The Effect of Learning Communities on Retention of Pell Grant Eligible Students in Private Higher Education

A doctoral dissertation presented
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Abstract

This study sought to define the current state of higher education for low socioeconomic status (SES) students, the effects of learning communities in higher education, and the benefits of more selective institutions. The study examined a primary research question that addressed the relationship between learning communities and integration level of low SES students at a high cost institution: To what extent does the participation in a learning community increase the level of integration for low SES students at a private, selective, high cost university? A group of 106 Pell Grant eligible freshmen at an institution fitting this description completed the Institutional Integration Survey (IIS) to answer this question (Pascarella & Terenzini, 1983). The survey results were analyzed for difference in integration level between respondents who participated in a learning community and non-participants. The results of this study found a statistically significant difference between the two groups in institutional integration level. This result indicated that low SES students who participated in a learning community were more integrated with the university than their peers who did not. The analysis found significant differences across the Peer Group Interaction, Academic and Intellectual Development, and Student Integration Subscales of the IIS. In the context of Tinto’s work, a better-integrated student across the academic and social systems is more likely to persist and retain. The results suggest institutions can increase low SES student integration and persistence via student participation in learning communities even when those students are faced with the hurdle of high institutional cost. These findings will help higher education administrators interested in influencing the integration level of low SES students in non-financial ways.

Keywords: learning communities, integration, retention, persistence
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Table of Contents

Abstract ...........................................................................................................................................3
Acknowledgments ...........................................................................................................................4
List of Figures .................................................................................................................................8
List of Tables ..................................................................................................................................9
Chapter One: Introduction .............................................................................................................10
  Statement of the Problem ..........................................................................................................10
  Significance of the Problem .......................................................................................................12
  Central Proposition and Research Questions .......................................................................13
    Central Proposition ...............................................................................................................14
    Research Questions ..............................................................................................................14
  Theoretical Framework ...........................................................................................................14
    Tinto Model of Student Departure .......................................................................................15
  Theoretical Critics ...................................................................................................................17
  Definitions of Key Terminology ..............................................................................................18
  Summary ...................................................................................................................................18
Chapter Two: Literature Review ...................................................................................................19
  Outline .......................................................................................................................................19
  The Advantages of More Selective Institutions ......................................................................21
  Barriers to Low SES Enrollment ............................................................................................23
    Low SES Student Enrollment Data .......................................................................................23
    Institutional Growth and Finances ........................................................................................25
    Cost Does Affect Post-Secondary Choice ..........................................................................26
    Institutional Barriers to Low SES Entry in Selective Institutions .......................................28
  Student Retention Theory and Institutional Levers ...............................................................32
  Summary ...................................................................................................................................36
Chapter Three: Research Design and Methodology ....................................................................38
  Research Purpose ....................................................................................................................38
  Research Problem ...................................................................................................................38
  Research Questions and Hypothesis .........................................................................................39
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of Statistical Findings</td>
<td>98</td>
</tr>
<tr>
<td>Implications</td>
<td>99</td>
</tr>
<tr>
<td>Implications for Practice</td>
<td>99</td>
</tr>
<tr>
<td>Reflections for Scholar Practitioners</td>
<td>102</td>
</tr>
<tr>
<td>Reason for Results</td>
<td>103</td>
</tr>
<tr>
<td>Future Research</td>
<td>104</td>
</tr>
<tr>
<td>Future Utilization of Survey Tool</td>
<td>104</td>
</tr>
<tr>
<td>Conclusion</td>
<td>105</td>
</tr>
<tr>
<td>RESOURCES:</td>
<td>107</td>
</tr>
<tr>
<td>Appendix A Informed Consent</td>
<td>120</td>
</tr>
<tr>
<td>Appendix B Survey Instrument</td>
<td>122</td>
</tr>
<tr>
<td>Appendix C Recruitment Email</td>
<td>128</td>
</tr>
<tr>
<td>Appendix D IRB Approval</td>
<td>129</td>
</tr>
</tbody>
</table>
List of Figures

Figure 1. A Longitudinal Model of Student Departure .................................................................16
Figure 2. French & Oakes Subscale Box Plot .............................................................................71
Figure 3. Pascarella & Terenzini Subscale Box Plot .................................................................72
Figure 4. Skew Equation .............................................................................................................73
Figure 5. T-Test Box Plot .........................................................................................................93
List of Tables

Table 1. Survey Response Demographics ................................................................. 43
Table 2. Summary of Subscales in the IIS ................................................................. 46
Table 3. IIS Survey Instrument .............................................................................. 49
Table 4. Cronbach Alpha Scores .......................................................................... 54
Table 5. Between-Subjects Factors Population ...................................................... 70
Table 6. Skewness and Kurtosis of Variables ......................................................... 74
Table 7. Multicollinearity Correlation Pascarella and Terenzini Subscales .......... 75
Table 8. Multicollinearity Correlation French and Oakes Subscales .................... 76
Table 9. Pascarella and Terenzini Subscale MANOVA with Outliers ................. 78
Table 10. Descriptive Statistics Pascarella and Terenzini MANOVA with Outliers 79
Table 11. Pascarella and Terenzini Subscale MANOVA without Outliers .......... 81
Table 12. Descriptive Statistics Pascarella and Terenzini MANOVA Outliers Removed 82
Table 13. French and Oakes Subscale MANOVA .................................................. 84
Table 14. Descriptive Statistics French and Oakes MANOVA ............................... 85
Table 15. Descriptive Survey Results .................................................................. 88
Table 16. T-Test Skewness and Kurtosis ............................................................. 93
Table 17. T-Test for Independent Samples Significance Values .......................... 94
Chapter One: Introduction

This study highlighted a significant issue facing American institutions of higher education and investigated whether high cost institutions can influence student persistence with strategies beyond providing additional financial assistance. This study examined the problem of practice, defined the growing significance of the problem, and analyzed one possible solution to the problem. The theoretical framework, which provided the lens for this study, was reviewed along with the primary research question and hypothesis that was investigated.

Statement of the Problem

Concerning enrollment trends across socioeconomic factors, lines appear to have emerged within higher education over the last two decades. Specifically, there has been a downward trend for the enrollment of low socioeconomic groups in institutions of greater academic selectivity; a trend that suggests increased social stratification across socioeconomic lines. This has occurred even though institutions of higher education have seen massive growth in overall enrollment (NCES, 2016, Table 303.10). Serving as a baseline of information for this trend, Frempong, Ma, and Mensah (2012) found that socioeconomic status (SES) directly affected post-secondary attendance. Concurrently, over the parallel period from 2001–2010, Knapp, Kelly-Reid, and Ginder (2010) detailed that the price of college attendance over that time rose anywhere from 30% to 47% dependent on the type of institution. While cost is one factor under investigation by current literature, other studies (Bastedo & Jaquette, 2011; Davis 2003; Haveman & Smeeding 2006; Page & Scott-Clayton, 2016) have suggested that institutional practice may have also played a direct role in these enrollment trends. Even after low SES
students have overcome the hurdle of enrolling in college, they are met with the challenge of remaining enrolled through to completion and have higher rates of attrition than do their peers (Chen & DesJardins, 2008).

This study examined factors that may affect low SES student enrollment persistence at a private, nonprofit, selective university. This study sought to investigate the following question: “Can a high cost institution increase the integration level of its low SES students?” Tinto’s (1975) theory of student departure has been heavily cited and pervades the institutional practice of retention initiatives (Santos-George, 2012). However, in an era of rapid post-secondary cost inflation, is there anything institutions have done to effectively to keep low SES students enrolled aside from increased financial assistance? The researcher of this study sought to investigate the significance of the influence of institutional integration for low SES students on combating student attrition and provide awareness of new information on this topic to aid the gaps in the literature. Previous studies by researchers on this issue have found positive outcomes for learning communities as a means of increased institutional integration and student persistence (Andrade, 2008; Baker & Pomerantz, 2001; Blackhurst & Akey, 2003; Braxton & Mundy, 2002; De La Franier et al., 2016; Goldman, 2012; Hotchkiss, Moore, & Pitts, 2006). Nevertheless, the findings lacked the careful assessment on the effect of learning communities on the integration and retention of low SES students. Many racial and ethnic groups have been studied, but low SES students can be from any racial or ethnic group and they cannot be grouped together into one learning community of peers. This study focused on the effect of learning communities on this population using freshmen enrolled at a selective, private, nonprofit, urban university and questioned whether institutional retention initiatives make a difference for students of low SES or if socioeconomic status is too strong a factor in student persistence.
With a completed examination on the effect of institutional retention efforts on low SES students, evidence was gathered on what efforts institutions can undertake to increase student success for this population beyond addressing direct cost. This information will enable institutions to develop a better understanding of the influence of their practice and efforts to achieve desired outcomes, and administrators will be able to weigh future decisions and initiative implementation to achieve the greatest possible outcome.

**Significance of the Problem**

Researchers have studied the socioeconomic stratification that exists in higher education for approximately the last 40 years (Bastedo & Flaster, 2014; Bastedo & Jaquette, 2011; Boudon, 1974; Hauser 1970; Hearn, 1991; Kingston, 1990). This research has increased over the most recent 15 years along with the sheer number of post-secondary institutions and, therefore, the number of students receiving undergraduate degrees. However, these increases do not appear to have correlated to increased access for students of low SES into moderately selective or very selective institutions (Alon, 2009; Davis, 2003; Davis, Bauman & USCB, 2013; Karen, 2002; Kim, 2010; Shavit, Arum, Gamoran, & Menachem, 2007). The increased access, which students of low SES have seen over this period, has mostly come through community college expansion and by increased enrollments in for-profit institutions (Davis et al., 2013; Dougherty & Kienzl, 2006; Shavit et al., 2007). This means that on a percentage basis, for the low SES student group, there has been no increase in accessibility to the most selective institutions in our educational system. Subsequently, as the cost of higher education has risen and access has remained stagnant for these students, low SES student equity in higher education is clearly still a distant goal.

Accessibility and success in selective institutions in the United States is important from a
student perspective due to its correlation with increased wages and higher quality jobs post-
graduation (Behrman, Rosenzweig, & Taubman, 1996; Brewer, Eide, & Ehrenberg, 1999; Long,
1999). From an institutional perspective, a diverse student body makeup across multiple factors,
such as race, gender, and SES, are important to the educational quality of the university
experience (Gurin, Dey, Hurtado, & Gurin, 2002; Pascarella, Edison, Nora, Hagedorn, &
Terenzini, 1996). Institutions have invested resources to increase retention and graduation rates
across a variety of different student factors, but it is unknown if these efforts have the same
outcomes for students of low SES background. Reviewing how institutional practices and
initiatives, such as the creation of learning communities, has influenced student success for these
students will shed further light on the institutional role in increasing student success, even in the
face of rising costs. If institutional administrators do not address how their practices affect these
students, they are missing an opportunity to increase important metrics, including retention and
graduation percentages. Additionally, with the large federal and societal investment in higher
education, it should be the goal of all non-profit institutions to decrease social stratification and
increase social equity for the common good. Retaining and graduating a greater number of low
SES students from selective institutions would help achieve this good and increase social
mobility for these students.

Central Proposition and Research Questions

To add additional validation to proven student persistence techniques, the research
problem of practice sought to validate these techniques for additional populations, specifically
the population of low SES students in an era of continuously increasing cost in higher education.
Thus, this study investigated if the increased integration effect of learning communities can work
for low SES students in a high cost institution.
Central proposition. The first- to second-year retention rate of Pell Grant eligible students at the institution under study is on average 4% points lower than for non-Pell Grant eligible students. Pell Grant eligible students are students who receive a federal grant due to a calculation of their family need and the institutional cost. Pell Grant eligible students are representative of the most financially needy students at the institution under study. The research presented here sought to identify the correlations between learning communities and institutional integration level for these students. The purpose of studying low SES students is to better understand how they respond to significantly increasing costs in higher education today and if institutions can do anything besides cutting cost to increase the success rate of these students.

Research Question: This research study will seek to answer the following central research question:

Q1: To what extent does the participation in a learning community increase the level of integration for low SES students at a private, selective, high cost university?

Null Hypothesis: For low SES students, there is no statistically significant correlation between learning community participation and level of integration. H0: Opre – Opost = 0.

H1: Learning community participation will increase low SES student integration at a private, four-year, selective, high cost institution.

Theoretical Framework

Student persistence research has been a serious field of study for the last 40 years. Vincent Tinto’s 1975 seminal work introduced the idea of student engagement and experience with the university as potentially influencing a student’s decision to leave voluntarily prior to graduation. Tinto was not the only researcher of this time period investigating the student drop out occurrence; several other researchers attempted to model the phenomena (Bean, 1980; Panos
& Astin, 1968; Spady, 1970). Specifically, Bean (1980, 1982) and Astin (1984) created alternative models of student retention. A primary difference between the theories was found in the underlying theories that these models were built on. Tinto’s (1975) theory was built primarily on Durkheim’s (1975) work on suicide, whereas Bean (1980) built his model on studies of turnover in office settings (Aljohani, 2016). The voluntary nature of removing oneself from a society, as articulated by Tinto (1975), such as in suicide or from a university, is a key theoretical difference in why Tinto’s theory was the correct theoretical lens for this study. Such a lens makes it plausible to hypothesize that if students are further integrated into the university through initiatives such as learning communities, they will be less likely to leave voluntarily.

**Tinto’s model of student departure.** Tinto’s (1975) theory of student departure and his further revision in 1993 was used to frame the study. This study was approached in the transformative paradigm and Tinto supplied the theoretical lens to understand why students leave college before completion and what factors institutions can influence to retain more of these students. Tinto’s (1993) updated model suggests that when a student chooses to leave college, they have come to that decision over a period that includes both internal and external factors. This longitudinal component of Tinto’s (1993) theory comes from adapting Van Gennep’s (1960) rites of passage work. Van Gennep (1960) argued that there are three stages of departure, separation, transition, and incorporation. Tinto added these stages and argued that a student retaining or leaving was a measure for how successfully that student traversed these stages and reached incorporation into the community (Aljohani, 2016).

Tinto’s theory of student departure included six constructs, which can be considered in a longitudinal fashion over time as a student moves from left to right through the model with the potential outcome of student departure (Figure 1).
Within the model, Tinto argued that institutions could influence the two outlined areas within the institutional experience construct (academic and social systems). These two areas represent two systems of integration into the institution that can be influenced by the student experience with the institution. Specifically, institutions can affect the nature of student experiences at the institution, which influence the student level of integration at that institution. Subsequently, Pascarella and Terenzini (1983) designed the Institutional Integration Scale to measure these two systems. Tinto’s (1993) model suggested higher levels of student integration would lead to lower likelihood of student departure. Theoretically, a learning community can influence all four of the areas Tinto defined within the student experience: academic performance, faculty/staff interactions, extracurricular activities, and peer group interactions. However, it is not clear which of these areas account for their overall ability to influence student
integration (Andrade, 2007). This study did not seek to resolve this issue. Rather, this study sought to find if students of low SES background can have their level of integration increased by participating in a learning community, and if that increased integration is enough to overcome the challenges of retaining low SES students to their second year at a significantly increased level.

**Theoretical Critics**

Tinto’s (1975) original work was completed over 40 years ago, and though it has remained one of the pre-eminent theories on student persistence and attrition, that length of time allows for significant review and criticism to develop. In response to some of these criticisms, Tinto added more evidence to his model in further work (Tinto, 2006a, 2006b). Metz (2004) provided a historical view of the critiques and subsequent revisions of Tinto’s theory of student departure. One of the earliest criticisms that Tinto addressed in his 1987 revision surrounded the idea that pre-enrollment factors affect student persistence and retention. Criticism of Tinto’s overall theory that remained more persistent highlighted the lack of inclusion of non-residential colleges, two-year colleges, and potentially the specific factors that minority students face in the transition to college (Nora, 1990; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996; Tierney, 1992). However, these specific criticisms do not directly apply to the proposed study of first year freshmen within this study. Although it is highly likely that minorities were within the survey respondents, they were not directly measured by the proposed research. However, Metz (2004) stated that gaps existed in the research literature around Tinto’s theory and thus the predictive nature of it. Metz (2004) stated that Tinto added five theoretical bases to his theory in 1987, including economic factors. However, in sharp criticism, Braxton (2000) suggested further development of an economic theoretical construct was needed. While this research did
not attempt to create a theoretical construct, it did examine a specifically economically challenged population in a particularly economically challenging institution for students.

**Definition of Key Terminology**

**Low Socioeconomic Status Students:** Pell Grant eligible students enrolled at the study site.

**Retention:** A student enrolled in classes on day 1 of the fall quarter of his/her sophomore year at the same institution.

**Attrition:** Student non-enrollment on day 1 of the fall quarter of his/her sophomore year at the institution. Retention and attrition are direct opposites in their meaning and are therefore used interchangeably depending on the context of the sentence.

**Persistence:** Student continued enrollment at an institution.

**Summary**

This study aimed to shed light on the unknown ability institutional initiatives may have on increasing retention of low SES students and proposed that student participation in learning communities can positively influence student integration level for low SES students even at very expensive institutions. This study hypothesized that even in the face of financial difficulty institutions could increase student retention with means outside of simply providing students with additional funding. This information would enable institutional administrators at a local level to increase the success of low SES students at their own institution.
Chapter Two: Literature Review

To elucidate the area proposed within this study, a broad review of the literature was required. First, an examination of socioeconomic stratification in higher education needed to be undertaken to explicate the problem. Second, an exploration of the negative consequences of such stratification on students of low socioeconomic background stressed the extent of this problem. Finally, once the problem of socioeconomic stratification was outlined, a review of retention theory and research surrounding Tinto’s (1975) theory of student departure was necessary to explain the application of the theory to address the problem and conduct this research.

