framework that included input characteristics known to have a relationship with the academic outcomes. Another concern was that the natural design introduced issues of selection bias, as there was no experimental design to control for

motivation to be involved. As such, it was a correlational study that sought to understand the relationship that independent variables of involvement had with dependent variables of academic success.

Another concern was the presence of a selection effect inherent to involvement studies: the subject of the investigation was the one choosing their involvement and level of involvement. Obviously, a purely experimental study would be ideal but was beyond the grasp of this investigation. However, this limitation was also inherent to prior studies of student involvement using self-reported survey data that were widely published and cited.

Another limitation was that the study used data from a single institution. A single-institution study limited generalizability as the particularized locale may not produce generalizable results; the results may not extend to students attending different types of institutions (Creswell, 2014). Thus, results from this study may not generalize well to students attending other institutions.

An additional limitation was that the study constrained its investigation to a specific type of student: traditional first-time, first-year students. Although the population of non-traditional students and transfers continues to grow (Snyder, et al., 2019), traditional freshman students who recently graduated high school and enrolled full-time in college for the first time are still the majority of students in four-year institutions.

A final limitation was the study's scope in persistence. The study did not differentiate a student's reason for departing the institution (withdrawal for personal reasons versus forced academic withdrawal), nor did it differentiate between those who continued their education (transferred to another institution versus departed higher education altogether). Finally, persistence was limited to students who graduated within six academic years of starting college

and did not account for some students taking longer to graduate due to low credit loads, coop experiences, etc.

Despite these limitations, this study was a worthy investigation because it provided information on a gap in the research literature by providing descriptive data on students who were involved in residential programs and the relationship that involvement had with academic outcomes. Most importantly, this study explored residential involvement using data of actual involvement rather than self-reported involvement.

### **Summary**

This study provided a descriptive picture of the students involved in residential programs and investigated the relationship that students' involvement in residential programs had on three academic outcomes (first-year cumulative GPA, retention to second year, and persistence to graduation) using I-E-O and the ACREO Conceptual Framework as a conceptual framework. Chapter two will explore the theories and research studies within the literature to contextualize my research study. Chapter Three will outline in greater detail the study's methodology used to answer the research questions posed in this study. The fourth chapter will present the results from the analysis of the data. The final chapter will frame the results, provide answers to the posed research questions, explore how the answers contributed to the research literature, provide suggestions for practice/policy, and consider implications for future study.

### **Definition of Terms**

Below I provide a list of terms used throughout the study and definitions for how it is used:

***First-year GPA*** – a student's cumulative GPA in the summer after completing two semesters.

***Freshman*** – a spring high school graduate who enrolls in college for their first semester as a full-time student.

***Persistence*** –attainment of a bachelor’s degree within six years of starting at the institution.

***Residential program*** – social, developmental, or academic activity coordinated by housing student or professional staff within the residential living environment.

***Retention*** – a full-time, first-year student progressing through their first year and enrolling full-time in the fall of their second year at the same institution.

***Student involvement*** - “the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1999, p. 518).

## Chapter Two: Review of the Literature

This study explored student involvement in residential programs. First, it described involvement differences between student groups. Second, it sought to examine the relationship that involvement in residential programs had with academic outcomes of first-year GPA, second-year retention, and persistence to graduation. The academic outcomes explored included the cumulative GPA at the end of the freshman year, retention from first year to second year, and persistence to graduation within six years. In addition, this study explored residential involvement using data of actual involvement rather than self-reported involvement data collected through a survey. Specifically, it sought to answer the following four research questions:

1. To what extent are freshman students involved in residential programs, and does this involvement vary between students with different background characteristics (e.g., gender, race/ethnicity, family income)?
2. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to first-year GPA?
3. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to retention to the second year?
4. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to persistence to graduation?

In conducting the investigation to answer these research questions, relevant theory and prior research were reviewed and considered.

Chapter 2 provides a review of relevant theory and research in the literature that relates to this study. First, the history, practices, and research of housing's role in higher education and

residential educational practices provides a valuable context for this study and demonstrates the gap in the research literature. Second, this chapter outlines Astin's (1991) I-E-O Model as a conceptual framework for organizing the various theories and research that this study builds upon. Third, I explore student involvement as an important theory along with relevant research, discussion of current methodological approaches used to research it, and articulation of concerns associated with it. Next, persistence will be explored as a theoretical framework through considering Tinto's (1993) Model of Student Departure and Braxton's (2004) Revised Theory for Student Persistence in Residential Colleges and Universities. The final section outlines student characteristics as covariate inputs based on relevant research supporting their inclusion in the study.

### **Residential Program Involvement**

The following section provides information and research on the primary focus of this study: residential programming. First, I will lay out a historical perspective on the important role student housing plays in the educational mission of colleges and universities in the United States. Next, I will explore a variety of research related to housing's affecting student outcomes. Finally, I will articulate the gap in the research literature on understanding who is involved in residential programs and the relationship that involvement has on academic outcomes.

### ***Historical Perspectives on Residence as an Educational Environment***

The relationship between higher learning and a shared academic living environment has been historically prominent in the United States. In the late middle ages, England's residential colleges centered the institution's organization and instruction on the student's residential building (Lucas, 1996; Rudolph, 1962; Winston, 1993). This residential college model was highly influential in colonial America because many colonists of prominence had attended

Oxford or Cambridge, and they idealized replicating an academic system comparable to those in England and continental Europe (Lucas, 1996; Rudolph, 1962). America's residential approach also occurred due to several practical reasons: students were young, they often travelled long distances to the institution, parents looked to the institution to provide supervision, and most institutions were either near small towns or outside of town so there was limited private housing available. These factors, along with the highly paternalistic and religious mindset of the New England region, created a distinctly American collegiate philosophy of *in loco parentis* in which the officers and faculty of the institution were expected "to foster among all students a common social, moral and intellectual life" (Lucas, 1996, p. 111). Nowhere was the practice of *in loco parentis* more alive than in the residential facilities in which the faculty and student shared a living space.

During the early and middle 1800s, the United States saw a rapid increase in the establishment of institutions of higher learning (Lucas, 1996; Rudolph, 1962) and the building of residential facilities "because it was the tradition, because students had to be housed" (Rudolph, 1962, p. 96). Additionally, in the midst of a religious reawakening, a large percentage of institutions were founded by religious denominations and groups. There was a general belief that the institution was responsible for character-building and protecting the moral virtue of the student (Lucas, 1996). By providing residential facilities, the institution had the means for educating all aspects of their students' lives by exerting near total control over it. This control, in turn, allowed the institution to inculcate students in the appropriate moral behavior and engage them in the desired educational activity.

During the late 1800s to early 1900s, colleges largely abandoned the viewpoint that residential facilities were a necessary component of college (Rudolph, 1962; Winston, 1993).

The German educational model, which saw teaching and research as the primary purposes of higher learning (Rudolph, 1962; Winston, 1993), had little room for such ancillary functions as housing. However, in the mid-1900s, the Serviceman's Readjustment Act resulted in a rapid increase in student enrollment (Lucas, 1996; Rudolph, 1962; Winston, 1993). As a result, "makeshift dormitories and classrooms sprang up on campuses everywhere to accommodate" (Lucas, 1996, p. 232) the World War II veterans. These dormitories were "built to house and feed students and to maximize the number of beds for the dollars available, with little or no regard for the quality of students' educational experiences and personal development" (Winston, 1993, p. 172). In essence, housing was simply a logistical administrative detail without regards to it being a space that positively contributed to the educational environment of the institution.

This mindset began shifting in the late 1970s and early 1980s as concepts and theories of student development were published and began circulating (Winston, 1993). Theories within student development "describe developmental processes and allow practitioners to anticipate some of the issues and concerns" (Winston, 1993, p. 29) of college students. By the 1990s, these perspectives culminated in the publication of three documents that were highly influential in shaping today's student affairs work and thus housing work (ACPA, 1996; NASPA, 1997; Joint Task Force, 1998). Broadly, these documents encouraged staff to focus on their contribution to student learning, providing positive learning environments that seamlessly connected across a student's academic and non-academic life, and developing powerful partnerships between academic and student affairs. Students would then benefit from the collaborative and complementary impact of educational programs from both sides.

In this change, student affairs staff were partners with faculty in educating and developing college students in the areas of intellectual, social, moral, and physical development.

As this philosophy grew and was adopted within housing departments, they moved away from only providing “low-cost, safe, sanitary and comfortable living accommodations” (Winston, 1993, p. 173) to also focus on the holistic development and education of each student. Since that time, there has been a “renewed emphasis on the integration of residential living as an integral part of the educational experience of students” (Winston, 1993, p. 173). This time period “marked renewed recognition of the integration of living and learning” (Inkelas et al., 2018). The residential environments have further integrated development, education, and academics through the formation of living and learning communities, a return to residential colleges, the addition of advising and learning centers, and movement towards curriculum-based programming models. Historically speaking, the pendulum has shifted back to a student’s residential environment being an important component of the college student experience in support of and in collaboration with their academic pursuits.

There is strong historical evidence that living on campus and the residential experience were an integral part of higher education’s mission of holistically educating students (Rudolph, 1962; Winston, 1993). In the next section, I explore research on outcomes from residential living and the experiences it provides.

### ***Research on Residential Living***

Early research found overwhelming support for the influence that residential living had on student outcomes (Pascarella & Terenzini, 2005). Astin (1999) noted that “the single most powerful source of influence on the undergraduate student's academic and personal development is the peer group” (p. 5). Living on campus provides college students with a rich environment for peer-to-peer interactions and unsurprisingly early studies found that living on campus had a consistent, positive impact on a wide range of student outcomes (Astin, 1984; Astin, 1985; Astin,

1999; Blimling, 1993; Pascarella & Terenzini, 2005; Pike & Kuh, 2005). Living on campus was positively linked to academic and social integration (Pike & Kuh, 2005). Evidence from studies found that residential living was positively related to increases in student involvement, including increased interactions with peers and faculty (Astin, 1984; Blimling, 1993, Pascarella & Terenzini, 2005), involvement in student extracurricular activities (Astin, 1984; Blimling, 1993; Kuh, 2003; Kuh et al., 2006), and social engagement (Astin, 1984; Pike & Kuh, 2005). Students living on campus also demonstrated higher satisfaction with their college experience (Astin, 1984, Blimling, 1993) and more positive perceptions of the campus social climate (Blimling, 1993).

Evidence also demonstrated that living on campus was related to student development and learning (Blimling, 1993, Pascarella & Terenzini, 2005). For instance, students who lived on campus displayed more positive attitudes towards openness to diversity and promoting inclusion / social justice (Graham, Hurtado, & Gonyea, 2018; Pascarella & Terenzini, 2005; Pike & Kuh, 2005; Zúñiga, Williams & Berger, 2005). Living on campus was also associated with large gains in critical thinking skills (Gellin, 2003; Hernandez et al., 1999) and smaller gains in reading skills (Hernandez et al., 1999). Research also indicated residential living had a significant impact on student success and academic achievement (Pike & Kuh, 2005; Terenzini, Pascarella, & Blimling, 1996). Living on campus was associated with higher first year GPA (Astin, 1993; Jamelske, 2009, Nicpon et al., 2006) although other evidence indicates otherwise (Turley & Wodtke, 2010). Studies have also found living on campus increased retention to the second year (Astin, 1991; Schudde, 2011) and increased likelihood to persist to graduation (Astin, 1984; Astin, 1991; Astin, 1993).

The research on academic achievement is particularly germane to this study, which focuses on the relationship that involvement in residential programs has with first year GPA, retention and persistence. Formerly, Pascarella & Terenzini (2005) noted that living on campus had a positive but weak relationship to persistence. In updating their work, Mayhew, Rothenback et al. (2016) suggested that living on campus continues to have a beneficial relationship with persistence but the mechanism may not be due to a direct relationship. This was based on reviewing studies with social integration variables not finding a relationship between living on campus and retention/persistence while studies without social integration variables often found a significant relationship. The authors suggested that “living on campus may affect retention and graduation primarily through promoting social integration or involvement” (p. 400).

Several researchers have lent their voice to the call that the rise in mixed and inconsistent results of the benefits of living on campus necessitates the reevaluation of the broad, positive benefits formerly ascribed to it. For example, Graham et al. (2018) compared students on campus, near campus and further from campus. The study found that students living near campus accrued many of the same benefits as students living on campus. Mayhew, Dahl et al. (2019) mostly found trivially positive and negative benefits to student’s residential experiences. However, their results found support for discussing sociocultural issues with peers related to critical thinking gains and perceptions of major-related support systems in the residential environment had a positive relationship to academic confidence, career attitudes and intention to persist. Turley & Wodtke (2010) argued that “living on campus... is an important environmental factor associated with increased student involvement, which in turn is a determinant of...persistence to graduation” (p. 508). Arboleda et al. (2003) noted that the benefits of living

on campus lie not in the location, “but from the activities and opportunities for socialization that students have by virtue of their shared living space” (p. 518).

It is possible some of these mixed findings result from studies treating “living on campus” as a broad independent or covariate variable despite it encapsulating a wide variety of informal and formal experiences. Living on campus is unlikely a monolithic experience equitably affecting all students in similar ways. Within the residential living environment, the experience of students vary in meaningful ways within and across institutions. There are a variety of residential experiences, largely informal and unguided by the institution, which residents encounter as they go about their collegiate life; a hallway conversation after seeing a shared interest through an open door or stopping by to join in a volleyball game occurring at the building court. However, there are also several residential experiences that are formally guided by the institution through their housing staff. Two such examples include living-learning programs (LLPs) and residential programs.

### ***Research on Living-Learning Programs***

Residential living environments that integrated an academically rich experience had roots in Alexander Meiklejohn’s “Experimental College,” which started in 1926 at the University of Wisconsin (Meiklejohn, 1932; Nelson, 2001). The Experimental College was a two-year program with a thoroughly shared and integrated education program: students lived, studied, and learned together along with the faculty who lived with them. Though it was only open for five years, it influenced experimentation by other educational leaders who cultivated it into a national movement (Smith et al., 2004). Today, LLPs not only come in a variety of sizes, shapes, and structures (with 17 primary categories and 41 total types as reported in 2008 by Inkelas et al.), but also names. This study uses LLP as a general term to refer to any intentional initiative that

integrated learning experiences within the living environment. LLPs group students into living environments of shared thematic interest, academic coursework, or academic discipline where students can enjoy “walking from class to class together, working on projects that overlap course boundaries, and establishing an identity as part of a synergistic whole” (Dodge & Kendall, 2004, p. 151). They serve as a mechanism for increasing student interactions with peers, faculty, advisors, and staff (Inkelas et al., 2008). They also make large institutions feel smaller and more intimate. Residential Learning Communities (RLCs), which feature one or more linked courses, are a subset of LLPs. However, LLPs are distinctly different and set apart from Learning Communities (LCs) that lack the integrated living component.

Early research found LLPs were positively related to a variety of social and academic outcomes. In terms of social outcomes, LLP participants reported increased social interaction with peers (Pike, 1999), increased social integration at the institution (Pike, Schroeder, & Berry, 1997; Pike, 1999), higher levels of involvement (Pike, 1999; Kuh, 2003), more positive first-year experiences (Stassen, 2003), and increased institutional commitment. Studies also found that participation could significantly decrease alcohol use/abuse and its corresponding negative outcomes for periods of time (Brower, Golde, & Allen, 2003; McCabe et al., 2007). LLPs also had benefits on a variety of academic outcomes. LLP participants demonstrated increased academic involvement (Pike, Schroeder, & Berry, 1997), higher levels of faculty interaction and involvement (Pike, 1999), increased academic integration (Stassen, 2003), higher first-semester GPA, and increased retention to the second year.

Early research on LLPs often came from single-institution studies, which negatively impacted generalizability (Inkelas et al., 2008). However, the National Study of Living-Learning Programs (NSLLP) strengthened the support for LLPs by providing a robust multi-institutional

dataset for research. Results from the two NSLLP studies provided robust evidence for the impact LLPs had across a wide range of outcomes (Inkelas et al., 2008). The NSLLP found that LLPs facilitated an easier academic and social transition, enabled more interactions with peers and faculty, and increased perceptions of academic and social support within the residential environment. Participants were also more likely to engage in diverse interactions with their peers, were more likely to conduct research with faculty, were more involved, and held more leadership roles on campus. As a result, these students demonstrated an increased sense of belonging to the institution. Inkelas et al. noted that LLP participants disproportionately came from advantaged backgrounds, so the results had to be interpreted with some degree of caution.

The benefits of LLPS have also been outlined by the Study of Integrated Living Learning Programs (SILLP). The 2016 annual report found increased student interaction as participants were more likely to discuss with peers their academic experiences, their learning experiences, and current sociocultural issues (Mayhew, Dahl et al., 2016). Perhaps relatedly, they also perceived the residential environment as more supportive. Behaviorally, they were engaged in higher levels of co-curricular activities (although not residentially) and civic engagement, were more likely to intervene as a party bystander, and reported less binge-drinking. In addition, participants in academic LLPs had more academic discussions with peers.

Dahl et al. (2020) explored the differences between LLPs without academic coursework and RLCs that featured one or more courses. Results indicated that RLCs provided an added value by connecting students with faculty through stronger faculty interactions than those than experienced by students in LLPs. RLC students also reported more complex peer relationships, more friends with diverse identities/backgrounds, and having intellectual discussions with more diverse peers. Inkelas et al. (2018) reported that LLP participants had a stronger sense of

community; increased peer interaction related to academics and career; and better access to advising, tutoring, and programming. Hurtado et al. (2020) explored the benefits of LLPs using the 2018 NSSE data with an appended questionnaire of living arrangements. They found that LLP participants had higher involvement in eight engagement areas that had been shown to be effective educational practices. In particular, students showed higher participation in activities with other students and activities that involved faculty or staff. Students also reported increased grades, more positive perceptions of the impact residential living had on their academic success, and more positive perceptions of the campus environment.

Despite recent research indicating that living on campus had a more mixed evidence of impact than prior research ascribed (Mayhew, Dahl et al., 2019; Mayhew, Rockenbach et al., 2016; Turley & Wodtke, 2010), recent LLP research has found positive benefits on a wide range of outcomes (Dahl et al., 2020; Inkelas et al., 2008; Mayhew, Dahl et al., 2016). While LLPs vary widely across and within institutions, many feature two prominent components. One, LLPs often feature some kind of integrated academic experience such as an integrated seminar, one or more shared courses, incorporating faculty with content knowledge, or providing a semester/year-long curricular workshop series. Second, LLPs often provide participants with highly structured residential programming that relates to and integrates participants more deeply into the theme/content/topic of the LLP. This residential programming often augments or enriches participants with the integrated academic experience. However, for LLPs without an academic component, the residential programming often serves as the primary experience upon which the LLP is built. These experiences may be provided in a kind of pseudo-curricular approach: intentionally planned information / experience based on expert-derived content delivered in a purposeful manner across a semester or year. While not clear in current research, it

is possible residential programming plays some part in the kinds of positive outcomes seen in LLPs, particularly for the many LLPs without an integrated academic experience.

Residential programming does not solely sit within the domain of LLPs to be enjoyed only by the residents who participate in them. Residential programming has both a long history distinct from LLPs and is provided to residents at most housing programs at four-year institutions (Blimling, 2010; Blimling, 2015). Residential programming apart from LLPs would likely be less structured and more varied than the programming featured in LLPs. However, with the proliferation of LLPs and the spread of curricular-based programming models, the overall programming housing staff offer in non-LLP spaces has likely grown stronger and more meaningful over time. This then raises an important question for this study: if LLPs positively impact outcomes and if residential programming is an important element of LLPs (particularly those without an integrated academic experience), might residents simply participating in general residential programming also see similar benefits? Might there be a relationship between the mixed evidence of impact in recent research and the mixture of some residents participating in residential programming compared to others that do not? Graham et al. (2018) argued that if living on campus did not provide a direct benefit, then “further research is necessary to parse out the sources of positive impact, further investigating the environment, programming, and peer interactions” (p. 265). This study aims to parse out and explore one of those three components: residential programming. The following two sections will explore residential programs as another student experience within the on-campus living environment.

### ***Residential Programming and Programming Models***

Residential programming has its roots in the 1920-1930s, when the student personnel movement started began creating the Dean of Men/Women positions, a student-focused

administrative role separate and distinct from faculty work. The student personnel work itself was a reaction to the intellectual, fragmented, and impersonal collegiate approach influenced by the German education model that had dominated much of the 19<sup>th</sup> century (Blimling, 2015). The student personnel movement shifted institutional attention to educating and developing the whole student: their intellectual as well as their emotional, physical, social, vocational, and religious/spiritual components. Although this new movement shifted focus and created new positions focused on the non-academic elements of college students, it lacked theoretical or conceptual frameworks for working with and educating students. As a result, most housing activities and events during this time period did not relate to the educational and developmental needs of the residents (Schuh & Triponey, 1993).

Work in the 1960s and 1970s by individuals like Nevitt Sanford (1962), Lawrence Kohlberg (1969), William Perry (1970), and Arthur Chickering (1974) “were instrumental in establishing a theoretical core for the emergence of a student development approach to working with college students” (Blimling, 2015, p. 16). Two decades later, the *Student Learning Imperative* served as a reminder that intellectual and affective development were not two independent pillars of the institution but a mutually dependent sphere (American College Personnel Association, 1996). As a result, the purpose of student affairs work was refocused to be more directly engaged in student learning and the learning process.

The purpose of residential programming, built open the foundations of student development and learning, was focused on holistically developing and educating the residents who lived on campus. Levine (1993) went so far as to argue, “students get an education in residence halls” (p. 93), based on the many housing studies finding direct and indirect effects. Levine argued this was obvious when one considered a full-time, residential student spends 15

hours per week in the classroom while the many “remaining 153 hours of the week in one form or another constitute residential life (and undergraduates do not sleep a lot)” (p. 94). Levine summarized four key considerations for residential programming: (a) education outside the classroom might be the most potent form of education, (b) peers were the principal teachers of students, (c) often students determined the standards and taught them to each other, and (d) undergraduates preferred student-initiated activities over institutional activities.

A residential program is defined as “any activity or arrangement that involves an intentional design and is aimed at a specific outcome” (Brown & Podolske, 1993, p. 395). A program can take a variety of forms: passive or active, informal or more intentionally designed, small or large-scale, etc. With few exceptions, programs are created, developed, and/or implemented by a housing staff member (typically a student staff member often called a Resident Assistant or Resident Advisor), although they may also involve faculty and/or other staff. A program presents information or provides experiences that meet a resident’s developmental and/or learning need. The needs of the residents are determined through knowledge of research, familiarity with the student population, awareness of the academic calendar, acknowledgement of social trends, and by comparing and contrasting the current floor/building community to an ideal version.

Programs were initially haphazard, uncoordinated activities. Over time, housing departments developed more intentional programming frameworks and models. Early residential programming was based on Morrill, Hurst, and Oetting’s (1980) three-dimensional model for counseling intervention. Their three dimensions focused on the target of the intervention, the purpose of the intervention, and the method of the intervention (Schuh & Triponey, 1993). In the residential adaptation, the targets were students, but more specifically focused on the individual,

on a floor, on a building, or on an entire campus. The types of programs (the purpose of the intervention) were: (a) remedial programs to correct a student or residential problem, (b) preventative programs to address issues before they became problems, and (c) developmental programs to grow and develop. The method of intervention included direction interventions, training, media, etc. Although not a full programming mode on its own, it did provide an early framework for residential programming.

A more formal residential programming model, called in this study a traditional programming model, identified topics and/or categories of activities to provide students with a balanced developmental experience (Schuh & Triponey, 1993). Inherent within the model was the presumption that “students should gain information or knowledge in certain areas or categories through their experience in residence halls” (p. 294). Specific categories varied from one institution to another; however, common program categories included educational/academic, social, skill development, leadership, community service, athletic/physical, personal wellness, cultural, diversity, recreational, crafts/hobbies, etc. Housing staff were tasked with providing residents with a set number of programs each month from the list of program categories and providing ones relevant to their residents’ needs.

Another residential programming model was the Wellness Model, which grew out of work by Halbert, Dunn, and Bill Hettler (Leafgren, 1993). Wellness focused on helping residents maximize their full potential in all dimensions of their life. This philosophy melded well with student development philosophy and as a programming model because living on campus encompassed a wide range of student experiences. Hettler (1980) outlined six dimensions of wellness: emotional, intellectual, physical, social, occupational, and spiritual. Many institutions directly adopted Hettler’s six dimensions, but other institutions created customized dimensions

that best fit the unique needs of their campus and residents. Such customized dimensions might include interpersonal, religious (particularly at private schools), community service, etc. Housing staff utilized the Wellness Model as a way to be aware of and grow the many facets of the residents' lives.

The last model reviewed in this study is the Residential Curriculum Model (RCM), first implemented at the University of Delaware (Kerr & Tweedy, 2006). This model considered residential development and learning in much the same way that faculty designed courses to meet the academic outcomes of an academic degree (Blimling, 2015; Kerr & Tweedy, 2006). A curriculum-based approach utilized five steps: (1) identify the learning goals, (2) specify strategic learning objectives, (3) plan the educational activities to meet the learning objectives, (4) design program lesson plans that include the learning outcomes and how they will be measured, and (5) assess what the student learned from the educational activity and whether the program did or did not meet the learning objectives (Blimling, 2015). The RCM approach placed educational responsibility with the housing professionals who had the knowledge and expertise to design learning experiences for an entire academic year, much like an instructor planning a syllabus for a course. Another component was that program goals were set for the entire housing program. This approach differed from some housing programs that allowed each hall to develop their own outcomes, which resulted in a multitude of different learning outcomes and an inconsistent educational experience for residents.

Although each housing department has its own specific programming approach, each approach is likely a variant of one of the reviewed models. The housing department at NC State utilized a variant of the traditional programming model with a touch of residential curriculum through common learning outcomes and evaluation of learning, but used non-sequenced

programs designed by RAs. Although residential programming models utilize a variety of categories for the types of programs they offer residents, this study categorized programs into one of three types: academic programs, developmental programs, or social programs. Social programs connect students together and provide for their social well-being through such activities as floor meet-and-greets or other facilitated social activities. Academic programs support students in their academic pursuits through such activities as faculty in the residence halls engaging in intellectual discussion or a session on studying/test-taking differences between high school and college. Both the social and academic programs tie directly to concepts of social and academic integrations which are utilized often in research and in Tinto's (1993) Model of Student Persistence detailed later in this chapter. Any remaining programs not fitting into the academic or social categories were combined together into a category labeled "developmental". The programs in this category run a wide gamut of purposes and planned outcomes and do not map directly to the social and academic experiences outlined in Tinto's model. For instance, one program might raise awareness on healthy eating habits, another teaches skills for navigating conflict in a shared living environment, while another increases knowledge on microaggressions and implicit bias. Although not specifically focused on academics, they do provide positive, developmental experiences across a wide range of areas that were worth exploring their impact along with the academic and social programs.

### ***Research on Involvement in Residential Programs***

Research often used the experience of living on campus as a monolithic covariate or as a dichotomous variable exploring group differences (e.g., Astin, Pike, Kuh, Blimling, Pascarella, etc.). But more recent research indicated that the once-clear benefits of living on campus might in fact be mixed and weak (Mayhew, Rockenbach et al., 2016). The LLP research over the past

decade has provided a richer story about the meaningful ways that residential experience can positively impact students (Dahl et al., 2020; Inkelas et al., 2008; Mayhew, Dahl et al., 2016).

Student involvement in residential programs is another formal residential experience that may increase student involvement, interactions with peers and interactions with faculty/staff.

Compared to research for the broader on-campus experience or LLP experience, research on residential programs is not as robust as Graham et al. (2018) noted, “residence halls provide purposeful spaces...formal and informal educational opportunities...[but] assessing the discrete benefits of such programs can be difficult” ( p. 256).

Many of the articles on residential programming focused on sharing and articulating a particular campus’ programming model: transitioning to RA staff as the program educator (Buckner, 1977), developing a program intervention (Tripp, 1977), or implementing a wellness programming model (Warner, 1985). Another article focused on reframing diversity-focused LGBT programs from tolerance to nurturance so as to propagate understanding and support (Schreier, 1995). One article focused on programmatic collaboration between Counseling Center and Residential Life staff to provide workshops and programs (Evans, 1982). The article documented that the collaboration was successful, but there was no information on the impact to the involved students. In fact, the authors commented that investigating the impact on participating students would be a fruitful area of inquiry. Below, I survey four single-institution studies that explored the relationship residential involvement had with other student outcomes before exploring two multi-institution studies.

Soria and Taylor (2016) examined first-year residential students’ involvement and retention based on infusing strengths across the institution (freshman seminars, advising, and residential activities) with a focus on the residential environment, housing staff, and residential

programming. After controlling for demographics and some college experiences, results indicated that a combination of discussions with the student housing staff and programming were significantly related to higher engagement and retention. The student housing staff discussions were significant in their own right but residential programming was not. This study used self-reported involvement survey data.

Zúñiga, Williams, and Berger (2005) explored how involvement in diversity-related college experiences increased students' motivations to take actions to reduce their prejudices and to take outward actions to promote social justice. The study found that residential project-specific diversity awareness residential programs and general social awareness residential programs were significant predictors for motivation to promote inclusion and social justice, but not for motivation to reduce students' prejudices. Of note is that the study used actual tracked data for resident involvement in the two diversity-related activities.

Schall (1991) conducted an experimental design with alcohol awareness programming as a treatment. The study looked at two residence halls: one hall provided alcohol awareness programming and the other did not. The study used fall pre-tests and spring post-tests with a final yield of 130 students. Unfortunately, the study outcome was not encouraging: results found no discernable difference in student drinking behavior between those involved in the alcohol programming and those not involved. Sirmans (2015) had an unpublished academic paper featuring a sequential, mixed-methods study on student stress and the effects that residential programs had that on stress. Participants reported that residential programs decreased their stress by providing a distraction from stress, by providing a social support, and by the acquisition of knowledge and skills on stress reduction techniques.

The literature included some studies that looked at involvement in residential programs (in some studies called residential activities or residential co-curricular activities) using a multi-institution methodology. The ACREO study solicited self-reported survey data on the frequency of involvement in residential events but did not collect any information on the type of involvement, nor did it report descriptive statistics on the residential involvement (Mayhew et al., 2019). The study found residential involvement had a trivial but negative relationship with 12 of the 15 outcomes. This was particularly startling, considering that general co-curricular involvement had one non-trivial and eight trivial positive relationships. The authors suggested that this conflict “highlights how in-hall programming is not necessarily a catch-all for supporting students’ various needs” (p. 23) and institutions should investigate “if those programs truly achieve the desired outcomes” (p. 23).

At the 2020 ACUHO-I conference, Gonyea et al. (2020) presented on college housing’s relationship with student engagement and persistence using data from the National Survey of Student Engagement (with an appended questionnaire of living arrangements), supported by an ACUHO-I Sponsored Research Grant. Although their study has published several articles, one unpublished element of the presentation related to residential programs. The study included a “residential learning activities” factor that indicated if the student engaged in a variety of activities where they lived (attended a class; met with a faculty member/advisor; used academic support services; studied or worked on a project with peers; or attended programs of a social, co-curricular, diversity-related, or health/wellness nature). Although this factor included residential programs, it was only a part of a much larger factor. However, the investigators found that residential learning activities had a significant relationship, albeit a small effect size, on retention. In fact, it was one of three factors, along with LLP participation and perceptions of

belonging that improved retention. The presenters suggested that “On-campus housing works best when students engage in [residential] learning activities” (slide 31) and encouraged institutions to “engage [residents] in academic, social, and co-curricular learning activities in their place of residence” (slide 31).

These larger studies provided context to the conversation regarding the effects of residential programs. This study sought to describe differences between student groups in residential program involvement and explore the relationship that involvement in residential programs had with academic outcomes of first-year GPA, second-year retention, and persistence to graduation. Five of these six studies demonstrated that involvement in residential programs had a relationship with a student outcome, while one study focused on retention (although used a factor with additional elements included). My review did not discover a systematic study on the relationship that residential programmatic involvement had with persistence. There was also a lack of research on how student groups differed in their residential programmatic involvement and how that compared to the broader student involvement research. Graham et al. (2018) argued that research must “parse out the sources of positive impact, further investigating the environment, programming and peer interaction” (p. 265) that occurs with students living on campus. At least in regard to residential programming, this study sought to fill this gap in the literature. In addition, this study took a novel approach in utilizing actual involvement data over self-reported involvement data through a survey. The purpose and reasoning for this approach is detailed in a later section. In the next section, I outline the conceptual framework for this study before discussing theoretical frameworks and important covariates.

### **Input-Environment-Outcome Model as a Conceptual Framework**

This study used Astin's (1991) Input-Environment-Output assessment model as a conceptual framework. The I-E-O model is often used as a framework for assessing how an institution's activities, practices, and policies impact its students. In the next section I summarize the model and articulate the rationale for its use as a conceptual framework for organizing this study. Afterwards, I explore a residential adaptation of the framework useful for studying involvement in residential programs.

During the last quarter of the 20<sup>th</sup> century, an increasing number of state and federal agencies called for increased academic accountability for public spending on institutions of higher education (Astin, 1991). As assessment efforts spread across institutions, Astin noted that they were often poorly understood and implemented. One problem was higher education's overreliance on focusing assessment on the institution's inputs (student characteristics and experiences) to institutional outcomes (retention, graduation, etc.). An additional problem was a contradictory view of excellence and practice in higher education (Astin, 1991). Astin found that resources and reputation were poor measures of academic excellence because they were far removed from higher education's espoused purpose of educating students as an outcome and resources/reputation were mutually reinforcing

As a result, Astin (1991) argued for an alternative assessment approach where "excellence is determined by [an institution's] ability to develop the talents of our students and faculty to the fullest extent possible" (p. 6). An institution would not be excellent because it had the most excelling students, but because its students had the greatest development compared to similar students at other institutions. This approach shifted the focus of assessment from

measuring the entering characteristics of students to measuring how the students developed during their time at the institution.

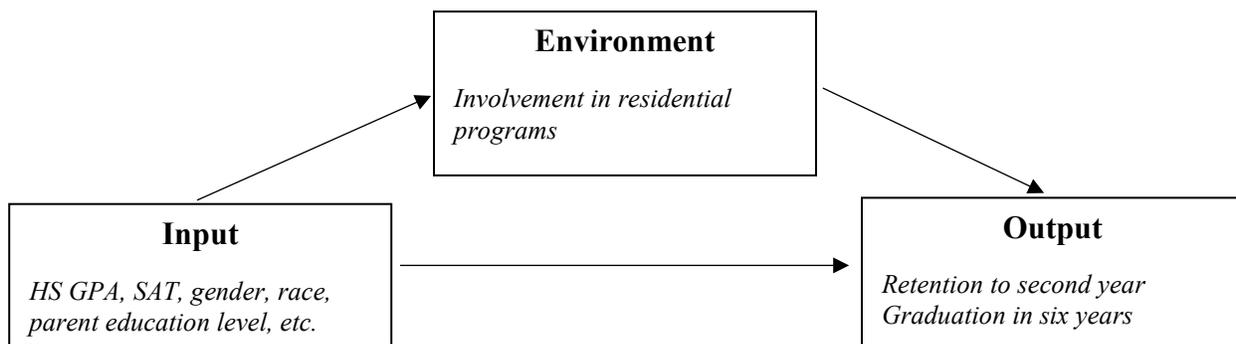
### *I-E-O Model*

Astin (1991) used the input-environment-outcome model in his research as early as the 1960s. At that time, Astin investigated why certain institutions graduated more doctoral students than other institutions. These early studies revealed to Astin three lessons on assessment work in higher education: (a) outcomes must be evaluated within the context of the student inputs, (b) an outcome may be influenced by a variety of input variables, and (c) understanding inputs and outcomes are limited without considering the college environment and the student's experience within that environment. These lessons taught Astin that any educational assessment needed data on the inputs and the corresponding outcomes, but also on "the educational environment to which the student is exposed" (p. 18).

With these lessons in mind, Astin (1991) outlined a new assessment framework that he called the Input-Environment-Outcome (I-E-O) model. The I-E-O model was "simple, yet it provided a powerful framework for the design of assessment activities and for dealing with even the most complex and sophisticated issues in assessment and evaluation" (p. 16). In the I-E-O model, inputs are the characteristics a student brings to the institution at time of entry. They include a variety of factors such as a student's demographic characteristics, their prior experiences, and their pre-college attitude. The environment consists of the educational programs and student experiences that support or hinder a student's academic experience. These experiences are broad, ranging from the academic assignments completed in class to the co-curricular activities in which the student invests their time and energy. Finally, outcomes refer to the cognitive or affective development of the student. The outcomes may encompass academic

indicators such as grade point averages or non-academic indicators such as the acquisition of skills.

The relationship of the I-E-O components is visually depicted in Figure 1 and illustrates two paths for student outcomes (Astin, 1991). First, a student outcome may solely be a result of the input characteristics of the student. In such a scenario, a college graduate may demonstrate a strong writing ability because they took advanced writing classes in high school and wrote for their high school newspaper. Alternately, a student outcome may be a result of the impact of the college environment on the input characteristics of the student. A student develops a strong writing ability after completing a challenging writing course that required them to consult the professor during office hours and visit the writing center for extra writing help. Within the context of improving student outcomes, because the institution has control over the educational environment, it is the variable most important to assess. The I-E-O model “produces information on how outcomes are affected by different educational policies and practices” (p. 37) so that researchers can study how and to what degree the changes in outcomes are related to institutional interventions and not student characteristics.



*Figure 1. Astin’s Input-Environment-Output Assessment Model. Adapted from *Assessment for Excellence: The Philosophy and Practice of Assessment and Evaluation in Higher Education*, A. W. Astin, 1991. Copyright 1991 by American Council on Education.*

### *I-E-O in Research*

Since its publication, the I-E-O model has been extensively used as a conceptual framework for studying the effects of environmental factors on student outcomes while controlling for the prior characteristics of the students. Pascarella & Terenzini (2005) described the I-E-O model as the “most durable and influential college impact model” (p. 53) and provided “the conceptual and analytic underpinnings of an extraordinary volume of research” (p. 54). One major example is the National Study of Living Learning Programs (NSLLP), a multi-institutional, longitudinal study examining the potential long-term impacts of living-learning programs (LLPs) (Bowers & Inkelas, 2010; Inkelas, Daver, Vogt, & Leonard, 2007). The NSLLP utilized the I-E-O model as its conceptual framework in assessing how participation in LLPs influenced academic, social, and developmental outcomes of college students.

The I-E-O model was frequently used as the conceptual framework for published research across a wide range of topics on college students. For example, it has been used to study how personality traits impact outcomes of intentions of entrepreneurial innovation (Mayhew, Selznick, Lo, & Vassallo, 2016), to examine the impact of the first year of college on student spirituality and religiosity (Bryant, Jeung, & Yasuno, 2003), and how co-curricular involvement in leadership impacted students demonstrating socially responsible leadership (Haber & Komives, 2009). More specific to this study, the model was often used in research on student persistence, such as to investigate how learning community participation impacted first-year persistence of conditionally admitted students (Heaney & Fisher, 2011).

The I-E-O model has been frequently utilized in doctoral research. Examples include its use to examine factors of student participation in study abroad experiences (Loberg, 2012) and, ironically, as an assessment framework to explore the culture of assessment at a university after a

regional accreditation process (Miller, 2013). Particular to this study, doctoral studies on the relationship between student involvement and measures of academic success often utilized the I-E-O model. For example, Korobova (2012) studied how involvement of international students in the US impacted GPA and satisfaction. Bowden (2014) studied how involvement of Black male college students at a predominantly White institution impacted first-year GPA. Schlinsog (2010) investigated how the involvement of first-year students impacted outcomes of academic success, first-year retention, and persistence to graduation. Based on these examples, the I-E-O model was well-suited as a conceptual framework for studying how student involvement influenced first-year GPA, retention to second year, and persistence to graduation.

### ***ACREO Conceptual Framework***

In 2001, the National Study of Living-Learning Programs (NSLLP) developed a multi-institutional, longitudinal survey to explore outcomes associated with living-learning programs (Brower & Inkelas, 2010). Astin's (1991) I-E-O model served as a conceptual model for the NSLLP. Over the course of a decade the NSLLP provided rich evidence for, among other things, how LLPs are structured, which student learning outcomes they influence, and which specific practices associated with the outcomes. Built upon the NSLLP, the Assessment of Collegiate Residential Environments & Outcomes (ACREO) assessed "the influence of the varied residential environments on the academic, intellectual, and social development of college students" (Mayhew, Dahl & Hooten, 2019, p. 7). Like the NSLLP before, ACREO utilized Astin's (1991) I-E-O model but also adapted it to create a conceptual framework specific to the residential environment and how it influences a variety of student outcomes.

The ACREO conceptual framework, visually depicted in Figure 2, conceptualizes how different student inputs along with influences of the residential experience impact the student's

development related to academic/career, intellectual and social outcomes (Mayhew, Dahl, and Hooten, 2019). ACREO formulates the residential experience into three individual components: academic experiences (e.g. discussing class content with peers, evening study sessions, etc.), campus climate (e.g. perceptions of the residential climate) and social experiences (e.g. opportunities for peer/faculty/staff interactions, formal and informal activities). The framework's social experiences component features the aspect of co-curricular engagement, which directly relates to involvement in residential programs. It also featured faculty interaction, which is often (but not always) mediated through residential programs. Among the framework's outcomes, it specifically features persistence in the form of a student's intention to obtain a degree in their major. The ACREO conceptual framework serves as a more granular way to contextualize this study's residential experience, namely involvement in residential programs, within an I-E-O model.

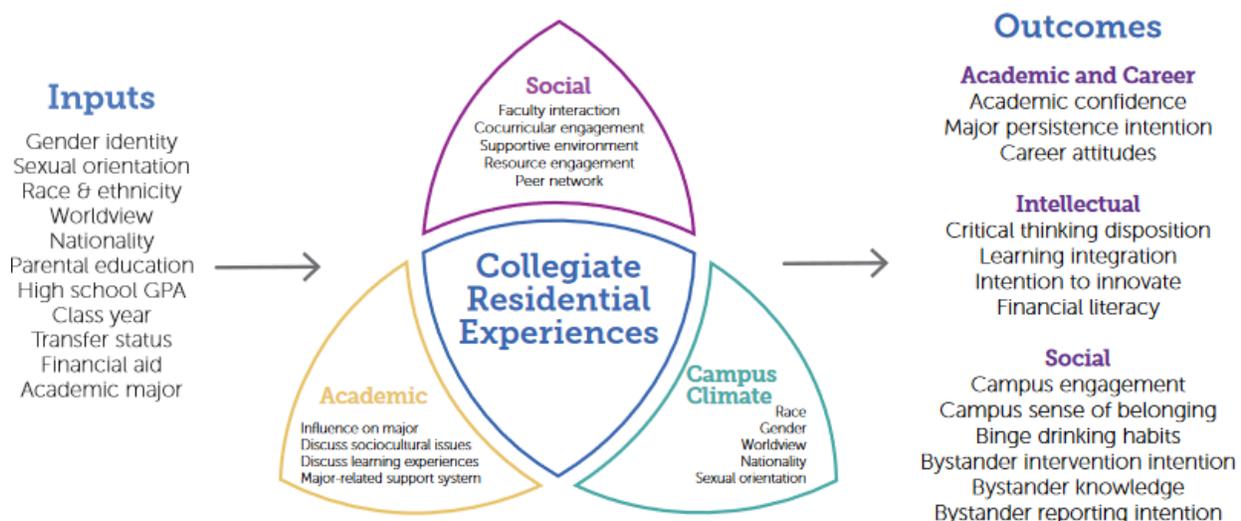


Figure 2. ACREO Conceptual Framework. Reprinted from *Assessment of Collegiate Residential Environments & Outcomes: Annual Report*, M. Mayhew, M. Dahl, & Z. Hooten, 2019.

### *I-E-O and ACREO as Conceptual Frameworks*

This study sought to understand how student involvement in residential programs contributed to a student's first-year GPA, retention to the second year, and persistence to graduation. Astin's (1991) I-E-O model indicate that student input variables could directly influence student outcome. Clearly, a first-year student arrives on campus with a variety of attributes and characteristics that affect their college experiences. Student inputs act as an important foundation for modeling the student outcomes. In addition, student outcomes are also impacted by environmental variables. As noted by the ACREO conceptual framework (Mayhew, Dahl & Hooten, 2019), an institution's housing department provides its students with a variety of academic and social experiences that influence student outcomes. In this study, one of the social experiences is the academic, developmental, and social programs in which students choose to participate and be involved in as a part of their overall college experience. These experiences are provided with the intended purpose of positively impacting the student through their involvement. Involvement in residential programs and involvement by type of residential program was the environmental variable investigated in this study. The incoming characteristics as covariates and the involvement in residential programs as independent variables were utilized to model their relationship with first-year GPA, retention to the sophomore year, and graduation within six years.

### **Resident Involvement as an Environmental Variable**

The environmental consideration in this study was student involvement in residential programs and how that involvement related to academic outcomes of first-year GPA, retention and persistence. Residential involvement is situated within the broader context of student involvement. The concept of student involvement was developed by Alexander Astin (1984), and

it has seen widespread attention and research over the past four decades. This section outlines involvement theory, highlights relevant research, discusses historical methodological approaches used by involvement researchers, and articulates concerns associated with those approaches.

### *Theory of Student Involvement*

Alexander Astin conducted a wide range of research from the 1960s through the 1980s on the development of college students. After almost two decades of research and writing on the subject, Astin (1984) noted being “bewildered by the muddle of findings” (p. 297) within the context of traditional pedagogical theories that did not fully explain his results. Astin developed the theory of student involvement to explain the dynamics of how students develop while in college. From Astin’s (1985) viewpoint, “students learn by becoming involved” (p. 133) in the educational pursuits.

Astin (1984) defined student involvement as the “amount of physical and psychological energy that the student devotes to the academic experience” (p. 297). A highly involved student was one who spent a considerable amount of energy on their academic experience. Such a student might spend significant time on class materials, live on campus, informally interact with peers on a regular basis, work on a class project with a team of peers, be an active member in a student organization, and/or go on an alternative spring break service trip. Alternatively, an uninvolved student might spend little energy on their academic experience by living off campus, working an off-campus job unrelated to their academic coursework, not participating in campus activities, and putting little time into studying or working on their coursework.

Embedded within the theory of student involvement was the view that involvement was an active pursuit that contained behavioral elements (Astin, 1984). Five postulates informed this theory:

- “Involvement refers to the investment of physical or psychological energy” (Astin, 1984, p. 298) by a student in their educational experience,
- the degree of involvement varied across students and across objects with each particular student,
- involvement had both a quantitative and qualitative aspect,
- the quality and quantity of involvement had a direct relationship on the student’s degree of learning and development, and
- the effectiveness of an institution’s policies and programs was related to how effectively the institution increased the involvement of its students.

Of all the postulates, the last two “provided clues for designing more effective educational programs for students” (Astin, 1984, p. 298). In fact, Astin believed they were the foundation for future research and noted a need to assess the different forms of involvement on college campuses and the quantity and quality of those involvements.

Traditionally, institutions viewed available resources and the reputation of their academic units as the most important commodities for enhancing the prestige of the institution (Astin, 1984; Astin, 1985). However, the theory of student involvement shifted this paradigm: If a student’s learning and development was a function of how they expended their energy and if a student’s energy was finite, then an institution’s most precious commodity was in what its students were involved in and to what degree they were involved. As a result, institutions needed to consider how policies and practices affected the ways students spent their time and energy.

### ***Literature and Research on Student Involvement***

Since Astin (1984, 1985) published his developmental theory on student involvement, research on student involvement and how that involvement impacts student outcomes has been

robust for almost four decades. This study focused on how freshman involvement in residential programs influenced academic outcomes of first-year GPA, retention, and persistence. Freshmen are often the focus of involvement research, likely due to freshmen and seniors being the targeted participants of the NSSE survey (NSSE, 2019a), one of the most widespread surveys of student involvement. In regards to the outcomes of involvement, Astin (1993) found that “student involvement has generally beneficial effects on a wide range of developmental outcomes” (p. 4) and “that almost any form of student involvement in the college experience benefits learning and student development” (p. 4-5).

Research has demonstrated different levels of involvement between students of different backgrounds. In an early but excellent summary, Kuh (2003) found that women, full-time students, students living on campus, single-institution students, students in learning communities, international students, and students with diverse backgrounds tended to be the most involved. Women demonstrate significantly higher levels of involvement (Kuh, 2003; Kuh et al., 2006; Pike & Kuh, 2005; Hu & Wolniak, 2013). Students with diverse backgrounds tend to have higher levels of involvement (Fischer, 2007; Hu and Wolniak, 2013; Kuh, 2003, Kuh et al., 2008, Pike & Kuh, 2005). Studies have found that students who identified as Hispanic reported the highest levels of engagement in academic activities (Hu and Wolniak, 2013) with students identifying as Black also higher than their White peers (Harris & BrckaLorenz, 2017). Students who identified as African American reported the highest levels of social engagement (Hu and Wolniak, 2013) while biracial students were less engaged (Harris & BrckaLorenz, 2017). International students have generally shown higher levels of involvement (Kuh, 2003; Kuh et al., 2006) although more recent research found otherwise (Wekullo, 2019). Also, as noted in the prior section, there has been a historically strong association between living on campus and higher levels of

extracurricular involvement (Astin, 1984; Blimling, 1993; Kuh, 2003; Kuh et al., 2006; Pike & Kuh, 2005).

Considering the differing levels of involvement, there is also evidence that the effects of student involvement benefited students differently, an important consideration in regards to student characteristics. For example, student involvement has been found to more greatly impact students of color (Fischer, 2007, Kuh et al., 2008; Pike & Kuh, 2005), females (Kuh et al., 2008; Pike & Kuh, 2005), students living on campus, students with aspirations for a higher degree, (Pike & Kuh, 2005), and students of lower academic ability (Kuh et al., 2008; Carini, Kuh, & Klien, 2006). However, the overall effects of engagement have generally been found to be in the positive direction for students from different racial and ethnic backgrounds compared to those not involved (Kuh, et al., 2008).

A variety of studies have investigated student involvement as a predictor of academic success outcomes. Studies have found a significant relationship between freshman involvement and first-year GPA (Fischer, 2007; Gordon et al., 2008, Kuh et al., 2008). There is also strong evidence that student involvement impacts the likelihood a freshman will be retained for their second year (Kuh et al., 2008). Finally, students who are involved are also more likely to persist to graduation (Fischer, 2007; Milem & Berger, 1997). One study found the number of hours engaged in extracurricular activities in high school had a significant relationship with college persistence (Sciarra, Seirup & Sposato, 2016).

One growing area of focus is that an involved student has increased opportunities to engage with peers, faculty, and staff. In their most recent annual report, NSSE (2019b) reported that quality of interactions and supportive environment were the two strongest engagement indicators associated with student persistence. Quality of interactions, which approached a

medium effect size, indicated the student's perceptions on the quality of interactions with peer, faculty, advisors and staff. Supportive environment captures a student's perception of the institution providing support services and support staff they need to succeed but also providing opportunities for contact with students from different backgrounds, opportunities to be socially involved and providing campus activities/events. A student's interactions with their residential peers, opportunity for interactions and the level of the interactions may have an important relationship with persistence.

### ***Surveys of Student Involvement***

Collecting student involvement data is not a simple task due to the variety of involvement and methods for adequately measuring it. However, there are several survey instruments developed with either the specific purpose of measuring college student involvement or of integrating components of college student involvement as it developed. Typically these surveys required individual institutions to pay a fee for its use. This fee allowed the institution to distribute the survey to its students and to have access to the data and their results and often provided comparative results from other participating institutions. Participation provided the institution with a better understanding of its students and how they compared to peers that could be used for the purposes of institutional evaluation and development. The following section highlights several of these instruments.

**Cooperative Institutional Research Program.** The Cooperative Institutional Research Program (CIRP) developed and launched a landmark survey in 1966 (Astin, 2003; Higher Education Research Institute, 2014). Since that time, it has become the largest and longest-running longitudinal study of college students, with data on 15 million students across 1,900 institutions (Higher Education Research Institute, 2014). The strength of the CIRP data comes

from its longitudinal nature and the use of three matched surveys: one survey for incoming freshman students, another survey for students completing their first year in college, and a final survey for graduating seniors (Higher Education Research Institute, 2014). CIRP provides a comprehensive look at college students across a wide range of areas including their attitudes, values, reasons for attending college, etc. In particular, the CIRP surveys feature a variety of questions related to student involvement in co-curricular experiences, involvement in academic activities, and interactions with peers and faculty.

**College Student Experiences Questionnaire.** In the late 1970s, Robert Pace explored how a student's learning and growth was impacted by the quality of their experience in college (Pace, 1982; Pace, 1984). Pace believed that learning was largely dependent on the quality of effort the student invested in their educational experiences. Pace developed the College Student Experiences Questionnaire (CSEQ) as a method for measuring and assessing the experiences of college students. Since its inception, the CSEQ has been completed by more than 400,000 students across more than 500 institutions (CSEQ Assessment Program, 2007). The CSEQ measures three primary areas of a student's college experience: the relationships and environment at the institution, self-reported gains on educational outcomes, and involvement in academic and co-curricular activities (CSEQ Assessment Program, 2007). The activities section of the survey provides information on a student's level and type of involvement including experiences with faculty, arts, music and theater, campus facilities (athletics, recreation, and student unions), clubs and organizations, and peer interactions.

**National Survey of Student Engagement.** The National Survey of Student Engagement (NSSE) grew out of the CSEQ (drawing on or adapting two-thirds of the CSEQ questions), the CIRP survey, and student surveys from the University of North Carolina (Kuh, 2001; NSSE,

2019a). The survey was designed to measure areas of good practice in undergraduate education and provided an institution with data on their students' performance in comparison to other participating institutions (Kuh, 2001; Kuh, 2009). The survey features forty questions comprising five institutional benchmarks of good practices: level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environments. In 2013, the NSSE received a major update that included the removal, addition, and revision of specific questions (NSSE, 2019b). In addition, institutions can optionally select up to two modules (short sets of questions of a specific topic) to explore specific issues in more depth.

NSSE targets only first-year students and seniors using a random sample or census approach of participating four-year colleges and universities (NSSE, 2019a). Since its launch in 2000, more than four million students from over 1,500 institutions have completed the survey, while 371,284 students from 621 institutions participated in 2013 alone. Over a short period of time, the NSSE has found widespread adoption and has had a major impact in research on student engagement in higher education.

### ***NSSE Usage, Support, and Critique***

The NSSE was quickly adopted by institutions large and small; in only three years, the survey was used at over 600 institutions with more than 285,000 students (Kuh, 2003). The NSSE survey and its data were a treasure trove for researchers studying student engagement. Similarly, researchers found novel ways to adapt the NSSE items to utilize the data to conduct research. Zhao and Kuh (2004), in studying the impact of Learning Communities on academic performance, created six scales out of 47 NSSE items to measure social development, general education, and practical competence. Pike (2006a, 2006b) utilized the NSSE items to develop

twelve scalelets, “clusters of highly related survey questions representing the experiences of a group of students” (Pike, 2006b, p. 178), as a way to provide units/colleges within the institution with an opportunity to use NSSE data using smaller sample sizes of 25-50. Results indicated the scalelets were a dependable metric for assessing engagement (Pike, 2006a) and even provided a stronger explanatory power than the NSSE benchmarks (Pike, 2006b).

The NSSE survey can be a useful tool for an institution to evaluate the effectiveness of their programs and policies across their own student body and in comparison to other institutions. However, usage of the NSSE survey is only appropriate provided that the survey is both a valid and reliable tool for measuring concepts of engagement and that these concepts correspond to the appropriate outcomes (Carle et al., 2009). To answer these concerns, the Center for Postsecondary Research, the group responsible for the NSSE survey, released a report outlining the psychometric properties of the survey and addressed validity and reliability concerns (Kuh, 2004). The report shared five conditions derived from established research that would determine whether self-reported student data were likely to be valid:

- when the requested information is known to the respondent;
- when the questions are phrased clearly and unambiguously;
- when the questions refer to recent activities;
- when respondents think the questions merit a serious and thoughtful response; and
- when answering the questions does not encourage the respondent to respond in socially desirable ways and does not threaten, embarrass, or violate the privacy of the respondent (Kuh, 2004, p. 3-4).

Kuh found these validity conditions were largely satisfied because the NSSE survey asked about a student’s firsthand experiences that occurred within the current academic year (resulting in a

timeframe of six months or fewer). In addition, a high level of care was taken to create a survey that was easy to understand and that avoided socially desirable or sensitive areas. In addition, the survey asked for estimations of behaviors for a typical week to eliminate variability across weeks and used simple rating scales to help recall and response.

In terms of reliability, NSSE conducted six field tests of sizes ranging from 3,226 students across 12 institutions up to 122,584 students across 427 institutions (NSSE, 2019b). NSSE score stability was tested using concordance correlation, matched sample t-tests, and test-retest. The results suggested a high level of stability. Mode testing found the web survey had small but slightly more positive responses. Focus groups from a variety of student and institution types demonstrated that the survey items were “clearly worded and easy to complete” (NSSE, 2019b, p. 21).

Not all researchers agreed that the NSSE was reliable and valid. Many studies have reported concerns with the NSSE benchmarks and sought alternative measures for their data. Pike (2006a, 2006b) developed scalelets that showed modest improvement over the NSSE benchmarks. However, the results from this their statistically derived model did not replicate with a dataset from two years prior. Pike concluded that “the NSSE variables identified in the models have a decidedly mixed level of validity within our institution” (Pike, 2006a, p. 37) and found the “benchmarks are only very loosely related to student outcomes” (Pike, 2006a, p. 37). Gordon et al. (2008) did not find support for Pike’s scalelets but instead developed and found support for their own NSSE factors. Their results indicated they were a better measure of their institution’s student outcomes than the NSSE benchmarks, which had little predictive power at their institution. LaNasa, Cabrera, and Trangsrud (2009) used confirmatory factor analysis and found the NSSE’s five benchmark models did not fit their institution’s data and argued the NSSE

benchmarks had concerns of construct validity. Instead, exploratory and confirmatory factor analysis resulted in an eight-factor model that better fit their data. Similarly, Esquivel (2011) explored the factorial validity of the NSSE benchmarks and Pike's (2006a, 2006b) scalelets at a single institution and found a poor model fit for both. An exploratory factor analysis resulted in a six-factor arrangement, but it also exhibited poor model fit when applied to another dataset.

Others have questioned the overall approach used by the NSSE survey and college surveys in general. Porter (2011) wrote a scathing criticism regarding the validity of college student surveys by critiquing NSSE as the most prominent college student survey in use. He concluded that NSSE "fails to meet basic standards of validity and reliability" (p. 72). This determination came after a broad range of concerns were raised regarding NSSE's overly broad domain, the lack of replication of the benchmarks, reliability estimates failing to meet minimum standards, and a limited association between NSSE items/scales and external data. In particular, Kuh's (2004) five conditions for why the NSSE data were likely to be valid "stands in contrast to the current state of knowledge about human cognition and survey response" (p. 52) in terms of comprehension, retrieval, judgement, and response. In this regard, an understanding of cognitive processing issues with surveys was an important consideration for this study.

### ***Cognitive Processing Concerns with Surveys***

Research studies on student involvement are common within the higher education literature, and most utilize a survey as the method of data collection. Survey questions, and the surveys that contain them, must be developed with a concern for potential cognitive processing errors (Porter, 2011). In this section I outline cognitive processing concerns and provide some example concerns for their use in student involvement research. Tourangeau, Rips, and Rasinski (1999) outlined four categories of cognitive processes a respondent uses to answer survey

questions. These four categories included the processes of comprehension, retrieval, judgment, and reporting. These processes are neither fixed nor linear. Instead, the order of use may vary, processes may be revisited, and not all processes may be used.

Comprehension is the process a participant uses to understand a survey question (Groves et al., 2009; Tourangeau, Rips, & Rasinski, 2000). Comprehension plays an important part in arriving at an answer to a question. It includes understanding the directions of the survey, analyzing all the parts of the question, inferring the intent of the question, and identifying the information requested. Comprehension issues may relate to the length of the survey, low level of participant interest, or an external distraction. Comprehension issues can cause a variety of problems in collecting accurate student involvement data. For example, a student may be involved in an activity but fail to report it because the researcher used an unclear name for the activity. Research suggests unclear participants may use the response scale as an aid for choosing an appropriately safe response (Groves et al., 2009; Tourangeau et al., 2000). As a result, students may simply select a response that appears to fit the response scale median rather than what accurately reflects their actual involvement.

Retrieval is the cognitive process of recalling “information relevant to answering the question from long term memory” (Groves et al., 2009, p. 221). During retrieval, a participant adopts a strategy for retrieval and then generates cues to trigger memory recall (Groves et al., 2009; Tourangeau et al., 2000). The cues should generate the information necessary to respond or a partial set of memories that will act as cues in another retrieval cycle. This cycle might continue until the participant finds all the information necessary to respond, gathers enough information to create a basic framework to respond, or gives up attempting to retrieve information. Several factors aid in the retrieval of information: the memorability of the event, the

distinctiveness of the event, low repetition of the event, proximity to a distinctive event, and a short lapse in time between the event and retrieval (Groves et al., 2009; Tourangeau et al., 2000). Involvement surveys are rife with retrieval issues as involvement details are often common and uninteresting. Additionally, involvement surveys often ask questions about activities over large gaps of time (an academic year or the student's entire college experience), which are difficult to recall (Porter, 2011).

Judgment is the “process of combining or supplementing what the respondent has retrieved” (Groves et al., 2009, p. 222) in order to provide an answer to a survey question. Response errors become extensive when a participant uses a flawed strategy to arrive at their response (Groves et al., 2009; Tourangeau et al., 2000). Miscounting can occur due to being unable to recall every event. Over (or under) counting occurs from envisioning more (or fewer) events than actually happened. In addition, a strategy of count and recall declines in accuracy as the number of events go up. Student involvement counting may be difficult for students, as the involvement is often composed of repetitive and mundane activities that are not particularly memorable. Often participants switch to another strategy because of the effort necessary to remember and count all of the events. Groves et al. (2009) noted participants often switch to a “rate-based estimation when there are more than seven events” (p. 235). Rate-based estimation works well for behaviors that are highly consistent across periods of time (Groves et al., 2009; Tourangeau et al., 2000). However, rate estimation is problematic for college students attempting to estimate behavior over a semester or year because activities across semesters, months, or even weeks are likely to vary wildly at different times of the academic calendar.

Reporting relates to the cognitive process a participant uses to share their answer (Groves et al., 2009; Tourangeau et al., 2000). First, a participant must translate their answer into a format

that maps to the provided response options (Tourangeau et al., 2000). Involvement surveys are mostly likely to be close-ended questions with categorical responses or with ordered response scales. For close-ended questions, a participant must interpret how their response correlates with the right category or scale value. This is even more difficult with vague or large scales. Even selecting a categorical response is not easy, as it requires cognitively considering multiple choices at the same time. Close-ended, scaled questions can produce a positive bias as people tend to avoid negative/low response choices. Finally, close-ended, categorical questions suffer from issues of primacy (a respondent choosing the earlier options) and recency (a respondent choosing the later options). Another reporting issue occurs when a participant consciously misreports their response (Groves et al., 2009). Misreporting is likely to occur when a question asks for information the participant considers sensitive. Porter (2011) acknowledged that we know very little about how “social desirability bias affects college student survey response” (p. 61). Although most student involvement research is on non-sensitive topics, many surveys do ask about high-risk behaviors such as underage drinking or illegal drug use. Even safe-sounding involvement questions (e.g., “How often do you study at the library?”) might be misreported when a student wants to appear more studious than they are in reality.

### ***Student Involvement Summary***

There are some concerns with NSSE specifically and with student involvement surveys more generally, although Porter’s (2011) assessment is that we should “call into question most of the research on student engagement, student development and other postsecondary areas that rely on similar surveys of college students” (p. 70). Without student survey data, how would we assess the student impact of involvement as an educationally meaningful practice? Is there another path? In articulating why we should trust data of students sharing their experiences (and

by extension their responses collected through surveys), Kuh (2001) argued that “student reports about certain matters are the only feasible, cost-effective source of this kind of information” (p.13). One might hear in that statement that, admittedly, surveys are not a good option...but they are simply the best option available. Kuh added that “it would be prohibitively expensive (and probably logistically impossible) to observe directly how students at large numbers of institutions use their time and the extent to which they interact with peers and faculty members” (p. 13). Perhaps “It’s the best we can do” was satisfactory at the time, but it won’t be forever and may not be already.

The march of technology may make what was once “logistically impossible” seem mundane in the age of “big data” when devices on our wrists track our health, when tech companies conduct pinpoint advertising based on tens of thousands of data points on an individual, when there is an app to track quality of sleep/food/relaxation, and one can review one’s week/month/year of driving through an online map. How long until institutional apps automatically track student locations on campus, log their involvement at events, and utilize digital badges or student scoreboards to track (and perhaps even encourage) specific types of involvement? What was once “logistically impossible” may be researchers’ next treasure trove of student involvement data. This study sits on the precipice of a possible future research that utilizes actual involvement data to study the effects of student involvement. Astin’s (1984, 1993) student involvement is an important framework for studying involvement in residential programs and related research and concerns for the methodological use of surveys as a data source were explored. In the next section, I explore two theoretical models for understanding persistence, which is a primary outcome of this study.

## **Persistence as an Outcome**

Understanding outcomes is critically important to colleges and the researchers who study them. Astin (1991) identified two types of student outcomes: affective and cognitive. Cognitive outcomes are the “knowledge and the use of higher order mental processes such as reasoning and logic” (p. 43) that encompass college GPA, retention, and persistence. Perhaps the most important outcome in higher education is a student successfully completing an academic degree. Completing a degree is an indication that the student has successfully completed a minimum number of credit hours of learning while demonstrating a desired level of mastery of the academic material. In the following section, I will explore research related to persistence.

### ***Tinto’s Model of Institutional Departure***

One of the earlier and most cited models of student persistence was Tinto’s (1993) Model of Student Departure (Braxton, Hirschy, & McClendon, 2004; Metz, 2004; Pascarella & Terenzini, 2005). This model appeared in its earliest form in 1975, growing out of an earlier collaborative work on student attrition (Tinto, 1993). In response to critique and research, a revised model appeared in 1987 and continued revisions in 1993 that extended the work to more diverse populations and institution types. Tinto argued that prior models on student departure were descriptive in nature, limited in their description, ineffective in aiding decision-making, and failed to consider the impact of the institution and external forces. Instead, Tinto’s model served as an explanatory framework to understand why students departed from a college and thereby aid institutions in making decisions that would positively influence student departure.

Tinto drew inspiration from two unique works in developing concepts for how the social and intellectual aspects of a college influenced a student’s decision to depart (Tinto, 1993). First, Arnold Van Gennep (1960) detailed three distinct phases (separation, transition, and

incorporation) with unique specific ceremony and ritual in each phase that “moved youthful participation to full adult membership” (p. 92) in a new location and/or community. In addition, Tinto drew from Durkheim’s *Theory of Suicide* (1897) to contextualize an individual’s departure as a “voluntary withdrawal from local communities that is as much a reflection of the community as it is of the individual” (Tinto, 1993, p. 99). The *Theory of Suicide* outlined four individual types, with Tinto having particular interest in the egotistic type wherein an individual with “deviant” values removed themselves from the community due to their inability to socially and intellectually integrate into community and society.

The Model of Student Departure, shown in Figure 3, comprised six progressive stages: pre-entry attributes, goals/commitments, academic and social experiences at the institution, integration experiences, reformulation of goals/commitments, and a decision to graduate or depart (Tinto, 1993). First, an individual entered an institution with a set of characteristics (family background, skills and abilities, and prior schooling), which influenced the entire model but also directly impacted the outcome decision. Next, the goals/commitments stage highlighted Tinto’s view that two primary attributes impacted a decision to depart: a student’s commitment to work toward attainment of educational goals at the particular institution and their commitment to their education, institution, and career. External commitments/choices outside of the student and institution also impacted the stages to “establish the initial conditions for subsequent interactions between the individual and other members of the institution” (p. 115).