Outline

Socioeconomic stratification within, and resulting from, the American institution of higher education has been studied for approximately 40 years. Research in this area began to grow in earnest in the early 1990’s, and it became a serious area of concern with the post-secondary expansion in the 2000’s. This study investigated low SES student integration levels at a private, selective, not for profit, four-year institution. Accessibility to and successful continued enrollment within institutions of greater selectivity in the United States is important from a student and societal perspective due to its correlation with increased wages and higher quality jobs post-graduation (Behrman et al., 1996; Brewer et al., 1999; Long, 2007). Despite overall institutional expansion in the most recent decades, selective institutions have not expanded low socioeconomic student enrollment percentage and, according to some, have decreased it (Bastedo & Jaquette, 2011; Davis, 2003; Davis et al., 2013). What this means for low SES students is that higher education expansion has meant no increase in accessibility to selective colleges and universities. First, this review will articulate why it is advantageous for students to
attend and graduate from selective institutions. Next, data surrounding the enrollment rates of low SES students in higher education will be discussed in juxta-position with the post-secondary expansion. In conjunction with this, it will be shown that this period of expansion differs from those of the past as more students are attending higher education and enrollment rates of low SES students at selective institutions are falling. This drop in the rate of low SES student enrollment is correlated to a significant cost increase that has accompanied this particular period of institutional expansion. Additionally, beyond the correlation of cost and the decrease in enrollment rates of low SES students, some research has pointed to institutional policy and practice as a possible driver of further stratification. Institutional practice of some colleges and universities are being driven from a perspective of staying financially solvent and with consideration to institutional rankings. However, these practices are adding to the sum of the force of social stratification imparted by these institutions on society. The practices and policies that have guided these institutions through the post-secondary education boom over the last two decades, such as directed application of institutional aid, must be reviewed to understand the retention and persistence of low SES student enrollment.

With so many barriers to entry for low SES students, it is imperative to identify ways in which institutions can retain these students and increase their likelihood of success. Student retention and attrition research has produced complex theories and tangible actions institutions can perform to affect a specific population. Tinto’s (1993) theory of student departure served as the theoretical lens for this research and is discussed in conjunction with Pascarella and Terenzini’s (1983) theory of student integration to understand the particular lever of a learning community. Finally, prior research supporting the effectiveness of learning communities on integration level of various student groups are discussed, as this research sought to define if some
of these effects can be extended to low SES students in private, selective higher education.

The Advantages of Selective Institutions

Indeed, distinct advantages exist for students attending the top nonprofit institutions of high selectivity within the United States. In turn, these advantages demonstrate the existence of the problem behind stratification across institutional types; in particular, if the current trends continue and two forms of higher educational institutions emerge, one for those who are economically able and one for those who are not, the stratification of future generations will become entrenched. The advantages gained from attending selective, nonprofit institutions of higher education reside in better employment, higher job satisfaction, and faster employment upon graduation. To justify the sentiment that there is a problem with the increased dichotomy across socioeconomic lines within our nation's institutions, the proposed study must address why it is beneficial to attend selective institutions (Behrman et al., 1996; Brewer et al., 1999; Long, 2007, 2010).

Evidence suggests that not only do students persist better at selective schools, but they also see greater returns in wages, higher quality employment positions, and a greater likelihood of attending graduate school (Behrman et al., 1996; Brewer et al., 1999; Long, 2006). These outcomes are key in social mobility for students entering higher education from low socioeconomic backgrounds. Moreover, students with the academic ability to achieve at selective institutions would reap even more benefits than students coming from high SES households would simply due to the increased potential for social mobility. Long (2010) extended his 2006 study and examined three cohorts of students between the years 1972 and 2000. Long (2010) not only found support for the previously stated results but also found:

Controlling for other variables, attending a higher quality college raises the likelihood of
earning a bachelor’s degree, raises hourly and annual earnings, and leads to a delay in marriage and childbearing. These effects of college quality have been increasing over time. Policymakers must become even more acutely aware of the importance of access to high-quality higher education given the apparent demands of the economy for high-skilled workers and the non-market consequences of educational quality. (p. 346) The key take-away from the updated Long (2010) study is that across his multiple cohorts of national student datasets, the “effects of college quality are increasing over time” (p. 346). In other words, as more people are attaining higher levels of education over time, the individuals receiving higher quality educations are seeing more of a return on their investment. Presenting this fact against data that has shown low socioeconomic enrollment numbers decreasing in selective four-year institutions gives credence to the argument that the social stratification of the United States is in fact increasing.

The data concerning the benefits of attending higher quality or selective institutions is not without its detractors. Some have argued that the sample is biased or that the benefit found from attending these institutions is not significant. Dale and Krueger (2002) bridged this space in the literature after their results indicated that there is not a difference in earnings between students of equal ability who attended selective schools from those who attended less selective institutions. However, this differed according to Dale and Krueger (2002) for one group, those students who come from low-income families. This caveat means that even within studies aimed at discrediting the validity of positive effects gained by attending selective institutions, positive effects remained for students of low socioeconomic background. Therefore, it is of clear importance for these students to gain social mobility and that they not be priced out of selective nonprofit institutions.
Barriers to Low SES Student Enrollment

The review of literature highlighted multiple barriers to low SES student enrollment, especially in institutions of increasing selectivity. These barriers exist both internal to institutions and externally as well as with respect to the students themselves (Page & Scott-Clayton, 2016). Understanding the barriers to enrollment and persistence in higher education for low SES students was critical to the value of this research.

Low SES student enrollment data. Early in the history of post-secondary education in the United States, higher education was exclusively reserved for an extremely small percentage of the population who were predominantly wealthy elites. This changed with the Morrill Act of 1862, which first cleared the way for “people’s colleges” and mass higher education (Martin, 2001, p. 377). This was the very first acknowledgment that higher education within the United States should be for a large segment of the population. Furthermore, the Act acknowledged the belief that the capitalist society built within the United States would benefit from an educated citizenry (Martin, 2001). The Morrill Act eventually led to the expansion of the state universities, which would happen over the next 100 years. After the Morrill Act, the next great expansion in access for higher education in the United States took place in the mid 1960’s with the passage of the Higher Education Act of 1965 and other components of Lyndon Johnson’s Great Society (Levinson, 2005). However, it was not long after this point that researchers began to investigate the dichotomy that was forming in the American higher educational system. Early research (Boudin, 1974; Hauser, 1970; Mare, 1981) was centered on the social mobility created by the educational system within the United States, which became an appropriate and burgeoning area of research post-WWII. The research seemed to show a tendency for social mobility to be tied to parental work status and parental educational achievement. However, for the purpose of
this review, these studies represented the beginning of understanding that higher educational choices were closely tied to one’s social class. Although there had been massive growth in higher education access seen through the Morrill and Higher Education Acts, there was an emerging differentiation in the quality of those institutional choices.

Kingston (1990) and Hearn (1991) advanced this argument by directly tying social class and, specifically, SES as determinants of institutional type. Hearn’s (1991) argument was seminal in this area of research and was the starting point for the more specific argument of this particular review. Beyond simply the idea of SES being a strong indicator for postsecondary institutional type, Hearn’s (1991) work specified how this area would be studied over the next 20 years. Hearn (1991) used National Educational Longitudinal Study (NELS) results to produce his findings, and this became the standard practice for researchers investigating the socioeconomic stratification in and around America’s higher education system. In the timeline of research on the subject, these texts came at the very beginnings of the third, and most recent, massive expansion in higher education that brought us to where we are today. Hearn’s research was extended directly by Karen (2002) who found specifically that low socioeconomic background, when controlling for all academic factors, directly affected post-secondary destination. Beyond Karen (2002), many studies (Bastedo & Jaquette, 2011; Dougherty & Kienzl, 2006; Haveman & Smeeding, 2006; Lovenheim & Reynolds, 2011) went on to use the NELS data as well as other nationally representative data sets. Almost all found an increasing, or, at the very least, a steady rate of stratification across socioeconomic background by institutional type in the United States.

Prior research has shown that the trend for low SES student enrollment was a concern. Many studies that used national data sets showed the downward trend for low SES student
enrollment over the last 20 years as well as studies that demonstrated the relation between institutional practice and low SES student enrollment in higher education. These studies suggested that it was getting harder for low SES students to enroll in selective higher education as a whole, and that the institution of higher education in the United States was becoming further stratified despite the high degree of total national enrollment in postsecondary educational programs (Alon, 2009; Baum, Ma, & College Board Advocacy & Policy Center, 2011; Curs, 2008; Davis, 2003; Davis et al., 2013; Haveman & Smeeding, 2006; Kim, 2010). This study intended to investigate a selective, high cost of attendance institution where approximately 25% of the annual incoming freshmen class was Pell Grant eligible.

**Institutional growth and finances.** This third and most recent expansion in higher education resulted in a change that did not accompany the Morrill Act or the community college expansion of the 20th century; in particular, this expansion saw a massive growth in the cost of all forms of higher education within the United States. As previously stated, according to the U.S. Department of Education, National Center for Educational Statistics (NCES), total postsecondary enrollment increased 32% from 2001 to 2011 (NCES, 2016). This institutional enrollment growth, when reviewed closely, revealed a myriad of causalities. First, there is the most obvious reason for college-age population growth. According to the NCES “Projection of Education Statistics to 2021” (2016), there was a 22% increase in annual high school graduates over the period of 1997 to 2009. Additionally, there has been a drastic increase in the attendance of ‘non-traditional’ college-age students, heavily represented by those in the bracket of 25-34 years of age, as well as the attendance of minority populations within two-year public schools (Davis et al., 2013; NCES, 2016).

Concurrently, over the parallel period from 2001–2010, Knapp et al. (2011) explained
that the price of college attendance rose anywhere from 30% to 47% depending on type of institution. These facts amounted to both a massive increase in total postsecondary enrollment over the last 20 years and an equally massive increase in real tuition cost over the exact same period.

**Cost does affect post-secondary choice.** Previous research clearly suggested that the cost of attendance influenced the choice students made when deciding where to go to college. Lovenheim and Reynolds (2011) investigated college decision making across a gradient of income versus ability. The authors examined these two factors against attendance at four-year institutions, two-year institutions, and deciding not to attend at all. They were able to isolate and review a multitude of groups based on gender, race, and SES, against income and ability. Not surprisingly, Lovenheim and Reynolds (2011) found that ability and income affect each group differently; therefore, the decision-making process changes depending upon what type of student is being analyzed. Lovenheim and Reynolds took data from the 1979 National Longitudinal Survey of Youth (NLSY) and the 1997 cohort. Because of the makeup of the survey, the authors were able to detail many factors for participants and followed those participants for an extended period. They were also able to go into more depth than simply looking at income and ability and looked at college choices across gender, which developed into an important differentiation. Lovenheim and Reynolds (2011) hypothesized:

That due to rising college costs and declining real value of federal financial aid… college has become increasingly expensive for middle and low-income students. Thus, highly academically prepared students from middle-income families who are ineligible for most federal financial aid programs may be more likely over time to enter the postsecondary education system at a community college. (p. 72)
Lovenheim and Reynolds (2011) took this a step further when they stated that traditionally when students attend community colleges, they are less likely to receive a bachelor’s degree, and that an increase in community college attendance by high-ability, low-income students could have potentially great social costs represented in a decrease in the skilled educated labor force. Additionally, Lovenheim and Reynolds (2011) found that two groups within their study were affected predominantly by the increasing tuition rates. Both groups surprisingly were male and represented opposite corners of their sample. They found that high-ability, low-income men and low-ability, high-income men were the most affected by rising tuition costs and the choice to either attend a four-year institution, a two-year institution, or no institution at all (Lovenheim & Reynolds, 2011).

What had developed over the course of the last two decades was a situation where increasing percentages of low socioeconomic student groups were attending public four-year and two-year post-secondary options. According to Lillis (2008):

In other words, the high-tuition, high-loan approach has only contributed to the emergence of a class-based approach to higher education. Federal, state, and institutional authorities must seek ways of increasing need-based compensation arrangements to help offset increasing costs. (p. 29)

Lillis pointed out that only 11% of the students in his study that lived on campus were classified as either lower-middle or lower class (2008). Lillis went further and claimed that through his examination, cost clearly did affect student choice, and it did so especially for low-income populations:

These findings suggest that it is important to examine how students make situation decisions and that these choices tend to contribute to the persistent pattern of
postsecondary attendance that prevails in the United States, a pattern that reflects
continued stratification along socioeconomic lines. (p. 27)

Long and Riley (2007) supported this argument by documenting the move away from need-based aid that has occurred during the period of higher educational expansion in review. Long and Riley (2007) detailed how need-based aid is being replaced by other aid programs, such as increased federal loans and tax breaks, which results in greater total unmet need, especially for students of low SES. Further, Mumper (2003) claimed that these same factors were actually decreasing access to public higher educational institutions for needy students.

From the institutional perspective, it is important to determine if institutions are reducing their potential pool of applicants before those students ever apply and if low-income high-ability students even consider applying to selective institutions. If such a decision is immediately dismissed, the battle to recruit these students is lost before it is even waged. Grodsky and Jones (2007) asserted that almost all parents make mistakes in estimating the cost of college attendance and that these mistakes were always made “upward” or errors reflected a higher cost rather than an accurate lower cost (p. 22). These results have implications not only at the institutional policy level but also at the mission level of the institution.

Institutional Barriers to Low SES Entry in Selective Institutions. Prior to a discussion about institutional initiatives surrounding the retention of low SES students, the institutional barriers to entry for these students, beyond simply cost of attendance, must be explicated. Specifically, institutions engage in practices that can negatively affect low SES students at the point of entry, such as tuition discounting, increasing of standardized test score admissions standards, and increasing globalization of their student body. These practices decrease enrollment of low SES students at selective institutions and, therefore, make the efforts
to retain the low SES students who do enroll even more crucial. Further, Tinto (2010) agreed that the institutions of higher education have done a poor job in addressing degree attainment for low SES students.

Davis’ (2003) aforementioned study entitled “The Unintended Consequences of Tuition Discounting” was a pivotal moment in the research for this review. This study is seminal in its consideration that policy and practice decisions at the institutional level can actively be driving the decreasing low SES representation within selective higher educational institutions. The subsequent research showed that some institutions were considering a student’s financial background before making institutional aid decisions. In research furthering the Davis’ (2003) report, Haycock (2006) presented a scathing study chronicling the effects of tuition discounting on low-income students at both public and private four-year institutions. The Haycock analysis included the same period covered by the Davis (2003) study (1995-1999), but expanded it four years further to 2003. Haycock (2006) found that both public and private institutions greatly increased their institutional aid to students coming from upper income brackets above $80,000 USD annually. Not only was this aid greatly increased, it was increased at a much faster percentage rate than that of students coming from homes earning less than $40,000 USD annually. Students in the lower brackets only saw an increase over this time period of 52% at private institutions and 50% at public institutions, whereas students in the upper brackets saw an increase of 254% at private and 227% at public four-year colleges (Haycock, 2006).

Hillman (2012) explained that even though tuition discounting negatively affects low SES groups, institutions engage in this behavior based upon a revenue management standpoint. Hillman (2012) empirically showed that as public institutions approach an unfunded tuition discount rate of 13%, they increased net tuition revenue. Once this point is passed, they began to
lose revenue. Cheslock (2006) provided details concerning the value of tuition discounting and its effect on net tuition revenue for an institution. This information described how institutions were particularly targeting students with tuition discounts to maximize tuition revenue and that maximization came not only from the annual tuition but from metrics detailing which students were the most likely to persist over the course of the entire degree, and therefore pay tuition for four years instead of one or two (Cheslock, 2006). Cheslock (2006) further detailed that institutions today need discount tuition to maximize revenue, as they have seen decreasing appropriations from state and federal sources. Essentially, low SES students are less likely to retain before they ever take a class, so institutions are diverting an increasing percentage of their controllable funds to other students, in theory creating a vicious cycle affecting the likelihood of low SES student retention.

If items within student financial aid packages, such as institutional grants, were applied from a perspective of where they would yield the greatest financial return from the student, it would be in agreement to what is generally considered the historical mission of education at large and postsecondary education more specifically (Lang & Lopers-Sweetman, 1991; Morphew & Hartley, 2006; Spencer, 1997). A multitude of research indicates commonalities of post-secondary education missions, which are rooted in the betterment of society, and how these could and should affect institutional decision making. For instance, Dressel (1987) used the practical example of the establishment of the land grant colleges and stated that their general and overall mission consisted of, “improve and increase agricultural productivity, improve the quality of living in agricultural and rural areas, (and)... provide educational programs related to the needs of rural youth” (p.108). The importance of mission was framed against the overall functionality and effectiveness of an organization and Dressel (1987) further argued, “An
institution, unclear as to its mission and objectives will gain little by reorganization” (p. 109).

Institutions made this overall functionality and organizational effectiveness argument a driver for their decision making when it comes to awarding institutional scholarships and grants.

Fuggazato’s (2009) work was corollary to Dressel’s (1987) argument that missions of institutions were not only important, but that they would tangibly affect institutions, which supports the idea of mission-guided decision making throughout all parts of an institution.

Beyond tuition discounting, other admissions practices contributed to the stratification of institutions and the larger societal stratification occurred in part due to our system of higher education. Sigon Alon published a study in 2009 entitled “The Evolution of Class Inequality in Higher Education: Competition, Exclusion, and Adaptation”. In this study, he identified the two factors of adaptation and exclusion as being cyclical in postsecondary admissions and self-fulfilling. Alon (2009) posited that the demand for higher levels of education over the last 30 years had risen and an effect of that rise was an increase in the tightening of admissions standards. This increase of standards mostly occurred when institutions increased acceptable standardized test scores (Alon, 2009). Indeed, the “privileged class” had been able to adapt to this adjustment in admittance standards because families were able to invest greater resources into educating their children to be successful with these examinations (Alon, 2009). Alon (2009) then argued, “By expanding the supply of high-scoring applicants, adaptation sparks a tightening of selection criteria, fuels exclusion, and artificially magnifies the competitiveness of the admission process” (p. 750). This factor, therefore, added to the negative spiral of socioeconomic stratification occurring in American higher education. This helped negate a possible argument that the sheer increase in the number of postsecondary institutions over the last 10 years would help offset the stratification that was occurring, as the vast majority of this
increase was seen in lower tier for-profit institutions, which had an overrepresentation of minorities and low SES students.

In addition to acceptance practices, such as tuition discounting and increased reliance on standardized test scores, institutional selectivity has increased due to the globalization of higher education. Hoxby (2009) described a scenario where distance barriers, which existed for students when choosing where to go to college, no longer exist. Students, who have the financial means to select whichever college they want, no longer do so with regard for how far that college is from home. For selective institutions, this equates to a more diverse student body across the factor of student distance from college. For Hoxby (2009), this factor meant that the top 10% of post-secondary institutions realized increased selectivity over the most recent educational expansion under review. The decision to admit a more globally representative student body, while not inherently negative, is an institutionally driven policy that can have repercussions on domestic students. If an institution became more globalized and its acceptance standards increased, students of low socioeconomic background who would have considered a locally selective school might have already been excluded from the school’s acceptance population.

**Student Retention Theory and Institutional Levers**

The field of higher education student retention and attrition has been studied in earnest for approximately 40 years. Vincent Tinto (1975) authored what will be considered the seminal work on student retention and attrition for this research. In Tinto’s (1993) *Leaving College*, he refined his work and provided the theoretical model for the basis of this research. Within his model, Tinto described four areas within the student experience where an institution can influence a student’s decision to leave the institution prematurely: academic performance, faculty/staff interactions, extracurricular activities, and peer group interactions. Additionally,
Tinto’s model incorporated pre-enrollment factors, such as socioeconomic status, which can influence student retention (Westrick, Le, Robbins, Radunzel, & Schmidt, 2015). For low SES students, the question remains as to whether increasing integration level through any of the four areas in Tinto’s model overcome the pre-enrollment condition of being low SES at private, high cost of attendance, institutions.

Tinto’s (1975) seminal work has spun forth thousands of research articles and several revisions to his theory. Tinto has updated and revisited the model in his major works produced in 1982, 1987, 1993, 2006a, 2006b, 2012, and was further revised by Tierney and Sablan in 2014. Throughout these updates, the core model primarily remained that student engagement across academic and social systems is central to student decision making around early departure from an institution. Researchers have termed this interaction or effect in various forms, including engagement, integration, fit, or belonging. However, it is the combination of pre-entry factors and how strongly a student becomes integrated or connected with the academic and social systems that help inform how a student might react to their experiences within a university (Pascarella, 1985). Empirically, Tinto’s (1975) model of student departure was tested most notably by Pascarella and Terenzini (1983) and Pascarella (1985). In these studies, Pascarella found that student interactions with peers as well as interactions with faculty outside of class influenced student academic performance, thereby supporting Tinto’s framework. Pascarella (1983) initially found that the social integration system had the strongest influence on academic performance. However, Pascarella also found smaller, yet still significant, influences from within the faculty and staff system, which was supported by Hu and Kuh (2001) in their research on faculty student interactions.

Tinto and Pascarella’s research gave way to another key researcher in student retention,
George Kuh. Kuh approached research in student retention and attrition from the perspective of what goes on outside of the classroom in 1991. For the next 20 years, Kuh became a leading researcher in the field and provided significant supporting evidence for Tinto’s theory, model, and the effects of student integration in research published in 1993, 2001, 2002, 2006b, and 2008. In the most recent of these studies, Kuh and colleagues (2008) reviewed 6,000 students across 18 institutions. Specifically, Kuh et al. (2008) found significant positive relation between student engagement and academic performance and first- to second-year retention. Additionally, these effects were found to be significant and meaningful for traditionally underrepresented student populations.

The aforementioned authors along with many others, such as Bean (2001), Pike, Kuh, & McCormick (2011), and Seidman (2012), have shown that student engagement or integration with university resources, programming, peers, staff, and faculty has a meaningful positive influence on student retention, especially retention from first to second year. Examples of where this theory has turned into practice became the next step for institutional leaders. For instance, Braxton and Mundy (2002) described the transition from theory to practice in their work, *Powerful Institutional Levers*. The authors identified specific ways that institutions have affected student retention and levels of engagement derived directly from Tinto’s theory. Braxton and Mundy (2002) delineated 47 recommendations that influenced student retention and categorized them across the three principles of student retention in Tinto’s (1993) model. Tinto’s third principle of effective student retention posited that effective initiatives focused on the integration of all students into the social and academic university community (Braxton & Mundy, 2002). Within the recommendations under Tinto’s third principle, Braxton and Mundy listed the following items that were of particular relevance to this research study around Learning
Communities:

- Design learning communities/freshmen interest groups in such a way that psychological growth occurs along the following dimensions: approach/avoidance coping strategies, locus of control, academic, and social self-efficacy.
- Intentionally tie the curriculum to students’ lives outside the classroom to bring students into ongoing contact with one another and with campus resources, especially after the first year of study.
- Promote student awareness of and access to appropriate co-curricular programs and resources—i.e., support groups, peer counseling, mentoring programs, faith-based groups, residential colleges, and community service groups—that connect and support students in their incorporation into the university community.

(p. 100–103)

Indeed, learning communities by design should follow the above principles to be effective in their intention of increasing student integration within the academic and social systems.

As Braxton and Mundy (2002) outlined, learning communities are in fact, a useful lever for institutions to affect student retention. This statement directly aligned with Tinto’s theory, which meant they were able to examine the relevant research on the effects of learning communities on student integration. Learning community effects on student integration and retention has received considerable examination over the last 20 years. Taken in the context of the two large systems of Tinto’s model, social and academic, a review of the research showed the positive influence of learning communities in both systems. Peer group interactions have been one of the stronger areas within the social system that learning communities can influence. Jaffee, Carle, Phillips, and Paltoo (2008) demonstrated that learning communities had a positive
effect on student social communities and friendships, a finding that has been identified in a number of other studies (e.g., Pike et al., 2011; Singell & Waddell, 2010; Smith, 2011; Smith, 2015; Zhao & Kuh, 2004). Similarly, the effects of learning communities on academic integration were also shown to have positive effects through empirical research (Inkelas et al., 2007; Smith, 2011, 2015). Additionally, Blackhurst, Akey, and Bobilya (2003) elucidated that not only did learning communities have positive influence on the academic and social spheres individually, but learning communities also connected the two environments for students. Therefore, learning communities created a halo effect between the two spheres of engagement based within Tinto’s model.

This study sought to measure the effect of engagement across both of Tinto’s spheres. To do so, this study used the survey tool originally developed by Pascarella and Terenzini in 1983 and modified by French and Oakes in 2004. This modified Institutional Integration Scale measures student engagement across two elements: faculty and students. French and Oakes (2004) suggested that these two elements fit within Tinto’s model and broke down student interaction with faculty and other students. From the perspective of Tinto’s (1993) model, student interactions influence student engagement or integration and subsequently affect retention or attrition.

Summary

The American Institution of Higher Education has a history steeped in elitism and exclusion of particular social groups over the previous two centuries. Strides in changing such practice were made with the passage of the Morrill Act of 1862 and the Higher Education Act of 1965 along with other laws that came with the progression of higher education in the United States. These two laws, in particular, led to massive expansions in higher education within the
United States, which saw an increase in post-secondary student enrollment of underrepresented groups. The third great expansion in American higher education occurred in the most recent decade, but unlike the previous two, it was not driven by government legislation. Instead, the current expansion has been seemingly a result of the free market, as there was a great increase in the supply of high school graduates over this period. This expansion also differed from the previous two more significantly due to the concurrent rapid rise in institutional cost across all institutional types. This cost, along with institutional policy, has driven academically capable students of lower socioeconomic means out of selective schools, which has decreased their prospects of social mobility. In turn, this has created further higher educational student socioeconomic stratification.

It is critical to determine what institutions can do to increase student success of enrolled low SES students, as they will consequently benefit from a dynamic, diverse, well-represented student body. Schmidt (2010) highlighted that institutions have begun to pay attention to SES as a potential area of diversity for campuses. The thoughts, ideas, and perspectives of a varied student body, one representative of the full range of socioeconomic strata in this country, can only make an institution stronger. This is especially true because these institutions offer great opportunity for their students to expand their education beyond the undergraduate level, thereby influencing research and knowledge, and again the greater goal of the institution of higher education. Therefore, it was important to investigate how high cost institutions could support the successful retention of these students through to graduation.
Chapter Three: Research Design & Methodology

This study examined the relation between learning communities and student integration level for low SES students at a private four-year university. This chapter outlines the research purpose, problem, questions, design, and generalizability and also contains detailed descriptions of data collection and analysis, threats to validity and reliability, and human subjects protection measures. This study surveyed voluntary research participants and analyzed artifacts to compare learning community participants and non-participants relative to integration level.

Research Purpose

The purpose of this study was to examine the effect of learning communities on the integration level low SES college freshmen enrolled at a high cost institution. Voluntary student departure occurs from institutions where the student is not sufficiently integrated into the academic and social systems (Tinto, 1993). This study utilized the Institutional Integration Survey (Pascarella & Terenzini, 1983) with a representative sample of low SES students at a high cost institution. The research within this study adds value to institutional practitioners’ knowledge of what non-financial factors affect this population. Additionally, research presented in this study adds to the validity of learning communities as a tool to increase institutional integration, even in the absence of a cohort learning community group.

Research Problem

It is well documented and often lamented that the cost of higher education has increased at an incredible rate (Archibald & Feldman, 2008; Thelin, 2013). The distribution of this cost increase has often not born out equally across institutions or students within institutions due to the practice of tuition discounting (Davis, 2003). For students of low SES, the cost increase placed additional barriers to successfully enrolling, persisting, and graduating. Cash strapped
institutions eventually reach a limit of what they can do with institutional aid and, therefore, seek to increase the persistence of these students by eliminating other reasons that lead to attrition. Specifically, within the academic and social systems of Tinto’s (1993) model, it is unclear in the research if institutions have affected these constructs for students of low SES means dealing with high costs at their respective institution.

The primary examination of this study was to determine if institutional initiatives, such as learning communities, have increased the integration level of low SES students in a high cost institution.

Research Question and Hypotheses

This quantitative correlational study sought to answer the following primary research question. The primary research question formed the basis for the development of the hypothesis that considered the findings from the literature review.

Q1: *To what extent does the participation in a learning community increase the level of integration for low SES students at a private, selective, high cost university?*

Analysis of gathered data tested the following hypothesis:

H1: Learning community participation will increase low SES student integration at a private, four-year, selective, high cost institution.

Variables

This study examined a quantitative correlational effect on level of integration for full time Pell Grant eligible freshmen. The IIS survey tool is comprised of purely quantitative measures using a five-point Likert scale. This section discusses and explains the two variables under study within this research.

**Independent variable.** The independent variable for this study was participation in a
learning community during freshman year. As this variable only had two states, it is categorical or nominal in nature. Categorical variables represent a qualitative component and are not ordered, they each represent an independent state (Creswell & Creswell, 2017). Survey respondents were asked to self-identify one of the two categorical states (yes or no) when asked if they participated in a learning community.

**Dependent variable.** The dependent variable for this study was student level of integration. The variable was calculated with the IIS, which produced a score across seven subscales as well as the entire survey. This variable was continuous in nature because there is a clear order for the scores and the way the value is calculated creates an infinite number of values (Creswell & Creswell, 2017). The IIS produced a discrete score for each survey respondent. Respondents with lower scores were considered better integrated than respondents with higher scores based on the survey scale.

**Methodology**

This study utilized a quasi-experimental design. Specifically, a quantitative correlational design was used because the researcher was unable to assign participants randomly into groups explicitly for the study. Therefore, a true experiment in this instance was not possible even though a true experiment would better determine causality (Fraenkel, Wallen & Hyun, 2011). The quantitative correlational design of this study investigated the relation between student level of integration and participation in a learning community for full-time Pell Grant eligible freshmen who enrolled at a private, four-year, high cost institution in the fall of 2016. The study sought to identify whether there was a statistically significant difference on the responses to the IIS between a group of learning community participants and a group of non-participants to confirm the research hypothesis that Pell Grant eligible freshman who did participate in a
The IIS, originally designed by Pascarella & Terenzini (1983), was used to identify levels of integration for survey respondents. The survey results in the form of an integration score allowed for a comparison between the students who participated in a learning community and those who did not. This methodological design provided the appropriate structure to answer the primary research question. Fraenkel et al. (2011) stated that correlational study design is associational research that allows the investigator to examine differences between two variables without attempting to change those variables. Additionally, Fraenkel et al. (2012) described that correlational studies are appropriate for quantitative analysis such as this because they produce a correlation coefficient. Further, correlational research aims to produce two outcomes: either “aiding in explanation of important human behaviors” or to “predict likely outcomes” (Fraenkel et al., 2012, p. 332). The proposed study sought to aid in the first type of correlational study by explaining why some Pell Grant eligible students might feel more integrated into a university than some of their peers.

Research Design

Tinto’s (1975) model of student departure served as the theoretical lens that identified the academic and social systems of integration as primary factors in early student departure from an institution. The IIS was completed by Pell Grant eligible freshmen at the end of their first year. Specifically, Pell Grant eligible freshmen who were enrolled at a private non-profit, four-year selective research institution were surveyed. Within the survey, two groups were identified for comparison, those who participated in a learning community during their first year and those who did not. Participation in a learning community, or lack thereof, served as the two categories of the independent variable. The researcher hypothesized that the learning community
participants would show a higher level of institutional integration than non-participants.

This study employed only quantitative methods for data collection and analysis. Fraenkel et al., (2012) stated that quantitative correlational design does not determine cause and effect but can determine the relation between two variables. In this study, the categorical variable of learning community participation was compared with the continuous variable of IIS score. The survey tool was quantitative in design and asked 30 closed-ended questions recorded on a five-point Likert scale.

A true experimental design was not possible for this study because the researcher could not assign random groups. While quantitative correlational studies do not imply cause and effect, they can be used to predict outcomes (Fraenkel, et al., 2012). For example, Fraenkel et al. (2012) investigated the correlation between high school grade point average and eventual college grades using a regression analysis of high school grades. This design therefore was appropriate to search for a relation between the variables studied for this research.

Sample Design and Population

The study population consisted of undergraduate Pell Grant eligible freshmen who began in the fall 2016 academic year cohort at a private, four-year, high cost institution. The institution’s full incoming freshman cohort in Fall 2016 was 2,332 as reported at the point of official institutional census deadline. Of that class, 585 Pell Grant eligible students were identified in May of 2017. These students were still enrolled in the university at that point in time. The 585 Pell Grant eligible students were therefore representative of 25% of the original incoming class, putting these students in the distinct minority amongst their peers. Due to the timing of the research, it is known that these freshmen successfully retained into the spring quarter as the survey was administered to students who were still enrolled in June of 2017. Each
of the institution’s major colleges provided a learning community for their incoming freshmen. These learning communities typically incorporated approximately 20% of the total incoming class as participants. The study design assumed there would be a significant representation of learning community respondents in the population, which did occur. The full sample size of 585 students was more than sufficient to meet the baseline needed for correlational research (Fraenkel et al., 2012). Survey response demographics can be found below in Table 1.

<table>
<thead>
<tr>
<th>Sample Population</th>
<th>Response Rate</th>
<th>Final Number in Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>585 Total</td>
<td>18%</td>
<td>106</td>
</tr>
<tr>
<td>301 Learning Community</td>
<td>14.6%</td>
<td>44</td>
</tr>
<tr>
<td>284 Non-Learning Community</td>
<td>21.8%</td>
<td>62</td>
</tr>
</tbody>
</table>

Of the full 585-student sample, 125 respondents showed interest in participating and were provided with the informed consent form. Of these 125 respondents, 121 completed the informed consent and 4 declined to participate. Only 110 respondents answered the survey questions beyond the informed consent with 4 failing to answer the survey tool in its entirety, leaving a final sample of 106.

As the population of Pell Grant eligible students was already determined by federal guidelines, it was not necessary for the researcher to determine selection criteria. Pell Grant eligible students were chosen for the study as a proxy for low SES students. Pell Grant
eligibility was determined by the U.S. Department of Education by calculating the difference between the cost of attendance (COA) at the institution a student is attending and that student’s expected family contribution (EFC) (Studentaid.gov, 2017). EFC is itself also a calculation based off the student’s family income provided on the Free Application for Federal Student Aid (FAFSA). A student with a low EFC essentially does not have sufficient funds to draw from their family income to apply towards the cost of their education. The U.S. Department of Education refers to this as a student’s financial need and Pell Grant recipients are the neediest students.

The survey asked students to reflect on their experiences during their time at the university, as the survey was completed before student departure for the summer and within two months of that departure, the threat of misremembering events is decreased. Specifically, the students were surveyed with a quantitative tool developed by Pascarella and Terenzini (1983) advanced by French and Oakes (2004) and finalized for this study in the version created by Baker, Caison, and Meade (2007). This survey tool measured level of integration across the two spheres of integration, academic and social, proposed by Tinto (1993) in his theory of student departure.