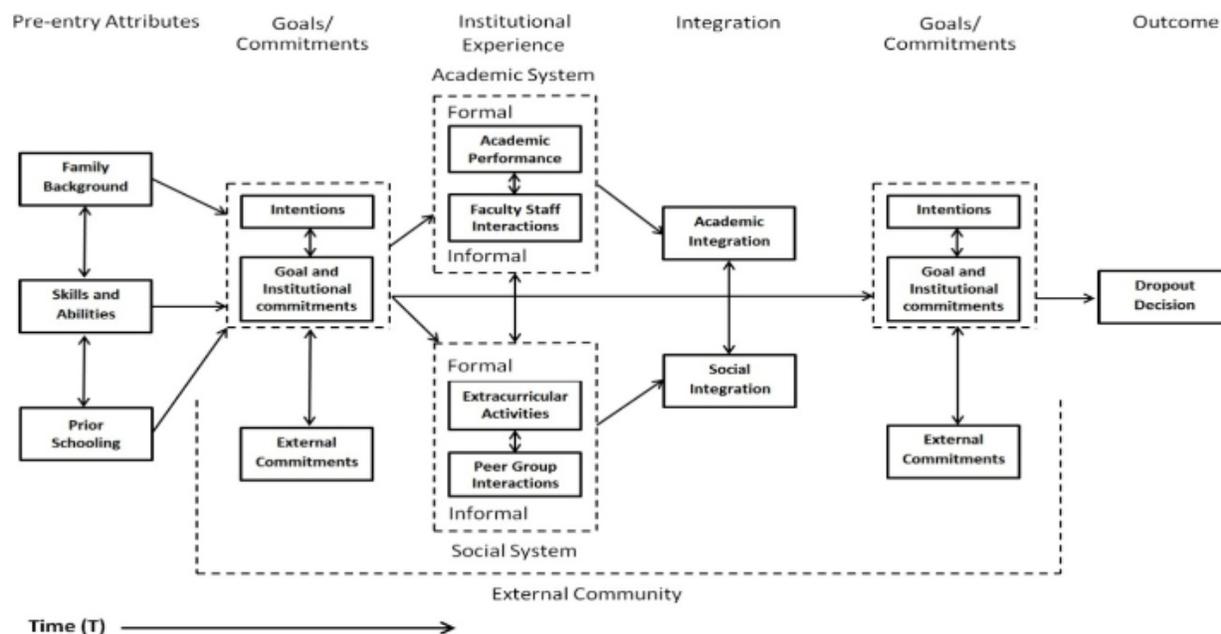


Figure 3. A Longitudinal Model of Institutional Departure. Reprinted from *Leaving College: Rethinking the Causes and Cures of Student Attrition*, V. Tinto, 1993. Copyright 1993 by University of Chicago Press.

In the third stage of institutional experiences, Tinto (1993) posited that college communities differed from societal communities by being “bipolar in structure...made up of distinct academic and social components” (p. 105), with both having formal and informal features. The formal component of the academic system focused on academic performance (class instruction, grades, etc.), whereas the informal focused on faculty/staff interactions (office hours, research projects, etc.). The formal components of the social system consisted of the student’s various extracurricular activities, whereas the informal focused on peer group interactions. Although a student’s experiences in these two environments influenced departure, they were not always symmetrical and often varied from institution to institution. In addition, the formal and informal settings could influence the other (e.g., enjoying a class might lead to increased contact with a faculty member and joining their research project).

In stage four, the student integrated the academic and social experiences, which, in the fifth stage, “continually modifies his or her intentions and goals/commitments” (Tinto, 1993, p. 115). Positive experiences increased a student’s academic and social integration and strengthened their intentions and commitments. This increased the likelihood that they would persist to graduate rather than depart. Finally, persistence was a result (or lack thereof) of a student’s integration of formal and informal interactions within these systems, balanced with forces and choices external to the institution. Positive social and academic experiences increased a student’s institutional and academic goal commitments, thus leading to an increased likelihood for persistence (Tinto, 1993). Therefore, increasing a student’s positive involvement and integration of the involvement increased a student’s likelihood to persist to graduation.

### ***Research and Critique of Tinto’s Model of Student Departure***

Tinto’s (1993) Model of Institutional Departure has been described as a paradigmatic framework for understanding college student departure (Braxton et al., 2004) and has profoundly impacted research on college persistence. However, the literature also has a wealth of examples of critical research, critique and revisions. Some researchers have argued that Tinto’s model, like many student development theories, was fashioned around a monocultural college student (White, male, and middle-to-upper income) of a past era that did not account for the cultural differences found among today’s multicultural student body (Pascarella & Terenzini, 2005; Rendón, Jalomo, & Nora, 2000). Pascarella & Terenzini (2005) found that elements of Tinto’s model might not be appropriate for non-traditional students and various racial/ethnic groups, but other research found the model functioned similarly for White and non-White students. Scholars have proposed a variety of revised models that aimed be more inclusive. Rendón, Jalomo, and Nora (2000) theorized biculturalism and socialization as factors that influenced college student

departure for minority students. Tierney (2000) suggested a model based on concepts of power and community aimed at supporting low income, urban Black, and Hispanic students. Kuh and Love (2000) entirely reframed student departure using concepts of culture and a cultural perspective.

Other scholars have offered revised models that integrated constructs from other theoretical perspectives to improve the explanatory power of Tinto's Model. St. John, Cabrera, Nora, and Asker (2000) integrated financial variables to understand how economic forces affected college student departure. Bean and Eaton (2000) infused psychological theory by revising the model to include constructs of attitude behavior, coping behavior, self-efficacy, and attribution. Baird (2000) argued the importance of student perceptions and incorporated perceptions of campus environment and climate to college student departure. Berger (2000) infused concepts of cultural capital, at both the institutional and individual level, to college student departure.

Milem and Berger (1997) extended Tinto's (1993) Model of Student Departure using behavioral measures framed within Astin's (1984) Student Involvement. Their integrated model considered how student behaviors and perceptions acted together to influence academic and social integration which thereby impacted persistence (Milem & Berger, 1997). Their study found moderate support for their revised model. Results indicated academic integration did not predict institutional commitment or intent to continue enrollment, however, there was support for social integration as a predictor of institutional commitment and intent to continue enrollment. In particular, they argued that involvement influenced students' perceptions of support, and "these perceptions of support appear to have an effect on students' level of institutional commitment"

(p. 398). Overall, Milem & Berger believed involvement's relationship with student persistence was underestimated, particularly the importance of early involvement in the freshman year.

### ***Braxton's Revised Theory***

Braxton, Sullivan, and Johnson (2004) added to the critique literature with a comprehensive, empirical study to validate the Model of Student Departure. They argued that Tinto's (1975) original model contained 15 testable propositions and sought to assess the validity of each proposition (visually depicted in Figure 4) through a review of both single- and multi-institution studies. Their review found only partial support for the Model of Student Departure (Braxton et al., 2004). Two propositions had strong support across both single- and multi-institution tests: the initial level of institutional commitment affected the subsequent level of institutional commitment (Proposition 10) and the initial level of commitment to the goal of graduation from college affected the subsequent level of commitment to the goal of college graduation (Proposition 11).

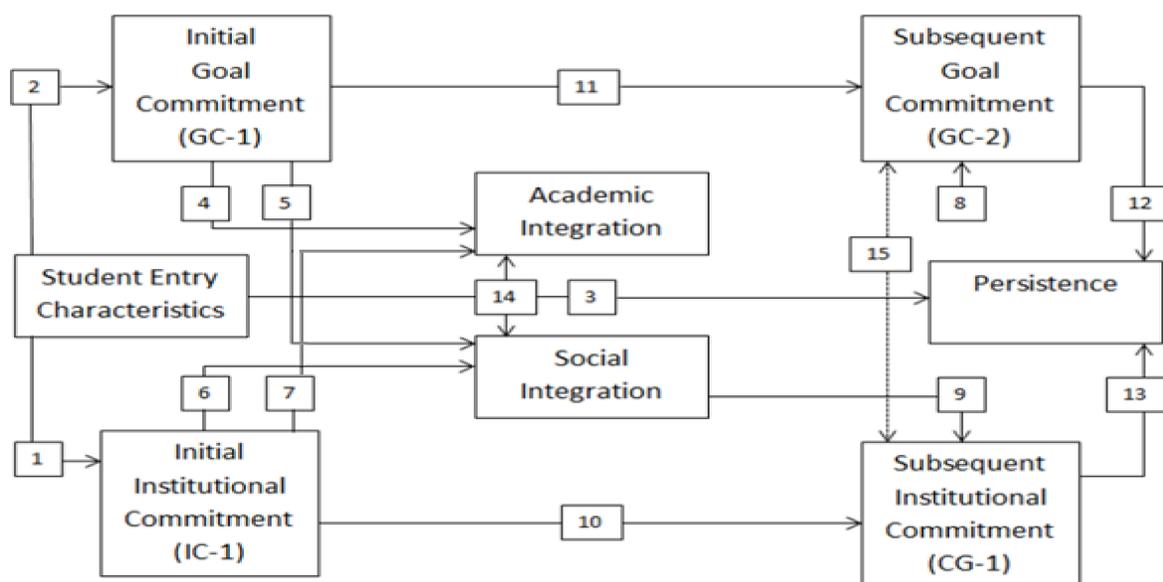


Figure 4. Tinto's 1975 model with the 15 testable propositions. Adapted from *Understanding and reducing college student departure*, by J. M. Braxton, A. S. Hirschy, & S. A. McLendon, 2004. *ASHE-ERIC Higher Education Report*, 30(3).

The multi-institution studies supported two additional propositions: student entry characteristics affected the level of initial commitment to the goal of graduation from college (Proposition 2) and the greater the level of subsequent commitment to the goal of graduation from college, the greater the likelihood of student persistence in college (Proposition 13) (Braxton et al., 2004). Finally, single-institution studies also substantiated five other propositions: 1) student entry characteristics affected the level of initial commitment to the institution (Proposition 1); 2) the greater the degree of social integration, the greater the level of subsequent commitment to the institution (Proposition 9); 3) the greater the level of subsequent commitment to the institution, the greater the likelihood of student persistence in college (Proposition 13); 4) academic integration and social integration were mutually interdependent and reciprocal in their influence on student persistence in college (Proposition 14); and 5) a high level of commitment to the goal of graduation from the college compensated for a low level of commitment to the institution (Proposition 15) (Braxton et al., 2004).

Braxton et al. (2004) also considered differences between residential and commuter institutions. Results indicated Tinto's model was not useful for predicting persistence for commuter institutions (with support for only two propositions) but had some usefulness in predicting persistence at residential institutions. The investigators endorsement for fit with residential institutions was based on finding support for five propositions: Proposition 5 (Initial commitment to the goal of graduation from college affects the level of social integration), Proposition 9, Proposition 10, Proposition 11, and Proposition 13. In particular, they argued that Propositions 9 and 13 were both highly reliable and were core concepts of Tinto's model. Specifically, Proposition 9 indicated that the greater the level of social integration, the greater the level of subsequent institutional commitment, while Proposition 13 indicated that the greater the

level of subsequent institutional commitment, the greater the likelihood of student persistence in college. As a result, there was strong support for social integration as a predictor of persistence, but little support for academic integration as a predictor.

Based on these results, Braxton, Hirschy, and McClendon (2004) proposed revisions to Tinto's (1993) Model of Student Departure founded on Propositions 9 and 13 and eliminating academic integration. They also developed two revised models, one for residential institutions (see Figure 5) and one for commuter institutions. In the revised theory for student persistence in residential colleges and universities, social integration played a key role in understanding student persistence in a residential college or university. The revised model included six factors that the literature suggested affected social integration. The six factors were:

- 1) a student's ability to pay and its impact on their ability to continue participation and to feel satisfied about the costs of attending the chosen institution,
- 2) institutional commitment to the success and welfare of all students,
- 3) communal potential in which a student perceives there exists a community of peers with shared values, beliefs, and goals,
- 4) institutional integrity between an institution's espoused mission and goals and its actions by faculty and staff,
- 5) recognition of and proactive social adjustment with the social changes a student experiences in going to the institution,
- 6) the psychosocial energy students invest by engaging in social interactions with peers and in engaging in campus activities (Braxton et al, 2014).

Social integration and the subsequent institutional commitment were key components in this revised theory, as they both had a direct effect on student persistence at residential institutions (Braxton et al., 2014).

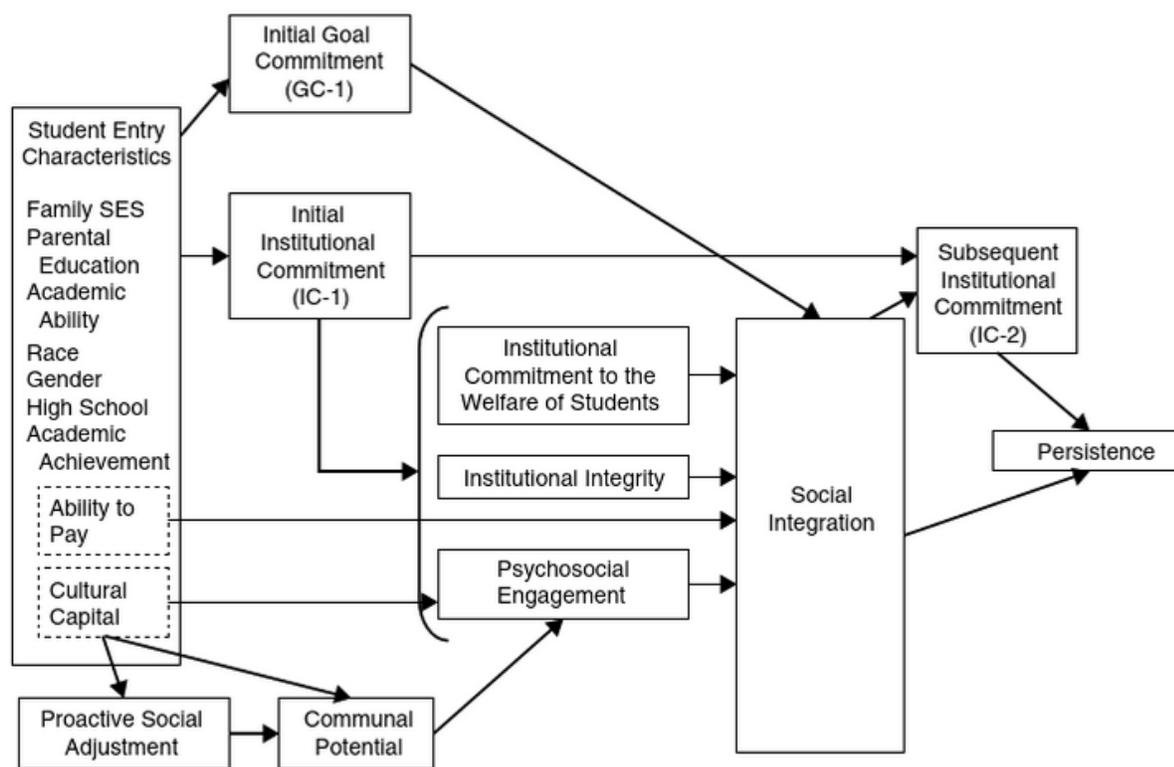


Figure 5. Revised theory for student persistence in residential colleges and universities. Reprinted from *Rethinking college student retention*, by J. M. Braxton, W. R. Doyle, H. V. Hartley III, A. S. Hirschy, & S. A. McLendon, 2014. Jossey-Bass.

Following the same method used to validate Tinto's (1993) model, eight propositions were identified for the new revised model, and tests were conducted to validate it (Braxton et al., 2014). Overall, the study found "robust empirical support for the revised theory of student persistence in residential colleges and universities" (p. 205). In particular, evidence supported five of the propositions and three of the factors affecting social integration (student welfare, institutional integrity, and psychosocial engagement). In addition, support was found for two

other factors (proactive social adjustment and communal potential) as indirect antecedents to psychosocial engagement based on cultural capital as an entry characteristic.

Particularly salient to this study, the psychosocial engagement factor had residential connections (Braxton et al., 2014). One of the primary components of psychological engagement among students was a sense of community in the residence halls, which was composed of three elements: identity as a member of the residential community, solidarity with peers (shared beliefs and goals and working to solve shared problems), and frequency/intensity of face-to-face interactions with residential peers. Braxton et al.'s research indicated that residential identity and residential interactions had a statistically significant influence on psychosocial engagement. The greater the identity with the residential community, the greater the students' degree of psychosocial engagement. Specifically relevant to social program involvement was the acknowledgement that "the greater the frequency and intensity of face-to-face interactions among residents of a student's residence hall, the greater their extent of psychosocial engagement" (p. 170).

### ***Summary on Persistence***

Tinto's (1993) Model of Student Departure is still the primary citation by researchers studying student persistence (Pascarella & Terenzini, 2005). It is commonly used to study the process of student integration into the academic and social life of traditional students attending public institutions and the impact it has on a student's decision to persist in their collegiate program through to graduation. However, the literature is also filled with well-documented concerns related to inclusiveness for all populations and institution types. Some have argued the need for more refined measures as "survey items developed to measure these constructs [may] not capture the complexities and subtleties of the interactions between students and institutions

that affect persistence” (Kuh & Love, 2000, p. 197). Considering the institution type and student population, Tinto’s (1993) model may provide a useful theoretical model for conceptualizing persistence for this study.

However, Braxton’s Theory of Student Persistence in Residential Colleges and Universities may be a more suitable theory explaining the relationship involvement in residential programs has with persistence. Not only does it have stronger empirical backing (Braxton et al., 2014; Braxton et al., 2014) and focuses on social experiences that have more research support (Braxton et al., 2004, Milem & Berger, 1997), but it also features a stronger strong connection to residential experiences with the psychosocial engagement factor. This is of particular relevance because residential programs often focus on increasing face-to-face interactions and building relationships between residents. In the next section I explore student characteristics as important input covariates for modeling the outcomes of this study.

### **Student Characteristics as Covariate Inputs**

Students come to campus with certain background characteristics, which serve as inputs to the educational setting of an institution. Student inputs are an important element when assessing student outcomes (Astin, 1991). In fact, it is impossible to “learn how our educational policies and practices affect student outcomes in the absence of input data” (p. 64) because inputs relate to both the educational environment and the educational outcomes. Inputs are particularly important when studying involvement because “half or more of the variation among institutions in their students’ responses to certain engagement items can be attributed to input differences rather than to differences in institutional effects” (Astin, 2003, p. 26). Thus, it was important to account for relevant student input variables when evaluating the influence of educational environmental efforts on a particular student outcome. Of the various types of

student input measures that Astin (1991) outlined, the measures specific to this study included fixed student attributes (e.g., gender) and cognitive functioning (e.g., high school GPA).

In determining the appropriate inputs, this study utilized information in the *Higher Education: Gaps in Access and Persistence Study* report by the National Center for Educational Statistics (Ross et al., 2012). This report was the result of a multi-year examination into the educational participation and degree attainment by gender and racial/ethnic groups. The resulting report provided a wealth of descriptive information on participation and attainment in primary, secondary, and post-secondary education. Germane to this study was that the report utilized a regression analysis to indicate predictors of college degree attainment. Predictors found to be significant included: SAT/ACT scores, level of parental income, level of parental education, and earned college credits in high school. Another important predictor utilized in most studies on persistence was high school GPA and standardized test scores (Astin, 1993). The following section will explore research on the NCES predictors along with pre-college cognitive measures, gender, and race as inputs to persistence.

### ***GPA and ACT/SAT***

Pre-college cognitive measures include high school grade point average (HS GPA) and standardized tests scores (e.g., ACT, SAT I, and SAT II). A strong body of research has shown one of the strongest predictors of college persistence was high school GPA (HS GPA) (Astin, 1993; Kuh et al., 2006; Mayhew, Rockenbach et al., 2016). Astin (1993) argued that HS GPA was the single strongest predictor of college GPA and was one of the best predictors of completing a degree. Mayhew, Rockenbach et al. (2016) also concurred that HS GPA was the one of the best predictors of retention, persistence and graduation. A multi-year, single-institution study focused on admissions policies found high school GPA was the best predictor of

first-year GPA, fourth-year GPA, and graduation within four years (Geiser & Santelices, 2007). The inclusion of HS GPA best modeled graduation, as they found a model with GPA as a sole predictor fared almost as strongly as other models that included additional student characteristics as variables. The level of pre-college academic rigor (e.g., college preparatory courses and higher levels of math, science, and English) has also been found to impact persistence (Kuh et al., 2007). Similar longitudinal studies have also reported that HS GPA was a predictor, if not the strongest predictor, of persistence (Daugherty & Lane, 1999; Lotkowski, Robbins, & Noeth, 2004).

Standardized tests provide an objective method of assessing the intellectual/academic achievement of a student so that institutions can easily compare the relative performance of students from a wide range of educational settings. Although there are a variety of standardized tests, the two primary college standardized tests are the American College Testing (ACT) and the SAT (with two variants, SAT I for skills and SAT II for subject knowledge). In terms of standardized testing, Astin (1991) noted in his early research in the 1970s that standardized test scores were strong input predictors.

Often, studies utilized one or the other but seldom both. Cambiano, Denny, and DeVore (2000) investigated the predictive ability of HS GPA, ACT scores, age, and gender on persistence at the University of Arkansas. They found ACT scores were significant predictors of persistence for each of the seven semesters after the first year. Murtaugh, Burns, & Schuster (1999) found that SAT scores were significant predictors of persistence for students at Oregon State University. Vare, Dewalt and Dockery (2003) found the same but on a smaller scale for students at a teacher education program. Geiser and Santelices (2007) utilized both SAT I and SAT II tests in their study on admissions policies. Although they found that HS GPA was the

strongest predictor of graduation on its own, they found the model's strength to predict persistence increased slightly when including SAT II and slightly increased with both SAT I and SAT II, while it slightly decreased with SAT I scores only.

There are a variety of ways of using HS GPA and standardized test scores. For example, Titus (2004) created a composite variable (*student ability*) of both HS GPA and SAT scores. The results indicated *student ability* was related to persistence. While this was a creative approach, most studies used these measures separately, and they tended to show that HS GPA was a stronger predictor than SAT scores (Murtaugh, Burns, & Schuster, 1999; Daugherty & Lane, 1999), ACT scores (Cambiano, Denny, & DeVore, 2000; Lotkowski, Robbins, & Noeth, 2004) or both (Geiser & Santelices, 2007).

### ***Gender***

Gender is another frequent student characteristic in research on persistence. Women were historically excluded or underrepresented for much of the history of US higher education (Lucas, 1996; Rudolph, 1962). Although parity was briefly seen in 1943, it was not until 1978 that women enrolled at a higher rate than men (Snyder, 1993). As of 2017, there were about 9.5 million women enrolled in college (two-year and four-year) compared to 7.5 million men, which was about 56% of the total undergraduate population (McFarland et al., 2018). One reason for this enrollment switch was due to women outperforming men on “proximate determinants of college attendance—high school grades, test scores, and college preparatory coursework” (Kuh et al., 2007, p. 23). The 2011 college cohort of women had higher degree completion rates (60.2%) compared to men (53.9%), regardless of race/ethnicity or age (Shapiro et al., 2017).

Research on gender as a predictor of persistence painted an unclear and confusing picture (Peltier, Laden, & Matranga, 2000). This study found mixed results within the research literature.

Astin's (1975, 1991, & 1993) research regularly found that gender was a positive predictor of academic achievement. Pascarella & Terenzini's (2005) review suggested that women were more likely to earn higher grades and graduate at higher rates. Peltier, Laden, and Matranga (2000) found consistent evidence that gender predicted persistence and that Black women were significantly more likely to persist than Black men. Milem and Berger (1997) found women demonstrated more positive institutional commitment, which indirectly related to persistence. DesJardins, Ahlburg, and McCall (1999) utilized event-history modeling to "examine the temporal dimensions of student departure" (p. 375) and found the risk of dropping out for women was significant but only in the fourth year of college. Sparkman, Maulding and Roberts (2012) found that women were more likely to graduate than men while studying how emotional intelligence helped with predicting persistence.

Other studies have found the opposite result: men were more likely to persist at a higher rate while women were more likely to depart (Singell & Stater, 2006; St. John, Paulsen, & Starkey, 1996). Several other studies simply found that gender was not a statistically significant predictor of persistence (Murtaugh, Burns, & Schuster, 1999; Titus, 2004).

### ***Race/Ethnicity***

Students of minority backgrounds have faced a long legacy of barriers to full participation in US higher education (Lucas, 1996; Rudolph, 1962). Their enrollment saw significant growth following the Civil War, after World War II, and particularly after the 1960s and 1970s. At present, there are stark differences in enrollment in two-year and four-year colleges by the race/ethnicity of graduating seniors. In 2016, Asian students had the highest enrollment (87%), followed by White students (71%) and Latino (71%), and then Black students (56%). Over the past 15 years, Latino students saw the greatest enrollment growth (12%),

followed by Asian students (9%) and White students (6%), while Black student growth did not show any measurable difference. In addition, students were not equally distributed across the different types of institutions; Latino and Black students were typically underrepresented in most flagship and elite institutions (Astin, 1991). Similar to enrollment trends, degree completion rates varied greatly by race/ethnic group. In the 2011 college cohort, Asian students had the highest graduation rate (68.9%), followed by White students (66.1%), Latino students (38.2%), and then Black students (29.2%) (Shapiro et al., 2017).

Similar to gender, research results on race/ethnicity as a predictor of persistence were mixed. Astin (1993) found race/ethnicity to be an academic predictor, with being White a positive predictor of GPA while being Latino was a negative predictor. In addition, Black and Hispanic students tended to have lower high school GPAs and lower standardized test scores than other racial/ethnic groups, which negatively impacted their likelihood to persist (Astin, 1991). Murtaugh, Burns, and Schuster (1999) found race/ethnicity was a predictor of persistence, with all minority groups except Native Americans at a higher risk of departing their institution. Singell & Stater (2006) found White and Asian students were more likely to persist whereas Latino, Black, and Native American were less likely to persist. A study focused on departure across years using event-history modeling found that, in comparison to White students, Asian students were less likely to depart in year one, African American students were more likely to depart in year three and year four, and Latino students showed no difference (DesJardins, Ahlburg, & McCall, 1999; Sparkman et al., 2012).

However, Milem and Berger (1997) found a weak negative relationship between being White and intention to reenroll. In addition, Titus (2004) did not find evidence of a relationship between race/ethnicity and persistence. This diametric mix of research results on race/ethnicity

as a predictor for persistence was confounding. This might be evidence of an indirect connection with persistence. Alternatively, one observation was that some later experiences have a stronger impact than earlier ones, such that “students’ in-college experiences affect their adjustment far more than student background characteristics” (Hurtado, Carter, & Spuler, 1996, p. 153).

### ***Education Level of Parents***

The education level of a student’s parent is often considered an important variable in understanding college enrollment and persistence (Mayhew, Rockenbach et al., 2016). Typically, students are categorized as either (a) having one or more parents with bachelor’s degree, (b) having one or more parents attending some vocational, technical, or college classes but not receiving an advanced degree, or (c) having no parent attending any postsecondary education (also called “first-generation”) (Choy & Associates, 2001). In 1994, 49.3% of bachelor degree recipients had a parent with a bachelor’s degree, while 31.3% were first-generation (Staklis, 2016). By 2009, only 20.1% of graduates were first-generation, whereas 56.1% had parents with a bachelor’s degree. A student’s likelihood to enroll in postsecondary education increased in relation to their parent’s level of education (Choy Associates, 2001). In addition, parent education level had an intergenerational effect, as “having college-educated parents modestly enhanced a person’s educational attainment” (Pascarella & Terenzini, 2005, p. 589-590). Parent education level also interplayed with other demographic characteristics, as first-generation students were more likely to be Black, Latino, or from the lowest income quartile (Choy & Associates, 2001).

The education level of parents played an important role in the attainment of a bachelor’s degree. In their review of research, Pascarella & Terenzini (2005) found that students of parents with some college were twice as likely to persist compared to first-generation students, while

students of parents with a bachelor's degree were five times more likely to persist. A longitudinal study of the 2003-2004 cohort of first-time college students, indicated that students of parents with bachelor's degree had a graduation or still enrolled rate of 83% compared to 73% of students with parents without completing an advanced degree and 65% of first-generation students (Cataldi, Bennett, & Chen, 2018). Sparkman, Maulding and Roberts (2012) also found that students having one or more parent with a 4-year degree were more likely to graduate. Vare, Dewalt, and Dockery (2004) found parents' education level was predictive for students in a teacher education program. Lotkowski, Robbins, and Noeth (2004) found that SES (a combination of parent education and income) was a stronger predictor of persistence than ACT scores but not as strong as HS GPA. Gesier and Santellices (2007) found parents' level of education was more strongly correlated with standardized test scores than with HS GPA.

### ***Financial Aid and Socioeconomic Status***

Researchers are often interested in the effect financial aid and socioeconomic status, either independently or together, have on persistence. The 2016 two-year and four-year college enrollment rates for graduating high school seniors from high-income families was significantly higher (83%) than students from medium-income (64%) and low-income families (67%) (McFarland et al., 2018). Interestingly, the slightly higher enrollment for low-income students recently shifted in 2015, having been slightly lower than medium-income students before that time. In 2015-2016, 85% of first-time, full-time undergraduate students at four-year public institutions received some amount of financial aid, which was an increase from 75% in 2000-2001. In terms of particular aid type, 37% of students at public institutions received federal grants, 37% received state/local grants, 47% received institutional grants, and 47% received student loans.

Results from a nine-year, multi-institutional study of academic persistence found socioeconomic status had a direct effect on persistence for Black men and White women, but only an indirect effect for Black women and White men (Stoecker, Pascarella, & Wolfle, 1988). Titus (2004) did not find socioeconomic status predictive of persistence, but did find that financial need was predictive. Curiously, the results showed that an increase in financial need had a positive relationship with persistence, a “counterintuitive finding [that] warrants future research” (p. 688). Financial aid affected student persistence for students attending large, public institutions (Singell & Stater, 2006). In particular, a student’s increasing financial aid eligibility (level of need) was a negative predictor, with each additional \$1,000 of annual need reducing likelihood of persisting by 2.1-3.3%. As expected, receiving need-based aid was a positive predictor, with each additional \$1,000 in aid increasing likelihood of persisting by 4%. However, merit aid seemed to have no effect on persistence. In modeling dropout across academic years, DesJardins, Ahlburg, & McCall (1999) found useful year-specific information on how financial aid supported persistence. After accounting for other factors, they found that: (a) scholarships decreased student departure in years one through three, (b) loans decreased student departure in years two through four, (c) work study decreased student departure in the first year, and (d) grants did not have any statistically significant prediction on likelihood of departing.

Financial aid and socioeconomic status are often intertwined with other student characteristics. Gesier and Satellices (2007) found socioeconomics were strongly correlated with both standardized test scores and with HS GPA, although the correlation was much stronger for standardized test scores. In terms of effect, Lotkowski, Robbins, and Noeth (2004) found their composite measure SES (a combination of parent education and income) predicted persistence and, while it was a slightly weaker predictor than HS GPA, it was stronger than ACT scores.

### ***Student Characteristics Summary***

This section outlined relevant student characteristics as inputs to student persistence to graduation. Research on persistence clearly demonstrated that high school GPA was one of the stronger, if not strongest, pre-college predictor for persistence. Every model reviewed had high school GPA as a statistically significant contributor. There was evidence supporting standardized test scores, although standardized test scores were not consistently significant and studies were split between which test (ACT or SAT) they used (although some used both). For institution-specific studies, it was likely the test choice was made based on whichever test was more prominently reported at that institution. The education level of a student's parent was robust and significant across the literature on persistence. Use of financial aid information was robust, and multiple studies showed significance. However, socioeconomic status was leaner, and other than in one study, was found to be significant. Finally, gender and race/ethnicity were robust in their use, but their significance was mixed and slightly befuddling. Due to the divergence between groups for race/ethnicity, the study focused on discrete groups rather than a monolithic category of minority. Although gender had widely varying results in the literature, it was included in this study as it has been shown in most cases to be significant, even if the direction appeared to change between studies.

### **Chapter Summary**

In Chapter 2, I explored residential programming as a social and academic experience within the residential environment and articulated the gap in the research literature on understanding who was involved in residential programs and how their involvement related to persistence. I articulated how Astin's (1991) I-E-O model and the ACRESO Conceptual Framework were useful conceptual frameworks for this study. Astin's (1984, 1985) Student

Involvement detailed how involvement was an environmental variable, and concerns were shared for the methodological approach typically employed in studying it. Next, I outlined persistence to graduation as an important outcome variable. Tinto's (1993) Model of Institutional Departure was explored and, based on validity concerns, I also explored Braxton's (2004) Revised Theory for Persistence in Residential Colleges and Universities. In terms of inputs, prior research on relevant student characteristics demonstrated important variables to account for in the study were pre-college cognitive measures, gender, race/ethnicity, parental education level, and various financial aid/socioeconomic status. In the next chapter, I outline the study's research questions and the methodological approach used to answer them.

### **Chapter Three: Methodology**

Chapter Three provides an overview of the methodology that will be used to answer the study's research questions. It articulates the study's research design, highlights the population and samples, explains the data collection process, describes the collected variables, and provides information on transformations used to create new variables. Finally, this chapter summarizes the steps for data screening, highlights relevant descriptive statistics, and outlines the proposed analysis of the data to answer the four research questions.

#### **Purpose of Study**

The purpose of this study was to describe student involvement in residential programs and examine the relationship that involvement in residential programs had on academic outcomes (GPA, retention, and persistence). First, the study descriptively investigated freshman involvement in residential programs and examined whether involvement differed by particular groups of students based on background student characteristics. Second, the study examined the relationship involvement in residential programs and the type of involvement had with academic outcomes. This study explored residential involvement using data gained from actual involvement rather than self-reported involvement. Specifically, the study sought to answer the following four research questions:

1. To what extent are freshman students involved in residential programs, and does this involvement vary between students with different background characteristics (e.g., gender, race/ethnicity, family income)?
2. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to first-year GPA?

3. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to retention to the second year?
4. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to persistence to graduation?

In this study, a student was defined as retained when they progressed through their first year and enrolled full-time in the fall of their second year at the same institution. A student was defined as persisting when they attained their bachelor's degree within six years of starting at the institution. This study did not differentiate between students who were not retained or did not persist due to a voluntary departure, a behavioral removal, or an academic dismissal. Additionally, it did not differentiate between a student who departed the institution to stop their education and a student who departed from the institution but continued their education by transferring to another institution.

### **Research Design**

This study sought to describe student involvement in residential programming and to explore such involvement in relation to student academic outcomes that using a quantitative data. A quantitative methodology supports large sets of numerical data from a sample of a population and the use of statistical tests to draw inferences from the sample results to a larger population (Creswell, 2014). The study used actual student involvement in residential programs and institutional data, which were not experimentally derived data but naturally occurring phenomena. As a result, the study used a correlational research design appropriate to understand the relationship between naturally occurring variables. The design was longitudinal, investigating the relationship of involvement in residential programming across an entire freshman academic year and potential affects through their graduation or failure to obtain a degree within six years.

## Data Collection

Data for this study came entirely from secondary data sources. Quantitative studies frequently utilize secondary data sources, as such methods provide data that are cost-effective yet of high quality (Vartanian, 2011). Student involvement data came from actual student involvement records, which should be more accurate than the self-reported survey data typically found in student involvement research. Data for this study came from four sets of secondary data sources: three sets of existing institutional records and one set of secondary survey data. The four datasets included: (a) housing assignment and program involvement data, (b) institutional demographic data, (c) student survey data from the Incoming Freshman Survey, and (d) housing program data. All datasets were for the 2012-2013 academic year, which allowed this study to look at the most recent class cohort that graduated within six years or fewer. The remainder of this section will provide information regarding each dataset, the data keeper, how the data was solicited, and the purpose for the data.

The first dataset utilized in this study was data on residential programs provided to students during the 2012-2013 academic year. This dataset was provided by a University Housing technology staff member. This dataset provided information on each residential program offered to students across the entire academic year. Residential program data were collected by University Housing as part of a normal business process for tracking services provided to students. The staff member(s) planning the program, typically a Resident Assistant, entered the data as part of the program proposal process. The dataset included a unique identifier for each program, two learning outcomes, and a description of the program. The dataset provided information regarding the type of programmatic involvement and, when combined with the

involvement data, allowed the investigator to count the number of each type of involvement (academic, developmental, or social) by each student.

University Housing also provided this study's second dataset: resident involvement in programs for the 2012-2013 academic year. University Housing collected involvement data throughout the academic year as students were involved in residential programs. Involvement information was entered into PETS through one of three methods. First, staff had access to devices that captured a student's ID number by swiping their student ID card through the device (also referred to as "card swiping"). These devices allowed staff to directly enter students into PETS. Alternatively, when PETS was not accessible, staff entered the student ID numbers into a spreadsheet to later add into PETS. If the technology was not working or unavailable, students wrote down their ID numbers on paper and staff later typed them into PETS. If a student left before the program was complete, staff were trained to remove their attendance to accurately track who was fully involved in and benefited from the program. This dataset included a unique identifier for each involvement, the ID number of the student, and the identifier of the program the student attended. This provided information on the quantity of a student's involvement in residential programs. University Housing provided the program and resident involvement datasets to OIRP to de-identify and share with the investigator.

The third dataset was student demographic data from institutional records that was collected through the admissions process and maintained by the Office of Institutional Research and Planning (OIRP), which handles institutional data, research, surveys, class evaluations, and assessments (North Carolina State University, 2019b). OIRP created a demographic dataset for the 2012-2013 freshman class, which totaled 4,225 students, that included variables such as high

school GPA, gender, race, and other variables listed in the following section. These demographic variables were included to help control for incoming student characteristics.

The final dataset came from the 2012 Incoming Freshman Survey (IFS). The IFS was administered to students after they attended New Student Orientation or, for those who did not attend, after the final orientation session ended. The survey was sent out through e-mail invitations between July 2 and September 4 using an online survey (Office of Institutional Research and Planning, 2015). A total of 1,965 surveys were completed, which was 46.5 percent of the 4,225 freshmen enrolled in classes in the fall 2012 semester. This dataset included information such as the student's parental education level, a variety of financial information, institution choice, and other variables outlined in the following section. An inspection of the IFS survey yielded some concerns related to comprehension as it contained several financial questions, to which the student might not know the answer because parents often actively manage the student's financial account (Tourangeau et al., 2000). There were also potential reporting concerns as some responses might be misreported due to the sensitive topic or social desirability bias. Despite trepidations, these variables were also included to provide additional control for incoming student characteristics.

Before the investigator received the data, OIRP manipulated the data in several ways. First, OIRP de-identified three datasets (program attendance, demographic data, and IFS) by replacing the student ID with a random ID. Second, OIRP removed students who were younger than eighteen years of age on the 2012 census date (September 5). OIRP also excluded students who had a privacy flag set. Finally, OIRP also removed non-freshman records from the program attendance dataset. After completing this work, OIRP provided all four datasets to the investigator.

## **Study Sample and Population**

The population studied were freshmen (first-year, first-term) students at a single institution of higher education (North Carolina State University, also known as NC State). NC State was established in 1887 as a land-grant institution focused on the instruction of agriculture and mechanical arts but today has a strong emphasis on engineering, science, and technology (North Carolina State University, 2019a) It is a large, public, four-year, research-intensive institution and the largest university in the state of North Carolina with over 34,000 students. In the spring of 2012, NC State received applications from a total of 20,298 first-time college students (Office of Institutional Research and Planning, 2015). NC State offered admission to 10,124 students, and a total of 4,225 enrolled for the fall semester of the 2012-2013 academic year. The population of this study was this freshman cohort for the 2012-2013 academic year.

This study utilized a primary sample of the freshman population and an IFS subsample of all the cases that completed all IFS items in this study. Why use this approach? A traditional study would likely use the IFS subsample as the single study sample. However, a perspective taken in this study (articulated in Chapter 1 and Chapter 2) was that actual data was preferred, if not superior, to survey data in student involvement research. Thus, it seemed appropriate to conduct the analysis on the full sample while also comparing the results to a subsample created by including the IFS data source. Including the IFS data may provide additional covariates that assist in studying residential involvement at the expense of a smaller number of cases. Provided the students taking the survey were representative of those who did not take the survey, the subsample would have additional variables from which to model and still be of a sufficient size to draw inferences. However, if the two student groups differed then the results between the full sample and the IFS subsample would also differ. Thus, this study might explore the effects of

self-reported survey data on supporting or hindering student involvement research, even if the data is not itself related to involvement.

The full sample encompassed the institutional data (from OIRP and University Housing) for the 2012-2013 freshman class. Of the 4,225 students in the freshman class, OIRP removed 474 freshmen due to being under the age of 18 or having a privacy flag set at the time of data collection. The resulting 3,751 freshman cases comprised the full sample and was 88.7% of the total population. The smaller IFS subsample encompassed the subset of freshmen who completed the Incoming Freshman Survey. The subsample merged the institution datasets with the IFS variables, which was restricted to the 1,965 freshman who took the survey. The IFS subsample was 46.5% of the total population.

### **Variables and Variable Transformations**

This study utilized a range of variables from University Housing, the Incoming Freshman Survey, and institutional student data. The following section outlines and describes all the variables. It also outlines variables created for the study and details the transformation(s) used to create them. Details for all the variables (name, data manager, and coding descriptor) are provided in Table 2.

#### ***Variables from University Housing***

At this point it is worth detailing the process for the collection of program and involvement data. Historically, University Housing at NC State University used a carbon-copy, program approval form that staff completed to propose upcoming activities. These forms were either handwritten or typed/printed and submitted up the chain of supervision for approval. Once approved, the proposal forms were sent back down to the staff, along with the accompanying financial paperwork if funds were requested. During the program, staff solicited students to write

their names on an attendance list to include with the financial paperwork to prove that students benefited from the funds that were spent. Once the program was completed, the approved proposal, fund expenditure receipts, and a list of student names who attended were sent to financial services for financial reconciliation. Program statistics focused only on counting the number of programs and the number of students in attendance at each program. This was all done manually by hall staff using spreadsheets. However, information about who attended the programs was not recorded or tracked. Although students “signed in,” there was a complete inability to report on who attended what program, how many programs a student attended, and what kinds of programs they attended.

In the summer of 2009, the department sought a more accurate way to track program numbers (rather than manually recording in spreadsheets) and a more expedient way to report it (rather than at the end of each semester). As a result, this led to the development of the Program Proposal & Evaluation (PPE) tool. PPE provided an online web form for staff to propose programs and another online form for supervisors to approve the proposed programs. Additionally, there was another online web form for staff to evaluate the success of the program after its completion, with an accompanying supervisory page to view the evaluation. Finally, a number of simple reports were created that provided information about the numbers and types of programs that occurred. Starting in the 2009-2010 school year, all housing programs were proposed, approved, evaluated, and reported through the PPE system. As a result, programs were more accurately tracked and more expediently reported.

After only one semester of using PPE, the system was expanded to include the tracking and reporting of the students who attended the programs. Over the following summer, the PPE system was enhanced into the Program, Evaluation, and Tracking System (PETS). This system

featured a page that would accept student ID numbers that would then be inputted into the database linked with the program they attended. Although ID numbers could be manually typed in, a device was selected and purchased that allowed staff to enter student IDs by swiping their student ID card. This resulted in more reliable data entry. A reports page allowed staff to see the attendees of a particular program and also showed a list of students in a building and the number of programs they attended.

The PETS system went live in the 2010-2011 academic year. However, because University Housing was divided into four residentially decentralized areas, only those areas that were interested in tracking attendance had purchased the equipment to track student attendance and utilize this new functionality. As a result, the data collected in the first year of attendance tracking were only for selected residential areas. Starting in the 2011-2012 academic year, it became a department-wide expectation that staff in the residence halls and apartments track student program attendance using the PETS system. During this year, PETS underwent a minor upgrade to implement bug fixes and enhance usability to include not allowing multiple student attendances to the same program (duplication), added data validation to minimize incorrect ID number entry, added the ability to mass submit ID numbers (if internet was not available at the program location), and increased report functionality to report the programs a student attended. The institution has recorded student residential programmatic attendance in this manner since the 2011-2012 academic year.

University Housing provided the first and second datasets, which included the residential involvement and program information critical to this study. First, one variable specified a student's residential building in which they lived (including if they lived off-campus). This variable was transformed into a dichotomous variable, *living location*, indicating whether the

student lived on campus or not. In addition, *involvement* was a ratio variable that counted a student's total number of involvements in residential programs. This variable was calculated by adding up the number of involvements per student. It ranged from 0 programs up to the maximum number of programs attended by a student.

Three variables were created to count a student's involvement in each of the three program types: *involvement\_acad*, *involvement\_dev*, and *involvement\_social*. These variables were ratio variables that counted the number of involvements a student had in each of the three program types (social, developmental, and academic). These variables were created by 1) categorizing each program into one of the three program types by reviewing each program's description, primary learning outcome and secondary learning outcome, 2) merging the program type to the involvement record using the program ID, and 3) counting each of the three types of involvements for each student. Another three variables were created to collapse each type into dichotomous variables due to the wide variability in the number for each type. This simplified dichotomous variable differentiated those that had below-average involvement and those with above-average involvement. *Involvement\_acad\_D* indicated whether the student was involved in 0 academic programs compared to students involved in 1 or more academic programs. *Involvement\_dev\_D* indicated whether the student was involved in 0 developmental programs compared to students involved in 1 or more developmental programs. Finally, *involvement\_social\_D* indicated whether the student was involved in 0-2 social programs compared to students involved in 3 or more social programs.

In terms of categorization, programs were categorized as social when they primarily focused on providing opportunities for peer social interaction, increasing sense of residential community, or improving interpersonal skills. Programs were categorized as academic when

they primarily focused on increasing a student’s ability to be successful in their academic or intellectual development. Finally, programs were categorized as developmental when they primarily focused on activities that holistically developed a student outside of the social and academic sphere. Table 1 outlines the three program types and provides examples for the kinds of programs that were categorized into that type.

**Table 1.**

*Program Type Categorization Examples*

Program Category	Examples of Programs
Academic	Activities with faculty, related to an academic-focused living & learning community, related to a specific course, or increasing study skills or test-taking skills; facilitated group studying or grouping of study partners; faculty presentations; etc.
Developmental	Campus/office tours, civic involvement & election voting, community service, discussion of current events, diversity & multiculturalism activities, exploring/selecting academic major, exploring future career, exposure to campus offices, health & wellbeing (improving sleeping, eating, cooking, physical wellness, sexual health, etc.), personal safety, resume workshops, stress relief/management, time management, etc.
Social	Campus social events, collegiate sporting events, eating on campus as a group, group watching movies & TV, group watching awards events, group watching sports on TV (March Madness, Superbowl, university sports, etc.), playing group games (board games, videogames, card games), playing group sports, preparing and eating a communal meal, RA floor meetings, roommate-focused activities, unstructured social gatherings, etc.

*Variables from Institutional Records*

OIRP provided a range of variables from institutional records related to a student’s prior academic achievement, background characteristics, and academic outcomes in college. In terms of prior academic achievement, *HS GPA* was a ratio variable that provided standardized high school GPA scores for students’ prior achievement in high school. *SAT* and *ACT* were two interval variables related to students’ standardized test scores, with SAT scores predominately represented (87.6%) compared to ACT (28.5%).

OIRP also provided variables related to student background characteristics. *Gender* was a dichotomous variable indicating whether a student was female or not. *Race* was a categorical variable from which five dummy-coded variables were created: *race\_AAPI*, *race\_BLAfr*, *race\_Hispanic*, *race\_White*, and *race\_other* (which, due to their small number, combined students responding as Native American, multi-racial, and unknown). Three dichotomous variables described students' geographical home/citizenship: *citizen\_NC* indicated whether the student was a resident of North Carolina, *citizen\_outofstate* indicated whether they were an out-of-state student, and *citizen\_international* indicated whether they were an international student.

A final set of variables derived from institutional records related to a student's academic outcomes. *GPA\_FY* was a ratio variable for a student's cumulative GPA at the end of their first year. *Retention* was a dichotomous variable that indicated whether a student returned to the institution for their second year (third semester in the fall after their enrollment), regardless of whether they failed to return due to transferring to another institution or departing higher education. *Graduation* was a dichotomous variable indicating whether a student had or had not graduated within six years of entry into college, regardless of whether they did not graduate due to continued enrollment, transferring to another institution, or departing higher education.

### ***Variables from Incoming Freshman Survey***

The Incoming Freshman Survey (IFS) provided a variety of student-reported information related to incoming student characteristics. First, students reported the education level for one or both of their parents in two ordinal variables. These two variables were transformed to create *first\_gen*, a dichotomous variable indicating whether a student's parent attended any college (two-year or four-year). *Schools\_applied* was an interval variable that indicated the number of schools the student applied to, including NC State. *Institutional\_choice* was a dichotomous

variable indicating whether the institution was a student's first choice (transformed from individual responses of "It was my only choice" and "Yes, it was my first choice") or not (transformed from responses of "No, it was my second choice" and "No, it was my third choice or below"). A student's degree aspiration (*degree\_aspiration*) was an ordinal variable, with doctoral and professional degree transformed into one category (Doctoral/Professional Degree).

The IFS survey also provided variables that indicated a student's financial situation. It included an ordinal variable for the income level of a student's parent(s)/guardian(s) (*PG\_income*). It also provided ordinal variables describing the amount of financial support coming from family resources (*paying\_family*), from grants or scholarship aid (*paying\_scholarship*), from loan aid (*paying\_loan*), and from other resources (*paying\_other*). Also included, but not used due to limited response rates, was financial support from other resources (*paying\_other*) and from their own resources (*paying\_self*). Finally, it contained a dichotomous variable for whether the student was receiving grant or scholarship aid (*finaid\_scholarship*) and whether the student was receiving loan aid (*finaid\_loan*) to pay for school. Table 2 outlines all the variables, the data managers and the coding descriptors.

**Table 2.**

*Variables in the Study*

Variable	Data Source	Variable Coding Descriptor
<i>Involvement</i>	Univ. Housing	Count of involvements in residential programs
<i>Involvement_Acad</i>	Univ. Housing	Count of involvements in academic program
<i>Involvement_Dev</i>	Univ. Housing	Count of involvements in developmental programs
<i>Involvement_Social</i>	Univ. Housing	Count of involvements in social programs
<i>Involvement_Acad_D</i>	Univ. Housing	0 = Involved in 0 Academic Programs 1 = Involved in 1 or more Academic Programs
<i>Involvement_Dev_D</i>	Univ. Housing	0 = Involved in 1 Developmental Programs 1 = Involved in 1 or more Academic Programs
<i>Involvement_Social_D</i>	Univ. Housing	0 = Involved in 0-2 Social Programs 1 = Involved in 3 or more Academic Programs
<i>Living_Location</i>	Univ. Housing	0 = Lived off campus 1 = Lived on campus

**Table 2** (continued).

<i>ACT</i>	OIRP	reported ACT score (range of 1 to 36)
<i>Gender</i>	OIRP	0 = male 1 = female
<i>GPA_FY</i>	OIRP	cumulative GPA at end of spring semester (range of 0 to 4)
<i>Graduation</i>	OIRP	0 = did not graduate in six years 1 = graduated in six years
<i>Citizen_NC</i>	OIRP	0 = student is not a North Carolina resident 1 = student is a North Carolina resident
<i>Citizen_OutofState</i>	OIRP	0 = student is not an Out of State student 1 = student is an Out of State student
<i>Citizen_International</i>	OIRP	0 = student is not an international student 1 = student is an international student
<i>HS_GPA</i>	OIRP	HS GPA ranging from 0 to 5.3
<i>Retained</i>	OIRP	0 = Did not enroll in third semester at institution 1 = Enrolled in third semester at institution
<i>Race</i>	OIRP	1 = White 2 = Asian American & Pacific Islander 3 = Black/African American 4 = Hispanic 5 = Other (Multi-racial, Native American, or Unknown)
<i>Race_AAPI_D</i>	OIRP	0 = Not Asian American/Pacific Islander 1 = Asian American/Pacific Islander
<i>Race_Blafr_D</i>	OIRP	0 = not member of Black/African American group 1 = Black/African American group membership
<i>Race_Hispanic_D</i>	OIRP	0 = not member of Hispanic group 1 = Hispanic group membership
<i>Race_Other_D</i>	OIRP	0 = Not Multi-racial, Native American, or Unknown 1 = Multi-racial, Native American, or Unknown
<i>Race_White_D</i>	OIRP	0 = not member of White group 1 = White group membership
<i>SAT</i>	OIRP	reported SAT score (range of 400 to 1600)
<i>Degree_Aspiration</i>	Freshman Survey	1 = Bachelor's degree 2 = Master's degree 3 = Doctoral / Professional degree
<i>First_Gen</i>	Freshman Survey	0 = Parent(s) did not attend or 4yr degree 1 = Parent(s) attended some college or received 2-yr degree
<i>Institutional_Choice</i>	Freshman Survey	0 = Institution was my first or only choice 1 = Institution was my second or below choice
<i>Paying_Family</i>	Freshman Survey	0 = None 1 = Less than \$1,000 2 = \$1,000 to \$2,999 3 = \$3,000 to \$5,999 4 = \$6,000 to \$9,999 5 = \$10,000 or more
<i>Paying_GrantorScholar</i>	Freshman Survey	refer to <i>Paying_Family</i>
<i>Paying_Loan</i>	Freshman Survey	refer to <i>Paying_Family</i>
<i>Paying_Other</i>	Freshman Survey	refer to <i>Paying_Family</i>
<i>Paying_Self</i>	Freshman Survey	refer to <i>Paying_Family</i>

**Table 2** (continued).

<i>PG_Income</i>	Freshman Survey	0 = \$30,000 or less 1 = \$30,001-\$50,000 2 = \$50,001-\$75,000 3 = \$75,001-\$100,000 4 = \$100,001-\$150,000 5 = \$150,001-\$200,000 6 = \$200,001 or more
<i>Schools_Applied</i>	Freshman Survey	1 = Applied to NCSU only 2 = Applied to NCSU and one other 3 = Applied to NCSU and two others 4 = Applied to NCSU and three others 5 = Applied to NCSU and four or more others

---

### **Data Screening**

This section outlines the methods used to screen the data and the data modifications made to meet the assumptions for multivariate statistical tests. Multivariate statistical tests have specific assumptions that must be met to ensure that one can draw valid conclusions from the test results (Mertler & Reinhart, 2016). Data obtained for the study were screened to determine the quality of the data. Data screening included checking for missing cases and outliers. In addition, the data were tested for normality, linearity, homoscedasticity, and multicollinearity.

### **Missing Cases**

Missing data may occur when a respondent fails to respond altogether or when respondents respond to only some items. Missing data can negatively impact the generalizability of a sample's results to the larger population, particularly when the missing data are non-random (Mertler & Reinhart, 2016). As a result, variables for this study were analyzed for non-random patterns of missing data to ensure generalizability of the findings. As previously noted, this study combined multiple datasets, which resulted in the full sample and the IFS subsample. The full sample totaled 3,751 students assembled from institutional data, housing program data, and housing program involvement data. Nearly all institution variables had complete cases except for

*ACT* and *SAT*. *ACT* was not a usable variable due to only 28.5% of cases having a score.

Although *SAT* scores were better represented, there were still 12.4% of cases missing. Imputing *ACT* scores into *SAT* scores decreased the number of missing *SAT* cases to 6.5%. The imputation utilized the College Board's (2018) official *ACT* to *SAT* concordance tables by replacing the *ACT* score with the middle score within the *SAT* conversion range.

Variables from the Incoming Freshman Survey (IFS) presented a large concern for missing cases. The IFS survey had 1,965 completed surveys for a 52.4% completion rate by the freshman population. This greatly reduced the population cases that could be used in the statistical analysis of the IFS subsample. The study would compare the results of the much larger full sample to the smaller IFS subsample with additional self-reported survey variables. Several variables from the IFS survey were removed due to high number of missing cases: *paying\_other* (34.7% missing), *paying\_self* (9.2% missing), and *schools\_applied* (9.1% missing). Two other variables also had high rates of missing cases (*parent\_income* with 13.9% non-response and *first\_gen* with 8.9%), but their inclusion was warranted based on their importance in the literature review.

### ***Outliers***

Statistical tests are sensitive to outliers because their inclusion can distort test results (Mertler & Reinhart, 2016). Identifying and addressing outliers was an essential step in preparing data for analysis. Outliers often result from data entry errors, respondents not being a member of the sample, or respondents that significantly differ from the sample. The data of the investigation were unlikely to contain entry errors (the institution rigorously scrubs its institutional student data, while the student-reported survey data contained variables of no more than eight options). In addition, the students undoubtedly belonged (the institution determined the freshman cohort).

The likely cause of outliers were students who significantly differed from the rest of the sample, and these were the focus for the investigation's data screening. Univariate outliers are extreme values on one variable, while a multivariate outlier is a case where two or more variables combine to make an unusual case (Mertler & Reinhart, 2016). Univariate and multivariate outliers were scrutinized using Mahalanobis distance. A total of 26 cases were eliminated due to Mahalanobis distance chi-square values that reached significance at the  $p < .001$  level with  $df = 18$  (chi-square critical value of 42.314).

### ***Normality, Linearity, Homoscedasticity, and Multicollinearity***

Multivariate statistical tests may feature biased results when one or more of three general assumptions are not met: normality, linearity, and homoscedasticity (Mertler & Reinhart, 2016). Multivariate analysis assumes a normal sample distribution, so it was important to test for univariate and multivariate normality. Univariate normality was explored for the quantitative variables in the study. Most variables had minor skewness and kurtosis. *Degree\_aspiration*, *paying\_scholarship*, *paying\_loan*, and *paying\_family* featured minor skew but moderate negative kurtosis. Involvement had strong positive skewness and kurtosis. Although these minor concerns were reviewed and noted, it was determined transformations were not required as OLS regression and logistic regression are fairly robust tests that can tolerate moderate violations of these assumptions. Multivariate normality, linearity, and homoscedasticity were tested by comparing standardized residuals of the quantitative variables to the predicted values of the dependent variable through a preliminary linear regression test. The resulting scatterplot featured a rectangular shape with scores concentrated in the center. Residual clustering indicating assumptions of normality, linearity, and homoscedasticity were met, as clustering did not occur on the top/bottom, right/left side, and there was no evidence of curving residuals.

The final step for screening the data was to examine concerns for multicollinearity due to moderate-to-high intercorrelation between the independent variables that would be used in the regression tests (Mertler & Reinhart, 2016). Including two or more variables with multicollinearity concerns provides little to a model while causing issues with the model analysis. A preliminary linear regression test resulted in tolerance statistics all above .1 (the lowest being *paying\_scholarship* at 0.533) and variance inflation factors (VIF) below 10 (*paying\_scholarship* again the highest at 1.876).

### **Descriptive Analysis**

Descriptive statistics provide a summary of the data, allowing one to understand the study's sample before delving into more advanced statistical analysis (Mertler & Reinhart, 2016). Descriptive statistics were reported for all variables for the IFS subsample but only the institution variables for the primary sample. Summaries for all the descriptive statistics are presented in Table 3 and Table 4. The full sample and the IFS subsample appeared to be similar for most variables except gender. The sample included more males (55%), which was characteristic of the institution, but the IFS subsample was disproportionately female (53.2%), likely due to female college students' increased likelihood to complete online surveys (Porter & Umbach, 2006; Sax, Gilmartin, & Bryant, 2003). The racial groups were relatively similar to each other and reflective of the overall institution. Most students were in-state, had parents with college attendance, and enrolled in their first or only choice institution. Students primarily funded their education through family support followed by grant or scholarship aid and then loan aid.

The incoming academic variables were very similar between the two groups. The SAT mean score was 1,222 for the IFS subsample and 1,223 for the sample. High school GPA means

were 4.407 for the IFS subsample compared to 4.373 for the sample. This similarity between samples was also seen with the collegiate academic variables. First-year GPA means were comparable between samples (4.407 for IFS subsample versus 4.373 for the sample). Retention to the third semester was very high for the full sample (96.7%) and slightly higher for the IFS subsample (97.7%). Persistence saw a much wider gap as the full sample had a graduation rate of 81.1%, while the IFS subsample had a much higher graduation rate of 84.3%.

A large majority of freshmen chose to live on campus, with the IFS subsample living on campus at a slightly higher rate (78.7%) compared to the full sample (76.4%). The IFS subsample was also featured higher involvement in one or more housing programs (81.3%) compared to the full sample (76.9%). This higher rate also held true for the mean number of involvements (6.78 programs for the IFS subsample versus 5.95 programs for the sample). Program involvement ranged from 0 ( $N = 860$ ) up to a high of 56 for one very enterprising freshman. When looking at specific program types for the IFS subsample, 22.2% of freshmen were involved in one or more academic programs, 49.7% were involved in one or more developmental programs, and 58.1% were involved in one or more social programs. The full sample had lower involvement across all three types (academic at 19.4%, developmental at 45.7%, and social at 52.4%).

Descriptive statistics provided an overview of the variables in this study. Overall, full sample and the IFS subsample appeared to be pretty similar, although there were some obvious differences for gender, persistence to graduation, and all four of the involvement variables. Otherwise, the full sample and IFS subsample appeared to be reasonably similar.

**Table 3.***Descriptive Statistics for Dichotomous Variables*

Variable	Sample		IFS Subsample	
	N	%	N	%
Gender				
Male	2047	55%	907	46.8%
Female	1678	45%	1032	53.2%
Living location				
On campus	2847	76.4%	1545	79.7%
Not on campus	878	23.6%	394	20.3%
Persistence rate				
Graduated in 6 years	3022	81.1%	1634	84.3%
Did not graduate in 6 years	703	18.9%	305	15.7%
Racial Group				
Asian Am./Pacific Islander	190	5.1%	109	5.6%
Black/African American	244	6.6%	138	7.1%
Hispanic	150	4%	89	4.6%
Other	310	8.3%	142	7.3%
White	1461	75.3%		
Residency				
North Carolina resident	3146	84.5%	1644	84.8%
Out of state student	479	12.9%	258	13.3%
International student	100	2.7%	37	1.9%
Retention rate				
Enrolled in 3 <sup>rd</sup> semester	3602	96.7%	1895	97.7%
Not enrolled in 3 <sup>rd</sup> semester	123	3.3%	44	2.3%
Academic Involvement				
1 or more involvement(s)	721	19.4%	436	22.2%
0 involvement	3004	80.6%	1529	77.8%
Developmental involvement				
1 or more involvement(s)	1702	45.7%	984	50.1%
0 involvement	2023	54.3%	981	49.9%
Social involvement				
3 or more involvement(s)	1952	52.4%	1127	58.1%
0-2 involvement	1773	47.6%	812	41.9%
Institutional choice				
1 <sup>st</sup> / only choice			1301	67.1%
2nd or lower choice			636	32.8%
Parent education				
First generation			100	5.2%
Not first generation			1665	85.9%

**Table 4.***Descriptive Statistics for Continuous Variables*

Variable	Sample		IFS Subsample	
	<i>N</i>	<i>M (SD)</i>	<i>N</i>	<i>M (SD)</i>
First Year GPA	3725	3.109 (.68)	1939	3.187 (.63)
High School GPA	3627	4.373 (.34)	1901	4.407 (.32)
Program Involvement	3725	5.95 (7.30)	1939	6.78 (7.61)
SAT	3482	1223 (115.65)	1831	1222.6 (117.3)
Degree Aspiration			1769	2.09 (.75)
Parent Income			1665	4 (4.72)
Paying: Family			1869	3.29 (1.78)
Paying: Grants/School			1811	2.41 (1.92)
Paying: Loan			1782	1.66 (1.74)

**Method of Analysis**

This study explored freshman involvement in residential programs and how that involvement varied by different groups of students. In addition, the study evaluated the extent to which involvement in residential programs and the type of involvement were related to academic outcomes. The research questions were investigated using three different methods of analysis. The following sections outline the method of analysis used for each research question.

***Analysis for Research Question 1***

The first research question explored the extent to which freshman students engaged in residential programs and whether that engagement varied by different groups of students. This analysis provided rich information on the actual housing program involvement differences between students, which is useful information not only in contextualizing this study but also for the general body of research. Descriptive statistics provide a valuable way to summarize and describe major characteristics of a sample (Mertler & Reinhart, 2016). Means, frequencies, and ranges of residential involvement and of the different background characteristics provided an initial descriptive analysis of the sample and IFS subsample used in the study. These descriptive

statistics were outlined in the prior section. This research question was concerned with identifying group differences for independent categorical variables (student characteristics) of two or more categories with a ratio-scaled dependent variable (*Attendance*). T-Tests and One-Way Analysis of Variance (ANOVA) were suitable tests for analyzing significant differences between group means of an interval or ratio independent variable on dependent variables with two categories (T-Test) or with two or more categories (ANOVA) (Mertler & Reinhart, 2016). T-Tests and ANOVA can be used to test group mean differences, provided that several assumptions are met: (a) the observations must be independent of one another, (b) the distribution of observed values of the dependent variable should be normally distributed, and (c) the dependent variable must have equal variances.

#### ***Analysis for Research Questions 2, 3, and 4***

The remaining three research questions investigated the extent that involvement in residential programs and the type of involvement related to three academic outcomes: first-year GPA, retention to the second year, and persistence to graduation. Since first-year GPA was a ratio-scaled dependent variable, Ordinary Least Squares (OLS) regression was used to investigate the relationship between residential program involvement and the outcomes of first-year GPA, controlling for student characteristic covariates. Because retention and persistence were both dichotomous variables, binary logistic regression was used to provide a probability value that a student with a certain residential program involvement would have membership in being retained/persisting or not, controlling for student characteristic covariates.

The study data was analyzed using hierarchical regression using block entry to determine how specific independent variables changed the model's strength of describing the values of the dependent variable. The first block built a model describing the dependent variable using one of

the involvement variables. The second block determined whether the involvement variable still exhibited significance after including institutional student characteristics. Finally, the third block determined whether the involvement variable still exhibited significance after including self-reported student characteristics from the Incoming Freshman Survey. This multi-step model building indicated the relationship the involvement variables had with the dependent variable while indicating change that occurred as additional student variables were added.

To ensure the OLS and logistic regression tests were used appropriate, it was important to ensure each's test assumptions were explored and met. Mertler & Reinhart (2016) indicate that OLS regression required checking for multicollinearity, extreme values, a linear relationship between the dependent and independent variables, normal distribution of variables, a mean of 0 for the error term, the variance of the error being independent of the predictor variables, and normal distribution of the error term. There was a particular concern that student involvement might have a non-linear relationship to first year GPA. As a result, lower levels of involvement may have a much different relationship with GPA than high levels of involvement. It seemed reasonable that a student could be over involved and that over-involvement might result in a diminishing or decreasing relationship with GPA. Thus, it was possible there may be a non-linear relationship between residential involvement and GPA. This study took multiple approaches to investigate this concern. First, univariate and bivariate inspection and scatter plots of overall involvement and first year GPA did not reveal an obvious curvilinear relationship. Second, the inspection of residuals produced a roughly rectangular scatterplot where the residuals were in the middle of the plot and there were no negative residuals at either end. Third, during data modeling I considered whether cubic or quadratic fitting might provide a better model indicating a non-linear relationship. I found that these higher order polynomials provided trivial improvements

that were mostly similar to using simple linear approach. Since a more complex model can lead to overfitting and other indicators did not support a non-linear relationship, linear regression seemed best-suited for exploring the relationship between resident involvement and first year GPA. Compared to multiple regression, binary logistic regression required fewer assumptions in its use. Binary logistic regression required checking for multicollinearity, extreme values, and too few cases relative to the number of predictor variables (Mertler & Reinhart, 2016).