**Instrumentation**

The IIS version completed by French and Oakes (2004) was the baseline research instrument chosen. However, the instrument has undergone many revisions and many researchers have modified the survey instrument to fit their particular study (Baker et al., 2007; French & Oakes, 2004; Mertes, 2015; Pascarella & Terenzini, 1983). For this study, the baseline version proposed by French and Oakes (2004) was used in conjunction with the updates suggested by Baker et al. (2007). The researcher received approval and permission to use this
instrument in May 2017.

The survey was replicated and delivered electronically to the 585 predetermined Pell Grant eligible freshmen at a private high cost institution and attempted collect ordinal data about the respondents. This data, according to Fraenkel et al. (2012) was used to rank respondents according to pre-existing characteristics. Level of integration, determined by the respondents score on the IIS would provide the ranking for this study. As with previous study designs, Cronbach’s alpha was used to reconfirm the survey subscale validity.

**Survey instrument implementation.** The original IIS developed by Pascarella and Terenzini (1983) measured “five facets of college student academic and social integration” and was originally based on Tinto’s model of student departure (French & Oakes, 2004, p. 88). These five facets equated to the survey subscales, and each subscale tied directly to either the academic system or the social system in Tinto’s (1975) model. The IIS used for the study contained 30 statements. These 30 closed-ended statements were all associated with the same five-point Likert attitude scale. The five-point scale translated into quantitative data as “strongly agree” 1 point, “somewhat agree” 2 points, “not sure” 3 points, “somewhat disagree” 4 points, and “strongly disagree” 5 points. Qualitatively, this meant that more integrated responses correspond with lower scores and less integrated responses with higher scores. The IIS by previous design was appropriate to utilize within the proposed study framework of Tinto’s (1975) model of student departure. Tinto’s (1975) model specifically identified the academic and social systems of integration as the areas where students have differing experiences within an institution and that these experiences have led to voluntary departure.

The original IIS was intentionally created by Pascarella and Terenzini (1983) to measure the effect proposed by Tinto’s (1975) framework. This study additionally incorporated the
update from French and Oakes in 2004 that allowed for the inclusion of two new first-order subscales or factors: student and faculty. The IIS in this study therefore had a total of seven subscales. A summary of the subscales and related questions can be found in Table 2.

<table>
<thead>
<tr>
<th>Tinto System</th>
<th>Pascarella and Terenzini Subscales</th>
<th>Number of Statements</th>
<th>French and Oakes Subscales</th>
<th>Number of Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic System</td>
<td>Academic and Intellectual Development (AID)</td>
<td>7</td>
<td>Student Subscale</td>
<td>20</td>
</tr>
<tr>
<td>Social System</td>
<td>Peer Group Interaction (PGI)</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic and Social</td>
<td>Institutional Goal Commitment</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic System</td>
<td>Faculty Concern for Student Development (FCSD)</td>
<td>5</td>
<td>Faculty Subscale</td>
<td>10</td>
</tr>
<tr>
<td>Social System</td>
<td>Interaction with Faculty (IWF)</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The five core subscales of the IIS each measure a different component of institutional integration predicted by Tinto’s (1975) model. The Peer Group Interaction (PGI) subscale attempts to measure the level of integration that respondents have with other students at the university, which ties into the social integration system in Tinto’s model. The PGI scale does this by asking for responses to seven statements. For example:

- I have developed close personal relationships with other students.
- It has been easy for me to meet and make friends with other students.

Students’ attitude responses to these statements on the IIS in the PGI scale offer the researcher a view into how well the respondents were able to integrate or connect with their peers at the institution.
The second scale, Academic and Intellectual Development (AID) asks for responses to statements about how the respondent has grown or expanded intellectually or through experiences that they may not have tried previously. The AID subscale ties to the academic integration system in Tinto’s (1975) model through seven statements, such as:

- My interest in ideas and intellectual matters has increased since starting classes.
- This year my academic experience has positively influenced my intellectual growth and interest in ideas.

The AID subscale measures how integrated or connected a student has become with academics and intellectual growth opportunities at the institution. According to Tinto’s (1975) theory, a student who is better connected in this area or takes advantage of more opportunities will be more likely to persist.

The third subscale of the IIS, Institutional Goal Commitment (IGC), measures respondents’ integration or commitment to remaining at the institution going forward through six statements. The IGC subscale attempts to measure the commitment of the student to achieving their goals at the specific institution, which is representative of the student’s sum of their institutional experiences at a given time. For example:

- I am confident that I made the right decision in choosing to attend this university.
- It is important to me to graduate from this university.

The IGC scale is unique because it does not tie specifically to either the academic or social system in Tinto’s (1975) model but rather to the sum of these systems in the next phase, which attempts to describe a student’s commitment to the specific university. This provides a different lens regarding student integration or connection to the institution.

The fourth subscale is the Interactions with Faculty (IWF) subscale, which ties to the
social system in Tinto’s model. The IWF subscale measures social interactions but with faculty rather than with peers at the institution. The IWF subscale through its five statements seeks to find how well integrated a respondent was socially with their faculty by asking for responses to statements such as:

- I am satisfied with my opportunities to meet and interact informally with faculty members.
- I have developed a close, personal relationship with at least one faculty member.

The IWF subscale statements attempt to discover student interaction with faculty that occurs outside of the classroom. According to Tinto’s (1975) model, integrating with a faculty member outside of class will increase persistence and likelihood of retention.

The fifth and final subscale of the IIS is the Faculty Concern for Student Development (FCSD) subscale, which consists of five statements. The FCSD subscale attempts to measure student integration with faculty as tied to the academic system in Tinto’s (1975) model. The FSCD subscale does this by asking respondents attitudes on statements such as:

- Many faculty members I have had contact with are genuinely outstanding or superior teachers.
- Many faculty members I have had contact with are genuinely interested in teaching.

The breakdown of subscales above is directly linked with the academic and social systems of Tinto’s (1975) model of student departure. Specifically, Peer Group Interactions and Interactions with Faculty are associated with the social system in Tinto’s model while Faculty Concern for Student Development and Academic and Intellectual Development are associated with the academic system. The Institutional Goal Commitment Scale crosses both systems. By
utilizing this survey tool, the researcher was able to gauge institutional integration for the observed population and subsequently gauge likelihood of persistence and retention at the institution under study. Essentially, Tinto’s (1975) model argued that if a student is better integrated, then they are more likely to persist at the institution and retain, especially when investigating freshmen. The IIS attempted to measure specifically across the systems in Tinto’s (1975) model and will aid in determining if initiatives such as learning communities assist in integration, persistence, and retention of Pell Grant eligible students. The IIS survey instrument can be found below in Table 3.

Table 3

*IIS Survey Instrument*

<table>
<thead>
<tr>
<th>Individual Questions by Subscale</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faculty Concern for Student Development Subscale (Faculty)</strong></td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students.</td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely outstanding or superior teachers.</td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely interested in students.</td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely interested in teaching.</td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are interested in helping students grow in more than just academic areas.</td>
<td></td>
</tr>
<tr>
<td><strong>Institutional and Goal Commitment Subscale (Student)</strong></td>
<td></td>
</tr>
<tr>
<td>It is important to me to graduate from college.</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>It is important to me to graduate from this university.</td>
<td></td>
</tr>
<tr>
<td>I am confident that I made the right decision in choosing to attend this university.</td>
<td></td>
</tr>
<tr>
<td>I will most likely register at this university next fall.</td>
<td></td>
</tr>
<tr>
<td>I am satisfied with the opportunities to participate in organized extra-curricular activities at this university.</td>
<td></td>
</tr>
<tr>
<td>I am happy with my living residence arrangement.</td>
<td></td>
</tr>
</tbody>
</table>

**Peer Group Interaction Subscale (Student)**

My interpersonal relationships with students have positively influenced my intellectual growth and interest in ideas.

I have developed close personal relationships with other students.

The student friendships I have developed have been personally satisfying.

My personal relationships with other students have positively influenced my personal growth, values, and attitudes.

It has been easy for me to meet and make friends with students.

Many students I know would be willing to listen and help me if I had a personal problem.

I am satisfied with my dating relationships.

**Interactions with Faculty Subscale (Faculty)**
| I am satisfied with my opportunities to meet and interact informally with faculty members. |
| I have developed a close, personal relationship with at least one faculty member. |
| My non-classroom interactions with faculty members have positively influenced my intellectual growth and interest in ideas. |
| My non-classroom interactions with faculty members have positively influenced my personal growth, values, and attitudes. |
| My non-classroom interactions with faculty members have positively influenced my career goals and aspirations. |

**Academic and Intellectual Development Subscale (Student)**

| I am satisfied with my academic experience at this university. |
| I am more likely to attend a cultural event (e.g., a concert, lecture, or art show) now compared to few months ago. |
| In addition to required reading assignments, I read many of the recommended books in my courses. |
| I am satisfied with the extent of my intellectual development. |
| My interest in ideas and intellectual matters has increased since starting classes. |
| This year my academic experience has positively influenced my intellectual growth and interest in ideas. |
| I have performed academically as well as I anticipated. |

There are five subscales identified by Pascarella and Terenzini (1983), and French and Oakes (2004) combined these subscales into two subscales. Both versions of first-order
subscales are identified in Table 2, which displays individual survey questions or factors broken down by Pascarella and Terenzini’s (1983) subscales with each of these additionally identified as either “Faculty” or “Student” from the French and Oakes (2004) version.

**Reconfirming survey validity.** In their original work, Pascarella and Terenzini (1983) performed a factor analysis to confirm the reliability of each factor of the IIS as well the individual subscales. In 2004, French and Oakes performed a confirmatory factor analysis on their revised institutional integration scale and found the new scale exhibited the following:

The revisions to the scale resulted in higher internal consistency, reliability, higher item discrimination, and higher correlations among the subscales scores, and between the subscale and total scores (p. 94).

The 2004 institutional integration scale therefore proposed to increase the reliability of the survey tool with higher validity. In 2007, however, Baker et al. performed a differential function analysis on all 30 of the original questions from the Pascarella and Terenzini (1983) survey. This analysis discovered that four questions were of low reliability and low correlation to their respective subscales. Therefore, the current study analyzed all the subscales from French and Oakes in 2004, with the 4 items from Baker et al. (2007) removed, leaving a total of 30 individual questions on the survey. This required the researcher to reconfirm subscale reliability.

To reconfirm subscale reliability and instrument validity, Cronbach’s alpha was performed across all seven subscales as well as the entire survey instrument. The full survey tool produced the highest alpha score at .903; this was potentially due to an effect within the alpha where more items inherently create a higher score (Fraenkel et al., 2012). This reconfirmed the 30-question scale validity and allowed the researcher to move forward and confirm the subscales. The Student subscale proposed by French and Oakes (2004) consists of the Peer Group
Interaction Scale, the Institutional Goal Commitment Scale, and the Academic and Intellectual Development Scale. The Student subscale sought to offer a new first-order subscale that provided a broader picture of student integration. Per French and Oakes (2004), the Student subscale factors asked questions “that address social and academic integration as it relates to peers and the university in general” (p. 94). The Student subscale returned an alpha score of .863. The three traditional subscales that cumulatively added up to the Student subscale were also individually checked for validity. The Peer Group Interaction subscale returned the highest alpha of the original five Pascarella and Terenzini (1983) subscales with a score of .870. Throughout data analysis, this subscale was shown to be the most influential in the survey. The Institutional and Goal Commitment and the Academic and Intellectual Development subscales completed the Student subscale and returned alpha scores of .725 and .706, respectively.

The second French and Oakes (2004) new first-order subscale was the Faculty subscale. The Faculty Integration subscale proposed by French and Oakes is created by combining the Faculty Concern for Student Development Scale and the Interactions with Faculty Scale. This first-order subscale, much like the Student subscale, sought to answer questions about both social and academic integration but concerning interactions with faculty (French & Oakes, 2004). The Faculty subscale returned an alpha of .895. The two original subscales, Interactions with Faculty and Faculty Concern for Teaching and Development, dealt with social and academic interactions with faculty, respectively. Both returned alphas above the threshold with the more socially-oriented Interactions with Faculty subscale producing an alpha of .861 and the academic-oriented Faculty Concern for Teaching and Development subscale producing an alpha of .851. The results of the Cronbach’s alpha can be found in Table 4 below.
Table 4

*Cronbach’s Alpha Scores*

<table>
<thead>
<tr>
<th>Baker-French Subscales</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker-French IIS</td>
<td>0.903</td>
</tr>
<tr>
<td>Peer Group Interactions</td>
<td>0.870</td>
</tr>
<tr>
<td>Interactions with Faculty</td>
<td>0.861</td>
</tr>
<tr>
<td>Faculty Concern for Student</td>
<td>0.851</td>
</tr>
<tr>
<td>Development</td>
<td></td>
</tr>
<tr>
<td>Academic and Intellectual</td>
<td>0.706</td>
</tr>
<tr>
<td>Development</td>
<td></td>
</tr>
<tr>
<td>Institutional and Goal</td>
<td>0.725</td>
</tr>
<tr>
<td>Commitment</td>
<td></td>
</tr>
<tr>
<td>Faculty Integration</td>
<td>0.895</td>
</tr>
<tr>
<td>Student Integration</td>
<td>0.863</td>
</tr>
</tbody>
</table>

Mujis (2011) stated that a Cronbach’s alpha score of .7 or higher is required to confirm the validity of Likert scales. Upon completion of the Cronbach’s alpha analyses, all subscales were reconfirmed for validity as all generated a score higher than .7. This means that the items that make up each subscale are closely related enough to be considered reliable as a group. This
allowed research to move forward and test the significance of differences across these subscales between the two groups under study. Additionally, a Cronbach’s alpha test was conducted to reconfirm the entirety of the Institutional Integration Scale. With all instrument components reconfirmed for validity, the statistical analysis for significance could proceed across both groups of students, those who participated in a learning community and those who did not.

**Data Collection**

IRB approval for the proposed study was received in May 2017 by both Northeastern University and the research site. Subsequently, the researcher commenced three stages of data collection, population determination, outreach, and response collection. In the first stage, the population and contact information had to be determined by the students’ home institution. The office of Institutional Research Assessment and Effectiveness provided the subject data to the researcher that fit the criterion: a Fall 2016 freshman admit who was Pell Grant eligible and was still enrolled in the spring term of their freshman year. This produced the full sample of 585 students.

In the second stage, once the population was officially identified by the institutional research office, the population was loaded into a spreadsheet that was used to distribute anonymous survey links to each of the survey recipients through the researcher’s Northeastern University email address. The survey instrument was built within a secure survey distribution tool, Qualtrics, owned by the home institution, which provided an extra step to protect survey participant data. This survey tool housed all individual response data.

An email that contained the 34 Likert scale questions that made up the Institutional Integration Survey (IIS) was sent. However, the data analysis for this study was based on the 34 questions that made up the French and Oakes (2004) version with the 4 questions identified by
Baker et al. (2007) removed. This left a total of 30 questions for the final survey. Each of these questions asked the respondent to assess their response on a five-point Likert scale rating. The five-point scale translated into quantitative data as “strongly agree” 1 point, “somewhat agree” 2 points, “not sure” 3 points, “somewhat disagree” 4 points, and “strongly disagree” 5 points. The reliability and validity of this survey tool have been shown in previous studies, as well as the general reliability and validity of Likert scales (Baker et al., 2007; French & Oakes, 2004). According to Fraenkel et al. (2012), Likert scales are a form of frequently used attitude scales based on the assumption that if the respondent is being genuine, then the statements on the scale can be viewed as evidence of a respondent’s underlying attitude on a subject. Croasmun and Ostrom (2011) state that it is crucial to perform a Cronbach’s alpha to reconfirm the internal validity of a Likert scale. Therefore, the validity of the Institutional Integration Survey was reconfirmed via the Cronbach’s alpha results presented in Table 4.

The first question on the survey contained the informed consent, which can be found in Appendix A. The survey tool contained a binary question asking the student to self-identify as a learning community participant, and a multiple-choice question where respondent could select from a list of factors that would have “increased their likelihood of enrolling at the institution the following fall”. Finally, respondents were given the chance to enter their preferred email to win a $50 Amazon gift card that was randomly drawn for at the close of the research. The Qualtrics survey tool was populated with the questions by the researcher, which allowed the researcher to create five-point radio buttons next to each of the 34 IIS questions. Respondents selected one radio button per question. For the learning community participation question, the survey logic did not allow for a completed survey without a response to this question. The question was structured with only two response options, yes or no, which the survey tool logic only allowed
the selection of one option at a time. Survey logic was built to close the survey one week from a respondent’s last action within the survey. Respondents were given the ability to close, save, and return to the survey if they did this within the one-week window. An Amazon gift card was offered as a raffle to increase response rate. Surveys were collected from the second week of June 2017 through the third week of July 2017. Reminders were sent weekly to non-respondents. Students who declined the informed consent were removed from future distributions.

Data Management

Student response data was collected in the university’s own software system, Qualtrics. This system is managed internally and therefore conformed to the site institution’s student data security protocols. The primary researcher for this study is the only person who had access to the individual student response data and the survey. Incomplete or partial survey responses for the IIS were eliminated. Response on the learning community identification question was required and a sufficient balance in the responses was achieved naturally, meaning no further adjustments to the sample were needed.

Once survey response collection was completed and the survey was closed, a CSV file was produced from the Qualtrics survey software, which was directly uploaded into SPSS for data analysis. Within SPSS, survey questions from the IIS portion of the survey were grouped into appropriate subscales.

Data Analysis

The primary statistical analysis performed within this research is utilization of a MANOVA as well as independent samples t-test. However, data analysis required several steps
to perform the statistical analysis of the study. First, the raw survey data was prepared and transferred to the statistical analysis software. Second, data was transformed into a form that could be used to compute IIS scores and sub scores. In the final step of data analysis, statistical analysis methods could be conducted on the data.