### **Limitations**

Before advancing into the data analysis and results, it is important to highlight the limitations of this study. A primary limitation arose due to the methodological approach of using a “natural setting design” rather than an experimental approach. Natural setting designs have limitations in that “many extraneous variables that contribute to student outcomes can escape measurement” (Astin, 1991). To account for this approach the study utilized a framework that included input characteristics known to have a relationship with the academic outcomes of this study. However, it must be clearly specified that this was an exploratory study using convenience data to provide an early understanding for a novel area of research. As such, it was a correlational study seeking to understand the relationship that independent variables of residential involvement had with dependent variables of academic success. The results will not provide conclusions of causality for how involvement impacted or did not impact academic success. In addition, there was the presence of a selection effect inherent to involvement studies: the subject of the investigation was the one choosing their involvement and level of involvement. Because there was no experimental design to control for motivation to be involved, it was impossible to isolate the reason a student chose to be involved in one or more residential programs. Obviously, a purely experimental study would be ideal but was beyond the grasp of

this investigation. However, it should be noted this limitation is also pretty common for most research on student involvement. It is possible that this study may enjoy the benefit of drawing upon more accurate and reliable non-experimental data since it will not rely upon self-reported survey data.

A second limitation was that the study's population came from a single institution. Results from single-institution studies have limited generalizability, as the particularized locale may not produce generalizable results that extend to students attending different types of institutions (Creswell, 2014). In addition, the study institution was a selective, large, land-grant, state institution with a high concentration in STEM-oriented majors and a strong traditional residential college experience. Thus, results from this study may not generalize well to students attending institutions of a very different type.

A third limitation was the decision to constrain the study population to a specific type of student. This study focused only on traditional first-time, first-year freshman students: those enrolling full-time in college after having graduated from high school just months before. Traditional freshman students are still the majority at four-year institutions although non-traditional students and transfers continue to grow as a percentage of the college student body. (Snyder et al., 2019). This focus reduces generalizability to a subset of college students that appears to be a diminishing percentage of the overall student body. In addition, students were omitted if they were under the age of 18 or if they had a privacy flag. It is unclear whether those types of students significantly differ from the broader population. If they did, the generalizability of the results would be negatively impacted.

Another limitation was the study's scope in persistence. The study did not differentiate a student's reason for departing the institution (withdrawal for personal reasons versus forced

academic withdrawal), nor did it differentiate those who continued their education (transfer to another institution versus departing higher education altogether). Finally, persistence was limited to students who graduated within six academic years of starting college and did not account for some students taking longer to graduate due to low credit loads, coop experiences, etc. It is possible results from this study will describe a non-persistence relationship with some students who may in fact persist at either another institution or on another timeline.

A fifth limitation related to concern for the housing data. The housing program and involvement system was developed for a particular operational need and data reporting purposes. It was not developed with a concern for rigorous data standards, nor with a focus for future academic research. However, the system was not entirely new as the department had two prior years of experience submitting programs and one prior year of experience recording program involvement. However, considering the large number of staff entering and recording data, it is probable that it contained a degree of inaccurate data. Although staff were trained to do their best to ensure the most accurate information, the students themselves may have negatively impacted the integrity of the data (for example, by using someone else's ID card when they forgot their card or by borrowing a card for a visiting friend).

A final limitation was the treatment of the residential programs. Out of a need for simplicity, this study treated each of the 2,134 programs as comparable to any other program. However, it is certain there were large discrepancies in the level of quality between programs. One would imagine the difference in impact that an RA organizing some students to pick up trash around the building had to a full day of service with a volunteer organization that included a thoughtful reflection activity on civic engagement led by a faculty member. The study did not take into consideration the duration, the quality, or the impact of the involvement experience.

The categorization of the programs adds to the limitation. I categorized programs based primarily on the staff member's reported program title and selected learning outcome. When a quick eye check did not clearly indicate the appropriate category, I selected based on a reading of the program description. Programs may have been misclassified by my interpretation or by the data the staff member provided.

Despite these limitations, this study was a worthwhile investigation because it would provide descriptive data on students who were involved in residential programs and exploratory data on the relationship that resident involvement has with academic outcomes. In addition, this study explored residential involvement using data of actual involvement rather than self-reported involvement.

### **Chapter Summary**

This study sought to understand the extent to which participation in residential programs differed by type of student. It also evaluated the extent to which that involvement was associated with first-year GPA, second-year retention, and six-year graduation rates. The study used a longitudinal, correlational research design using the entire population of freshman students during 2012-2013 at NC State. It used a quantitative methodology using four sets of secondary data sources. The four research questions were investigated using four independent variables (*involvement*, *involvement\_acad\_D*, *involvement\_dev\_D*, and *involvement\_social\_D*), three dependent variables (*GPA\_FY*, *Retention*, and *Graduation*) and a variety of covariate variables using four methods of analysis (T-Test, ANOVA, OLS regression, and binary logistic regression). In Chapter 4, I share the results from the analysis of the data.

## Chapter Four: Results

Colleges and universities rely on student surveys to collect self-reported college involvement data to measure how students spend their time or energy on educationally meaningful activities in order to assess the effectiveness of the institution. There are some concerns as to whether self-reported involvement data are valid and unbiased representations of actual student involvement (Porter, 2011). In addition, housing programs across the nation expend funds and staff time providing their residents with academic, developmental, and social programs with the intent of positively affect a student's academic and personal success in college similar to the documented influence of the broader student involvement practices (Blimling, 2010, Blimling 2015). This study sought to describe student involvement in residential programs and examined the relationship that involvement in residential programs had on academic outcomes of GPA, retention to the second year, and persistence to graduation. This study explored residential involvement using data of actual residential involvement rather than self-reported involvement. Specifically, this study sought to answer the following four questions:

1. To what extent are freshman students involved in residential programs, and does this involvement vary between students with different background characteristics (e.g., gender, race/ethnicity, family income)?
2. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to first-year GPA?
3. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to retention to the second year?
4. To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to persistence to graduation?

As outlined in Chapter Three, this study utilized different statistical tests to investigate each of the four research questions. The first research question involved exploring group mean differences for dichotomous and continuous student characteristics. T-Tests and One-Way Analysis of Variance were appropriate tests to investigate group mean differences. The second research question explored the relationship that involvement or type of involvement had in describing first-year GPA. Ordinary Least Squares Regression was an appropriate test to explore the effect a continuous or dichotomous independent variable had with a continuous dependent variable. The final two research questions explored the relationship that involvement or type of involvement had with a student's likelihood to return for a second year or to graduate in six years. Logistic Regression was an appropriate test for exploring the effect a continuous or dichotomous independent variable had on a dichotomous dependent variable.

These last three research questions featured four independent variables that each needed to be individually explored: overall involvement as a continuous variable and the dichotomous variables of academic involvement, developmental involvement, and social involvement. As a result, each research question required the creation of four different models to explore each of the four involvement variables. Table 5 outlines the eight models used in this study along with model-specific details. All data screening, descriptive statistics and inferential statistical tests were conducted in SPSS 26. For the remainder of Chapter Four I will describe the statistical analysis utilized for each research question, present the results from each statistical test, and highlights concerns between the sample and the IFS subsample.

**Table 5.***OLS Regression Models by Test, Dependent Variable and Independent Variable*

Model	Statistical Test	Dependent Variable	Independent Variable
Model 1	OLS Regression	First Year GPA	Involvement
Model 2	OLS Regression	First Year GPA	Academic Involvement
Model 3	OLS Regression	First Year GPA	Developmental Involvement
Model 4	OLS Regression	First Year GPA	Social Involvement
Model 5	Binary Logistic Regression	Graduation in 6 Years	Involvement
Model 6	Binary Logistic Regression	Graduation in 6 Years	Academic Involvement
Model 7	Binary Logistic Regression	Graduation in 6 Years	Developmental Involvement
Model 8	Binary Logistic Regression	Graduation in 6 Years	Social Involvement

**Results for Research Question 1**

The first research question explored the extent to which freshman students engaged in residential programs and whether that engagement varied between students with different background characteristics (e.g., gender, race/ethnicity, family income). T-Tests and One-Way Analysis of Variance (ANOVA) tests were best suited for analyzing significant group differences for an interval/ratio independent variable between dependent variables with two categories (T-Test) or with two or more categories (ANOVA) (Mertler & Reinhart, 2016). Cohen's  $d$  was used to calculate and report effect sizes for any test result that demonstrated statistical significance (Cohen, 1988). Cohen (1988, 1992) suggested effect size categories by particular value thresholds for a variety of statistical tests. An independent means test should use a threshold of  $d = .2$  for a small effect,  $d = .5$  for a medium effect, and  $d = .8$  for a large effect. However, some have also suggested a threshold addition of  $d = .01$  to be very small,  $d = 1.2$  to be very large and  $d = 2.0$  for Huge (Sawilowsky, 2009). The effect size threshold for Cohen's  $f$ , the suggested test for calculating effect sizes for ANOVA tests, was  $f = .1$  for a small effect,  $f = .25$  for a medium effect, and  $f = .4$  for a large effect.

Group mean differences were investigated using Independent Samples T-Tests with involvement as the dependent variable and dichotomous student characteristics as independent variables. For reference, the overall involvement mean for the full sample ( $M = 5.95$ ) was slightly lower than the IFS subsample ( $M = 6.78$ ). Several independent variables showed significance group differences between the two. First, it was unsurprising that students living on campus had significantly higher involvement ( $M = 7.41$  and  $M_{IFS} = 8.12$ ) compared to students living off campus ( $M = 1.23$  and  $M_{IFS} = 1.49$ ), with a large effect size. What is surprising is how many off campus students (who do not have access to the programs without tagging along with an on-campus peer) were involved and to the degree they were involved. Almost a third of off-campus students attended 1 or more programs, with an average attendance of 4.1 programs. It is worth noting that five enterprising non-residents managed to attend 20, 25, 27, 28 and 29 residential programs.

Out-of-state students also had significantly higher involvement for both samples ( $M = 7.19$  and  $M_{IFS} = 8.49$ ), but with a low effect size. Conversely, international students had significantly lower involvement ( $M = 2.79$  and  $M_{IFS} = 3.32$ ) with a medium effect size. Finally, there were significant differences by institution choice: students attending their only/first choice institution had lower involvement ( $M_{IFS} = 6.43$ ) compared to students attending their second or later choice institution ( $M_{IFS} = 7.49$ ) at a very small effect size. Two dichotomous variables did not appear to be different: gender and parent education. For gender, women were significantly more involved than men for the full sample (at a very low effect size) but not for the IFS subsample. Parent education was not significant for either. The tabular results for involvement differences by dichotomous student groups are presented in Table 6 while the multi-categorical variables are shown in Table 7.

**Table 6.***T-Test Results for Involvement Differences by Student Characteristic Groups*

Variable	Sample			IFS Subsample		
	<i>T</i>	Cohen's <i>d</i>	<i>M (SD)</i>	<i>T</i>	Cohen's <i>d</i>	<i>M (SD)</i>
Gender	-3.601***	.11		-1.82		
Female			6.43 (7.68)			7.07 (7.93)
Male			5.56 (6.95)			6.44 (7.35)
International	6.622***	.41		4.49***	.45	
International			2.79 (4.75)			3.32 (4.64)
Not International			6.04 (7.34)			6.84 (7.70)
Living location	-34.427***	.80		-24.146***	.85	
On campus			7.41 (7.58)			8.12 (7.83)
Not on campus			1.23 (3.25)			1.49 (3.75)
Out of State	-3.797***	.18		-3.875***	.25	
Out of state			7.19 (7.74)			8.49 (7.86)
Not out of state			5.77 (7.21)			6.51 (7.61)
Institutional choice				-2.848**	.13	
1st / only choice						6.43 (7.5)
2nd or lower choice						7.49 (7.98)
Parent education				0.213		
First generation						6.72 (7.74)
Not 1 <sup>st</sup> generation						6.89 (7.78)

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

A one-way between subjects ANOVA test compared group mean differences for involvement by student characteristics with more than two categories. Results are shown in Table 7. Most of the multi-category variables were IFS variables with cases only in the IFS subsample, whereas race had cases in both the full sample and the IFS subsample. There were significant racial group differences in both groups. In the sample, students responding as White or in the collapsed race category (Native American, multi-racial, and unknown) had significantly less involvement ( $M = 4.62$  and  $M = 5.70$ ) than students reporting as Asian American/Pacific Islander ( $M = 7.26$ ), Hispanic ( $M = 7.67$ ), or Black/African American ( $M = 8.46$ ) with a small effect size. In the IFS subsample, students in the merged race category ( $M = 5.72$ ) had

significantly less involvement than Black/African American students ( $M = 8.69$ ), however the effect size was below the small effect threshold.

For degree aspirations, students planning to achieve a “Bachelor’s Degree” ( $M = 6.26$ ) had significantly lower involvement than students with aspirations for a “Doctoral/Professional Degree” ( $M = 7.48$ ). The effect size for degree aspiration did not meet the criteria for a small effect. There were also significant differences by parent income: students with parent income of “\$200,001 or more” ( $M = 4.68$ ) were significantly less involved than students in all other parent income groups. Its effect size was slightly below the small effect threshold. Finally, there were significant differences by grant/scholarship aid: students with no grant/scholarship aid were significantly less involved ( $M = 5.48$ ) than students with \$6,000 - \$9,999 ( $M = 7.59$ ) and \$10,000 or more ( $M = 8.24$ ). The grant/scholarship aid had a small effect size. There were not significant involvement differences based on a student’s level of loan aid or using family resources to pay for college.

**Table 7.**

*ANOVA Results for Involvement Differences by Student Characteristic Groups*

Variable	<i>N</i>	<i>F</i>	<i>Cohen’s F</i>	<i>M (SD)</i>	Tukey Significant Differences by Group
Race (Institution)	3724	14.426***	.12		
Other (a)				4.62 (6.13)	c, d, e
White (b)				5.70 (7.07)	d, e
Asian Am. / Pacific Islander (c)				7.26 (8.26)	a
Hispanic (d)				7.67 (8.29)	a, b
Black / African American (e)				8.46 (8.86)	a, b
Race (IFS)	1938	4.082**	.08		
Other (a)				5.72 (6.62)	e
White (b)				6.56 (7.55)	
Asian Am. / Pacific Islander (c)				7.63 (8.01)	
Hispanic (d)				8.03 (7.94)	

**Table 7** (continued).

Black/African American (e)				8.69 (9.04)	a
Degree Aspiration	1768	3.214*	.05		
Bachelors (f)				6.26 (7.03)	h
Masters (g)				6.76 (7.58)	
Doctoral/Prof. (h)				7.48 (8.46)	f
Parent Income	1664	2.719**	.08		
\$200,001 or more (i)				4.68 (5.66)	j, k, l, m, n, o
\$75,001 - \$100k (j)				6.95 (7.67)	i
\$100,001 - \$150k (k)				6.96 (8.19)	i
\$50,001 - \$75k (l)				6.98 (6.79)	i
\$150,001 - \$200k (m)				7.22 (7.95)	i
\$30,001 - \$50k (n)				7.33 (8.14)	i
\$30k or less (o)				7.91 (8.99)	i
Paying: Grant/Scholarship	1810	6.637***	.12		
None (p)				5.48 (6.68)	t, u
Less than \$1,000 (q)				6.34 (7.41)	
\$1,000-\$2,999 (r)				7.02 (7.42)	
\$3,000-\$5,999 (s)				7.08 (7.63)	
\$6,000-\$9,999 (t)				7.59 (8.71)	q
\$10,000 or more (u)				8.24 (8.46)	q
Paying: Loan	1781	1.856			
Paying: Family	1868	.916			

---

*Note.* \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

It comes as no surprise that students living on campus (who had access to residential programs) had significantly greater levels of involvement compared to students living off campus. What is surprising is that so many non-residents, who did not have personal access but undoubtedly tagged along with their residential friends, were involved in residential programs to any degree. Program involvement was significantly higher for students who identified as Black/African American, were out of state, not in the top parent income bracket, and had aspirations for a professional degree. Lower program involvement was associated with students who were international and those without grant or scholarship aid. Students who reported enrolling in the institution as a first/only choice and in the collapsed race category (Native

American, multi-racial, and unknown) also had significantly lower involvement, although the effect size was very small. Finally, some student characteristics (students responding as women, White, and Asian American/Pacific Islanders) had significantly higher involvement for the sample which was not significant for the IFS subsample.

## **Results for Research Question 2**

The second research question explored the relationship between involvement and the type of involvement in housing programs with first-year GPA. Multiple regression creates an equation for predicting values on a continuous, dependent variable for members of a population (Mertler & Reinhart, 2016). Exploring the research question on GPA involved running an OLS regression model for each of the four involvement variables for a total of four models. Block entry was used to control adding variables into the model to see how specific groups of variables changed the model's ability to predict the values of first-year GPA. The first block featured one of the four involvement variables. The second block added student characteristics maintained by the institution. Finally, the third block included student characteristic variables collected by the Incoming Freshman Survey, which restricted cases to the IFS subsample. (Note: the international variable dropped in the third block due to low cell numbers.)

As outlined in Table 5, the regression tests were run across four models (Model 1 through Model 4). All four models had tolerance values greater than 0.1 and VIF scores below 10 for all variables, indicating that they were robust in regards to multicollinearity concerns. Details for the four models, including model summaries and regression coefficients, are presented in Table 8 (Model 1), Table 9 (model 2), Table 10 (Model 3), and Table 11 (Model 4). Model 1 through Model 4 all had the same seven student characteristics as significant contributors. Results indicated that higher first-year GPA was significantly associated with students from out of state,

with higher high school GPA and SAT scores, who identified as women, who did not identify as Black/African American, had lower degree aspirations, and had less reported loan aid to pay for school.

### ***Model 1: Overall Involvement and First Year GPA***

Model 1 explored the relationship that the continuous variable involvement had on first-year GPA. Model 1 accounted for 18.2% of the first-year GPA variance for the full sample and 21.3% for the IFS subsample. Involvement was a positive, significant contributor to first-year GPA for both the full sample and IFS subsample, however it had a small substantive effect based on its small variance contribution ( $\Delta R^2 = .012$ ). The unstandardized coefficient and level of significance were slightly lower for the IFS subsample, as freshmen in the full sample had a .006 GPA increase per program involvement while the IFS subsample had a .005 GPA increase. While the unstandardized coefficient for involvement was small, it is important to contextualize that students often attend multiple programs. Thus, while the coefficient was small, it may not have a trivial effect for students with moderate-to-high levels of involvement. A student with 10 involvements (there were 51 students with 10 involvements and another 391 students with higher levels of involvement) might see a 0.06 (Institution) or 0.05 (IFS) GPA increase. A student with 20 involvements (there were 7 students with 20 involvements and 95 students with higher involvements) might see a 0.12 GPA increase. While the effect increased with involvement, a .06 or .12 increase for an overall freshman GPA may be considered quite modest. The full data summary for Model 1 is presented in Table 8.

**Table 8.***OLS Regression Results for Involvement on First Year GPA*

Variable	<i>Involvement</i>	<i>Institution</i>	<i>IFS</i>
	<i>Variable</i>	<i>Variables</i>	<i>Variables</i>
	<i>B</i>	<i>B</i>	<i>B</i>
	<i>(SE)</i>	<i>(SE)</i>	<i>(SE)</i>
Involvement	.010*** (.002)	.006*** (.002)	.005* (.002)
Citizenship: International		.316 (.234)	
Citizenship: Out-of-State		.175*** (.032)	.156** (.049)
Gender		.236*** (.022)	.185*** (.033)
HS GPA		.653*** (.034)	.725*** (.055)
Living Location		-.056* (.026)	-.039 (.043)
Race: AA/PI		.036 (.047)	-.041 (.070)
Race: Bl/AfrAm		-.113** (.044)	-.149* (.064)
Race: Hispanic		-.134** (.052)	-.129 (.072)
Race: Other		.011 (.045)	-.054 (.067)
SAT		.000*** (.000)	.000* (.000)
Degree Aspiration			-.044* (.021)
First Generation			.082 (.068)
Institution Choice			.053 (.034)
Paying: Family			.010 (.012)
Paying: Grant or Scholarship Aid			.006 (.011)
Paying: Loan Aid			-.021* (.009)
Parent Income			.024 (.012)
N	3459	3459	1435
F	42.79***	69.92***	22.517***
$R^2$	.012	.182	.213
$R^2$ Adjusted	.012	.180	.203
$\Delta R^2$		.170	.031

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

### ***Model 2: Academic Involvement and First Year GPA***

Model 2 explored the relationship that academic involvement had with first-year GPA. Academic involvement was a dichotomous variable that indicated whether a student had been involved in one or more academic programs. Academic involvement was a positive, significant contributor to describing first-year GPA for the sample, although its contribution was very small ( $\Delta R^2 = .005$ ). Model 2 accounted for 18.2% of the sample's first-year GPA variance. Students involved in one or more academic programs had a GPA increase of 0.092. Of the three types of involvement, academic involvement had the highest unstandardized coefficient. This makes intuitive sense that academic involvement would be associated with a higher GPA change. However, an almost .1 increase in freshman GPA might be considered only a modest improvement. Academic involvement was not significant for the IFS subsample. This mixed finding is worth noting and is further explored in the summary section. Table 9 provides a full data summary for Model 2 results.

**Table 9.**

#### *OLS Regression Results for Academic Involvement on First Year GPA*

Variable	<i>Involvement</i>	<i>Institution</i>	<i>IFS</i>
	<i>Variable</i>	<i>Variables</i>	<i>Variables</i>
	<i>B</i>	<i>B</i>	<i>B</i>
	<i>(SE)</i>	<i>(SE)</i>	<i>(SE)</i>
Academic Involvement	.114*** (.028)	.092*** (.026)	.062 (.038)
Citizenship: International		.303 (.234)	
Citizenship: Out-of-State		.181*** (.032)	.159** (.049)
Gender		.241*** (.022)	.191*** (.033)
HS GPA		.660*** (.034)	.730*** (.055)
Living Location		-.037 (.025)	-.020 (.042)
Race: AA/PI		.036 (.047)	-.041 (.070)

**Table 9** (continued).

Race: Bl/AfrAm		-0.102*		-0.137*
		(.044)		(.064)
Race: Hispanic		-0.129*		-0.120
		(.052)		(.072)
Race: Other		.010		-.055
		(.045)		(.067)
SAT		.000***		.000*
		(.000)		(.000)
Degree Aspiration				-.044*
				(.021)
First Generation				.082
				(.068)
Institution Choice				.053
				(.034)
Paying: Family				.011
				(.012)
Paying: Grant or Scholarship Aid				.007
				(.011)
Paying: Loan Aid				-.021*
				(.009)
Parent Income				.023
				(.012)
N	3458	3458		1435
F	16.027***	69.704***		24.334***
$R^2$	.005	.182		.211
$R^2$ Adjusted	.004	.179		.202
$\Delta R^2$		.177		.029

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

### ***Model 3: Developmental Involvement and First Year GPA***

Model 3 explored the relationship that developmental involvement had with first-year GPA. Developmental involvement was a dichotomous variable that indicated whether a student had been involved in one or more developmental programs. Developmental involvement was a positive, significant contributor to describing first-year GPA for the Institution sample, although its contribution was very small ( $\Delta R^2 = .004$ ). The model accounted for 18.1% of the first-year GPA variance for the Institution sample. Students involved in one or more developmental program showed a GPA increase of 0.056. This would suggest that developmental involvement

had a trivial effect on first year GPA. Developmental involvement was not significant for the IFS subsample. This mixed finding is worth noting and is further explored in the summary section.

Overall, these results suggested involvement in developmental programs had a smaller relationship with first-year GPA than academic involvement did. It is unsurprising that developmental programs, by their varied and general nature, might have a smaller relationship to first-year GPA than academic involvement. Table 10 provides the statistical results for Model 3.

**Table 10.**

*OLS Regression Results for Developmental Involvement on First Year GPA*

Variable	<i>Involvement</i>	<i>Institution</i>	<i>IFS</i>
	<i>Variable</i>	<i>Variables</i>	<i>Variables</i>
	<i>B</i>	<i>B</i>	<i>B</i>
	<i>(SE)</i>	<i>(SE)</i>	<i>(SE)</i>
Developmental Involvement	.086*** (.023)	.056* (.022)	.042 (.033)
Citizenship: International		.293 (.234)	
Citizenship: Out-of-State		.181*** (.032)	.159** (.049)
Gender		.237*** (.022)	.186*** (.033)
HS GPA		.662*** (.034)	.731*** (.055)
Living Location		-.047 (.027)	-.025 (.043)
Race: AA/PI		.039 (.047)	-.042 (.070)
Race: Bl/AfrAm		-.102* (.044)	-.140* (.064)
Race: Hispanic		-.128* (.052)	-.123 (.072)
Race: Other		.014 (.045)	-.052 (.067)
SAT		.000*** (.000)	.000* (.000)
Degree Aspiration			-.043* (.021)
First Generation			.080 (.068)
Institution Choice			.055 (.034)

**Table 10** (continued).

Paying: Family			.011 (.012)
Paying: Grant or Scholarship Aid			.007 (.011)
Paying: Loan Aid			-.022* (.009)
Parent Income			.023 (.012)
N	3458	3458	1435
F	14.071***	69.048***	22.247***
$R^2$	.004	.181	.211
$R^2$ Adjusted	.004	.178	.201
$\Delta R^2$	.004	.177	.030

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

#### *Model 4: Social Involvement and First Year GPA*

Model 4 explored the relationship that social involvement had with first-year GPA. Social involvement was a dichotomous variable that indicated whether a student had been involved in three or more social programs. Social involvement was a positive, significant contributor in describing first-year GPA for the sample, although its contribution was very small ( $\Delta R^2 = .008$ ). The model accounted for 18.1% of the first-year GPA variance for the sample. Students involved in three or more social programs showed a GPA increase of 0.059. This suggests, similar to developmental involvement, that social involvement had a trivial effect on first year GPA. Social involvement was not significant for the IFS subsample. This mixed finding is worth noting and is further explored in the summary section. Overall, these results suggested that involvement in social programs had a smaller relationship with first-year GPA than academic involvement did. It is unsurprising that social programs, which focus on peer interaction and activity, might have a smaller relationship with GPA than academic involvement did. Table 11 provides a full data summary for Model 4 statistics.

**Table 11.***OLS Regression Results for Social Involvement on First Year GPA*

Variable	<i>Involvement</i>	<i>Institution</i>	<i>IFS</i>
	<i>Variable</i>	<i>Variables</i>	<i>Variables</i>
	<i>B</i>	<i>B</i>	<i>B</i>
	<i>(SE)</i>	<i>(SE)</i>	<i>(SE)</i>
Social Involvement	.123*** (.023)	.059* (.024)	.037 (.036)
Citizenship: International		.317 (.234)	
Citizenship: Out-of-State		.177*** (.032)	.156** (.049)
Gender		.237*** (.022)	.188*** (.033)
HS GPA		.656*** (.034)	.728*** (.055)
Living Location		-.053 (.028)	-.028 (.045)
Race: AA/PI		.040 (.047)	-.039 (.070)
Race: Bl/AfrAm		-.102* (.044)	-.137* (.064)
Race: Hispanic		-.131* (.052)	-.123 (.072)
Race: Other		.008 (.045)	-.058 (.067)
SAT		.000*** (.000)	.000* (.000)
Degree Aspiration			-.044* (.021)
First Generation			.083 (.068)
Institution Choice			.055 (.034)
Paying: Family			.011 (.012)
Paying: Grant or Scholarship Aid			.007 (.011)
Paying: Loan Aid			-.021* (.009)
Parent Income			.023 (.012)
N	3458	3458	1435
F	29.102***	69.031***	22.208***
$R^2$	.008	.181	.210
$R^2$ Adjusted	.008	.178	.201
$\Delta R^2$		.172	.029

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

### ***Summary for Research Question 2***

Model 1 results suggested that a freshman's increased involvement in residential programs had a significant relationship with increasing first-year GPA. This was particularly noteworthy considering the highest amount of involvement was in the social category, which one might imagine would have no (or even a negative) relationship with class grades. The effect of the relationship was small, but it was not a trivial result due to the wide range of involvement levels. Although the largest involvement group were those students with 0 involvement ( $N = 861$ ), 29% of students were involved in 8 or more programs, while 9% of students were involved in 16 or more programs. Thus, with involvement having such a wide range, the impact to GPA would be cumulatively larger as students attended higher numbers of programs. While significant, the overall effect of involvement was quite modest when considering the overall scale of freshman GPA.

Models 2 through 4 found mixed evidence for how each specific type of program involvement related to increased first-year GPA. For the Institution sample, Academic involvement had the stronger impact ( $B = .092$  and  $R^2 = .182$ ) compared to developmental involvement ( $B = .056$  and  $R^2 = .181$ ) and social involvement ( $B = .059$  and  $R^2 = .181$ ). This result was not surprising. One might expect students choosing to be academically involved to be more likely to have higher academic success. While these were encouraging results, each of the three types of involvement were not significant for the IFS subsample. It is possible that for the IFS subsample that no individual type of involvement related strongly to a freshman's higher grades, but only the mixture of academic, developmental, and social involvement. Or it is possible the smaller subsample reduced their significance. Or perhaps the IFS subsample better discriminated and the additional variables provided greater control that accounted for some of

the variance by the types of involvement. An alternative (and perhaps more troubling) possibility was that the IFS subsample may be non-randomly different from the full sample it is drawn from. For example, when compared to the sample, the IFS subsample resulted in reduced significance: overall involvement dropped to a  $p < .05$  level, and each individual type of involvement dropped past a  $p < .05$  level. This concern for differences between the full sample and the IFS subsample are explored later in the chapter (see the “Investigation into the IFS Subsample” section).

### **Results for Research Question 3**

The third research question explored the relationship between involvement and the type of involvement in housing programs with freshman retention into a student’s second year. This research question sought to describe the relationship that one continuous and three dichotomous independent variables had with a dichotomous dependent variable. Binary Logistic Regression creates an equation using independent variables for predicting values of a dichotomous dependent variable in a population (Mertler & Reinhart, 2016). Binary Logistic Regression was best-suited to explore this research question, as it would provide a probability value that a student with a certain residential program involvement, controlling for student characteristics, would be retained or not retained. Unfortunately, the dataset featured very few cases of students not enrolling in their third semester: 123 cases in the overall sample and 44 for the IFS subsample. Due to the few cases available, the research question was abandoned because there were not enough cases to run a robust Binary Logistic Regression test.

### **Results for Research Question 4**

The fourth research question explored the relationship that involvement in housing programs and each type of involvement had with freshman persistence to graduate in six or less

years. Binary Logistic Regression was used to investigate how residential program involvement and type of involvement contributed to a model of student characteristics to describe a freshman's likelihood to persist to graduation within six years. The sequence of adding variables to the model were controlled through hierarchical regression using block entry to explore how specific independent variables changed the model's strength of describing a student persisting or not persisting. The first block featured one of the four involvement variables. The second block added student characteristics maintained by the institution. Finally, the third block included student characteristic variables collected by the Incoming Freshman Survey, which restricted cases to the IFS subsample. (Note: the international variable dropped in the third block due to low cell numbers).

As outlined in Table 5, the results of these statistical tests resulted in the creation of four models (Model 5 through Model 8). All four models had variables with tolerance values greater than 0.1 and VIF scores below 10, indicating that they were robust in regards to multicollinearity concerns. Results indicated that all four models featured a significant fit for describing persistence to graduation. Details of all four models, including model summaries and regression coefficients, are presented in Table 12 (Model 5), Table 13 (model 6), Table 14 (Model 7), and Table 15 (Model 8). Model 5, Model 6, and Model 8 had five student characteristics as significant contributors. Higher persistence was associated with students with higher HS GPA, students who identified as women, students with lower degree aspirations, students that used less loan aid to pay for school, and students with higher parent income. Model 7 deviated from the other three models as degree aspiration was not a significant contributor.

Odds ratios were used to calculate and report effect sizes. Cohen (1988) suggested effect size categories based on odds ratios values over a particular threshold value. For logistical

regression, it was suggested that values up to  $OR = 1.44$  were a very small effect, values below  $OR = 2.48$  were a small effect, values below  $OR = 4.27$  were a medium effect, and values higher were a large effect.

#### ***Model 5: Overall Involvement and Persistence***

Model 5 explored the relationship that the continuous variable overall involvement had with persistence. Freshman involvement in residential programs had a significant relationship with persistence for both the full sample and IFS subsample. Holding all other variables constant, involvement only had a small change in the likelihood of persistence: the odds of persisting grew by 1.041 times per program involvement for the full sample and by 1.044 times for the IFS subsample. The low odds ratios, essentially indicating no effect, suggested involvement had a trivial impact for students with low levels of involvement. However, it is important to remember that involvement featured a wide range from 0 up to 56 programs. For students with moderate-to-high levels of involvement, the level of impact would be substantially stronger. For example, a student with 8 involvements (of which there were 151 and another 943 students with even more involvement) had a moderate impact (an  $OR = 1.411$  a nearly small effect), while a student with 16 involvements (of which there were 40 and another 303 students with even more involvement) had an even more compelling value (an  $OR = 1.991$  for a small effect). Compared to those who had zero involvement, these students had 1.4 times and nearly two times greater likelihood of persisting. Table 12 provides a full summary of the statistical results for Model 5.

**Table 12.***Logistic Regression Results for Involvement on Persistence*

Variable	<i>Involvement Variable</i>		<i>Institution Variables</i>		<i>IFS Variables</i>	
	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>
Involvement	.040*** (.007)	1.41	.040*** (.008)	1.041	.043*** (.013)	1.044
Citizenship: International			-.534 (1.139)			
Citizenship: Out-of-State			.100 (.132)		.230 (.227)	
Gender			-.661*** (.099)	0.516	-.548*** (.165)	0.578
HS GPA			1.343*** (.145)	3.829	1.483*** (.265)	4.406
Living Location			.205 (.115)		-.344 (.222)	
Race: AA/PI			-.144 (.221)		-.762 (.425)	
Race: Bl/AfrAm			.598*** (.173)	1.819	.395 (.275)	
Race: Hispanic			.467* (.209)	1.596	.322 (.329)	
Race: Other			.092 (.191)		.330 (.300)	
SAT			-.001 (.000)		-.001 (.001)	
Degree Aspiration					-.209* (.105)	0.811
First Generation					.036 (.318)	
Institution Choice					-.095 (.169)	
Paying: Family					.015 (.057)	
Paying: Grant or Scholarship Aid					-.039 (.054)	
Paying: Loan Aid					-.109* (.046)	0.897
Parent Income					.156* (.061)	1.168
N	3458		3458		1435	
-2 log likelihood	3312.95		3122.57		1141.05	
$\chi^2$	35.582*** <i>df</i> = 1		225.965*** <i>df</i> = 11		112.138*** <i>df</i> = 17	
Nagelkerke R <sup>2</sup>	.017		.102		.129	

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , OR = Odds Ratio

### ***Model 6: Academic Involvement and Persistence***

Model 6 explored the relationship that academic involvement had with persistence. Academic involvement was a dichotomous variable that indicated whether a student had been involved in one or more academic programs. Freshman academic involvement in residential programs had a significant relationship with modeling persistence for the overall sample. Academic involvement increased the likelihood to persist; involvement in one or more academic programs increased the likelihood to persist by 1.395 times (nearly a small effect). Academic involvement was not significant for the IFS subsample. Similar to Models 2-4, it is possible other IFS variables accounted for academic involvement. However, it is possible that the IFS subsample might differ significantly from the overall sample. This idea was further examined later in the chapter under the “Other Investigations” section. A full data summary for Model 6 statistics are presented in Table 13.

**Table 13.**

#### *Logistic Regression Results for Academic Involvement on Persistence*

Variable	<i>Involvement Variable</i>		<i>Institution Variables</i>		<i>IFS Variables</i>	
	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>
Academic Involvement	.339** (.117)	1.403	.333** (.122)	1.395	.198 (.190)	
Citizenship: International			-.485 (1.147)			
Citizenship: Out-of-State			.061 (.131)		.189 (.225)	
Gender			-.692*** (.099)	0.501	-.578*** (.164)	0.561
HS GPA			1.383*** (.145)	3.989	1.533*** (.264)	4.631
Living Location			.049 (.109)		-.147 (.215)	
Race: AA/PI			-.145 (.220)		-.726 (.422)	
Race: Bl/AfrAm			.505** (.171)	1.656	.297 (.271)	

**Table 13** (continued).

Race: Hispanic		.428*	1.534	.270 (.327)	
Race: Other		.101 (.191)		.360 (.297)	
SAT		.000 (.000)		-.001 (.001)	
Degree Aspiration				-.209* (.104)	0.812
First Generation				.032 (.315)	
Institution Choice				-.115 (.168)	
Paying: Family				.014 (.057)	
Paying: Grant or Scholarship Aid				-.027 (.054)	
Paying: Loan Aid				-.113* (.046)	0.894
Parent Income				.152* (.061)	1.164
N	3458	3458		1435	
-2 log likelihood	3339.71	3141.80		1152.89	
$\chi^2$	8.825** <i>df</i> = 1	206.74*** <i>df</i> = 11		100.310*** <i>df</i> = 17	
Nagelkerke R <sup>2</sup>	.004	.094		.116	

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , OR = Odds Ratio

### ***Model 7: Developmental Involvement and Persistence***

Model 7 explored the relationship that the dichotomous variable for developmental involvement had on persistence. Developmental involvement was a dichotomous variable that indicated whether a student had been involved in one or more developmental programs. Results indicated that developmental involvement in residential programs had a significant relationship with modeling persistence for both the full sample and the IFS subsample. Developmental involvement increased the likelihood to persist, with involvement in one or more developmental programs increasing the likelihood to persist by 1.482 times for the full sample (a small effect) and 1.389 times for the IFS subsample (nearly a small effect). Interestingly, model 7 deviated from the other three models in that degree aspiration did not contribute to the model. Considering

students with higher degree aspirations had higher involvement, potentially there was a correlation between students with higher degree aspirations and students who choose to be involved in developmental programs. This was investigated but meaningful correlation was not detected. Table 14 provides a summary of the results for Model 6.

**Table 14.**

*Logistic Regression Results for Developmental Involvement on Persistence*

Variable	<i>Involvement Variable</i>		<i>Institution Variables</i>		<i>IFS Variables</i>	
	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>
Developmental Involvement	.389*** (.089)	1.475	.393*** (.098)	1.482	.329* (.161)	1.389
Citizenship: International			-.407 (1.150)			
Citizenship: Out-of-State			.064 (.131)		.184 (.226)	
Gender			-.666*** (.099)	0.514	-.543** (.165)	0.581
HS GPA			1.391*** (.145)	4.018	1.541*** (.264)	4.668
Living Location			.157 (.115)		-.238 (.221)	
Race: AA/PI			-.145 (.220)		-.699 (.421)	
Race: Bl/AfrAm			.533** (.171)	1.705	.333 (.272)	
Race: Hispanic			.430* (.208)	1.538	.292 (.328)	
Race: Other			.071 (.191)		.317 (.299)	
SAT			.000 (.000)		-.001 (.001)	
Degree Aspiration					-.201 (.105)	
First Generation					.036 (.315)	
Institution Choice					-.109 (.168)	
Paying: Family					.013 (.057)	
Paying: Grant or Scholarship Aid					-.030 (.053)	
Paying: Loan Aid					-.116* (.046)	0.891

**Table 14** (continued).

Parent Income			.146*	1.157
			(.061)	
N	3458	3458	1435	
-2 log likelihood	3329.06	3133.36	1149.80	
$\chi^2$	19.470***	215.169***	103.398***	
	<i>df</i> = 1	<i>df</i> = 11	<i>df</i> = 17	
Nagelkerke R <sup>2</sup>	.009	.097	.119	

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , OR = Odds Ratio

### ***Model 8: Social Involvement and Persistence***

Model 8 explored the relationship that the dichotomous variable for social involvement had on persistence. Social involvement was a dichotomous variable that indicated whether a student had been involved in three or more social programs. Freshman social involvement in residential programs had a significant relationship with modeling persistence for both the full sample and the IFS subsample. Of three types of involvement, social involvement featured the strongest odds ratio and thus the more compelling relationship with persistence. Involvement in one or more social programs increased the likelihood to persist by 1.672 times for the full sample (a small effect) and 1.608 times for the IFS subsample (a small effect). Table 14 provides a summary of the results for Model 6.

**Table 15.**

### *Logistic Regression Results for Social Involvement on Persistence*

Variable	<i>Involvement Variable</i>		<i>Institution Variables</i>		<i>IFS Variables</i>	
	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>
Social Involvement	.513*** (.088)	1.67	.514*** (.101)	1.672	.475** (.169)	1.608
Citizenship: International			-.586 (1.141)			
Citizenship: Out-of-State			.099 (.132)		.229 (.226)	
Gender			-.660*** (.099)	0.517	-.540** (.165)	0.583

**Table 15** (continued).

HS GPA		1.340*** (.145)	3.820	1.495*** (.265)	4.459
Living Location		.249* (.118)	1.283	-.351 (.228)	
Race: AA/PI		-.152 (.221)		-.752 (.424)	
Race: BI/AfrAm		.549** (.172)	1.732	.323 (.272)	
Race: Hispanic		.470* (.209)	1.600	.315 (.329)	
Race: Other		.115 (.191)		.374 (.298)	
SAT		.000 (.000)		-.001 (.001)	
Degree Aspiration				-.212* (.105)	0.809
First Generation				.013 (.316)	
Institution Choice				-.097 (.168)	
Paying: Family				.015 (.057)	
Paying: Grant or Scholarship Aid				-.035 (.054)	
Paying: Loan Aid				-.111* (.046)	0.895
Parent Income				.153* (.061)	1.165
N	3458	3458		1435	
-2 log likelihood	3314.03	3123.75		1146.15	
$\chi^2$	34.532*** <i>df</i> = 1	224.779*** <i>df</i> = 11		107.044*** <i>df</i> = 17	
Nagelkerke R <sup>2</sup>	.016	.101		.123	

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , OR = Odds Ratio

#### ***Summary for Research Question 4***

Results from Model 5 provided evidence that overall involvement in residential programs by freshmen had a significant relationship with persistence. The relationship was small, but it was not trivial due to the wide range of involvement levels. Obviously involvement would not impact the many students with little to no involvement but involvement may for students with more moderate or high levels of involvement. For example, it might impact the more than 29%

of students involved in 8 or more programs and a further 9% of students involved in 16 or more programs. All other variables being constant, a student involved in 8 residential programs was 1.4 times more likely to persist to graduation than a student not involved in a residential program, while a student involved in 16 programs was nearly twice as likely to graduate. Thus, despite involvement's low odds ratio, its wide range meant students with higher involvement experienced a greater effect.

Results from Models 6 through 8 indicated that all three involvement types had a significant relationship with persistence for the overall sample. Of the three types, social involvement appeared to have the more compelling relationship ( $OR = 1.672$ ) compared to academic involvement ( $OR = 1.395$ ) or developmental involvement ( $OR = 1.482$ ). This was also supported by Nagelkerke  $R^2$  values (.101 compared to .94 or .97, respectively). It is worth noting that involvement by type was disproportionately represented: students averaged 5.7 social programs, 2.3 developmental programs, and 0.8 academic programs. Social is also scaled at 3 or more involvements whereas the other two are scaled at 1 or more involvements. In this regard, perhaps it is surprising that academic and developmental programs were relatively comparable to social involvement, considering this lower scale.

The results for Models 6 through 8 were slightly different for the IFS subsample: only developmental and social involvement had a significant relationship with persistence. Of the two, social involvement still featured the more compelling relationship ( $OR = 1.608$ ) than developmental involvement ( $OR = 1.389$ ). Similar to findings for Research Question 1, the IFS subsample resulted in lower significance levels for all three types of involvement: social involvement dropped to a  $p < .01$  level, developmental dropped to a  $p < .05$ , and social dropped from a  $p < .01$  level to being not statistically significant. The IFS data suggested that social and

developmental involvement were the only two types of involvement that had a relationship with persistence, which stood at odds with results from the full sample. Reflecting on these differences, it is possible additional IFS variables better accounted for some of the variance than the three types of involvement. However, considering the consistent differences between the full sample and the IFS subsample, it seemed an investigation was warranted to determine whether there were major differences between them. Through robust comparison it might be possible to determine whether the full sample or the IFS subsample results were the more reliable results. This concern is further explored in the next section.

### **Investigation into the IFS Subsample**

A fundamental consideration when drawing conclusions from a sample using a statistical test is that the sample needs to be representative of the population to which the finding would be applied (Mertler & Reinhart, 2016). If a sample was not representative, then it was subject to bias, with some types of individuals being over-represented and other types being under-represented. Although this study found significant answers for research questions 1, 2, and 4, it also brought to light potential differences between the full sample and the IFS subsample. Since the results of the three research questions demonstrated differences between the two, it seemed worth investigating these differences. Then it would be possible to consider which sample was the more reliable from which to draw conclusions: the full sample or the reduced IFS subsample with the additional IFS variables. As a reminder, the full sample included nearly the entire population of freshmen (only missing those students under the age of 18, those with privacy flags, or the 26 removed due to data screening). The IFS subsample reduced the full sample by another 41% due to missing data points from students not providing a response on one or more items and all of the univariate and multivariate outliers in the IFS cases. However, the IFS

subsample included additional student characteristics that might better model first-year GPA and persistence. Which approach was the more reliable?

To explore this question, I explored if the students who completed the IFS survey were similar to students who did not complete the IFS survey. This was accomplished by exploring the group mean differences for the institution variables between the IFS cases (those in the full sample who took the IFS survey) and the non-IFS cases (those in the full sample that did not complete the IFS survey). The shared institution variables included gender, race, residency (NC resident, out-of-state, and international), lived on campus, HS GPA, SAT score, first-year GPA, persistence, overall involvement, and the three types of involvement. Of the 3,751 total cases, there were 1,435 IFS cases and 1,638 non-IFS cases. A total of 678 cases were removed: 26 due to data screening and 652 cases due to their listwise deletion in the regression tests (266 were listwise deletions for the full sample and 386 were listwise deletions for the IFS subsample).

I explored group differences using T-Tests between the IFS cases and the non-IFS cases, with the results outlined in Table 16. The results indicated a large number of significant group differences between the IFS cases and the non-IFS cases. In fact, it was startling to see so many significant group differences: 13 of the 18 institutional variables were significantly different (11 at  $p < .001$ , 1 at  $p < .01$ , and 1 at  $p < .05$ ) between the two sets of cases. It was particularly troubling to see the primary dependent and independent variables of the study all having significant differences between the IFS cases and the non-IFS cases.

Table 16.

*ANOVA & T-Test Results for Involvement Differences by Student Characteristics*

Variable	<i>T</i>	Cohen's <i>d</i>	Non-IFS Cases <i>M (SD)</i>	IFS Cases <i>M (SD)</i>
Gender (% women)	82.100***	.25	.40 (.49)	.52 (.50)
Race				
% Asian Am./Pacific Islander	.789		.05 (.21)	.06 (.23)
% Black/African American	3.633		.06 (.24)	.08 (.26)
% Hispanic	6.799**	.10	.03 (.18)	.05 (.22)
% Other	19.804***	.15	.10 (.30)	.06 (.23)
% White	.012		.76 (.43)	.75 (.43)
Citizen/Resident				
% North Carolina resident	4.201*	.08	.83 (.37)	.86 (.35)
% Out of state student	2.745		.13 (.33)	.14 (.35)
% International student	65.490***	.20	.04 (.20)	.00 (.00)
% Living On Campus	33.444***	.23	.73 (.44)	.82 (.38)
HS GPA	41.828***	.20	3.06 (.69)	3.19 (.65)
SAT Score	.513		1221.84 (114.60)	1224.69 (117.15)
First Year GPA	31.811***	.24	4.34 (.36)	4.42 (.32)
Persistence Rate	14.263***	.13	.79 (.41)	.84 (.37)
Overall Involvement	53.376***	2.11	5.26 (6.91)	7.05 (7.76)
Academic Involvement	12.389***	.10	.18 (.38)	.22 (.42)
Developmental Involvement	20.813***	.14	.43 (.49)	.50 (.50)
Social Involvement	50.782***	.24	.48 (.50)	.60 (.49)

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

After discovering significant group mean differences for a majority of the institution variables, it seemed prudent to also explore potential differences for each of the specific regression tests. Like the prior test, I ran and compared each regression test on the IFS cases and the non-IFS cases using only the shared institution variables from blocks 1 and 2. If the IFS subsample was similar to the overall sample, the results of the same regression test using the same variables with the IFS cases should yield comparable results as a the non-IFS cases.. If the results yielded similar variable coefficients and variable significance, then it would be reasonable to believe the IFS subsample and the full sample were relatively similar. Results for the

involvement multiple regression comparison (Model 1 with first-year GPA) were reported in Table 17 while the involvement logistic regression comparison (Model 5 with persistence) results were presented in Table 18.

In looking at first-year GPA comparison results, there are clearly were sizable differences for many of the variable's unstandardized coefficients (ex: gender, Asian American/Pacific Islander, Black/African American, and Other Race) and significance (ex: gender, out-of-state, and Hispanic). Similarly, in comparing the results for persistence, there were also many sizeable changes in the variable's unstandardized coefficients (ex: out-of-state, gender, living location, Asian American/Pacific Islander, Other Race) and variable significance (ex: involvement, gender, living location, Hispanic). I also ran similar regression tests for the other three types of involvement (Models 2-4 and Models 6-8), with the results demonstrating similar levels of sizable differences between the IFS cases and the non-IFS cases. Of interest was that many of the variables of concern here were also variables that changed significance between the full sample and the IFS subsample for Models 1-4 (ex: Hispanic, Black/African American, and out-of-state) and Models 5-8 (ex: gender, living location, Hispanic, Black/African American). One concern might be that the international variable for the IFS cases were dropped due to low cell numbers. To ensure a robust exploration, the two regression tests were also run without the international variable but it yielded similar results.

In looking at first-year GPA comparison results, there are clearly were sizable differences for many of the variable's unstandardized coefficients (ex: gender, Asian American/Pacific Islander, Black/African American, and Other Race) and significance (ex: gender, out-of-state, and Hispanic). Similarly, in comparing the results for persistence, there were also many sizeable changes in the variable's unstandardized coefficients (ex: out-of-state, gender, living location,

Asian American/Pacific Islander, Other Race) and variable significance (ex: involvement, gender, living location, Hispanic). I also ran similar regression tests for the other three types of involvement (Models 2-4 and Models 6-8), with the results demonstrating similar levels of sizable differences between the IFS cases and the non-IFS cases. Of interest was that many of the variables of concern here were also variables that changed significance between the full sample and the IFS subsample for Models 1-4 (ex: Hispanic, Black/African American, and out-of-state) and Models 5-8 (ex: gender, living location, Hispanic, Black/African American). One concern might be that the international variable for the IFS cases were dropped due to low cell numbers. To ensure a robust exploration, the two regression tests were also run without the international variable but it yielded similar results.

**Table 17.***OLS Regression Results for Involvement on First Year GPA Sample Investigation*

Variable	<i>Non-IFS cases</i>	<i>IFS cases</i>
	<i>B</i> ( <i>SE</i> )	<i>B</i> ( <i>SE</i> )
Involvement	.006*** (.002)	.005*** (.002)
Citizenship: International	.316 (.234)	
Citizenship: Out-of-State	.175*** (.032)	.171 (.046)
Gender	.236*** (.022)	.177*** (.033)
HS GPA	.653*** (.034)	.720*** (.054)
Living Location	-.056* (.026)	-.056 (.043)
Race: AA/PI	.036 (.047)	-.043 (.068)
Race: Bl/AfrAm	-.113** (.044)	-.198** (.062)
Race: Hispanic	-.134** (.052)	-.136 (.071)
Race: Other	.011 (.045)	-.066 (.067)

**Table 17** (continued).

SAT	.000*** (.000)	000** (.000)
N	3458	1435
F	69.92***	35.531***
$R^2$	.182	.200
$R^2$ Adjusted	.180	.194
$\Delta R^2$	.170	.190

**Table 18.***Logistic Regression Results Involvement on First Year GPA Sample Investigation*

Variable	<i>Non-IFS cases</i>		<i>IFS cases</i>	
	<i>B</i> ( <i>SE</i> )	<i>OR</i>	<i>B</i> ( <i>SE</i> )	<i>OR</i>
Involvement	.040*** (.008)	1.041	.040** (.013)	1.041
Citizenship: International	-.534 (1.139)			
Citizenship: Out-of-State	.634 (1.144)		.177 (.210)	
Gender	-.661*** (.099)	0.516	-.495** (.160)	.609
HS GPA	1.343*** (.145)	3.829	1.358*** (.256)	3.890
Living Location	.205 (.115)		.459** (.218)	1.572
Race: AA/PI	-.144 (.221)		-.557 (.412)	
Race: Bl/AfrAm	.598*** (.173)	1.819	.696** (.263)	2.005
Race: Hispanic	.467* (.209)	1.596	.467 (.321)	
Race: Other	.092 (.191)		-.452 (.289)	
SAT	-.001 (.000)		-.001 (.001)	
N	3458		1435	
-2 log likelihood	3122.57		1172.487	
$\chi^2$	225.965*** <i>df</i> = 11		80.707*** <i>df</i> = 10	
Nagelkerke $R^2$	.102		..094	

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , OR = Odds Ratio

In addition, it was particularly concerning to see such large and significant group mean differences on both the independent variables (overall, academic, development, and social involvement) and the dependent variables (first-year GPA and persistence). Examining the full sample and the IFS subsample in these three ways provided clear evidence that the IFS subsample was not representative of the full sample. In fact, it was likely that the IFS subsample was biased in a non-normal, non-random way based on the kinds of freshmen who completed a survey at a higher rates than their peers (or, vice versa, the kinds of freshmen who had a propensity to not start or not fully answer a survey). This provided concern for the reliability of research using student involvement surveys and student surveys in general. In light of these concerns, it seemed reasonable to put more trust in results from the overall sample, which encompassed just over 88% of the institution's freshman population.

### **Chapter Summary**

This chapter explored the results from the statistical tests associated with each research question. Results indicated that residential involvement varied by certain types of students. Overall involvement and each type of involvement had a significant relationship with First Year GPA, although the IFS subsample showed mixed support for the three types of involvement. Finally, overall involvement and all three types of involvement had a significant relationship with persistence to graduation, although the IFS subsample did not support academic involvement. The next chapter will more deeply explore the statistical results within the context of related theories and prior literature. In addition, it will also explore the implications and practical applications of these findings.

## Chapter Five: Implications for Theory, Practice and Future Research

Across the four decades since Astin proposed his theory of student involvement (Astin, 1984), research on student involvement has been robust and widespread (Pascarella & Terenzini, 2005; Mayhew, Rockenbach et al., 2016). Early evidence found that student involvement had a positive effect on a variety of developmental outcomes (Astin, 1993). In particular, there was a consensus that student involvement had a positive relationship with such student outcomes as cognitive development, academic success, and likelihood to be retained and persist to graduation (Astin, 1999; Kuh, 2003; Pascarella & Terenzini, 2005; Tinto, 1993). Prior research also suggested that involvement impacts were felt differently based on student characteristics (Carini, Kuh, & Klien, 2006; Kuh et al., 2008; Pike & Kuh, 2005). Much of our research on student involvement has been based on involvement data collected through self-reported surveys. However, student involvement data collected through self-reported surveys might suffer from concerns of validity and reliability (Porter, 2011).

Almost all housing programs involve their residents in passive and active programming with the goal of positively impacting a variety of student outcomes (Blimling, 2010; Blimling, 2015). Based on student involvement research, residential involvement should have a similar influence on similar outcomes. However, there has not been a systematic study examining the relationship between student involvement in residential programs and academic outcomes, while only a handful of studies have investigated general outcomes. In this final chapter, I will summarize my findings for each research questions. I will then analyze and articulate how my findings contribute to prior theory and research. Next, I will articulate implications my findings have for future practice and policy. I will then provide recommendations for future research and conclude with final thoughts.

## Summary of Findings by Research Questions

Using residential involvement data rather than self-reported data, this study sought to provide descriptive information regarding student involvement in residential programs and examine the relationship that involvement in residential programs had with academic outcomes (first-year GPA, retention, and persistence). In the last chapter, I outlined the statistical test used to investigate each research question, provided results from each test, and highlighted results that were most salient to answering the research questions. Before jumping into implications, I will summarize the results to provide an answer each of the four research questions and contextualize it within prior research.

1. *To what extent are freshman students involved in residential programs, and does this involvement vary between students with different background characteristics (e.g., gender, race/ethnicity, family income)?* Student involvement in residential programs significantly varied between some groups of students. Below I explore the results and consider them within the context of prior research.

**Living on Campus.** Students living on campus had significantly higher levels of involvement compared to students living off campus, which likely comes as no surprise since they have access to the residential programs. In addition, prior research has shown that living on campus was associated with higher levels of extracurricular involvement (Astin, 1984; Blimling, 1993; Kuh, 2003; Kuh et al., 2006; Pike & Kuh, 2005). What is surprising is how many off-campus residents (30%) were involved in programs and, for those involved, how many programs they attended (4.1). Programs are often late afternoon or evening activities so attending a program is not killing time between classes for off-campus students. In addition, off campus students do not typically have access to these activities. Some off campus

students have 1 or 2 involvements, which would be easy to attain by attending some of the campus-wide housing events or an occasional involvement through happenstance visiting a resident peer. But for those with multiple (for example there were 5 with 20-30 involvements), this residential involvement it seems a highly intentional decision. Why? Perhaps some are local students who cannot justify the cost to live on campus but understand and desire some kind of on-campus experience? Perhaps the connections between on and off-campus students are so strong and frequent that off-campus students spend so much time visiting that they often attend programs? Perhaps this off-campus involvement impacted by proximity to campus? Graham et al. (2018) found that students living near campus accrued many of the same benefits as students living on campus. It is possible that students with close proximity justify the short walk/drive to return to campus to visit on-campus peers during the evening hours that are rich with social activity and residential programming. Thus, it is possible the blurred benefit between near campus and on-campus may be partly due to the ease that “near campus” students have to join their residential friends in the socially activity and residential programs. Unfortunately, this study did not include information on distance from campus to explore this thought but it is worth consideration.

**Gender.** This study found evidence that women had significantly higher levels of involvement in residential programs. This is not a particularly surprising result. Prior research has often shown that women have higher levels of involvement (Kuh, 2003; Kuh et al., 2006; Pike & Kuh, 2005; Hu & Wolniak, 2013). Based on prior research, I had anticipated that, similar to general involvement, women would also be more involved in residential programs. To some degree, my findings align and support prior research. However, some caution is warranted based on the mixed results. First, women’s involvement

was significantly higher for the full sample but there was not a significant difference for the IFS subsample. This may be of less concern since the full sample was proportionate to the institution's student demographics whereas the IFS subsample was skewed (in particular it had disproportionate numbers of women). Even still, the significant full sample results had a very low effect size indicating it was not a particularly meaningful result. This raises the question of whether women's residential involvement was similar to results found in prior research on general involvement. Alternatively, these results may reflect an institution different from the broader national picture (one that is predominately male and has a STEM focus). Another potential possibility is that within the residential environment men's involvement may be more similar to women's involvement. Perhaps males are more responsive to programs within the residential area. One possible explanation is that residential floors are often gendered and the floors' activities are often coordinated by a similarly gendered RA. Carefully crafting experiences in this fashion may increase their likelihood to participate.

**Race.** Prior research has consistently indicated that students with diverse backgrounds had higher levels of involvement in educationally meaningful activities (Kuh, 2003; Kuh et al., 2006; Kuh et al., 2008; Pike & Kuh, 2005; Harris & BrckaLorenz, 2017). In particular, Hu and Wolniak's (2013) study found that students who identified as Hispanic reported the highest levels of engagement in academic activities while students who identified as African Americans reported the highest levels of social engagement. Results from my study extended this prior work within the residential environment. Students who identified as Black/African American and Hispanic had significantly higher levels of involvement in residential programs. Originally, I anticipated the opposite for residential

involvement. Despite socially supportive and inclusive residence halls being related to non-white student's sense of belonging (Johnson et al., 2007), research has shown that non-white students, particularly Black/African American students, generally find residential spaces as unwelcoming and unsupportive (Harwood et al., 2012; Haywood et al, 2018). However, perceptions of the residential space may not negatively impact their likelihood to participate in the programmatic opportunities. In fact, my results indicate that residential involvement appears to be similar to results common to research on general student involvement.

**Citizenship.** Students who were from out of state had significantly higher rates of residential involvement. This makes some intuitive sense: out-of-state freshman, who lack the benefit of easily returning home and spending time with past high school friends, have to quickly and fully integrate into the social fabric out of social necessity. Comparatively, international students had significantly lower rates of residential involvement. This contradicted past research showing international students had higher involvement (Kuh, 2003; Kuh et al., 2006) but it aligned with a recent literature review indicating international students were less engaged in campus and academic involvement (Wekullo, 2019). This finding was interesting because the study institution featured a highly developed global LLP that paired international and U.S. roommates together and provided very robust cultural programming. Students in this community were known for high levels of program involvement (60 to 100% higher than the average resident), which indicates international students outside of that program must have had much lower levels of involvement to account for the low group mean.

**Other Characteristics.** Residential involvement was also significantly higher for students with parental income in the lowest two income categories compared to those in the

highest category. This outcome is intriguing: one might anticipate students from a wealthier family would be free to pursue involvement at a higher rate. It is possible these students are more involved but just not residentially. However, something else may be at work when looking at financial aid. Students with the two highest levels of grants/scholarships were more involved than students without any. It is likely there is a strong interactional effect between residential involvement and both lower income and grants/scholarships. Residential involvement was significantly higher for students who reported aspirations for a professional degree and for students who reported the institution as their second or lower choice. It seemed intuitive that students with higher degree aspirations would be more heavily focused on academic coursework or taking more academically-demanding courses reducing their availability or likelihood of being residentially involved. Perhaps students with high aspirations are also a type of student that can successfully manage academic rigor and balance their time for non-academic involvement. Finally, residential involvement was significantly higher for students who reported the institution as their second or lower choice. This is a puzzling result as it would be reasonable to assume students who primarily wanted to attend the institution would have a strong sense of commitment and therefore be more likely to be involved in their first year. However, the results from my study indicated that was not the case residentially.

2. *To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to first-year GPA?*

Overall involvement had a significant relationship with first-year GPA, and this relationship was consistent across both models. There were varying levels of involvement and the GPA increased with it but it appeared it had a modest impact. For example, for many

students 20 residential involvements would be a lot and a .12 higher GPA would be considered a modest increase for many of those students. Results suggested all three were correlated with first-year GPA but the individual types of involvement were not co-equal contributors. Residential involvement in academic programs had the more compelling relationship to first-year GPA. A student with one or more academic involvements resulted in almost a .1 GPA increase, which was much higher than the other types. ,

There is evidence that a freshman's involvement in residential programs and particularly their involvement in academic programs, may be useful in describing a student's GPA at the end of their first year. However, it is important to note that the IFS Subsample models indicated mix results on residential involvement's relationship with GPA. Overall, these results support prior research indicating that increased student involvement was positively related to increased academic achievement (Astin, 1993; Fischer, 2007; Gordon, Ludlum, & Hoey, 2008; Kuh et al, 2008). Institutions or housing departments focused on increasing freshman GPA should ensure they create opportunities for students to be involved in residential programs. In particular, they should provide more opportunities and encouragement for involvement in academically-focused residential activities.

3. ***To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to retention to the second year?*** Based on the lack of case counts, this study was unable to fully investigate how residential involvement related to retention into the second year. Prior research found a modest positive effect between student involvement and freshman retention to the second year (Kuh et al, 2008). Considering this research and considering results of residential involvement's relationship with persistence, it is reasonable to imagine residential involvement having some degree of

relationship with second-year retention. However, it would be improper to draw any conclusions that overall involvement or involvement in one of the three types of residential programs would have a significant relationship with second-year retention. This question is worthy for consideration in future research studies.

4. *To what extent does freshman involvement in residential programs and involvement in differing types of residential programs relate to persistence to graduation?*

Overall involvement had a significant relationship with persistence to graduation, and the relationship was consistent across both models. The odds-ratio was small (OR = .040\*\*\* and OR = .043\*\*\*), indicating involvement may have a trivial relationship for the many students with low involvement. Because there are varying levels of involvement, it would be significant for those students with moderate-to-high levels of involvement. For example, students with 8 and 16 programs had, respectively, a 1.4 times and nearly two times greater likelihood of persisting. Attending 8 programs is reasonable for a freshman; in the study almost a third of the freshman had achieved or exceeded it. For those residents, having a 50% increase or higher chance of graduating is a meaningfully positive outcome. As a result, there is a compelling argument that a freshman's involvement in residential programs has a relationship with persistence to graduation. This finding is in line with prior research that demonstrated student involvement had a significant, positive relationship with persistence to graduation (Milem & Berger, 1997; Fischer, 2007; Kuh et al, 2008).

As was with the second research question, the three different types of involvement were not equally related to persistence. First, there appears to be a stronger case for a positive relationship between social and developmental involvement as they were significant across both models, whereas academic involvement was only significant for the overall sample.

Academic involvement's relationship with persistence was mixed between the full sample and IFS subsample. While this may be due to the prior concerns previously explored, it might also be an accurate finding. If so, it stands alongside other research indicating that academic experiences do not impact a student's decision to remain at an institution and persist to graduation (Braxton et al., 2004; Braxton et al., 2014).

Second, social involvement ( $OR = 1.672, p < .001$  and  $OR_{IFS} = 1.608, p < .01$ ) demonstrated the most compelling, positive relationship with persistence which was followed by developmental involvement ( $OR = 1.482^{***}, p < .001$  and  $OR_{IFS} = 1.389^*, p < .05$ ) and then academic involvement ( $OR = 1.395^{**}, p < .01$ ). Students involved in 3 or more social programs saw a 67% greater chance of graduating, which is moderate increase. In addition, the ordering of the types likely reflects a hierarchy of social opportunity found in each program category. Prior research has shown that students who form social connections with peers are likely to persist, whereas students who fail to form sufficient social connections are more likely to depart (Braxton et al., 2004, Braxton et al., 2014, Fischer, 2007, and Milem & Berger, 1997). Social involvement in residential programs likely provides rich opportunities for students to form social connections with their residential peers and create positive social experiences that reinforce their sense of belonging and commitment to the institution, which has been argued to influence increased persistence (Braxton et al., 2004, Milem & Berger, 1997, Tinto, 1993). Developmental programs span a wide range of topical activities and also infuses more social interaction than academic programs (although there is a small difference between developmental and academic involvement). Thus, this ordering of type likely showcases the levels of social connections each type of program features.

Having summarized the findings from Chapter 4 and contextualizing it within prior research, I now turn attention to analyzing and articulating the implications these findings have for prior theory and research.

### **Implications for Theory**

Theory and research are constantly growing and evolving as researchers discover gaps in the literature, create systematic ways to explore the gaps, and then report their findings to fill those gaps so that future researchers can then build upon those findings. Findings from this research study, while interesting in their own right, must be considered within the context of past theory. In this section, I provide implications for the body of literature by considering how my findings extend published theory.

This study's major theoretical influence related to persistence, framed within Tinto's (1993) Model of Institutional Departure and the Revised Theory for Student Persistence in Residential Colleges and Universities (Braxton et al., 2014) as theoretical frameworks. The Model of Institutional Departure serves as an explanatory framework to aid institutions in understanding why their students depart from their collegiate education (Tinto, 1993). In the model's third stage, Tinto argued that students experienced college through both academic and social systems that featured formal and informal experiences. Through the integration of positive experiences in these four spheres, a student was likely to increase their goal and institutional commitments and thereby be more likely to persist to graduation.

Within the Model of Institutional Departure, residential programs straddle the division between formal and informal social experiences. Although the experiences are coordinated by an office of the institution, they are often developed and/or hosted by the RA as a peer educator and almost always involve peer group interactions experienced within a shared living environment.

Results from this study indicated that a student's overall involvement in residential programs had a significant, positive relationship with their likelihood to persist to graduation. This supports aspects of the Model of Institutional Departure. The fourth and fifth stage articulated the mechanism whereby social involvement impacted persistence: the student integrated their social experiences, which in turn continually modified their intentions and commitments (Tinto, 1993). Positive experiences, which increased their integration and strengthened their intentions/commitments, increased the likelihood that a student would persist to graduation. Therefore, increasing a student's positive involvement and the integration of their involvement increased a student's likelihood to persist to graduation. This aspect of Tinto's model was confirmed by the results of my study.