**Data preparation.** The Qualtrics survey tool produced a CSV file type that provides individual survey respondent answers to each survey question. This file was downloaded onto a protected server, which sits behind a firewall with access limited to only the researcher. This file was then be uploaded into the statistical analysis software for screening and cleaning of the survey data as well as the next steps in data analysis. This research study used a licensed copy of SPSS provided by Northeastern University to students. SPSS is a computer program used directly for data analysis. SPSS is taught within the program for which this research is being conducted and is the program of choice for statistical modeling and analysis. Mujis, (2011) stated that SPSS is the “most commonly used statistical software package in the social sciences” (p. XV).

After the data was uploaded to SPSS, incomplete surveys were removed from consideration, bringing the final number of survey respondents to 106. With the final population of survey respondents determined, transformation of the data occurred before statistical analysis of the data could take place. Specifically, per French and Oakes (2004), the appropriate way to calculate the subscale scores is to average the question response scores for individual respondents within a subscale. The 30 closed-question IIS component of the survey consisted of a five-point Likert scale. The five-point scale translated into quantitative data as “strongly agree” 1 point, “somewhat agree” 2 points, “not sure” 3 points, “somewhat disagree” 4 points, and “strongly disagree” 5 points. Qualitatively, this meant that more integrated responses
correspond with lower scores and less integrated responses to higher scores. This had no effect on the statistical analysis for significance of difference between the groups under study. The scale was uploaded to SPSS as it was in the survey to prevent a possible layer of data mishandling. Scores were thus calculated by calculating a mean for each respondent under each subscale.

Once survey data was transformed into subscale scores, statistical data analysis could occur. This study utilized multiple types of statistical analysis to answer the primary research question and confirm or reject the null hypothesis. The primary statistical analysis for this study was a Multivariate Analyses of Variance (MANOVA). The MANOVA was completed for the entire survey, as well as for all subscales. Mujis (2011) posited that the MANOVA is an extension of the Analysis of Variance (ANOVA), which allows for the analysis of multiple dependent variables. The multiple subscales of the IIS offered different pieces “of a coherent whole” to be tested together and by coupling this with the methodology of a quantitative correlational study, the MANOVA was the appropriate statistical analysis to answer the primary research question and accept or reject the research hypothesis (Mujis, 2011, 188). The research question and hypothesis for this study were:

Q1: To what extent does the participation in a learning community increase the level of integration for low SES students at a private, selective, high cost university?

Hypothesis

H1: Learning community participation will increase low SES student integration at a private, four-year, selective, high cost institution.

To answer this question, the IIS was selected as the research tool. The IIS created a mean score across multiple subscales, which are the dependent variables for this study. Those
subscales were student integration, faculty integration, and the five original subscales from Pascarella and Terenzini (1983). These subscales were the dependent variables, which made the MANOVA the correct test for significance of difference between groups because there was more than one dependent variable (Mujis, 2011). Additionally, a t-test for difference of means was conducted to analyze for significant difference between two groups across a single question (Mujis, 2011). The MANOVA statistical analysis confirmed the primary research hypothesis, which meant that Pell Grant eligible freshmen were better integrated if they participated in a learning community. This confirmation meant that institutional initiatives aside from simply offering more financial aid could affect institutional integration of low SES students at a high cost institution. This has significant implications for confirmation of institutional efforts around persistence and retention of these types of students.

Additionally, as was done in the French and Oakes (2004) study, Cronbach’s alpha was performed against all subscales to reconfirm the survey validity. This previously validated survey was a wiser research path than creating a new survey and confirming validity of such an instrument from the beginning. The individual responses to the survey were stored in a secure database and survey tool, Qualtrics.

**Protection of Human Subjects**

This study presented no known immediate threats to human subjects. Individual survey respondents in this study were kept unknown to the researcher because the survey tool was distributed via an anonymous link. In the first stage of data collection, sample participants were individually known to the researcher because of the data provided by the Office of Institutional Research Assessment and Effectiveness, which contained the sample population information. In the survey setup, however, individual responses were held anonymous even to the researcher.
There was no direct contact between the researcher and respondents due to the quantitative online survey research design. Although this had a limiting effect because the research is purely quantitative, it also enabled further protection of the research subjects.

The purpose of the study was to inform institutional decision making surrounding application of institutional retention and engagement initiatives. Therefore, results and data will only be used to enhance the academic endeavors and deepen the understanding of the ramifications of higher educational decision making. Individual student participants were aggregated and only presented in such a format. The individual student response data will be destroyed at the completion of data analysis and composite data will be stored on an encrypted secured server.

Validity, Reliability, and Generalizability

A number of validity, reliability, and generalizability threats were inherent to this correlational research (Fraenkel et al., 2012). Fraenkel et al. (2012) stated that a “major concern to researchers is that extraneous variables may explain away any results that are obtained” (p. 340). Additionally, specific subjects within correlational studies may possess characteristics that threaten internal validity to the study, as these characteristics may “influence relationships that are found” (Fraenkel et al. 2012, p. 341). Another threat to validity of this study was response rate. The expected response rate of 25% was not fully achieved and therefore the validity of the results is subsequently reduced. This study used a previously validated survey tool, the IIS, which increased validity, as the researcher only needed to reconfirm the survey validation in the current study with the current population. This was achieved using a Cronbach’s alpha test. In this analysis for validity, it was shown that all possible subscales were valid for the current study and respondent population.
One threat to generalizability of this study was a population threat, which was due to the non-randomization of the groups for the study. Therefore, this study only implied generalizability to undergraduate Pell Grant eligible freshmen. An additional threat to generalizability of this study was the definition of a learning community at the study site. Learning communities at the institution under study were not managed or administered centrally; rather they were managed within each of the 12 home colleges and schools. Learning communities varied in size and by the curriculum within the home college with which they were associated. Students may have been cohorted across all their academic coursework or only across some of their coursework. Therefore, generalizability to specific types of learning communities was not possible. Additionally, the common thread that tied the definition of a learning community together at the study site surrounded social integration as a goal. That is, students are cohorted by their academic program; this is done to increase the likelihood of students finding meaningful social connections.

A secondary threat to generalizability surrounded subject characteristics of the study respondents. Although the entire population of survey recipients was Pell Grant eligible, this was not necessarily a perfect proxy for each of the students within that category. Students’ specific family incomes as well as institutional award total were not included within the study. For the 2016 fall academic year cohort, the institutions under study awarded both meritorious student awards based on prior academic performance as well as need-based awards. The institutional need-based awards for students across the Pell Grant eligible group was likely similar, however, the meritorious student award was not accounted for. Therefore, the unmet need of students within the Pell Grant eligible population could potentially also vary.

**Role of the Researcher**
Researcher biases, impressions, and point of view, can directly affect a researcher’s ambitions and perspectives. Research interest is undoubtedly affected by multiple factors from one’s own personal experience. The current researcher would not even be able to conceptualize the challenges of low socioeconomic status students in higher education if not for personal experience and interests. Unfortunately, the same experiences that create our research interests also create our biases (Machi & McEvoy, 2009). The researcher for this study completed an undergraduate, Master’s, and now subsequent pursuit of terminal Ed D. all at higher education institutions that would be considered more than minimally selective and would qualify as high cost as they were all private institutions. Selective higher education plays an important role within the fields of research, community development, and academic rigor. However, these institutions of higher education also have a responsibility to recruit, retain, and permit access to the best and brightest amongst our students regardless of their ability to pay.

The researcher for this study is currently employed in administration of a moderately selective four-year higher educational institution. This employment has continued for over 12 years, in a career that has evolved greatly over that time. One of the greatest evolutions has been in the researcher’s understanding of the enrollment practices of his institution in addition to how these practices are similar to other successful four-year institutions. To understand how and why the researcher feels decreasing low socioeconomic enrollment, student access, and success will become a problem for selective four-year institutions; one must incorporate a concept illuminated by Jupp and Slattery’s (2010) research.

Jupp and Slattery (2010) speak of the “hegemonic center” within research, theory, and implementation of both. For Jupp and Slattery (2010), the researcher represents a hegemonic center, and for the current enrollment practices of many selective four-year institutions, they are
recruiting the hegemonic center. The researcher believes that not only are they recruiting the hegemonic center, but also their practices around student success and support are focused on the hegemonic center.

In review of the enrollment data, that center is shrinking, and when viewed against Jupp and Slattery’s (2010) idea of structures within society, it becomes interesting to consider an increasing “edge”. Illuminating this point, the Davis and Bauman (2013) detailed the amount of children reaching normal college going age will decrease steadily over the next 10 years. When this data is compared against data compiled by Hasker, Holzer, and Lerman (2009) research study, we produce the shrinking center and a potential sustainability problem for current enrollment practices.

In consideration of structural biases as well as how to isolate them in the interest of neutrality, the researcher considered possible resistance from contemporaries on this topic. Higher education is currently booming; enrollment is up across the field. Recruiting the hegemonic center has produced the most productive period ever from an enrollment perspective. Although, stated in a different context, one must consider Parsons’ (2008) discussion regarding how groups will fight to maintain and refuse change. Therefore, a sense of “why” develops from the institutional perspective surrounding the need to recruit from differentiated, particularly low, socioeconomic groups. It will be the researcher’s assertion that due to the previously described shrinking center and the society wide investment in higher education, through mechanisms such as federally backed student loans, there are multiple reasons why these institutions need to do a better job of increasing low SES student representation and success on their campuses.

Limitations

The largest limitation of this proposed research study lies in the correlational design.
Correlational research design inherently can only prove a correlation between two variables and cannot prove causation (Fraenkel et al., 2011). Thus, this study did not imply causation, but simply correlation in its findings. The correlation factors were restricted to educational research standards and results met those thresholds to be considered significant. All results were reported even if they did not support the hypothesis of this research. Steps were taken to secure internal and external threats to study validity to ensure the truest results possible.

Additionally, because this study was strictly quantitative, it poses a limitation for understanding individual reasoning. A mixed-methods study that included qualitative research to explore deeper individual reasoning would have decreased this limitation of the research design.
Chapter Four: Data Analysis

This chapter details the results of the statistical analysis completed to answer the primary research question of the study. This study sought to discover a correlational relation between learning community participation and increased integration level for Pell Grant eligible freshmen at a private, four-year, high cost institution. Increased level of integration at the university fits directly within the theoretical framework for the study, Tinto’s (1975) theory of student departure. Proponents of this theory have argued that increasing intuitional integration across the academic and social systems within Tinto’s model has led to higher levels of student persistence and greater student retention (Kuh, 2008; Pascarella, 1985, Pascarella & Terenzini, 1983). A correlational relation found between these two variables would have added to the research surrounding Tinto’s (1975) model of student departure and suggested institutions could affect the persistence level of low SES students in non-financial ways. This chapter will present the quantitative statistical results of the study based on the student responses to the IIS to answer the primary research question, test the primary hypothesis, and accept or reject the null hypothesis.

There are two primary subsections of this chapter based on the descriptive statistics of the student respondents and the statistical analysis of the survey results. The first section of this chapter will address the descriptive statistics of the sample population, the site, and the participant respondents. The second section of this chapter will address the inferential statistics used to answer the central research question and test the hypothesis.

Participant Respondents

The online survey was first distributed in the second week of June 2017 and remained open until the third week of July 2017. Weekly reminders using the original email text were sent
to the sample. Students who had completed the survey were not sent reminder emails.

Additionally, the first page of the online survey was the informed consent (Appendix A) any student who declined the informed consent was removed from any future reminders. Of the full 585 student sample, 125 individual responses were recorded on the first question of informed consent. Of these 125 respondents 121 accepted the informed consent and 4 declined. Of the 121 students who accepted the informed consent and moved forward to complete the survey, only 110 respondents completely answered survey questions beyond the informed consent. In review, the 110 responses to the 34 closed-ended Likert scale questions that comprise the IIS, it was found that only 106 students completed this portion of the survey tool in its entirety.

Descriptive statistics were calculated for the 106 survey participants across the five traditional survey subscales. Mean scores and standard deviations were calculated for each subscale across the categories of the independent variable for this study.

**Sample Descriptive Statistics**

The survey sample consisted of 585 new full-time freshmen who enrolled at the study site in the fall of 2016. Additionally, all 585 students completed their first two academic quarters and had enrolled for their final academic quarter of the year (spring term). The entire survey sample consisted of students who were Pell Grant eligible to serve as a representation of low SES students in higher education. The federal Pell Grant program is a need-based federal grant that students do not need to repay. Eligibility for the program is based on a calculation of a student’s expected family contribution (EFC) and the annual cost of attendance at an individual institution (Studentaid.ed.gov). The average EFC for the 585 students in the study sample was $1,061 USD for the year. The full cost for one year at the study site for the 2016-2017 academic year was $71,375 USD and the maximum annual amount of Pell Grant a student would be
eligible for in the 2017 academic year was $5,920 USD. At the study site, the average amount of institutional aid awarded to freshman in the 2016 fall cohort was $25,608 USD; comparatively, the average amount of institutional aid awarded to the 585 students in the study sample was $33,789 USD. These students represented 25% of the entire incoming 2016 freshman cohort and therefore were some of the neediest students who decided to attend the institution. By comparison, the institution is one of the top 50 institutions by total cost of attendance (COA) in the country (Martin, 2017).

Data Analysis

All forms of statistical data analysis performed in this study used a significance value of .05. A significance value of .05 can also be stated as having a threshold with a 95% confidence interval (CI), which is an appropriate level for social research and differences between groups (Mujis, 2011). Any analyses that returned a significance value less than .05 were therefore considered a significant value for the purposes of this study across all forms of statistical analysis performed. The data analyses performed in this chapter sought to answer the central research question and the inferential statistics analysis below seeks to respond to the null hypothesis. The primary test for significance in this study, used to answer the research question and support or reject the hypothesis, was the multiple analysis of variance (MANOVA), which inherently allowed for multiple dependent variables that may be correlated between each other to be tested (Mujis, 2011). Mujis (2011) also stated that the MANOVA was only appropriate when the multiple dependent variables under examination are parts of a larger sample. The subscales of the IIS are pieces of the larger survey whole and together make up the picture of student integration created when completing the survey.

**MANOVA assumptions.** The MANOVA test had several important assumptions that
the researcher needed to meet to proceed with the statistical analysis. These assumptions were reviewed prior to conducting the MANOVA and the results of the review of these assumptions are discussed below, starting with the first three assumptions:

Assumption 1. The dependent variables are measured at the interval or ratio level.

Assumption 2. The independent variable is categorical consisting of two or more groups.

Assumption 3. There is independence of observations.

The first three assumptions were reviewed before the MANOVA test was selected to answer the research question of this study and test the study hypothesis. The study needed to meet these assumptions before the MANOVA could be considered the correct statistical analysis (Laerd Statistics, 2015). The dependent variable for the study was integration level, a score calculated by taking the results of the IIS and averaging a respondent’s individual survey responses. The dependent variable therefore was continuous in nature because there was a clear order for the scores and the way the value was calculated could have created an infinite number of values (Creswell & Creswell, 2017). The independent variable studied, learning community participation, was categorical in nature and consisted of only two possibilities, participant or non-participant. Finally, this study collected research via an online survey sent directly to each student’s official university email address. No person from the sample was directly informed of any other participant, which supports a reasonable assumption that there was no relationship between group participants (Creswell & Creswell, 2017). Additionally, in this type of research design there was an independence of observations between the two independent variable groups, as no study participant could be in more than one group due to the logic of the online survey.

Assumption 4. There is an adequate sample size.

The MANOVA test must have as many participants in each category of the independent
variable as there are dependent variables. With the final response number of 106 responses, the study easily met this assumption (Laerd Statistics, 2015). This can be seen in detail below in Table 5.

Table 5

<table>
<thead>
<tr>
<th>Between-Subjects Factors Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>Learning Community Participant</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

Assumption 5. There are no univariate outliers.

Outliers in study data can skew a sample (Creswell & Creswell, 2017). The research must identify and decide to keep those outliers retained or have them removed them from the study sample (Laerd Statistics, 2015). First, this study needed to determine if any univariate outliers existed, which was done by the creation of boxplots in SPSS where the data analysis was completed. To test for outliers in this study, two separate analyses were completed. First, for the two new first-order subscales proposed by French and Oakes (2004) and second for the original five subscales proposed by Pascarella and Terenzini (1983). This was done because the study requires two MANOVA analyses to be conducted, one for each of the IIS survey models. The box plot results for the French and Oakes (2004) subscale model can be found in Figure 2 below. The results in Figure 2 represent the transformed results of applying a logarithmic factor of 10 to the original data.
When testing for outliers in the French and Oakes (2004) first-order model, the Student and Faculty subscales were examined. The results of the French and Oaks subscales in the Figure 2 boxplot above depicted no outliers in both the Student and Faculty subscales for either of the two independent variable groups. This can be seen by the lack of any data points outside of the colored boxes.

The boxplot test for outliers in the Pascarella and Terenzini (1983) subscale model produced outliers in the response data set (Figure 3). To account for this finding, two MANOVA analyses were conducted: one included the outliers and one excluded them. The MANOVA
analysis discussed later in this chapter will explore any significant changes in the results of the study due to the inclusion or removal of the outliers.