Another important component of this study was investigating the relationship that different types of involvement had with persistence. My findings indicated that social involvement had a consistent association with persistence. However, academic involvement was not consistent in modeling a relationship with persistence. If academic residential involvement served as a form of informal academic experience, it failed to show support for the academic system and academic integration within Tinto's (1993) model. Instead, it joined prior studies that failed to find a relationship between academic integration and persistence (Milem & Berger, 1997; Braxton et al., 2004; Braxton et al., 2014).

Although the evidence was mixed for academic involvement being associated with persistence, there was clear evidence that social involvement (and to a lesser degree developmental involvement) was associated with persistence. As a result, my findings showed stronger support for the Revised Theory for Student Persistence in Residential Colleges and Universities (Braxton et al., 2014). Framed within the theory, students with the ability to pay

lived on campus, which allowed them access to the residential programs (although non-residents seemingly are involved for those that have residential connections established). Students with a level of cultural capital had “self-esteem and social self-confidence...that permits them to participate fully in a wide range of extracurricular activities and social interactions with peers” (Braxton et al., 2014, p. 171). Students with proactive social adjustment were able to navigate the social environment to successfully build relationships and participate. Students with communal potential saw the residential space as a place where they could belong, and they wanted to get involved in order to do so. Based on these factors, psychosocial engagement is then expressed through involvement in residential programs.

Within the model, the integration of positive experiences from the residential involvement as a psychosocial engagement would reinforce subsequent institutional commitment (Braxton et al, 2014). The continued integration of positive experiences and the positive reinforcement of institutional commitment would positively influence a student’s likelihood of persisting. The residential social involvement provided social experiences that created connections with peers and a sense of belonging to the institution. Thus, involvement in residential programs likely serves as an indirect influence for persistence through social integration, as has been found with research for living on campus research (Mayhew, Rockenbach et al., 2016; Mayhew, Dahl et al., 2019; Turley & Wodtke, 2010).

Another major theory utilized in this study was Student Involvement. Astin (1984) defined student involvement as the “amount of physical and psychological energy that the student devotes to the academic experience” (p. 297). Involvement entailed an active pursuit with corresponding behavioral elements (Astin, 1984; Astin 1993), such as a student actively participating in a residential program. A student’s learning and development increased through

active involvement in educationally meaningful pursuits that resulted in increased collegiate success.

Residential program involvement is situated within the broader context of student involvement. If involvement has “beneficial effects on a wide range of developmental outcomes” (Astin, 1993, p. 4), then a student expending physical and psychological energy on involvement in residential programs should also see positive effects on their learning and development. Prior research has demonstrated that involvement has a significant relationship with first-year GPA (Gordon et al., 2008; Kuh et al., 2008). This study, in finding that involvement in residential programs had a significant relationship with first-year GPA, supported this prior research. It is particularly noteworthy that, of the three types, academic involvement had the strongest relationship with first-year GPA. It was indicative that a student expending energy on their academic pursuits, even if only in the residential environment (although one would assume academic residential involvement likely correlated with outside academic involvement too), was associated with a higher first-year GPA.

In addition, Astin (1993) outlined five postulates to student involvement, with two being particularly salient to the findings of this study. First, involvement had both a quantitative and qualitative aspect. In addition, the quality and quantity of involvement had a direct relationship on the student’s degree of learning and development. Although this study did not explore involvement quality, as previously noted, there was an association between increasing involvement and increasing first-year GPA and persistence. Astin (1993) also argued “that almost any form of student involvement in the college experience benefits learning and student development” (p. 4-5). Although Astin’s statement was both broad and encompassing, the results of this study provided further evidence of that assessment: involvement in residential programs

had a significant relationship with first-year GPA and persistence and, with the aid of other future researchers, it may be determined to have relationships with other student outcomes as well.

### **Implications for Practice and Policy**

The findings from this study not only informs theory and past research, but they also provide useful considerations for practice and policy. First, the results of this study provide evidence that freshman involvement in residential programs is correlated with first-year GPA and persistence to graduation. In particular, involvement in academic residential programs had a strong relationship with first-year GPA, while involvement in social residential programs had a strong relationship with persistence. Most housing programs already provide residents with social, developmental, and academic programming (Blimling, 2010; Blimling, 2015). However, for the odd institution that does not and has a concern for future persistence, they should consider implementing a robust programming model, with a particular focus on social programs and activities that provide residents opportunities to interact and create social connections with peers.

A radical implication is for the complete reconsideration of residential programming. Over the last few decades, housing programs have fully adopted a co-educator role and have sought to provide more sophisticated, curricular co-education in the living environments (Kerr & Tweedy, 2006). This is best seen in the rapid spread of the residential curricular programming approach. As a result, housing staff have (or attempt) to become knowledge experts across a wide range of topics to impact a variety of student outcomes. This has resulted in a large shift towards “educational programming” to develop a holistic student. Across the time period that housing has focused additional time, energy and finances on stronger educational experiences, the research literature has found less clear and convincing impacts of living on campus. Across

this time, LLPs continue to demonstrate a relationship to persistence indicating that a sharp focus on residential experiences may be more beneficial than a jack-of-all-trades approach. Added to this, current research draws attention to the fact that living on campus indirectly affects persistence by providing increased student involvement, interactions with peers and interactions with faculty/staff (Arboleda et al., 2003, Mayhew, Rockenbach et al, 2016; Turley & Wodtke, 2010). Although educational programming may impact those areas, this study demonstrated a stronger relationship between social involvement and persistence. If persistence is of utmost importance at an institution, then the housing department may need to seriously reconsider a jack-of-all-trades approach to educating students, which may come at the neglect of housing's "bread and butter" of social programming positively increasing social interactions and general student involvement. Instead, housing staff should allow the many other educational experts, both within and outside student affairs, to provide the many educational experiences to residents while the housing staff should refocus on building social relationships and providing social programming.

An additional implication is that the results of this study legitimizes a practice that often operated based solely on anecdotal analysis and decision-making. This study provides housing professionals with empirical support that residential involvement is positively associated with the academic outcomes of first-year GPA and persistence. Academic involvement in the residence halls demonstrated a small but positive significant relationship with first-year GPA while involvement in 3 or more social programs showed a moderate, positive significant relationship with persistence to graduation. These results arm housing professionals with research they can bring to the table and data they can use to articulate impact that their work can have on a student's short and long term academic success. This information may also act as an invaluable

selling point to administration or faculty reluctant to get involved in the residential environment outside of LLPs. In addition, providing meaningful residential programs requires a degree of financial support in order to craft compelling and powerful programmatic experiences. For those housing departments with coffers raided to provide financial support for other elements of the institution, the results of this study provide an additional argument for needing to redirect some of the residential funds.

Another implication relates to one postulate for student involvement: the effectiveness of an institution's policies and programs related to how effectively they increased the involvement of its students (Astin, 1984). An institution may want to instill a culture of involvement in residential programs based on the relationship those involvements have with academic achievement and persistence. By telling and sharing a story of residential involvement and its associated outcome, students may be more likely to be involved in residential programs, and that involvement may spill into other educationally related involvement that will positively benefit the students.

A final implication relates to assessing and researching student involvement through surveys of self-reported involvement. There is an argument that there are validity and reliability concerns with involvement data derived from self-reported student surveys (Porter, 2011). This study found generalizability concerns when including student survey data. The investigation of the full sample and IFS subsample indicated there were significant group differences between those students who chose to complete the IFS survey and those who either choose not to participate or did not complete the items used in this study. These differences extended across multiple student characteristics: two out of three home locations, whether they lived on campus, both high school academic outcomes, and all four involvement variables. In addition, four of the

six involvement types across the two research questions lost significance when the IFS variables were added and it restricted to the IFS subsample. That I found significant associations between students completing the IFS survey and higher levels of involvement across all involvement categories is particularly troubling for student involvement research. Added to this, it appeared the IFS subsample was biased in a non-normal, non-random way based on the kinds of freshmen who completed a survey that was unrelated but associated with the investigated student involvement. Based on these concerns, future student involvement research and programmatic assessment efforts may need to consider actual involvement data added to or replacing self-reported survey involvement data.

### **Implications for Future Research**

As this study explored both a novel subsection of student involvement and did so in a unique way, it provides a wide range of implications for future research. Based on the results of this study and those areas not explored, I provide recommendations for future researchers to build upon. First, this study was an exploratory study conducted in a natural-setting design describing a relationship between residential involvement and academic success. Future research should consider ways to move closer to providing conclusions of causality by employing other quantitative techniques that account for selection bias, such as propensity score matching or considering innovative approaches to conduct a fully experimental study.

Second, this study categorized residential programs into three categories that were intentionally broad for the purposes of an exploratory study. This study has provided breadth but now depth is the next step. Results show that social involvement had the strongest relationship with persistence. Based on prior research (Arboleda et al., 2003, Mayhew, Rockenbach et al, 2016; Turley & Wodtke, 2010), the question is now which of the many social activities has the

biggest impact? Are there intermediate outcomes for residential social involvement? Does the social involvement mostly impact social integration, institutional commitment, both? Is it possible the stronger LLP benefits are as a result of stronger and more focused programming and stronger social integration from shared interests and purpose? In addition, developmental programs encompassed a broad range of programs that were neither academic nor social. For example, they included programs focused on increasing awareness and skills around social injustice, civic engagement, community service, enhanced personal wellbeing, etc. It is possible a more nuanced categorization might yield interesting findings. In addition, this study focused narrowly on three academic measures as outcomes. However, residential programs encompass a broad range of experiences and residential involvement likely influences a broad range of outcomes. For example, while recent research has a weaker view on the many beneficial outcomes of living on campus, it still clearly shows students living on campus displayed more positive attitudes towards openness to diversity and promoting inclusion / social justice (Graham, Hurtado, & Gonyea, 2018; Pascarella & Terenzini, 2005; Pike & Kuh, 2005; Zúñiga, Williams & Berger, 2005). Is that because of the informal social environment? Or has housing staff become more savvy, skilled and focused on raising the social consciousness of residents through more and better quality diversity/social justice programming? There are a variety of other student outcomes that future researchers should consider exploring.

A third area worthy of study is building on this study's limitation in treating all programs as comparable and equal. Almost four decades ago Astin (1984) asked "to what extent can high-quality involvement compensate for lack of quantity?" (p. 306). Unfortunately this study did not provide Astin an answer as it did not differentiate programs by the duration, the quality, or the potential level of impact of the involvement experience. However, it is certain there were large

discrepancies in the level of quality between programs. In addition, it is unclear why the resident chose to be involved in the program. What was their motivation for attending? What did they expect to get out of their involvement? Was their expectation met? Future research could explore residential involvement from a mixed-methods or qualitative perspective that could investigate the relationship between the quality level of programs and the quality of their impact.

A fourth area of future research lies in studying institutions with other programming models. This study was conducted at an institution that featured a mostly traditional programming model with slight touches of residential curriculum. But now this institution, like many other institutions across the United States, has shifted to a full residential curriculum approach. Would these findings be the same or different in four years at the same institution now using a different programming approach? Would professional planning of the program curriculum tied to deeper learning theory in a structured way across the entire academic year demonstrate involvement had a stronger or weaker relationship with first-year GPA, retention or persistence? Would academic or developmental involvement in a residential curriculum demonstrate a stronger relationship than social involvement? Considering the rapid adoption across U.S. institutions, verifying these results hold or increase at institutions with residential curriculum institution would be an important area to investigate.

A future study could also expand the scope. This study's population was from a single, selective, large, land-grant, state institution, which impacts generalizability. Future research should focus on extending these findings by conducting a multi-institution study to ensure these results were not unique or biased to the institution studied. In addition, it should include a variety of institution types to explore if the findings hold across types of institution or if the relationship differs by the type of the institution (ex: private versus public, four-year versus two-year, etc.).

For instance, many housing management systems now offer modules that provide program management and involvement tracking capabilities. An enterprising researcher may, in the very near future, find it feasible to further explore involvement in residential programs in a multi-institution study by tapping into such records.

In addition, this study focused only on first-time, first-year freshmen. This choice was made to provide some degree of population homogeneity. However, it would be worthwhile to extend the research to a broader and more diverse student base. How does residential involvement impact transfer students? Or sophomores, juniors, and seniors? Or a study could investigate involvement across the four collegiate years. How do students who move off campus differ from students who continue living on campus and experiencing housing programs for another one, two or three more years? How does that involvement change over time...both quantitative, qualitatively and categorically?

Finally, due to the low numbers of students who departed after the first year, this study was unable to explore the relationship freshman involvement in residential programs had with retention. Although it is likely that retention models similar to persistence, it will require another researcher to investigate and determine that finding.

## **Conclusion**

In the United States, there is a long-held tradition that the residential experience is an integral part of higher education's mission to holistically educate its students (Rudolph, 1962; Winston, 1993). Early research for students living on campus found significant support for positive influence on a variety of student outcomes and academic success measures (Astin, 1984; Astin 1985; Astin 1993; Pascarella & Terenzini, 2005). More recent studies have found living on campus has mixed and weaker relationships with those outcomes, suggesting living on campus

acts as an intermediate for increased social integration and involvement (Graham et al., 2018; Mayhew, Rockenbach et al, 2016; Turley & Wodtke, 2010). Living on campus is not a monolithic experience, as residential experiences vary widely based on how the student engages in the residential space. In particular, housing programs provide formal residential experiences through living-learning programs and residential programs. The literature has shown that resident involvement in living and learning communities has positive benefits across a variety of outcomes (Dahl et al., 2020, Inkelas et al., 2008, Mayhew, Dahl et al., 2016). For residential programs, “further research is necessary to parse out the sources of positive impact, further investigating... programming...to improve practice” (Graham et al., 2018, p. 265).

The main goal of this study was to examine differences in residential program involvement by student characteristics. In addition, it explored the relationship that involvement and type of involvement in residential programs had with the student outcomes of first-year GPA, retention, and persistence. Group differences were determined and demonstrated consistency with prior research on student involvement except for international students who had significantly lower involvement. Involvement in residential programs had a small but significant relationship with first-year GPA, with academic residential involvement having the strongest relationship among the three types but lacking consistency across both models.

Involvement in residential program also had a significant relationship with persistence to graduation, with social involvement demonstrating the most compelling relationship with persistence. Social involvement in residential programs likely provided rich opportunities for students to form social connections with their residential peers and creates positive social experiences that reinforced their sense of belonging and commitment to the institution. Institutions seeking to increase persistence should consider prioritizing social offerings in their

residential environment to increase student involvement, interactions with peers, and interactions with faculty/staff.

### **Postscript**

Since I submitted this dissertation for defense, universities across the nation have opened up and welcomed students back to campus all while under the threat of the global COVID-19 pandemic. Once initially thought to be an end of spring interruption, it is now apparent that COVID-19 has ushered in a new way of collegiate life. Many institutions remained closed and virtual-only this fall forcing hundreds of thousands (if not millions) of college students to remain at home and learn through a computer. For those institutions that reopened, the students arrived/returned to a shocking experience: a campus that was empty, impersonal and at times sterile. Unless the situation reverses significantly by the following academic year, U.S. colleges and universities may be transformed in ways similar to (if not more so than) what occurred during the world wars or the great depression. As a reminder, Astin (1999) articulated that an involved student was one who a) devoted considerable energy to studying, b) spent considerable time on campus, c) actively participated in student organizations and d) frequently interacted with faculty and peers. This year most students are navigating their collegiate experience with little (or no) time on campus, little (if any) opportunity to be involved in student organizations, and difficult (if not improbable) opportunity to interact with faculty and peers. I imagine it is Alexander Astin's worst nightmare come to life and, for the many student affairs staff working it, a professional challenge that has never been seen before.

In light of my findings, what might this mean in our new COVID-19 world? Without the institutional and peer connections that come along with physical presence, lower affinity for the institution may result in a great degree of student transience. On a macro-perspective this may be

a zero-sum outcome if students simply transfer between institutions. However, it may prove detrimental to the many institutions situated in small to medium sized towns and institutions with a heavy residential focus. Alternatively, this 18 month experience may set back the distance education movement by decades and drive students to more greatly value (for themselves and their children) a traditional collegiate experience of sitting in a class listening to their teacher and hanging out in a hall lounge socializing with similarly-aged peers. A drearier outcome is that institutions may see a dramatic decline in enrollment as students without social connection and strong affinity to an institution slip away in isolation and anonymity. Prior to this pandemic, there were already national conversations about the overvalued higher education and considerations for rethinking, recontextualizing or forgoing the experience. A large number of students may decide a college degree is not worth pursuing.

This study found involvement in residential programs had a positive relationship to first-year GPA and persistence. Yet today these experiences are partially if not entirely impacted by our pandemic environment. Guided by these findings, what are recommendations for institutions navigating the pandemic? Institutions that are closed or end up closing should consider how they might use their very talented housing professional, graduate and student staff. Institutions might consider assigning a group of freshman to an RA to provide regular one-on-one connections or to facilitate virtual small group gatherings to build peer connections. Also, there is a real risk of losing institutional knowledge for residential programming, activity and tradition. This might be avoided by saving the knowledge of returning RAs by building out lesson plans for “best of” programs from prior years.

Institutions that are open and housing students should focus their efforts on providing strong social connections and social activities. Housing staff should redirect time and energy to

social programming at the expense of developmental/academic programming. We should create programs for smaller groups, in person when safe and virtually if the activity or situation does not allow. Conducting these activities in smaller groups has a danger in isolating student or creating pocket cliques so housing staff need to be mindful of the social connections and lack thereof. It is possible sociograms may need to make a comeback! With reduced student organization involvement opportunities, RAs should spearhead “interest groups” to gather students around common interests. From virtual coffee chats on political events, to niche movie watching, to early morning yoga...there is a great opportunity in RAs hosting regularly scheduled, small-scale social opportunities for residents across their building/area (not just their residents).

Freshman socializing is difficult with masks and social distancing and peer pressure to not be safe appears to be stronger than peer pressure to be safe. Institutions may need to help students by formulating residential “social pods,” groups of students that agree to socialize together in a less safe manner because they’ve also agreed to socialize outside the group in very safe manners. This may have the unfortunate side effect of students becoming stuck in an incompatible friendship group and reduce the opportunity for students to broaden their perspective. Staff will need to fashion specific, intentional efforts to overcome these downsides. Institutions must ensure housing staff continue to build personal relationships with their students. As winter approaches and students in single rooms shut themselves up in their room, staff should use large lounge spaces as formal meeting locations for individual resident conversations.

Undoubtedly this moment may serve as an existential crisis for not only institutions of higher education that serve students but also the housing departments that house them. Our best hope is that it might reaffirm what was important and missed. Until the time when the pandemic

passes and assuming students yearn for “the good ole days”, housing professionals must provide, to the best of our abilities, rich opportunities for students to form social connections with their residential peers and create positive social experiences that reinforce their sense of belonging and commitment to the institution.

## References

- American College Personnel Association. (1996). *The student learning imperative: Implications for student affairs*. Washington, DC: Retrieved from <http://www.myacpa.org/files/acpas-student-learning-imperativepdf>
- Arboleda, A., Wang, Y., Shelley, M. C., & Whalen, D. F. (2003). Predictors of residence hall involvement. *Journal of College Student Development, 44*(4), 517-531.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*(4), 297-308.
- Astin, A. W. (1985). *Achieving educational excellence*. Jossey-Bass.
- Astin, A. W., & American Council on Education. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. American Council on Education.
- Astin, A. W. (1993). What matters in college. *Liberal Education, 79*(4), 4-15.
- Astin, A. W. (1999). "Involvement in learning" revisited: Lessons we have learned. *Journal of College Student Development, 40*(5), 587-98.
- Astin, A. W. (2003). Studying how college affects students: A personal history of the CIRP. *About Campus, 8*(3), 21-28.
- Baird, L. L. (2000). College climate and the Tinto model. In J. M. Braxton (Ed.), *Reworking the departure puzzle* (pp. 62-80). Vanderbilt University Press.
- Bean, J. P., & Eaton, S. B. (2000). A psychological model of college student retention. In J. M. Braxton (Ed.), *Reworking the departure puzzle* (pp. 48-61). Vanderbilt University Press.

- Berger, J. B. (2000). Optimizing capital, social reproduction, and undergraduate persistence: A sociological perspective. In J. M. Braxton (Ed.), *Reworking the departure puzzle* (pp. 95-124). Vanderbilt University Press.
- Blimling, G. S. (1993). New challenges and goals for residential life programs. In R. B. Winston & S. Anchors (Eds.), *Student housing and residential life: A handbook for professionals committed to student development goals* (pp. 1-20). Jossey-Bass.
- Blimling, G. S. (2010). *The resident assistant: Applications and strategies for working with college students in residence halls*. Dubuque, IA: Kendall Hunt Publishing Company.
- Blimling, G. S. (2015). *Student learning in college residence halls: What works, what doesn't, and why* (7<sup>th</sup> ed.). Jossey-Bass.
- Braxton, J. M., Doyle, W. R., Hartley III, H. V., Hirschy, A. S., Jones, W. A., & McLendon, M. K. (2014). *Rethinking college student retention*. Jossey-Bass.
- Braxton, J. M., Hirschy, A. S., & McClendon, S. A. (2004). Understanding and reducing college student departure. *ASHE-ERIC Higher Education Report*, 30(3).
- Bowden, B. (2014). *The impact of engagement on the academic success of black males at a predominantly white institution [Doctoral dissertation, Florida State University]*. Retrieved from [http://purl.flvc.org/fdu/fdu\\_migr\\_etd-8943](http://purl.flvc.org/fdu/fdu_migr_etd-8943)
- Bowers, A., & Inkelas, K. K. (2010). Living-learning programs: One high-impact educational practice we now know a lot about. *Liberal Education*, 96(2), 36-43.
- Brower, A. M., Golde, C. M., & Allen, C. (2003). Residential learning communities positively affect college binge drinking. *NASPA Journal*, 40(3), 132-152.
- Brower, A. M., & Inkelas, K. K. (2010). Living-learning programs: One high-impact educational practice we now know a lot about. *Liberal Education*, 96(2), 36-43.

- Brown, R. D., & Podolske, D. L. (1993). Strengthening programs through evaluation and research. In R. B. Winston, & S. Anchors (Eds.), *Student housing and residential life: A handbook for professionals committed to student development goals* (pp. 394-420). Jossey-Bass.
- Bryant, A. N., Jeung, Y. C., & Yasuno, M. (2003). Understanding the religious and spiritual dimensions of students' lives in the first year of college. *Journal of College Student Development, 44*(6), 723-745.
- Buckner, D. R. (1977). Restructuring residence hall programming: Residence hall educators with a curriculum. *Journal of College Student Personnel.*
- Cambiano, R. L., Denny, G. S., & DeVore, J. B. (2000). College student retention at a midwestern university: A six-year study. *The Journal of College Admissions, 166.*
- Campbell, C., & Cabrera, A. F. (2011). How sound is NSSE? investigating the psychometric properties of NSSE at a public, research extensive institution. *Review of Higher Education, 35*(1), 77-103.
- Carini, R. M., Kuh, G. D. & Klein, S. P. (2006). Student engagement and student learning: Testing the linkages\*. *Research in Higher Education, 47*, 1–32.
- Carle, A. C., Jaffee, D., Vaughan, N. W., & Eder, D. (2009). Psychometric properties of three new national survey of student engagement based engagement scales: An item response theory analysis. *Research in Higher Education, 50*(8), 775-794.
- Cataldi, E. F., Bennett, C. T., & Chen, X. (2018). *First-generation students: College access, persistence, and postbachelor's outcomes. NCES 2018-421.* National Center for Education Statistics.
- Chickering, A. (1974). *Education and indentity.* Jossey-Bass.

- Choy, S. P., & Associates. (2001). *Students whose parents did not go to college: Postsecondary access, persistence, and attainment*. National Center for Education Statistics, U.S. Department of Education.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. L. Erlbaum Associates.
- Cohen, J. (1992). "A power primer". *Psychological Bulletin*, 112(1), 155–159.
- College Board. (2018). 2018 concordance tables. Retrieved on February 22, 2019, from <https://collegereadiness.collegeboard.org/educators/higher-ed/scoring/concordance>
- Cook, B., & Hartle, T. (2011). Why graduation rates matter—and why they don't. *The Presidency*, (Spring/Summer).
- Creswell, J. W. (2014). *Research design : Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.
- CSEQ Assessment Program. (2007). The college student experiences questionnaire assessment program. Retrieved on February 28, 2019, from <http://cseq.iub.edu/index.cfm>
- Dahl, L. S., Duran, A., Hooten, Z. J., Stipeck, C. J., Youngerman, E., Mayhew, M. J. (2020). Investigating the Influence of Residential Learning Communities on Student Experiences. *Learning Communities Research and Practice*, 8(1), Article 6.
- Daugherty, T. K., & Lane, E. J. (1999). A longitudinal study of academic and social predictors of college attrition. *Social Behavior and Personality*, 27(4), 355-362.
- DesJardins, S. L., Ahlburg, D. A., & McCall, B. P. (1999). An event history model of student departure. *Economics of Education Review*, 18(3), 375-390.
- Dodge, L., & Kendall, M. E. (2004). Learning communities. *College Teaching*, 52(4), 150-155.
- Durkheim, E. (1897). *Suicide*. Translated by J.A. Spaulding and G. Simpson. The Free Press. Originally published as *Le suicide: Etude de sociologie*. (1897). Felix Alcan.

- Esquivel, S. L. (2011). *The factorial validity of the national survey of student engagement* [Doctoral dissertation, University Of Tennessee]. Available from [https://trace.tennessee.edu/utk\\_graddiss/965](https://trace.tennessee.edu/utk_graddiss/965)
- Evans, N. J. (1982). Developmental programming: A collaborative effort of residence life and counseling center staff. *Journal of College Student Personnel*, 23(1), 48-53.
- Fischer, M. J. (2007). Settling into campus life: Differences by race/ethnicity in college involvement and outcomes. *Journal of Higher Education*, 78(2), 125–161.
- Gathman, P. C., Grabowski, N. R., Carr, J. W., & Todd, M. K. (2017). Campus recreation use and health behaviors among college students in different academic disciplines. *Recreational Sports Journal*, 41(1), 87-99.
- Geiser, S., & Santelices, M. V. (2007). Validity of high-school grades in predicting student success beyond the freshman year: High-school record vs. standardized tests as indicators of four-year college outcomes. *Center for Studies in Higher Education*. University of California, Berkeley.
- Gellin, A. (2003). The effect of undergraduate student involvement on critical thinking: A meta-analysis of the literature. *Journal of College Student Development*, 44, 746-762.
- Gonyea, B., Fosnacht, K., Graham, P., Fassett, K. (2020, June 27-30). *Campus housing, student engagement and persistence* [Conference presentation]. ACUHO-I 2020 Virtual Summit, Retrieved August, 3, 2020, from <https://scholarworks.iu.edu/dspace/handle/2022/25644>
- Gordon, J., Ludlum, J., & Hoey, J. (2008). Validating NSSE against student outcomes: Are they related? *Research in Higher Education*, 49, 19-39.

- Graham, P. A., Hurtado, S. S., & Gonyea, R. M. (2018). The benefits of living on campus: Do residence halls provide distinctive environments of engagement? *Journal of Student Affairs Research and Practice*, 55(3), 255-269.
- Groves, R. M., Fowler, F. J., Jr., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2009). *Survey methodology*. Wiley.
- Haber, P., & Komives, S. R. (2009). Predicting the individual values of the social change model of leadership development: The role of college students' leadership and involvement experiences. *Journal of Leadership Education*, 7(3), 133-166.
- Harris, J. C., & BrckaLorenz, A. (2017). Black, White, and Biracial students' engagement at differing institutional types. *Journal of College Student Development*, 58(5), 783-789.
- Harwood, S. A., Huntt, M. B., Mendenhall, R., & Lewis, J. A. (2012). Racial microaggressions in the residence halls: Experiences of students of color at a predominantly White university. *Journal of Diversity in Higher Education*, 5(3), 159-173.
- Harwood, S. A., Mendenhall, R., Lee, S. S., Riopelle, C., & Huntt, M. B. (2018). Everyday Racism in Integrated Spaces: Mapping the Experiences of Students of Color at a Diversifying Predominantly White Institution. *Annals of the American Association of Geographers*, 108(5), 1245-1259
- Heaney, A., & Fisher, R. (2011). Supporting conditionally-admitted students: A case study of assessing persistence in a learning community. *Journal of the Scholarship of Teaching and Learning*, 11(1), 62-78.
- Hernandez, K., Hogan, S., Hathaway, C. & Lovell, C. D. (1999) Analysis of the literature on the impact of student involvement on student development and learning: More questions than answers?. *NASPA Journal*, 36(3), 184-197.

- Hettler, W. (1980). Wellness promotion on a university campus. *Family and Community Health Promotion and Maintenance*, 3(1), 77-95.
- Higher Education Research Institute. (2014). Cooperative institutional research program freshman survey. Retrieved from <http://www.heri.ucla.edu/cirpoverview.php>
- Hu, S., & Wolniak, G. C. (2013). College student engagement and early career earnings: differences by gender, race/ethnicity, and academic preparation. *The Review of Higher Education* 36(2), 211-233.
- Hurtado, S., Carter, D. F., & Spuler, A. (1996). Latino student transition to college: Assessing difficulties and factors in successful college adjustment. *Research in Higher Education*, 37(2), 135-157.
- Hurtado, S. S., Gonyea, R. M., Graham, P. A., & Fosnacht, K. (2020). The relationship between residential learning communities and student engagement. *Learning Communities Research and Practice*, 8(1), 5, 2020.
- Inkelas, K. K. & Associates. (2008). National Study of Living-Learning Programs: 2007 report of findings. Retrieved from <https://drum.lib.umd.edu/handle/1903/8392>
- Inkelas, K. K., Daver, Z. E., Vogt, K. E., & Leonard, J. B. (2007). Living-learning programs and first-generation college students' academic and social transition to college. *Research in Higher Education*, 48(4), 403-434.
- Inkelas, K. K., Jessup-Anger, J. E., Benjamin, M., & Wawrzynski, M. R. (2018). *Living-learning communities that work: A research-based model for design, delivery, and assessment*, Stylus.
- Jamelske, E. (2009). Measuring the impact of a university first-year experience program on student GPA and retention. *Higher Education*, 57, 373-391.

- Johnson, D. R., Soldner, M., Leonard, J. B., Alvarez, P., Inkelas, K. K., Rowan-Kenyon, H. T., & Longerbeam, S. D. (2007). Examining Sense of Belonging Among First-Year Undergraduates From Different Racial/Ethnic Groups. *Journal of College Student Development, 48*(5), 525-542.
- Joint Task Force on Student Learning. American Association for Higher Education, American College Personnel Association, and National Association of Student Personnel Administrators. (1998). *Powerful partnerships: A shared responsibility for learning*. Retrieved January 4, 2018, from <http://www.myacpa.org/pub/documents/taskforce.pdf>
- Kerr, K. G., & Tweedy, J. (2006). Beyond seat time and student satisfaction: A curricular approach to residential education. *About Campus, 11*(5), 9-15.
- Kohlberg, L. (1969). Stage and sequence: The cognitive-developmental approach to socialization. In D. Goslin (Ed.), (pp. 347-480). Rand McNally.
- Korobova, N. (2012). *A comparative study of student engagement, satisfaction, and academic success among international and American students [Doctoral dissertation, Iowa State University]*. Available from <https://lib.dr.iastate.edu/etd/12367/>
- Kuh, G. D. (2001). Assessing what really matters to student learning: Inside the national survey of student engagement. *Change, 33*(3), 10-17.
- Kuh, G. D. (2003). What we're learning about student engagement from NSSE: Benchmarks for effective educational practices. *Change, 35*(2), 24-32.
- Kuh, G. D. (2004). *The national survey of student engagement: Conceptual framework and overview of psychometric properties*. Indiana University Center for Postsecondary Research and Planning.

- Kuh, G. D. (2009). The national survey of student engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, (141), 5-20.
- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education*, 79(5), 540-563.
- Kuh, G. D., Kinzie, J. L., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature*. National Postsecondary Education Cooperative.
- Kuh, G. D., Kinzie, J. L., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2007). Piecing together the student success puzzle: Research, propositions, and recommendations. *ASHE Higher Education Report*, 32(5), 1-182.
- Kuh, G. D., & Love, P. G. (2000). A cultural perspective on student departure. In J. M. Braxton (Ed.), *Reworking the departure puzzle* (pp. 196–212). Vanderbilt University Press.
- LaNasa, S. M., Cabrera, A. F., & Trangsrud, H. (2009). The construct validity of student engagement: A confirmatory factor analysis approach. *Research in Higher Education*, 50(4), 315-332.
- Leafgren, F. (1993). Wellness as a comprehensive student development approach. In R. B. Winston, & S. Anchors (Eds.), *Student housing and residential life: A handbook for professionals committed to student development goals* (pp. 443-460). Jossey-Bass.
- Levine, A. (1993). Guerrilla education. In R. B. Winston, & S. Anchors (Eds.), *Student housing and residential life: A handbook for professionals committed to student development goals* (pp. 443-460). Jossey-Bass.

- Loberg, L. (2012). *Exploring factors that lead to participation in study abroad [Doctoral dissertation, University of California Las Angeles]*. Available from <https://escholarship.org/uc/item/6jg575sg>
- Lotkowski, V. A., Robbins, S. B., & Noeth, R. J. (2004). *The role of academic and non-academic factors in improving college retention: ACT policy report*. American College Testing Inc.
- Lucas, C. J. (1996). *American higher education: A history*. St. Martin's Griffin.
- Mayhew, M. J., Dahl, L., Youngerman, E., & Duran, A. (2016). *Study of Integrated Living Learning Programs: SILLP Full Report Fall 2016*. Retrieved from <https://www.acreosurvey.org/researchfindings/>
- Mayhew, M. J., Dahl, L., Hooten, Z., Duran, A., Stipeck, C., & Youngerman, E. (2019). *Assessment of Collegiate Residential Environments and Outcomes report*. Retrieved from <https://www.acreosurvey.org/researchfindings/>
- Mayhew, M. J., Rockenbach, A. B., Bowman, N. A., Seifert, T. A., Wolniak, G. C., Pascarella, E. T., & Terenzini, P. T. (2016). *How college affects students: 21st century evidence that higher education works*, Jossey-Bass.
- Mayhew, M. J., Selznick, B. S., Lo, M. A., & Vassallo, S. J. (2016). Take it personally: Incorporating personality traits as input covariates in college impact research. *Journal of College Student Development*, 57(7), 880-885.
- McCabe, S. E., Boyd, C. J., Cranford, J. A., Slayden, J., Lange, J. E., Reed, M. B., Scott, M. S. (2007). Alcohol involvement and participation in residential learning communities among first-year college students. *Journal of Studies on Alcohol and Drugs*, 68(5), 722-726.

- McFarland, J., Hussar, B., Wang, X., Zhang, J., Wang, K., Rathbun, A., Bullock-Mann, F. (2018). *The condition of education 2018 (NCES 2018-144)*. National Center for Education Statistics, U.S. Department of Education.
- Meiklejohn, A. (1932). *The Experimental College*. Harper & Brothers.
- Mertler, C., & Reinhart, R. (2016). *Advanced and multivariate statistical methods: Practical application and interpretation (6th ed.)*. Taylor and Francis.
- Metz, G. W. (2004). Challenge and changes to Tinto's persistence theory: A historical review. *Journal of College Student Retention: Research, Theory and Practice*, 6(2), 191-207.
- Milem, J. F. & Berger, J. B. (1997). A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of college student development*, 38(4), 387-400.
- Miller, M. G. (2013). *Using Astin's I-E-O model to explain the development of a culture of assessment: A case study of a four-year university [Doctoral dissertation, Southeastern Louisiana University]*. Available from <https://www.proquest.com/docview/1427344628>
- Morrill, W. H., Hurst, J. C., & Oetting, E. R. (1980). Dimensions of counselor functioning. *Personnel and Guidance Journal*, 52, 354-359.
- Murtaugh, P. A., Burns, L. D., Schuster, K. (1999). Predicting the retention of university students. *Research in Higher Education*, 40(3), 355-371.
- NASPA. (1997). *Principles of good practice*. Retrieved July 6, 2020 from [https://www.naspa.org/images/uploads/main/Principles\\_of\\_Good\\_Practice\\_in\\_Student\\_Affairs.pdf](https://www.naspa.org/images/uploads/main/Principles_of_Good_Practice_in_Student_Affairs.pdf)
- National Survey of Student Engagement. (2019a). *About NSSE*. Retrieved on March 21, 2019, from <http://nsse.iub.edu/html/about.cfm>

- National Survey of Student Engagement (2019b). *Engagement insights: Survey findings on the quality of undergraduate education annual results 2019*. Indiana University Center for Postsecondary Research. Retrieved from <https://scholarworks.iu.edu/dspace/handle/2022/25321>
- Nelson, A. (2001). *Education and democracy*. The University of Wisconsin Press.
- Nicpon, M. F., Huser, L., Blanks, E. H., Sollenberger, S., Befort, C., & Kurpius, S. E. R. (2006). The relationship of loneliness and social support with college freshmen's academic performance and persistence. *Journal of College Student Retention: Research, Theory & Practice*, 8(3), 345–358.
- North Carolina State University. (2019a). *About NC State*. Retrieved on March 18, 2018, from <http://www.ncsu.edu/about-nc-state/>
- North Carolina State University. (2019b). *About OIRP*. Retrieved March 18, 2018, from <https://oirp.ncsu.edu/about-oirp/>
- Office of Institutional Research and Planning. (2015). *Freshman profile: 10-year trend fall semester, first-time-in-college bachelor's degree students*. Retrieved on March 18, 2018 from NCSU Website: <https://report.oirp.ncsu.edu/Survey/reports/fy12/fy12intro.htm>
- Pace, C. R. (1982). *Achievement and the quality of student effort*. (Paper Presentation). Washington, DC: Department of Education.
- Pace, C. R. (1984). *Measuring the quality of college student experiences: An account of the development and use of the college student experiences questionnaire*. Higher Education Research Institute.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students : A third decade of research*. Jossey-Bass.

- Patel, V. (2019). Are students socially connected? check their dining-hall-swipe data. *Chronicle of Higher Education*, Retrieved from <https://www.chronicle.com/article/are-students-socially-connected-check-their-dining-hall-swipe-data/>
- Peltier, G. L., Laden, R., & Matranga, M. (2000). Student persistence in college: A review of research. *Journal of College Student Retention: Research, Theory & Practice*, 1(4), 357-375.
- Perry, W. G. (1970). *Forms of intellectual and ethical development in the college years: A scheme*. Rinehart and Winston.
- Pike, G. R. (1999). Assessment measures: The college student experience questionnaire, fourth edition. *Assessment Update*, 11(1), 8-12.
- Pike, G. R. (2006a). The convergent and discriminant validity of NSSE scalelet scores. *Journal of College Student Development*, 47(5), 550-563.
- Pike, G. R. (2006b). The dependability of NSSE scalelets for college- and department-level assessment. *Research in Higher Education*, 47(2), 177-195.
- Pike, G. R., & Kuh, G. D. (2005). First- and second-generation college students: A comparison of their engagement and intellectual development. *Journal of Higher Education*, 76(3), 276-300.
- Pike, G. R., Schroeder, C. C., & Berry, T. R. (1997). Enhancing the educational impact of residence halls: The relationship between residential learning communities and first-year college experiences and persistence. *Journal of College Student Development*, 38(6), 609-621.
- Porter, S. R. (2011). Do college student surveys have any validity? *Review of Higher Education*, 35(1), 45-76.

- Rendón, L. I., Jalomo, R. E., & Nora, A. (2000). Theoretical considerations in the study of minority student retention in higher education. In J. M. Braxton (Ed.), *Reworking the departure puzzle* (pp. 127-156). Vanderbilt University Press.
- Ross, T., Kena, G., Rathbun, A., Kewal-Ramani, A., Zhang, J., Kristapovich, P., & Manning, E. (2012). *Higher education: Gaps in access and persistence study, statistical analysis report*. NCES 2012-046, National Center for Education Statistics.
- Rudolph, F. (1962). *The American college and university, a history*. Knopf.
- Sanford, N. (1962). *The American college: A psychological and social interpretation of higher learning*. Wiley.
- Sawilowsky, S. S. (2009). New effect size rules of thumb. *Journal of Modern Applied Statistical Methods*, 8(2), 597-599.
- Schall, M. (1991). Drinking by university dormitory residents: Its prediction and amelioration. *Journal of Alcohol and Drug Education*, 36(3), 75-86.
- Schlinsog, J. A. (2010). *Engagement in the first year as a predictor of academic achievement and persistence of first-year students [Doctoral dissertation, University of Louisville]*. Retrieved from <https://ir.library.louisville.edu/etd/1271/>
- Schreier, B. A. (1995). Moving beyond tolerance: A new paradigm for programming about homophobia/biphobia and heterosexism. *Journal of College Student Development*. 36(1), 19-26.
- Schudde, L.T. (2011). The causal and effect of campus residency on college student retention. *The Review of Higher Education* 34(4), 581-610.

- Schuh, J. H., & Triponey, V. L. (1993). Fundamentals of program design. In R. B. Winston, S. Anchors & Associates (Eds.), *Student housing and residential life : A handbook for professionals committed to student development goals* (pp. 423-442). Jossey-Bass.
- Sciarra, D. T., Seirup, H. J., & Sposato, E. (2016). High school predictors of college persistence: The significance of engagement and teacher interaction. *The Professional Counselor, 6*(2), 189-202.
- Shapiro, D., Dundar, A., Huie, F., Wakhungu, P. K., Yuan, X., Nathan, A., & Bhimdiwali, A. (2017). *Completing college: A national view of student completion rates – fall 2011 cohort (signature report no. 14)*. National Student Clearinghouse Research Center.
- Singell, L., & Stater, M. (2006). Going, going, gone: The effects of aid policies on graduation at three large public institutions. *Policy Sciences, 39*(4), 379-403.
- Sirmans, M. (2015). *Effects of housing programs on student stress* [Unpublished master's thesis]. Abraham Baldwin Agricultural College.
- Smith, B., MacGregor, J., Matthews, R., & Gabelnick, F. (2004). *Learning communities: Reforming undergraduate education*. John Wiley & Sons, Inc.
- Snyder, T. D., de Brey, C., & Dillow, S. A. (2019). *Digest of education statistics 2017* (NCES 2018-070). National Center for Education Statistics, U.S. Department of Education. Retrieved on February 3, 2019, from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2018070>
- Snyder, T. D. (1993). *120 years of American education: A statistical portrait*. National Center for Education Statistics, U.S. Department of Education. Retrieved on February 3, 2019, from <http://purl.access.gpo.gov/GPO/LPS4172>

- Soria, K. M., & Taylor, L., Jr. (2016). Strengths-based approaches in college and university student housing: Implications for first-year Student retention and engagement. *Journal of College and University Student Housing*, 42(2), 60–75.
- Sparkman, L. A., Maulding, W. S., & Roberts, J. G. (2012). Non-cognitive predictors of student success in college. *College Student Journal*, 46(3), 642–652.
- St. John, E. P., Cabrera, A. E., Nora, A., & Asker, E. H. (2000). Economic influences on student persistence reconsidered: How can finance research inform the reconceptualization of persistence models? In J. M. Braxton (Ed.), *Reworking the departure puzzle* (pp. 29-47). Vanderbilt University Press.
- St. John, E. P., Paulsen, M. B., & Starkey, J. B. (1996). The nexus between college choice and persistence. *Research in Higher Education*, 37(2), 175-220.
- Staklis, S. (2016). *Employment and enrollment status of baccalaureate degree recipients 1 year after graduation: 1994, 2001, and 2009* (NCES 2017-407). National Center for Education Statistics, U.S. Department of Education. Retrieved on February 3, 2020, from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2017407>
- Stassen, M. L. A. (2003). Student outcomes: The impact of varying living-learning community models. *Research in Higher Education*, 44(5), 581-613.
- Stoecker, J., Pascarella, E. T., & Wolfle, L. M. (1988). Persistence in higher education: A 9-year test of a theoretical model. *Journal of College Student Development*, 29(3), 196-209.
- Terenzini, P. T., Pascarella, E. T., & Blimling, G. S. (1996). Students' out-of-class experiences and their influence on learning and cognitive development: A literature review. *Journal of College Student Development*, 37(2), 149–162.

- Tierney, W. G. (2000). Power, identity, and the dilemma of college student departure. In J. M. Braxton (Ed.), *Reworking the departure puzzle* (pp. 213–234). Vanderbilt University Press.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. University of Chicago Press.
- Titus, M. A. (2004). An examination of the influence of institutional context on student persistence at 4-year colleges and universities: A multilevel approach. *Research in Higher Education, 45*(7), 673-699.
- Tourangeau, R., Rips, L. J., & Rasinski, K. A. (2000). *The psychology of survey response*. Cambridge University Press.
- Tripp, P. (1977). *A programming model for residence hall populations* NASPA Journal.
- Turley, R. N. L., & Wodtke, G. (2010). College residence and academic performance: Who benefits from living on campus? *Urban Education, 45*(4), 506-532.
- U.S. Department of Education. (2018). *IPEDS 2017 institutional characteristics survey file*. Retrieved on February 3, 2019, from <https://nces.ed.gov/ipeds/use-the-data>
- U.S. Department of Education. (2019). Graduation and retention rates. Retrieved on February 3, 2019, from [https://nces.ed.gov/programs/coe/indicator\\_ctr.asp](https://nces.ed.gov/programs/coe/indicator_ctr.asp)
- Van Gennep, A. (1960). *The rites of passage*. Translated by M. Vizedon and G. Caffee. University of Chicago Press. Originally published as *Les rites de passage*. Nourry, 1909.
- Vare, J. W., Dewalt, M. W., & Dockery, E. R. (2003). Making the grade: Predicting retention in undergraduate teacher education. *Journal of College Student Retention: Research, Theory & Practice, 5*(3), 275-292.
- Vartanian, T. P. (2011). *Secondary data analysis*. Oxford University Press.

- Wekullo, C. S. (2019). International undergraduate student engagement: Implications for higher education administrators. *Journal of International Students*, 9(1), 320–337.
- Warner, M. J. (1985). Wellness: A developmental programming model for residence halls. *Journal of College and University Student Housing*, 15(1), 31-34.
- Winston, R. B. (1993). *Student housing and residential life: A handbook for professionals committed to student development goals*. Jossey-Bass.
- Zhao, C., & Kuh, G. D. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education*, 45(2), 115-138.
- Zúñiga, X., Williams, E. A., & Berger, J. B. (2005). Action-oriented democratic outcomes: The impact of student involvement with campus diversity. *Journal of College Student Development*, 46(6), 660–678.

**APPENDICES**



transferred/credited						
h. Level of support for my intended major	<input type="radio"/>					
i. Facilities and resources available	<input type="radio"/>					
j. Scholarships/financial aid available	<input type="radio"/>					
l. Campus visit prior to orientation	<input type="radio"/>					
m. Contact with a current student	<input type="radio"/>					
n. Contact with a faculty or staff member	<input type="radio"/>					
o. Contact with a graduate	<input type="radio"/>					
p. Letter from someone other than Admissions Office	<input type="radio"/>					
q. Attendance at a College Fair	<input type="radio"/>					
r. Publications from NC State	<input type="radio"/>					
s. Extracurricular opportunities	<input type="radio"/>					
t. Acceptance into the First Year College Program	<input type="radio"/>					
u. Campus Recreation programs	<input type="radio"/>					
v. Carmichael Complex Recreational facilities (e.g., gym, pool, fitness center, fields)	<input type="radio"/>					
w. Other (please specify)	<input type="radio"/>					

**5. Using the list from question 4, please select the single most influential factor in your decision to attend NC State.**

<input type="radio"/> Academic reputation	<input type="radio"/> Contact with a current student
<input type="radio"/> Cost	<input type="radio"/> Contact with a faculty or staff member
<input type="radio"/> Location	<input type="radio"/> Contact with a graduate
<input type="radio"/> Size	<input type="radio"/> Letter from someone other than Admissions Office
<input type="radio"/> Availability of program	<input type="radio"/> Attendance at a College Fair
<input type="radio"/> Recommended by a friend, family member, teacher, counselor, etc.	<input type="radio"/> Publications from NC State
<input type="radio"/> Number of hours transferred/credited	<input type="radio"/> Extracurricular opportunities
<input type="radio"/> Level of support for my intended major	<input type="radio"/> Acceptance into the First Year College Program
<input type="radio"/> Facilities and resources available	<input type="radio"/> Campus Recreation programs
<input type="radio"/> Scholarships/financial aid available	<input type="radio"/> Carmichael Complex Recreational facilities (e.g., gym, pool, fitness center, fields)
<input type="radio"/> Pack Promise Program	<input type="radio"/> Other
<input type="radio"/> Campus visit prior to orientation	



<b>2. Did you or your parents/guardians submit a FAFSA (Free Application for Federal Student Aid)?</b>
Yes
<input type="radio"/> No
Don't know

<b>3. Please indicate what, if any, kind(s) of financial aid you are receiving. (Mark all that apply.)</b>
<input type="checkbox"/> a. Grants and scholarships (aid you do not have to repay)
<input type="checkbox"/> b. Loans
<input type="checkbox"/> c. Other (VA benefits, ROTC, gifts from family members other than parents, etc.)
<input type="checkbox"/> d. No financial aid at all

<b>4. How satisfied were you with the NC State University financial aid process (the process for applying for aid, not the award amount)?</b>
<input type="radio"/> Very satisfied
Moderately satisfied
Moderately dissatisfied
Very dissatisfied
Not applicable (did not use)

## C1. PREPARING FOR COLLEGE

<b>1. How well do you think:</b>	<b>Very well</b>	<b>Somewhat well</b>	<b>Not very well</b>
a. your high school prepared you for college?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. you prepared yourself for college?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<b>2. What is your primary goal or objective for attending NC State?</b>
To obtain a bachelor's degree or certificate only
To obtain a bachelor's degree as preparation for graduate or professional school
To obtain a bachelor's degree as preparation for a new career or profession
To improve knowledge, technical skills, and/or competencies required for current profession
To take courses for personal interest
Other ( <i>please specify</i> )

<b>3. How certain are you about your choice of a college major?</b>
Very certain
Certain
Uncertain
<input checked="" type="radio"/> Very uncertain

**4. Below is a list of knowledge, skills, and personal development goals held by NC State for your undergraduate preparation. In the first column rate your current level of development of the goal, and in the second column rate how important the goal is to you.**

<b>General Education Goals</b>	<b>CURRENT LEVEL OF DEVELOPMENT</b>	<b>IMPORTANCE TO YOU CURRENTLY</b>
Writing effectively		
Speaking effectively (i.e., to large and small groups and making presentations)		
Listening attentively		
Comprehending written and oral information		
Creating and distributing information and knowledge using multiple communication forms, including text, video, graphics, etc.		
Using mathematical skills		
Applying scientific methods of inquiry		
Using technology appropriately		
Finding information using technology; and evaluating the value, reliability and validity of information		
Ability to plan and carry our projects independently		
Identifying a problem or concept and articulating its various components		
Effectively analyzing and evaluating evidence, arguments, claims, and beliefs		
Creating and being open to new and worthwhile ideas and perspectives		
Solving real world problems in ways that demonstrate imagination and creativity		
The capacity to engage with and respond to creative works (e.g., plays, music, movies, dance, visual arts, and other arts), as creator, designer, performer, or audience member; and to evaluate their significance		

<b>Personal Development Goals</b>	<b>CURRENT LEVEL OF DEVELOPMENT</b>	<b>IMPORTANCE TO YOU CURRENTLY</b>
Recognizing and acting on ethical principles		
Developing leadership skills		
Working effectively as part of a team		
Being involved in public and community affairs		
Developing and sustaining an active and healthy lifestyle		
Experiencing personal growth (e.g., self-discipline, responsibility, self-awareness)		
Ability to handle stress		
Time management		
Ability to reflect, review, self-regulate, and self-examine		
Taking responsibility for my own behavior		
Potential for success		
Viewing failure as an opportunity to learn		

<b>World View Goals</b>	<b>CURRENT LEVEL OF DEVELOPMENT</b>	<b>IMPORTANCE TO YOU CURRENTLY</b>
Understanding issues and problems facing the world	Rate development: <input type="text"/>	Rate importance: <input type="text"/>
Understanding and respecting diverse cultures, values, and perspectives	Rate development: <input type="text"/>	Rate importance: <input type="text"/>
Ability to work with people from diverse backgrounds	Rate development: <input type="text"/>	Rate importance: <input type="text"/>
Sensitivity to issues associated with gender equity	Rate development: <input type="text"/>	Rate importance: <input type="text"/>
Sensitivity to issues associated with racial equity	Rate development: <input type="text"/>	Rate importance: <input type="text"/>
Appreciating differences in sexual orientation	Rate development: <input type="text"/>	
Understanding the present as it relates to historical events and processes	Rate development: <input type="text"/>	Rate importance: <input type="text"/>
Understanding the commonality of human problems through a global perspective	Rate development: <input type="text"/>	Rate importance: <input type="text"/>

#### **D. NEW STUDENT ORIENTATION**

These first few questions ask you to think about the New Student Orientation program that you attended at NC State over the summer.

*Note: The following question was for students in the colleges of AGI, CED, COE, CNR, CHASS, COM, and FYC only (automatically handled behind the scene)*

<b>1a. My advising session(s) at New Student Orientation helped me to plan my fall schedule.</b>
Strongly agree
Agree
<input type="radio"/> Neither agree nor disagree
Disagree
Strongly disagree
Did not attend an advising session at orientation

*Note: The following question was for students in the colleges of Design, COT, PAMS, and CALS only (automatically handled behind the scene)*

<b>1b. The information and advice I received from my college/department <u>prior to attending orientation</u> helped me to plan my fall schedule.</b>
Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Did not receive any information/advice from college/department before orientation

<b>2. The advising session(s) at New Student Orientation provided me the opportunity to get answers to my academic questions. (If you would like to comment further, please do so in question 9 below.)</b>
<input type="radio"/> Strongly agree
Agree
Neither agree nor disagree
Disagree
<input type="radio"/> Strongly disagree
Did not attend an advising session during orientation

<b>3. I am satisfied with the attention I received during my college/department advising period.</b>
Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Did not attend an advising period with my college/department during orientation

<b>4. I know who to contact in my college with any academic questions or concerns.</b>
Yes, I know who to contact
No, I am unsure of who to contact

<b>5. New Student Orientation provided useful information about each of the following:</b>	<b>Strongly agree</b>	<b>Agree</b>	<b>Neither agree nor disagree</b>	<b>Disagree</b>	<b>Strongly disagree</b>
a. How academic advising works	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Academic requirements (ex. General Education Plan/Graduation Requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. NC State's expectation that students will graduate in a timely manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Resources to help you get involved on campus if you wanted to do so	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Safety and security on campus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Technology resources on campus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. How to use the MyPack Portal to register for classes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. The value of interacting with faculty and staff at NC State	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Expectations for NC State community members to act with civility and respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<b>6. As a result of my experience at New Student Orientation, I am excited to start my first semester at NC State.</b>
Strongly agree
Agree
Neither agree nor disagree
<input type="radio"/> Disagree
Strongly disagree

<b>7. The information I received during Orientation helped me feel better prepared to start my first semester at NC State.</b>
Strongly agree

Agree
Neither agree nor disagree
Disagree
Strongly disagree

**8. In thinking back on your Orientation experience, what topics or issues do you wish you had gotten more, or more useful, information about?**

**9. Please use this space to share any additional comments about New Student Orientation.**

## E. GETTING INVOLVED AT NC STATE

**PLEASE READ THESE IMPORTANT INSTRUCTIONS:** Unlike **ALL** the other questions in this survey, the information you provide in **this section** is **NOT** confidential. We are asking these questions to pro-actively help you get involved at NC State. For any/all activities below in which you indicate an interest, we will share your name and contact information with the person(s) on campus responsible for that activity so that they can send you information about the activity. We will **NOT** connect any of your responses to other questions in the survey with the information we provide to these people.

<b>1. In which of the following co-curricular programs/activities at NC State are you interested in learning about and/or participating? (Mark all that apply)</b>	
<input type="checkbox"/> Student Government	<input type="checkbox"/> Multicultural/Diversity programs/activities
<input type="checkbox"/> Student Judicial Board	<input type="checkbox"/> Gender issues (gender communication, sexual assault, domestic violence, etc.)
<input type="checkbox"/> Residence Hall Councils	<input type="checkbox"/> GLBT (Gay, Lesbian, Bisexual, Transgender) programs/activities
<input type="checkbox"/> Student Leadership Development (workshops, conferences, etc.)	<input type="checkbox"/> Healthy lifestyles issues (stress management, sexuality, substance abuse, etc.)
<input type="checkbox"/> Co-op (Cooperative Education) program	<input type="checkbox"/> Planning programs and services for children and families
<input type="checkbox"/> Study Abroad/National Student Exchange	<input type="checkbox"/> The Crafts Center programs/activities
<input type="checkbox"/> Volunteer Services	<input type="checkbox"/> Music Minor, Bands, Choirs, Orchestras, Chamber Music, Bagpipes, Drums
<input type="checkbox"/> ROTC	<input type="checkbox"/> Attending art exhibitions, meeting artists, museum internships
<input type="checkbox"/> Club Sports (Cycling, Baseball, Martial Arts, Ultimate, etc.)	<input type="checkbox"/> Theater participation as artist
<input type="checkbox"/> Fitness/Wellness (Group fitness classes, Yoga, Cycling, etc.)	<input type="checkbox"/> Theater participation as audience

<input type="checkbox"/> Indoor Open Recreation (Cardio Room, Weights, Basketball, etc.)	<input type="checkbox"/> Student Dance Companies
<input type="checkbox"/> Intramural Sports (Basketball, Flagfootball, Golf, etc.)	<input type="checkbox"/> The Center for Student Leadership, Ethics, and Public Service (CSLEPS)
<input type="checkbox"/> Outdoor Adventures (Trips, Equipment Checkout, Rock Climbing Workshops, etc.)	<input type="checkbox"/> Organizations/Clubs related to your major
<input type="checkbox"/> Social Fraternity/Sorority	<input type="checkbox"/> Pre-Law services/planning
<input type="checkbox"/> Student Media/Publications	<input type="checkbox"/> Pre-Health services/counseling
<input type="checkbox"/> Union Activities Board programs/activities (cultural programs, concerts, etc.)	

**2. Do you play any musical instrument(s)?**

No
Yes (please specify) _____

**3. Have you recently participated in a choral group in your school, community, or place of worship?**

No
Yes

**4. In which of the following pre-college programs did you participate? (Mark all that apply.)**

<input type="checkbox"/> Educational Talent Search
<input type="checkbox"/> Upward Bound
<input type="checkbox"/> GEAR UP
<input type="checkbox"/> Early College

**5. Please indicate which, if any, of the following religious organizations at NC State you are interested in learning about and/or participating in. (Mark all that apply.)**

<input type="checkbox"/> Alpha Omega	<input type="checkbox"/> Greek Impact
<input type="checkbox"/> Anno Domini	<input type="checkbox"/> InterVarsity Christian Fellowship
<input type="checkbox"/> Bridges International	<input type="checkbox"/> Islam and Dialogue Student Association
<input type="checkbox"/> Brooks Campus Ministry	<input type="checkbox"/> Life Changers College Ministry
<input type="checkbox"/> Campus Christian Fellowship	<input type="checkbox"/> Providence College Ministry
<input type="checkbox"/> Campus Crusade for Christ	<input type="checkbox"/> Self Knowledge Symposium
<input type="checkbox"/> Campus Outreach Raleigh	<input type="checkbox"/> The Lord's Generation
<input type="checkbox"/> Charisma Campus Ministry	<input type="checkbox"/> The Navigators
<input type="checkbox"/> Christians on Campus	<input type="checkbox"/> Uninhibited Praise

<input type="checkbox"/> East Triangle Church Campus Ministry	<input type="checkbox"/> United Student Fellowship Christian Ministry
<input type="checkbox"/> Grace Mission Ministries Manna	<input type="checkbox"/> University Bible Fellowship

6. What is your religious preference(s)? (Mark all that apply.)	
<input type="checkbox"/> Baptist	<input type="checkbox"/> Presbyterian
<input type="checkbox"/> Buddhist	<input type="checkbox"/> Protestant
<input type="checkbox"/> Christian Science	<input type="checkbox"/> Quaker
<input type="checkbox"/> Church of Christ	<input type="checkbox"/> Roman Catholic
<input type="checkbox"/> Eastern Orthodox	<input type="checkbox"/> Seventh Day Adventist
<input type="checkbox"/> Episcopalian	<input type="checkbox"/> United Church of Christ
<input type="checkbox"/> Hindu	<input type="checkbox"/> Other Christian
<input type="checkbox"/> Jewish	<input type="checkbox"/> Agnostic
<input type="checkbox"/> LDS (Mormon)	<input type="checkbox"/> Atheist
<input type="checkbox"/> Lutheran	<input type="checkbox"/> No religious affiliation
<input type="checkbox"/> Methodist	<input type="checkbox"/> Prefer not to answer
<input type="checkbox"/> Muslim	<input type="checkbox"/> Other (please specify)
<input type="checkbox"/> Nondenominational/Interdenominational	

Remember, we will share your contact information with the relevant offices for the activities listed above in which you have expressed an interest. No personally identifying information will be connected to your responses to any questions in any other sections of the survey.

## F. TECHNICAL CAPABILITIES

1. Please indicate whether or not you will be bringing a desktop and/or laptop computer for your own personal use with you to campus this fall.

	NO - WILL NOT HAVE	YES - WILL HAVE (please indicate what kind of operating system your computer has)						Don't know if Will have
		Don't know operating system	Windows	Linux	Mac	Other	Please specify 'other' operating system	
a. Desktop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Laptop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Will you be bringing a tablet (e.g., iPad) for your own personal use with you to campus

<b>this fall?</b>
No - will not have a tablet
Yes - will have an iOS tablet (i.e., iPad)
Yes - will have an Android tablet (i.e., Galaxy, Xoon, etc.)
Yes - will have a Windows tablet PC
Yes - will have some other tablet ( <i>please specify</i> )
<input type="text"/>
Don't know if will have a tablet

<b>3. Will you be bringing a cell phone and/or smartphone for your own personal use with you to campus this fall?</b>
No - will not have a cell/smartphone
Yes - will have a cell phone
Yes - will have an iOS smartphone (i.e., iPhone)
Yes - will have an Android smartphone
Yes - will have a Windows smartphone
Yes - will have a Blackberry smartphone
Yes - will have some other smartphone ( <i>please specify</i> )
<input type="text"/>
Don't know if will have a cell/smartphone

<b>4. Will you be bringing a television with you to campus this fall?</b>
Not applicable - will not be living on campus this fall
No - will not be bringing a television to campus
Yes - will be bringing a Standard Definition TV
Yes - will be bringing a High Definition TV
Don't know if will be bringing a TV

## **G. CONCLUSIONS: SOME BACKGROUND INFORMATION ABOUT YOU**

This final section of the survey asks you to provide us with a variety of information about yourself. Collecting data from all respondents on these questions is important so that we can better and more reliably report differences and similarities between people from different backgrounds.

We understand that you might be concerned about sharing some of this information. Please be **assured that the responses you provide are kept completely confidential**. Any identifying information will be separated from your answers. Results are reported using the average, or pooled answers to the questions, instead of the responses of any one individual. However, if you are uncomfortable answering a question, please feel free to skip it.

<b>1. What is the highest level of education you plan to complete?</b>
Bachelor's degree

Master's degree (e.g., MA, MS, MBA, MSN)
Doctoral degree (e.g., PhD, EdD, PharmD)
Doctor of Veterinary Medicine (DVM)

Medical degree (e.g., MD, DO, DDS)
Law degree (JD)
Divinity degree (e.g., M.Div., D.Min.)
Do not intend to complete any degree

<b>2. What is the highest level of education completed by your parent(s)/guardian(s)?</b>	
<b>Father/Male guardian</b>	<b>Mother/Female guardian</b>
Less than a high school graduate	Less than a high school graduate
High school graduate	High school graduate
Some college (no degree)	Some college (no degree)
2-year associate degree or certificate	2-year associate degree or certificate
4-year baccalaureate degree	4-year baccalaureate degree
Some graduate or professional coursework (no degree)	Some graduate or professional coursework (no degree)
Master's degree	Master's degree
Doctorate or other professional degree (medicine, dentistry, law, etc.)	Doctorate or other professional degree (medicine, dentistry, law, etc.)
Don't know / not applicable	Don't know / not applicable

<b>3. Which best describes the area in which you lived during high school?</b>
Rural area
Small town (20,000 people or less)
Moderate size city (20,001-60,000)
Large city (60,001-100,000)
Urban area (over 100,000 people)

<b>4. What is your veteran status? (Mark all that apply.)</b>
Not a Veteran
<input type="checkbox"/> Veteran
<input type="checkbox"/> Disabled Veteran
<input type="checkbox"/> Special Disabled Veteran
<input type="checkbox"/> Other Protected Veteran
<input type="checkbox"/> Newly/Recently Separated Veteran (3-year)

<input type="checkbox"/> Vietnam-Era Veteran
<input type="checkbox"/> Armed Forces Service Medal Veteran

<b>5. Do you self-identify as a member of the GLB (gay, lesbian, bisexual) community?</b>
Yes
No
Prefer not to answer

<b>6. Do you self-identify as a member of the transgender community?</b>
Yes, male to female
<input checked="" type="radio"/> Yes, female to male
No
Prefer not to answer

<b>7. For the year 2010, what was the amount of your parents' or guardians' combined pre-tax income? Please try to answer even if you are financially independent.</b>
\$30,000 or less
\$30,001 - \$50,000
\$50,001 - \$75,000
<input checked="" type="radio"/> \$75,001 - \$100,000
\$100,001 - \$150,000
\$150,001 - \$200,000
More than \$200,000

<b>8. What is the total number of people financially supported by your parents/guardians, including yourself and parents/guardians? (i.e., What is the size of your family household?)</b>
One
Two
Three
Four
Five or more

<b>9. How many of your parents' or guardians' dependents including yourself are currently enrolled in college?</b>
Only myself
<input checked="" type="radio"/> Two dependents

Three or more dependents
--------------------------

**10. During the time school is in session this coming year, about how many hours do you plan on working on- and/or off-campus?**

On-campus	Off-campus
None - I won't have a job on campus	None - I won't have a job off campus
1 - 10 hours per week	1 - 10 hours per week
11 - 20 hours per week	11 - 20 hours per week
21 - 30 hours per week	21 - 30 hours per week
31 - 40 hours per week	31 - 40 hours per week
More than 40 hours per week	More than 40 hours per week

**11. How long do you intend to take to complete your bachelor's degree at NC State?**

Less than 4 years
4 years
4 1/2 years
5 years
5 1/2 years
6 or more years
Do not intend to complete bachelor's degree at NC State

**12. After graduation, where do you plan to seek employment?**

In North Carolina only
Anywhere in the USA
Outside the USA only
Anywhere - location is not important
I do not plan to be employed immediately after graduation (e.g., attending graduate school, traveling)

### CONCLUSIONS: YOUR FINAL THOUGHTS

In this last section of the survey we would like you to provide some information in your own words. Your comments will be grouped with others talking about similar issues, and (after removing any personally identifying information) shared with the relevant offices on campus so that they may have a better understanding of how to make your time at NC State as productive and successful as possible. *However, in asking you to share your comments we must also inform you that our promise to maintain your confidentiality does not apply where the university has a legal duty to act on the information you provide, such as reports of criminal activity or unlawful harassment.*

**1. Please use this space to briefly describe what it is you are most excited about in coming to NC State.**

**2. Please use this space to briefly describe what, if anything, you are most concerned or nervous about in starting your first semester of college at NC State.**

For more information on the 2012 Incoming Freshmen Survey contact: Dr. Nancy Welchel, Associate Director for Survey Research University Planning and Analysis  
Box 7002  
NCSU  
Phone: (919) 515-4184  
Email:

[Nancy\\_Whelchel@ncsu.edu](mailto:Nancy_Whelchel@ncsu.edu)

u Posted: October 2012

Download a [PDF Version](#) of this report.

[Return to 2012 Incoming Freshmen Survey Table of](#)

[Contents Page](#) [Return to UPA Survey Page](#)

[Return to UPA Home Page](#)