![Box plot of Pascarella & Terenzini subscales](image)

**Figure 3.** Pascarella & Terenzini subscales box plot.

With outliers identified and a data plan to account for them in place, the next assumption tested was the following:

*Assumption 6.* The responses are normally distributed

For the MANOVA test to be accurate, it assumes that the data points are normally distributed (Laerd Statistics, 2015). To investigate if the data was normally distributed, descriptive statistics were performed in SPSS for all dependent variables in the study. It was
discovered in the analysis that the sample is not normally distributed. Normality was determined by calculation of skew and kurtosis for each group of the independent variable across each dependent variable. The equation to determine this is shown in Figure 4.

\[
\frac{\text{Skew}}{\text{StandardError}} = Z \text{ Score}
\]

*Figure 4. Skew equation.*

This equation structure is the same for both skewness and kurtosis except inserting the correct respective numerical values for each. Completing this equation created a z-score for the respective independent group on the dependent variable. This z-score must not be more than 2.0 for skewness or 7.0 for kurtosis. When the test was performed, the data failed to meet normality. When conducting a MANOVA, the assumption is that data responses are normally distributed; having failed this assumption, the response data needed to be transformed. The original test for normality determined that all five original Pascarella and Terenzini subscales were skewed to the right of the normal curve, which qualitatively meant less integrated. To remedy this, the data needed to be transformed for all dependent variables across all groups. When transforming data to achieve normality in a positively skewed sample, a logarithmic transformation is appropriate (Laerd Statistics, 2015). For the current study, a logarithmic value of 10 was applied to the dependent variables under study and normality in the sample was achieved. This was tested by taking the skew and kurtosis values in Figure 3 and calculation of the z-score for each of them. Table 6 below contains the skewness and kurtosis values of the transformed data. After data was transformed, all prior assumptions were reconfirmed. The previous assumptions in this chapter were met and presented using the transformed data sets, which achieved normality for the sample. Meaning, the responses were now distributed along a typical bell curve.
Table 6  
*Skewness and Kurtosis of Variables*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>LC Yes/No</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Group Interaction</td>
<td>Yes</td>
<td>.376</td>
<td>-.043</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.338</td>
<td>-1.076</td>
</tr>
<tr>
<td>Institutional Goal Commitment</td>
<td>Yes</td>
<td>.390</td>
<td>.149</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.551</td>
<td>.388</td>
</tr>
<tr>
<td>Faculty Concern for Student Development</td>
<td>Yes</td>
<td>-.056</td>
<td>-.632</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>-.173</td>
<td>-.859</td>
</tr>
<tr>
<td>Interactions with Faculty</td>
<td>Yes</td>
<td>-.428</td>
<td>-.984</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>-.401</td>
<td>-.604</td>
</tr>
<tr>
<td>Academic &amp; Intellectual Development</td>
<td>Yes</td>
<td>-.408</td>
<td>-.468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>-.649</td>
<td>.137</td>
</tr>
<tr>
<td>Student</td>
<td>Yes</td>
<td>.219</td>
<td>-.139</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.011</td>
<td>-.504</td>
</tr>
<tr>
<td>Faculty</td>
<td>Yes</td>
<td>-.434</td>
<td>-.726</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>-.524</td>
<td>-.713</td>
</tr>
</tbody>
</table>

With the determination of a normal sample assumption completed, the next assumption was tested in order to utilize the MANOVA test.

*Assumption 7.* There is no multicollinearity.

Multicollinearity occurs when variables are too highly correlated together, greater than .9, which would mean the MANOVA could not be performed without screening (Laerd Statistics,
2015). If the subscales were too closely correlated it would be difficult to separate the effect of one variable from another. To test for multicollinearity, a bivariate correlation procedure was conducted in SPSS. The results of this analysis for the five original Pascarella and Terenzini (1983) subscales can be found below in Table 7. The results for the two French and Oakes (2004) subscales are also found below in Table 8.

Table 7

Multicollinearity Correlation Table Pascarella & Terenzini

<table>
<thead>
<tr>
<th></th>
<th>PGI</th>
<th>IGC</th>
<th>FCSD</th>
<th>IWF</th>
<th>AID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Group Interaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.379**</td>
<td>.310**</td>
<td>.355**</td>
<td>.372**</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>Institutional Goal Commitment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.379**</td>
<td>.467**</td>
<td>.391**</td>
<td>.638**</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>Faculty Concern for Student Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.310**</td>
<td>.467**</td>
<td>.726**</td>
<td>.449**</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>Interaction with Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.355**</td>
<td>.391**</td>
<td>.726**</td>
<td>.442**</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>Pearson Correlation</td>
<td>.372**</td>
<td>.638**</td>
<td>.449**</td>
<td>.442**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>
The multicollinearity test found above in Table 7 details the correlational values between each one of the five subscales of the original Pascarella and Terenzini (1983) model. The highest correlation value found here is between the AID and IGC subscales with a score of .638. This is well within our upper limit of .9 to eliminate the possibility that the Pascarella and Terenzini (1983) subscales correlated too closely, thus passing the multicollinearity assumption. A second test for multicollinearity was performed on the French and Oakes (2004) first-order model and its two subscales. This test can be found below in Table 8.

<table>
<thead>
<tr>
<th>Academic and Intellectual Development</th>
<th>Sig. (2-tailed)</th>
<th>.000</th>
<th>.000</th>
<th>.000</th>
<th>.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td></td>
</tr>
</tbody>
</table>

** significance at 95% CI

In review of the correlation table for the French and Oakes (2004) first-order subscale model, the two subscales did not violate the principle of multicollinearity as they correlated with a Pearson score of .525. Additionally, the table details that the variables did correlate to some
degree, which is also required for the MANOVA. The MANOVA test is appropriately applied when testing multiple dependent variables that are components of a larger whole (Mujis, 2011). This would mean in practice that some expected correlation must exist between the dependent variables.

Assumption 8. There is homogeneity of variance-covariance matrices.

In this assumption, the dependent variables must covary equally across groups. Due to the research study design and the previous discovery of outliers in the Pascarella and Terenzini (1983) subscale group, the homogeneity of variance-covariance needed to be tested three times. First, for the Pascarella and Terenzini (1983) group that contained the outliers, there was homogeneity of variance-covariances matrices, as assessed by Box's test of equality of covariance matrices (p = .133). Second, for the Pascarella and Terenzini (1983) MANOVA with outliers removed, there was homogeneity of variance-covariances matrices, as assessed by Box's test of equality of covariance matrices (p = .097). Finally, the third data set on which the homogeneity of variance-covariance matrices test was performed was the French and Oakes (2004) first-order subscale model. For this dataset, there was homogeneity of variance-covariances matrices, as assessed by Box's test of equality of covariance matrices (p = .529).

MANOVA analyses. With the data tested and transformed to meet the assumptions necessary to proceed, the research could move forward with a MANOVA analysis. The MANOVA was performed to determine the relation between learning community participation and integration as assessed by the IIS. The dependent variables assessed by the MANOVA were the seven subscales of the IIS, PGI, AID, FSCD, IWF, IGC, Student, and Faculty. The alpha for the dependent variables and the overall MANOVA was .05. Since there were outliers in the Pascarella dataset, the section below presents descriptive statistics and results for three individual
analyses of the MANOVA. The results below are presented in the order of Pascarella and Terenzini (1983) subscales with outliers, without outliers, and French and Oakes (2004) subscales.

**Pascarella & Terenzini MANOVA analyses.** The MANOVA was first performed for the original five Pascarella and Terenzini (1983) subscales. As was previously discussed, due to the outliers in the sample the MANOVA for this group was run twice, the first MANOVA included the outliers and second with the outliers excluded. The results of the first MANOVA on the dataset including outliers can be found in Table 9.

<table>
<thead>
<tr>
<th>Table 9</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Pascarella and Terenzini Subscales with Outliers</em></td>
</tr>
<tr>
<td><strong>Subscales</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>IIS Total</td>
</tr>
<tr>
<td>Peer Group Interactions</td>
</tr>
<tr>
<td>Interactions with Faculty</td>
</tr>
<tr>
<td>Faculty Concern for Student Development</td>
</tr>
<tr>
<td>Academic and Intellectual Development</td>
</tr>
<tr>
<td>Institutional and Goal Commitment</td>
</tr>
<tr>
<td>** significance at 95% CI **</td>
</tr>
</tbody>
</table>

For the Pascarella and Terenzini (1983) MANOVA with outliers, there was a statistically significant difference between learning community participants and non-participants on the
combined dependent variables, F(5, 100) = 2.354, p < .05; Wilks' Λ = .895; partial η² = .105.
This means that a statistically significant difference was found between the two independent
groups under study. These results mean that Pell Grant eligible students who participated in a
learning community were more integrated than non-participants. This was seen in the full-scale
significance MANOVA Wilk’s Lambda of .046. Additionally, the PGI subscale (.044) and the
AID subscale (.038) returned a statistically significant result for the difference in integration
subscale score between learning community participants and non-participants. These subscales
are associated with Tinto’s (1975) social and academic systems of integration within his model.
Table 10 below contains the means and standard deviations for the dependent variables in this
MANOVA analysis, which are the five subscales of the Pascarella and Terenzini (1983) model
with outliers included.

<table>
<thead>
<tr>
<th>Table 10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive Statistics Pascarella and Terenzini MANOVA with Outliers</strong></td>
</tr>
<tr>
<td>Subscale</td>
</tr>
<tr>
<td>Peer Group Interactions** (PGI)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Institutional Goal Commitment (IGC)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Faculty Concern for Student Development (FCSD)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
The descriptive statistics for the first Pascarella and Terenzini MANOVA including outliers can be found in Table 9. In this group, Pell Grant eligible freshmen who participated in learning communities (n = 44) produced a statistically significant mean which was more integrated across two of the five subscales than did Pell Grant eligible non-participants (n = 62), (PGI M = .223, SD = .152; AID M = .307, SD = .137). Specifically, a significant difference between group means at the .05 level was found in the AID and the PGI subscales for this dataset. In the AID subscale, learning community participant scores were more integrated (M = .307, SD = .137) than were non-participant scores (M = .360, SD = .121). This result suggests that the Pell Grant eligible students who participated in a learning community were better integrated at a statistically significant level than were non-participants on the AID subscale. Within the PGI subscale, learning community participant scores were more integrated (M = .223, SD = .152) than were non-participant scores (M = .360, SD = .121). The result of this subscale means that Pell Grant eligible learning community participants were more integrated to a statistically significant level than non-participants with respect to their peer relationships. The remaining three subscales did not produce a statistically significant difference in the means between the learning community group and the non-participant group. Next, to incorporate for the presence of outliers in this dataset, a second MANOVA was conducted on the Pascarella and
Terenzini (1983) subscales with outliers removed. This analysis can be found below in Table 11.

<table>
<thead>
<tr>
<th>Table 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Pascarella and Terenzini Subscales without Outliers</em></td>
</tr>
<tr>
<td>Subscales</td>
</tr>
<tr>
<td>IIS Total</td>
</tr>
<tr>
<td>Peer Group Interactions (PGI)</td>
</tr>
<tr>
<td>Interactions with Faculty (IWF)</td>
</tr>
<tr>
<td>Faculty Concern for Student Development (FSCD)</td>
</tr>
<tr>
<td>Academic and Intellectual Development (AID)</td>
</tr>
<tr>
<td>Institutional and Goal Commitment (IGC)</td>
</tr>
</tbody>
</table>

** significance at 95% CI

In the case of the Pascarella and Terenzini (1983) MANOVA without outliers, the results returned significance in the same subscales, as well as the entire survey, as did the MANOVA for the dataset that included the outliers. For the Pascarella and Terenzini (1983) MANOVA without outliers, there was a statistically significant difference between learning community participants and non-participants on the combined dependent variables, $F(5, 94) = 2.776, p < .05$; Wilks' $\Lambda = .871$; partial $\eta^2 = .129$. This means that a statistically significant difference was found between the two independent groups under study. These results mean that Pell Grant eligible students who participated in a learning community were more integrated than non-participants. This was seen in the full-scale significance MANOVA Wilk’s Lambda of .022 and
the PGI (.42), and AID (.011) subscales. These two subscales were also significant in the MANOVA sample with outliers left in the dataset. In this sample without outliers, the IWF at .934, FCSD at .442, and IGC at .464, all returned statistically insignificant results as they did in the dataset that included outliers. This indicated that the inclusion of outliers as valid responses did not significantly change the results of the study. The removal of outliers did not create significance in the subscales that had previously displayed no significance. The results of the survey therefore indicated increased integration for students who participated in a learning community in comparison to those who did not. Table 12 below displays the descriptive statistics for the Pascarella MANOVA with outliers removed.

Table 12

Descriptive Statistics Pascarella and Terenzini MANOVA without Outliers

<table>
<thead>
<tr>
<th>Subscales</th>
<th>I enrolled in a Learning Community this year as a Freshman.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Peer Group Interactions (PGI)</td>
<td>Yes</td>
<td>.218</td>
<td>.149</td>
<td>.024</td>
<td>.169</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.284</td>
<td>.168</td>
<td>.021</td>
<td>.242</td>
</tr>
<tr>
<td>Institutional Goal Commitment (IGC)</td>
<td>Yes</td>
<td>.186</td>
<td>.132</td>
<td>.018</td>
<td>.149</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.204</td>
<td>.111</td>
<td>.016</td>
<td>.172</td>
</tr>
<tr>
<td>Faculty Concern for Student Development (FSCD)</td>
<td>Yes</td>
<td>.271</td>
<td>.179</td>
<td>.026</td>
<td>.219</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.244</td>
<td>.165</td>
<td>.023</td>
<td>.199</td>
</tr>
<tr>
<td>Interaction with Faculty (IWF)</td>
<td>Yes</td>
<td>.321</td>
<td>.188</td>
<td>.028</td>
<td>.266</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.318</td>
<td>.173</td>
<td>.024</td>
<td>.270</td>
</tr>
</tbody>
</table>
For the Pascarella and Terenzini (1983) subscales MANOVA with outliers removed (Table 11), there were again only two subscales with statistically significant means that indicated higher integration for learning community participants. Due to the removal of outliers, the number of survey respondents for each independent variable of this MANOVA was reduced. After removal of outliers, there were 43 learning community participants and 57 non-participants. In this group, Pell Grant eligible freshmen who participated in learning communities (n = 43) produced a statistically significant mean that was more integrated across two of the five subscales than did Pell Grant eligible non-participants (n = 57), (AID M = .300, SD = 1.33; PGI M = .218, SD = 1.49). Specifically, a significant difference between group means at the .05 level was found in the AID and the PGI subscales for this dataset. In the AID subscale, learning community participant scores were more integrated (M = .300, SD = .133) than were non-participant scores (M = .362, SD = .106). This result suggested that the Pell Grant eligible students who participated in a learning community were better integrated at a statistically significant level than were non-participants on the AID subscale. Within the PGI subscale, learning community participant scores were more integrated (M = .218, SD = 1.49) than were non-participant scores (M = .284, SD = .168). The result of the PGI subscale means that Pell Grant eligible learning community participants were more integrated to a statistically significant level than non-participants with respect to their peer relationships. The remaining three subscales did not produce a statistically significant difference in the means between the learning community group and the non-participant group.
French & Oakes MANOVA analysis. In their work in 2004, French and Oakes proposed a new first-order model of the IIS to be tested. In this new model, the authors combined the Peer Group Interaction, Academic and Intellectual Development, and the Institutional Goal Commitment subscales to formulate a new Student Integration subscale. The authors next combined the Interactions with Faculty and the Faculty Concern for Student Development subscales to create the Faculty Integration subscale. French and Oakes (2004) argued that these two new first-order subscales were better representations of the social and academic integration theories proposed by Tinto (1992). For this MANOVA analysis, the dependent variables become the Student and Faculty subscales. Table 13 displays the results of a MANOVA when using the Student and Faculty Integration Subscales proposed by French and Oakes in 2004. The survey results returned with a significant difference between learning community participants and non-participants as it did with the traditional five subscales.

<table>
<thead>
<tr>
<th>Baker-French Subscales</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker-French IIS Total</td>
<td>0.015</td>
</tr>
<tr>
<td>Faculty Integration</td>
<td>0.598</td>
</tr>
<tr>
<td>Student Integration</td>
<td>0.023</td>
</tr>
</tbody>
</table>

For the French and Oakes (2004) IIS model, there was a statistically significant difference between learning community participants and non-participants on the combined
dependent variables, $F(2, 103) = 4.352, p < .02$; Wilks' $\Lambda = .922$; partial $\eta^2 = .078$. This meant that as with the Pascarella and Terenzini (1983) subscales, the survey results indicated participation in a learning community correlated with increased university integration in comparison to students who did not participate. This was seen in the full-scale significance MANOVA Wilk’s Lambda of .015 and the Student subscale (.023). As with the Pascarella and Terenzini (1983) subscales, the Faculty subscale in Table 13 returned no significant difference for learning community participants in comparison to non-participants. The subscale that drove the significance in this MANOVA survey was the Student subscale. Table 14 below displays the descriptive statistics for the French and Oakes (2004) MANOVA.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>I enrolled in a Learning Community this year as a Freshman.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Faculty</td>
<td>Yes</td>
<td>.301</td>
<td>.174</td>
<td>.025</td>
<td>.252</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.291</td>
<td>.156</td>
<td>.021</td>
<td>.250</td>
</tr>
<tr>
<td>Student*</td>
<td>Yes</td>
<td>.250</td>
<td>.120</td>
<td>.017</td>
<td>.215</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>.302</td>
<td>.110</td>
<td>.015</td>
<td>.273</td>
</tr>
</tbody>
</table>

** significance at 95% CI

The descriptive statistics for the French and Oakes MANOVA can be found in Table 14. In this group, Pell Grant eligible freshmen who participated in learning communities (n = 44) produced a statistically significant mean that was more integrated across one of the two subscales than did Pell Grant Eligible non-participants (n = 62), (Student M = .250, SD = .120).
Specifically, a significant difference between group means at the .05 level was found in the
Student subscale this dataset. In the Student subscale, learning community participant scores
were more integrated (M = .250, SD = .120) than were non-participant scores (M = .302, SD =
.110). This result suggests that the Pell Grant eligible students who participated in a learning
community were better integrated at a statistically significant level than were non-participants on
the student subscale. The student subscale incorporates the PGI, AID, and IGC subscales of the
original IIS. This means that the results of the MANOVA suggest that Pell Grant eligible
learning community participants are better integrated socially and academically than non-
participants. The Faculty subscale did not produce a statistically significant difference in the
means between the learning community group and the non-participant group. The lack of
statistically significant differences between the two independent variable groups across faculty
integration will be discussed in Chapter Five.

**MANOVA analysis key findings.** A total of three MANOVA analyses were performed
on the full IIS, which investigated the integration level of students on the full scale as well as
across the seven total subscales. In all three MANOVA analyses, the full IIS scale returned a
significant difference of integration level for low SES students who participated in a learning
community during freshman year as opposed to non-participants. The Pascarella and Terenzini
(1983) analysis also produced significance between these two group across the Academic and
Intellectual Development (AID) subscale and the Peer Group Interaction (PGI) subscale. These
significant differences in subscales was seen for both the data set including outliers as well as the
set excluding outliers. In the set excluding outliers, the significance values were simply
increased but for the purposes of this research, the results remain the same.

The third and final MANOVA analysis completed in this study on the IIS broken down

The overall results of the MANOVA analyses performed suggest that there is a meaningful difference in integration and persistence between learning community participants and non-participants. In all the MANOVA analyses the student integration factors were the key drivers of significance. These factors were seen in both the academic and social systems of Tinto’s (1975) model. The results of these findings will be discussed in Chapter Five.

**T-test analysis.** With the MANOVA analysis completed on the seven possible subscales, all 30 questions were reviewed to take a deeper look at what was occurring in the student response data. To do this, the mean for each survey question was calculated across both student groups. The questions below were categorized by their larger subscale association and the mean for each question by the respective student group can be found in Table 15 below. In Table 15, a smaller mean is qualitatively representative of a more integrated response to the question. In the survey tool, a rank of “strongly agree” equated to a 1 in the survey calculations, while a rank of “strongly disagree” equated to a 5. There is no statistical effect on the inversion of the scale in calculations other than it must be understood scores closer to one equate to a more integrated student.
### Table 15

**Descriptive Survey Results**

<table>
<thead>
<tr>
<th>Individual Questions</th>
<th>Full Sample Mean N = 106</th>
<th>Full Sample SD N = 106</th>
<th>Learning Commun Mean n = 44</th>
<th>Learning Commun SD n = 44</th>
<th>No Learning Commun Mean n = 62</th>
<th>No Learning Commun SD n = 62</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faculty Concern for Student Development Subscale (Faculty)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students.</td>
<td>1.956</td>
<td>.764</td>
<td>2.04</td>
<td>.845</td>
<td>1.89</td>
<td>.703</td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely outstanding or superior teachers.</td>
<td>1.92</td>
<td>.917</td>
<td>2.02</td>
<td>1.023</td>
<td>1.84</td>
<td>.834</td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely interested in students.</td>
<td>2.01</td>
<td>.981</td>
<td>2.20</td>
<td>1.069</td>
<td>1.87</td>
<td>.896</td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely interested in teaching.</td>
<td>1.97</td>
<td>1.009</td>
<td>2.05</td>
<td>1.200</td>
<td>1.92</td>
<td>.855</td>
</tr>
<tr>
<td>Many faculty members I have had contact with are interested in helping students grow in more than just academic areas.</td>
<td>1.90</td>
<td>.955</td>
<td>1.91</td>
<td>.960</td>
<td>1.89</td>
<td>.960</td>
</tr>
<tr>
<td><strong>Institutional and Goal Commitment Subscale (Student)</strong></td>
<td>1.68</td>
<td>.579</td>
<td>1.63</td>
<td>.563</td>
<td>1.72</td>
<td>.593</td>
</tr>
<tr>
<td>Statement</td>
<td>Mean</td>
<td>Std. Dev.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>------</td>
<td>-----------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important to me to graduate from college.</td>
<td>1.22</td>
<td>.586</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important to me to graduate from this University.</td>
<td>1.57</td>
<td>.946</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am confident that I made the right decision in choosing to attend this University.</td>
<td>1.71</td>
<td>.946</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I will most likely register at this University next fall.</td>
<td>1.26</td>
<td>.694</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied with the opportunities to participate in organized extra-curricular activities at this University.</td>
<td>1.87</td>
<td>.806</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am happy with my living residence arrangement.</td>
<td>2.48</td>
<td>1.325</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peer Group Interaction Subscale (Student)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My interpersonal relationships with students have positively influenced my intellectual growth and interest in ideas</td>
<td>2.00</td>
<td>1.051</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have developed close personal relationships with other students.</td>
<td>1.73</td>
<td>1.056</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The student friendships I have developed have been personally satisfying.</td>
<td>1.74</td>
<td>1.045</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My personal relationships with other students have positively influenced my personal growth, values, and attitudes.</td>
<td>1.76</td>
<td>1.010</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It has been easy for me to meet</td>
<td>2.16</td>
<td>1.180</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
and make friends with students.**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Faculty</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many students I know would be willing to listen and help me if I had a personal problem</td>
<td>1.97</td>
<td>1.055</td>
</tr>
<tr>
<td>I am satisfied with my dating relationships.</td>
<td>2.46</td>
<td>1.259</td>
</tr>
</tbody>
</table>

**Interactions with Faculty Subscale (Faculty)**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Faculty</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am satisfied with my opportunities to meet and interact informally with faculty members</td>
<td>2.00</td>
<td>.862</td>
</tr>
<tr>
<td>I have developed a close, personal relationship with at least one faculty member.</td>
<td>2.32</td>
<td>1.223</td>
</tr>
<tr>
<td>My non-classroom interactions with faculty members have positively influenced my intellectual growth and interest in ideas.</td>
<td>2.27</td>
<td>1.091</td>
</tr>
<tr>
<td>My non-classroom interactions with faculty members have positively influenced my personal growth, values, and attitudes.</td>
<td>2.34</td>
<td>1.041</td>
</tr>
<tr>
<td>My non-classroom interactions with faculty members have positively influenced my career goals and aspirations.</td>
<td>2.36</td>
<td>1.062</td>
</tr>
</tbody>
</table>

**Academic and Intellectual Development Subscale (Student)**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Faculty</th>
<th>Student</th>
</tr>
</thead>
</table>
| Question                                                                                                                                                                                                                                                                                                                                 | Rating | Standard Error | t-value | p-value | Percentage | Significance at 95% CI 
---|---|---|---|---|---|---
I am satisfied with my academic experience at this University.                                                                                                                                                                                                                                                                         1.97 | .951 | 2.00 | 1.121 | 1.95 | .818 |
I am more likely to attend a cultural event (e.g., a concert, lecture, or art show) now compared to few months ago.                                                                                                                                                                                                                           2.31 | 1.166 | 2.09 | 1.096 | 2.47 | 1.197 |
In addition to required reading assignments, I read many of the recommended books in my courses.**                                                                                                                                                                                                                                      3.43 | 1.324 | 3.11 | 1.434 | 3.66 | 1.200 |
I am satisfied with the extent of my intellectual development.                                                                                                                                                                                                                                                                          1.95 | .909 | 1.89 | .784 | 2.00 | .992 |
My interest in ideas and intellectual matters has increased since starting classes                                                                                                                                                                                                                                                      1.88 | .765 | 1.75 | .751 | 1.97 | .768 |
This year my academic experience has positively influenced my intellectual growth and interest in ideas.                                                                                                                                                                                                                                 1.80 | .821 | 1.66 | .680 | 1.90 | .900 |
I have performed academically as well as I anticipated.                                                                                                                                                                                                                                                                                2.53 | 1.296 | 2.36 | 1.348 | 2.65 | 1.256 |
**Student Subscale**                                                                                          **1.9760** | **.53881** | **1.84** | **.534** | **2.06** | **.530** |
**Faculty Subscale**                                                                                                                                                                                                                                                  **2.1075** | **.73026** | **2.15** | **.799** | **2.07** | **.682** |
**Full IIS Scale**                                                                                                        **2.03** | **.524** | **1.955** | **.556** | **2.08** | **.498** |

** significance at 95% CI

While all but one question in the AID and PGI subscales return with a more integrated
mean for the learning community group, only two questions returned with a significant
difference between means. To calculate difference between means, an independent samples t-
test was completed. Specifically, “It has been easy for me to meet and make friends” and “In
addition to required reading assignments, I read many of the recommended books in my courses”
returned a statistically significant difference between the two groups.

To be valid, the t-test also needed to meet certain assumptions. Specifically, the data
behind the t-test needed to meet the first three assumptions met with the MANOVA analysis, a
continuous dependent variable, a categorical independent variable with two categories, and
independence of observations. As the parameters for the t-test are the same as the MANOVA, it
is known that these assumptions were already met.

Like the MANOVA analysis, the t-test for independent groups was a parametric test so
the data must be normally distributed. To achieve a normal distribution, the data for “It has been
easy for me to meet and make friends” was transformed by a logarithmic calculation of 10 on the
raw data. The data responses on “In addition to required reading assignments, I read many of the
recommended books in my courses” were normally distributed and did not need to be
transformed. The skewness and kurtosis values for the two distributions of these two questions
can be seen below in Table 16. The calculation found previously in Figure 4 was the same
calculation used to determine that the skewness and kurtosis values below fit a normal
distribution.
Table 16
*T-Test Skewness and Kurtosis*

<table>
<thead>
<tr>
<th>Question</th>
<th>Group</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Easy to Make Friends”</td>
<td>Yes LC</td>
<td>.639</td>
<td>-.537</td>
</tr>
<tr>
<td></td>
<td>No LC</td>
<td>-.162</td>
<td>-1.289</td>
</tr>
<tr>
<td>“Recommended Reading Material”</td>
<td>Yes LC</td>
<td>-.010</td>
<td>-1.485</td>
</tr>
<tr>
<td></td>
<td>No LC</td>
<td>-.659</td>
<td>-.622</td>
</tr>
</tbody>
</table>

With response data informing the t-test confirmed for normal distribution, the next assumption was for no outliers in the dataset. Figure 5 below represents the boxplot for both questions to test for outliers. The data for “So far it has been easy for me to meet and make friends” had to be transformed to achieve normality and Figure 5 contains this transformed data.

*Figure 5. T-test Boxplot.*
With no outliers in the dataset for either question, the final assumption of the t-test for independent samples could be tested. In this final assumption, the datasets for each question needed to be checked for homogeneity of variance. Fortunately, in SPSS, Levene’s test for variance is produced when the t-test is run. With the results of Levene’s test within the t-test data output of SPSS, a significance value for the difference of means is provided in both scenarios (having or lacking homogeneity of variance). For the question “It was easy for me to meet and make friends”, there was homogeneity of variances for scores for learning community participants, as assessed by Levene's test for equality of variances (p = .865). For the question “In addition to required reading assignments, I read many of the recommended books in my courses”, the assumption of homogeneity of variances was violated, as assessed by Levene's test for equality of variances (p = .015). Due to this violation, the significance value accounting for this violation will be presented.

**T-test results.** With the assumptions of an independent samples t-test accounted for, significance values were calculated and reported. Table 17 below reported the t-test for independent samples results for the two factors under discussion in this section, “It was easy for me to meet and make friends” and “In addition to the required reading material, I read many of the recommended books in my courses”.

<table>
<thead>
<tr>
<th>Question</th>
<th>Independent Variable</th>
<th>Significance Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>“It was easy for me to make Friends…”</td>
<td>Learning Community Participant v Non-Participant</td>
<td>.006</td>
</tr>
<tr>
<td>“In addition to required reading, I read recommended books…”</td>
<td>Learning Community Participant v Non-Participant</td>
<td>.042</td>
</tr>
</tbody>
</table>
The results in Table 17 displayed a significance level for both individual factors of the study. In the question, “It was easy for me to meet and make friends” a higher significance was found for the difference of means between learning community participants and non-participants. This question was a part of the PGI subscale in the Pascarella and Terenzini (1983) organization and a part of the Student subscale in the French and Oakes (2004) break down. The result of a significant difference on this question for learning community participants means that it was easier for them to make friends during their freshman year than it was for non-participants. This was a key factor of the study and the scale in the assessment of learning communities as a primary goal is to group students together.

The second question in Table 17 shows the result of a significant t-test for “In addition to required reading, I read many of the recommended books in my classes”. This question was a part of the AID subscale in the Pascarella and Terenzini (1983) version and a part of the Student subscale in the French and Oakes (2004) version. This question implied that students who participated in learning communities during their freshmen year were more likely to go beyond the required readings in their classes than students who did not. This result was important because it indicates that increased integration seen for learning community participants was not purely on the social system in Tinto’s (1975) model. Due to the significance of this question and the significance of the larger AID subscale, the learning community group was better integrated across the academic system as well as the social system than were the non-participants.

**T-test key findings.** The T-test analyses found significant differences across two questions between the learning community participant group and the non-participant group. Specifically, the questions “It was easy for me to meet and make friends” and “In addition to required reading assignments, I read many of the recommended books in my courses” returned a
significant difference between means of the two groups. These two questions were both found within the Student subscale as well as within the Peer Group Interaction and Academic and Intellectual Development subscales respectively. Particularly, “It was easy for me to meet and make friends” is of interest to the design and administration of learning communities. The implications for these findings will be discussed in Chapter Five with respect to learning communities as well as implications beyond the specific study site.

Summary

A total of five statistical analyses were performed, three MANOVA’s and two t-tests, on the data and significance was found across multiple factors. These statistical results when taken together gave a picture that Pell Grant eligible freshmen who participated in a learning community were better integrated with the university than those who did not. These results were meaningful to accept the primary hypothesis of the study and to inform institutional administrators concerning the implementation of student success and retention initiatives, such as learning communities. Tinto’s (1975) framework suggested that increasing the integration level of a student would increase their persistence and retention within an institution. The results of this chapter suggest that learning communities are effectively achieving this for low SES students at the research site for this study. However, the increased integration for learning community participants was not seen with direct respect to university faculty. This meant that the learning community students did not see an effect on their integration level with faculty that was due to participating in the learning community. This is a piece of data for the specific institution under study to explore with respect to the setup and outcomes of its freshmen learning communities. Further discussion around the implications of these results can be found in Chapter 5.
Chapter Five: Discussion

This chapter will present conclusions based on the data analysis presented in Chapter Four of this study. This chapter will also discuss implications for learning communities, level of integration for low SES students, and institutional leverage for influencing student integration level. Possible reasons for the results are discussed and recommendations for future research are proposed.

There is no argument that the cost of higher education has risen and is nationally noted to have negatively influenced student enrollment, persistence, and graduation (Goldrick-Rab, Kelchen, Harris & Benson, 2016; Hurwitz, 2012; Lovenheim & Reynolds, 2011, 2013). This increased cost has led to the greater stratification of higher education across institutional type (Lillis, 2008). With the socioeconomic gap in higher education widened across institutional type, the current research sought to explore possible solutions to increase low socioeconomic (SES) student persistence in high cost institutions by means other than simply increasing aid. Many institutions do not have the capacity to offer more funding to low SES students, resulting in the need for other means of increasing low SES student persistence.

In efforts to bring more awareness to this issue, the researcher sought to answer the following question and confirm the hypothesis below.

Q1: To what extent does the participation in a learning community increase the level of integration for low SES students at a private, selective, high cost university?

H1: Learning community participation will increase low SES student integration at a private, four-year, selective, high cost institution.

The results presented in Chapter Four support the acceptance of the primary research hypothesis. Low SES students who participated in a learning community were significantly
correlated with a higher level of integration than non-participants. Increased integration level is associated with increased persistence and retention through Tinto’s (1975) model of student departure. Tinto’s (1975) model posits student integration level can be influenced by the institution across two systems, the academic and the social. These results imply that low SES students at high cost institutions are more likely to persist if they participate in a learning community.

**Summary of Statistical Findings**

Based on the data analysis performed, it can be said with greater than 95% confidence that Pell Grant eligible students who participated in a learning community during their freshman year at the study site had a higher level of institutional integration than those who did not. The MANOVA analyses examined the 30 questions of the IIS and found a significant difference in the integration score for Pell Grant eligible student who participated in a learning community as opposed to those who did not. The IIS was analyzed twice, once with the original five subscales proposed by Pascarella and Terenzini (1983) and once with the modified subscales proposed by French and Oakes (2004). Both statistical analyses found that participating in a learning community was correlated with higher integration scores for Pell Grant eligible students. For the original five subscales proposed by Pascarella and Terenzini (1983), the Academic and Intellectual Development subscale and the Peer Group Interactions subscale both showed higher levels of integration for the learning community participants than the non-participants. The Student subscale proposed by French and Oakes (2004) showed a higher level of integration for learning community participants than non-participants as well.

To provide a deeper analysis of the individual factors that lie underneath of the IIS, means were calculated for all 30 factors. The 30 factors were tested via an independent samples
t-test for significance between the learning community participant and non-participant groups. Two statements or factors produced means that resulted in a statistically significant, more integrated score for learning community participants than for non-participants. Specifically, “It was easy for me to meet and make friends” and “In addition to required reading, I read many of the recommended books for my courses” both returned a mean for the learning community group that was significantly more integrated than the non-participant group. Each of these questions is found in one of the Pascarella and Terenzini (1983) subscales and both are contained within the French and Oakes (2004) Student subscale. The Peer Group Interaction (PGI) subscale contains the question on making friends and the Academic and Intellectual Development (AID) subscale contains the question on recommended reading assignments.

**Implications of Statistical Findings**

The findings of this study indicated that Pell Grant eligible student participation affected student integration with the university in a statistically significant way. This suggests that the group of students who participated in a learning community were more likely to persist and retain at the study site according to Tinto’s (1975) theory of student departure. The data analysis presented in Chapter Four supports the rejection of the null hypothesis and the acceptance of the research hypothesis that participation in a learning community does increase the level of integration for low SES students in a high cost institution.

**Implications for practice.** This section discusses the implications for practice that can be taken from the results of this study. Specifically, the results of this study have implications for learning community design and low SES student persistence and success. Both revelations can inform administrators who are often given the task of increasing student success without much funding to accomplish the goal.
Given the aim of learning communities at the study site, this data supported the larger goal of increased student social integration level. Although learning communities have been demonstrated to have this effect in the past, it has been associated with cohorting of students into these communities by the group that an institution is specifically trying to influence (Goldman, 2012; Hotchkiss et al., 2006). For example, if an institution aims to increase the persistence of its engineering students, it should groups these students into a cohorted learning community. However, an increased level of integration was seen in the results of this study even in the absence of pre-grouping or cohorting these learning communities by the group dimension under study (low SES status).

The data presented in this study suggest learning communities have a positive effect on integration even in the absence of grouping or cohorting students by the target variable or group that the institution attempted to influence. For low SES students, it would be insensitive at best, and likely unethical, to group all Pell Grant eligible freshman together, but in the absence of this, the students within this study still experienced a primary goal of the initiative, even while at a high cost institution. This implies that for the institution under study and other institutions, learning community students do not need to be grouped by student type. Indeed, the increased integration effect of learning communities can be experienced by groups of students who are in dissimilar groups. The grouping appears to have the effect of increased integration even for dissimilar students within the group.

For administrators in high cost institutions that do not have leverage over financial aid, the results of this study suggest that low SES students can be positively affected through a different, possibly traditional, student integration means. Specifically, the results of this study suggest that administrators responsible for student persistence and retention at high cost
institutions can directly influence their low SES students’ likelihood of persistence by involving these students in learning communities. When considering the institution under study, the traditional retention rate of Pell Grant eligible students lags behind the general population by 4% annually. By including a greater number of low SES students into learning communities, the institution can possibly close the gap on this retention rate.

Notably, the strongest implications of the data analysis described above suggest that learning communities for freshmen affected the social integration level of Pell Grant eligible students. Within Pascarella and Terenzini’s initial study (1983), it was found that the social integration sphere had the strongest influence on academic performance. This has strong implications for the current study, which found a statistically significant increase in integration level across the social aspects of the IIS for learning community participants. Tinto’s (1991) theory suggested that affecting social integration would have a positive effect on student retention. The data found in this study therefore implies that higher education administrators, even in high cost institutions, can have significant influence on students of low income with initiatives such as learning communities. Essentially, institutional levers beyond simply addressing cost can be enacted to influence student retention positively.

Additionally, it was concluded from the results that for Pell Grant eligible freshmen who participated in learning communities, there was no significant effect with respect to integration level surrounding faculty. The two original subscales surrounding faculty proposed by Pascarella and Terenzini (1983), Interactions with Faculty (IWF) and Faculty Concern for Student Development (FCSD), both returned no significant correlation to learning community participation. Additionally, the Faculty Integration subscale proposed by French and Oakes (2004) yielded the same lack of correlation. It can be drawn from this study that the freshmen
learning communities at the institution under study are doing a good job of connecting students to their peers but potentially not to their faculty. However, the connection with peers was strong enough in both first-order IIS Subscales to suggest that the overall level of integration was significantly better for those who did participate in a learning community.

A major conclusion derived from this research therefore surrounds the design of learning communities. Specifically, the results of this study suggest that students do not need to be grouped by the specific at-risk group that the institution is attempting to influence and that the design of the learning community needs to incorporate faculty more effectively. In particular, learning communities did not connect this group in a meaningful way to their faculty given the lack of difference in integration level between participants and non-participants across the survey factors that related to faculty. Even though the learning communities still demonstrated significant results in increasing the level of integration for participants, this result would be strengthened if effortful design around the integration of faculty was undertaken.

**Reflections as a scholar practitioner.** In reflecting on the research process of this study from where it started, I am pleasantly surprised by the results. At the outset with the institution under study, I was afraid that barriers facing low SES students were too great when it came to issues of financing. The results of this study show me that students who may have many obstacles stacked against them can be given an increased chance of persisting if the institution engages in these types of student success initiatives. Additionally, the results of this study show that we can have a halo effect with these types of student success and retention initiatives. Meaning, we may enact an initiative that is targeted at one group of students but we might be also affecting subgroups within that population in a positive way that we originally did not account for. Finally, the research process has significantly changed me to the point where I am
initiating an “Academic Advising Research Agenda” at my institution. We do fantastic work in advising, but the research base is lacking as well as the presence of scholar practitioners in the field. I think my position and my institution uniquely positions me to be able to make this a goal for the coming year. Through this initiative, I seek to increase the consumption and production of academic advising research at my institution and nationally and am excited for the next research project.

**Reasons for Results**

Learning communities have been shown through prior research to increase student integration level, but the effect had not been tested on financially needy students at a high cost private research institution. Learning communities at the study site are grouped and administered by academic colleges. Although the difficulties of scheduling at the study site do not allow for students in learning communities to share all their specific course sections together, the respective colleges do group all the students of a learning community into the same freshman residence hall as well as the same one credit freshman transition class (University 101). To this end, it was found in the goal and outcome statements for every learning community that a priority is placed on student social integration. The data analysis presented in Chapter Four supported that this outcome is achieved even in the case of students with low socioeconomic means.

The study institution is unique because incoming freshmen applied directly for admission to a specific major and the institution has no traditional core curriculum. This lack of a common core, as it is most regularly understood in higher education, was potentially influential on the effectiveness of the learning community concerning faculty integration levels. This type of curricular setup prevented the learning communities from being run by faculty. The learning
communities were primarily administered and managed by academic advisors and other administrators. Therefore, in most cases the primary professional university representative whom learning community participants interfaced with outside of class was not a faculty member. If the questions on the IIS survey that are associated with the IWF subscale were adjusted to reflect an advisor or an administrator, it could potentially lead to a large change in integration level for these students across this scale. This would serve as a possible area of improvement for learning community design at the study site.

**Future Research**

There are several possible ways that future research could improve or advance upon the research presented in this study. A subsequent study that would improve the association of the integration effect demonstrated here with direct connection to student retention could be undertaken. More specifically, a study design where this survey was administered at the close of freshmen year and respondents who returned for sophomore year could be tracked. A direct association with IIS score could be examined for significance with respect to one-year retention rate.

A mixed-methods study could also be conducted to improve on the research presented here. In this type of design, the IIS could be given first to students to achieve quantitative results. After results were produced from the IIS, students could be followed up with directly to clarify the reasons behind their responses on the scale.

**Future Utilization of Survey Tool.** Future institutions seeking to utilize the Institutional Integration Scale (IIS) may benefit from some specific additions if investigating learning communities. Statements such as below could be added to the IIS to inform learning community
design:

- An upper classmen peer leader would have enhanced my sense of belonging.
- I felt better connected to (Institution) because my learning community was organized by my major.
- I had a meaningful relationship with my academic advisor.

Indeed, the institutional integration survey was not tailored specifically to develop feedback on the design of learning communities. Adjusting the survey in future research would allow the researcher to garner more information on the design of learning communities. Researchers would be able to investigate both the impact on institutional integration and on the intended goals or outcomes for learning communities. This would help inform best practice in the field of learning community administration.

Conclusion

Vincent Tinto’s (1992) theory of student attrition has been a leading theory on retention for over 40 years since the original theory was published in 1975. Much research has occurred over that time that has validated the theory as well as the practical implications of the theory through initiatives such as learning communities. Learning communities have been adopted by all forms of institutions and are considered an effective tool in the industry to influence student institutional integration and likelihood of retention. However, the research lacked a review of the effect of learning communities on low SES students, which was the basis for the research in this study. Pell Grant eligible students at a private, four-year, selective, high cost institution were surveyed using the IIS at the end of their freshman year to determine if there was a difference in level of integration between students who participated in a learning community and those who did not.
Pascarella and Terenzini’s (1983) IIS contained five original subscales tied to Tinto’s (1975) first theory of attrition. French and Oakes (2004) re-validated the original five subscales, added four questions to the survey and created two new first-order subscales for the IIS. Baker et al. (2011) found that four items within the IIS should be removed due to low reliability of those questions. Using Cronbach’s alpha, the validity of the entire IIS as well as the seven possible subscales were reconfirmed. The subsequent data analysis showed a significant difference between the learning community group and the non-learning community group across the Peer Group Interaction, Academic and Intellectual Development, and Student Integration subscales. The significant differences in these subscales were large enough to create a significant difference between the two groups when measured against the full IIS.
RESOURCES:


Dougherty, K. J., & Kienzl, G. S., (2006). It’s not enough to get through the open door: inequalities by social background in transfer from community colleges to four-year colleges. *Teachers College Record 108*(3), 452-487.


10.1016/j.econedurev.2016.02.009


Spady, W. G. (1970). Dropouts from higher education: An interdisciplinary review and
synthesis. *Interchange, 1*(1), 64-85.


Tinto, V. (2010). From theory to action: Exploring the institutional conditions for student


Appendix A

Informed Consent

Title: The Impact of Perceived Integration Level on First to Second Year Retention of Pell Grant Eligible Students in Private Higher Education

Appendix E Consent Form

Investigators: Principal Investigator, Dr. Bryan Patterson, Student Researcher, Steven Schaffling
Northeastern College of Professional Studies.

We are inviting you to participate in the following online survey. The survey is part of a research study whose purpose is to compare levels of institutional integration for Pell Grant eligible students. This survey should take you approximately 10 minutes to complete. We expect about 200 out of a possible 600 eligible students will complete the survey for this study.

We are asking you to participate in this study because you entered [Redacted] University as a freshman in the 2016 academic year and were eligible to receive a Federal Pell Grant. Participation in this survey is voluntary and question responses are not mandatory. If you begin the web-based online survey, you can stop at any time. This research is being done exclusively for Steven Schaffling’s doctoral degree from Northeastern University. [Redacted] is solely the research site, though results may be shared with [Redacted].

There are no foreseeable risks or discomforts to you for taking part in this study. If you decide not to take part in this study it will not be held against you. Your part in this study is anonymous to the researcher(s). However, because of the nature of web-based surveys, it is possible that respondents could be identified by the IP address or other electronic record associated with the response. Neither the researcher nor anyone involved with this survey will be capturing those data. Any reports or publications based on this research will use only group data and will not identify you or any individual as being affiliated with this project. At the close of the data analysis component of this study responses will be destroyed.

If you have any questions regarding electronic privacy, please feel free to contact Mark Nardone, NU's Director of Information Security via phone at 617-373-7901, or via email at privacy@neu.edu.
If you have any questions about this study, please feel free to contact Steven Schaffling (Schaffling.s@husky.neu.edu) or Bryan Patterson (B.Patterson@northeastern.edu) the Principal Investigator.

This research has been reviewed and approved by an Institutional Review Board (IRB) of both Northeastern University and [Redacted] University. An IRB reviews research projects so that steps are taken to protect the rights and welfare of humans subjects taking part in the research.
If you have any questions regarding your rights as a research participant, please contact Nan C Regina, Human Subject Research Protection, 960 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: 617.373.4588, Email: irb@neu.edu. You may call anonymously if you wish.

By choosing the “yes” radio button below, you are indicating that you consent to participate in this study. Please print out a copy of this consent form for your records.

Thank you for your time.
Steven Schaffling
Dr. Bryan Patterson
### Appendix B

#### Instrument

<table>
<thead>
<tr>
<th>Full Survey Instrument</th>
<th>Strongly Agree (1)</th>
<th>Somewhat agree (2)</th>
<th>Not Sure (3)</th>
<th>Somewhat disagree (4)</th>
<th>Strongly disagree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 So far at [Redacted]:</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Most of my courses have been intellectually stimulating. (1)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I am satisfied with my academic experience at this University. (2)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I am more likely to attend a cultural event (e.g., a concert, lecture, or art show) now compared to few months ago. (3)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I am satisfied with the extent of my intellectual development. (4)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>In addition to required reading assignments, I read many of the recommended books in my courses. (5)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>My interest in ideas and intellectual matters has increased since starting classes (6)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I have an idea about what I want to major in. (7)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Statement</td>
<td>Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---------------------------------------------------------------------------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This year my academic experience has positively influenced my intellectual</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>growth and interest in ideas.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting good grades is important to me.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have performed academically as well as I anticipated.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My interpersonal relationships with students have positively influenced</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>my intellectual growth and interest in ideas.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have developed close personal relationships with other students.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The student friendships I have developed have been personally satisfying.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My personal relationships with other students have positively influenced</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>my personal growth, values, and attitudes.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It has been easy for me to meet and make friends with students.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied with my dating relationships.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Many students I know would be willing to listen and help me if I had a personal problem. (17)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Most students at this University have values and attitudes similar to mine. (18)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I am satisfied with the opportunities to participate in organized extra-curricular activities at this University. (19)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I am happy with my living/residence arrangement. (20)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I am satisfied with my opportunities to meet and interact informally with faculty members. (21)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Many faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students. (22)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I have developed a close, personal relationship with at least one faculty member. (23)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>My non-classroom interactions with faculty members have positively influenced my intellectual growth and interest in ideas. (24)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Statement</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>--------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>My non-classroom interactions with faculty members have positively</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>influenced my personal growth, values, and attitudes. (25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My non-classroom interactions with faculty members have positively</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>influenced my career goals and aspirations. (26)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely outstanding or</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>superior teachers. (27)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely interested in</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>students. (28)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are genuinely interested in</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>teaching. (29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many faculty members I have had contact with are interested in helping</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>students grow in more than just academic areas. (30)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important to me to graduate from college. (31)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>It is important to me to graduate from this University. (32)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I am confident that I made the right decision in choosing to attend this</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>University. (33)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I will most likely register at this University next fall. (34)

Q2 I enrolled in a Learning Community with [Redacted] this year as a Freshman.

- Yes (1)
- No (2)

Q3 Please select one non-financial or non-academic performance Item below that would have increased your likelihood of returning for sophomore year, if the University could have improved this Item for you.

- UG Research (1)
- International Opportunities (study or coop abroad) (2)
- More Minors (3)
- Academic Advising (4)
- Connection with Faculty (5)
- Connection with Friends (6)
- Other (7)
Q5 My preferred Email address to be entered into a raffle for a 50 Dollar Amazon Gift Card as appreciation for completing this survey is:
Appendix C

Recruitment Email

Hi <Student>

My name is Steven Schaffling and I am a Doctoral Student in the Northeastern University Ed. D. program. As a [Redacted] Freshman in the 2016 Academic year you are eligible to complete the below survey as a part of my Doctoral Thesis. You will only receive this one invitation to complete this survey. Completion of this survey will enter you into a raffle to win a 50 dollar Amazon gift card. To complete the survey on “Institutional Integration at [Redacted] University,” please click the following link: [Redacted] Freshman Survey

Schaffling Doctoral Thesis

The survey should take approximately 5-10 minutes to complete. Your participation in this study will be anonymous. All reports or publications using this study will only use the data gained in aggregate form. You can reply to this Email at any time and ask to be removed from the research study.

Completion of this survey will enter you into a raffle to win a 50 Dollar Amazon Gift Card. At the end of the survey your preferred Email address will be asked for and it is solely for the reason of this raffle. Your Email will not be shared or sold. The survey responses will be anonymous and not tied to the Email you enter.

Your participation is entirely voluntary. If you do not wish to complete the survey, you can simply delete this email. No follow-up emails will be sent.

Please feel free to contact me only at my student email address Schaffling.s@husky.neu.edu with any questions. Emails to any other email address must be deleted with no response per Northeastern University IRB.

Sincerely,

Steven Schaffling
Schaffling.s@husky.neu.edu
Appendix D

IRB Approval

Northeastern

Notification of IRB Action

Date: May 22, 2017
IRB #: CPS17-04-08

Principal Investigator(s): Bryan Patterson
Steven Schaffling

Department: Doctor of Education
College of Professional Studies

Address: 20 Belvidere
Northeastern University

Title of Project: The Impact of Perceived Integration Level on First to Second year Retention of Pell Grant Eligible Students in Private Higher Education

Participating Sites: Drexel approval forthcoming

Informed Consent: One (1) unsigned consent

As per CFR 45.46.117(c)(2) signed consent is being waived as the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required.

DHHS Review Category: Expedited #7
Monitoring Interval: 12 months

Approval Expiration Date: MAY 21, 2018

Investigator’s Responsibilities:
1. Informed consent form bearing the IRB approval stamp must be used when recruiting participants into the study.
2. The investigator must notify IRB immediately of unexpected adverse reactions, or new information that may alter our perception of the benefit-risk ratio.
3. Study procedures and files are subject to audit any time.
4. Any modifications of the protocol or the informed consent as the study progresses must be reviewed and approved by this committee prior to being instituted.
5. Continuing Review Approval for the proposal should be requested at least one month prior to the expiration date above.
6. This approval applies to the protection of human subjects only. It does not apply to any other university approvals that may be necessary.

C. Randall Colvin, Ph.D., Chair
Northeastern University Institutional Review Board

Nan G. Regina, Director
Human Subject Research Protection

Northeastern University FWA #4630