# College Student Engagement: Removing the Costs of Full Participation for Low-Income Students

Author: Brian G. Swenson

Persistent link: http://hdl.handle.net/2345/bc-ir:107297

This work is posted on eScholarship@BC, Boston College University Libraries.

Boston College Electronic Thesis or Dissertation, 2017

Copyright is held by the author, with all rights reserved, unless otherwise noted.

# BOSTON COLLEGE

# Lynch School of Education

Department of Educational Leadership and Higher Education

Program in Higher Education Administration

# COLLEGE STUDENT ENGAGEMENT: REMOVING THE COSTS OF FULL PARTICIPATION FOR LOW-INCOME STUDENTS

Dissertation

by

BRIAN G. SWENSON

submitted in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

May 2017

© Copyright by Brian G. Swenson 2017

# College Student Engagement: Removing the Costs of Full Participation for Low-Income Students

by

Brian G. Swenson

Dr. Ana Martínez-Alemán, Dissertation Chair

# ABSTRACT

College student engagement has been linked to a host of positive educational outcomes including academic performance and persistence. Problematically, many low-income college students are not able to get involved within the social system of higher education due to the costs associated with participation in the co-curricular events and activities that comprise so much of the full college experience. This mixed methods study explored the effect on student engagement of the Pinnacle Alliance (PA) - an intervention program designed to remove these cost barriers for low-income students at Lakefield University (LU), a private, highly selective, religiously-affiliated institution located in the Northeast United States.

An electronic survey was administered to a sample of Lakefield undergraduate students concerning their involvement in co-curricular activities. Multiple regression analysis was conducted to examine the relationship between participation in the Pinnacle Alliance and student engagement. While the quantitative findings indicate a nonsignificant relationship, subsequent focus groups were conducted to further examine and contextualize the effects of the Pinnacle Alliance on low-income students. Qualitative findings from the focus group suggest that the Pinnacle Alliance is an extremely important resource for many low-income LU students. The PA allowed these students to make participation choices free of the financial barriers they often face. In addition, PA-participating students reported feeling a greater sense of community and that they fit in more at LU. However, these students made clear that fitting in and belonging were not the reasons they chose to participate in the program; rather the elevated feelings of fitting in and belonging were the result of their participation.

Finally, findings from focus groups conducted with students who were eligible for the Pinnacle Alliance but chose not to participate revealed that beyond financial constraints, motivational constraints can also inhibit engagement. Non-participating students cited lack of time, lack of interest, lack of awareness, and social stigma as the four major reasons behind their decisions to not be more involved with the Pinnacle Alliance.

# DEDICATION

To my Mom, for her constant support and encouragement. To my Dad, for teaching me to question 'how' and 'why.' And to my ever-patient wife, Kristen, for affording me the time to do so.

## ACKNOWLEDGEMENTS

Well I guess it makes sense to start at the beginning, right? Thanks to Ted Youn and Bernie Pekala for their gentle pushes to get me started on this adventure into academia. Their guidance and encouragement to forego a Master's degree and apply to the B.C. doctoral program proved to be sound advice that has definitely paid off. I'm sure I cursed them on numerous occasions during my time in the Ph.D. program and questioned what I had gotten myself into, but the end result has been worth the difficult journey. Thanks for the nudge!

I would also like to acknowledge and thank my fantastic committee. Dr. Heather Rowan-Kenyon gave me the confidence to know that I could handle the statistical analyses used in this study. Her recommendation to add several open-ended questions to my electronic surveys saved my dissertation. These data allowed for a much richer interpretation of the results and helped to target my focus group questions. Dr. Kelli Armstrong was instrumental to this study for her knowledge about the NSSE and the ways to structure a program evaluation. Her enthusiasm for this project was infectious and I always left her office feeling energized and ready for more writing. Last but not least, I want to thank my chair Dr. Ana Martínez-Alemán, whose amazingly high standards made me a better writer, researcher, and thinker – skills I will take with me for the rest of my life, and for that I will be forever grateful. And I would like to thank all three for pushing me out of my comfort zone and strongly encouraging (read: forcing) me to add a qualitative dimension to my research design and actually go talk to the students. Unsurprisingly, their recommendations made this study much more interesting!

ii

This process would have been even more difficult were it not for the wisdom and advice from members of prior Ph.D. cohorts. Specifically, a big thank you to Jess, Adam, Adam, Scott, Danny, and Derek. You laid the groundwork for my cohort, offered candid advice, and allowed us to commiserate about this process, all without any hint of superiority or competitiveness that can often come with upper-classmen. Your willingness to share your knowledge about the many aspects of the program from comps, to proposal, to IRB was truly appreciated, and is something that I hope to pass down to younger cohorts.

Next, a *huge* thank you to the members of my own cohort. Alana, Ariane, and Kevin, from mid-way through our first semester I knew that if we helped each other we were going to succeed. We quickly became partners in this doctoral journey and I could not have asked for better classmates. You all pushed me to do better work and I hope I did the same for you. I know that I would not have completed this program on time if it had not been for each of you. Just having you present in class to hear your viewpoints or available outside of class to bounce ideas off of was invaluable to my success, and our drink and dinner nights along with our group texts kept me grounded and sane. Thanks again to each of you, and congratulations!

There were many people whom I connected with and who helped me during this huge undertaking, but I would like to specifically thank Ryan for his guidance and tutoring on the statistical procedures used in this study. He served as my statistical guru, always available to answer my stats questions or point out potential holes in my procedures, all while working on his own dissertation. Thanks for being so enthusiastic about something as mundane as statistics.

iii

Thanks to my Mom for her positive attitude and encouragement throughout the years. She knew when to offer advice when it was needed and when not to ask questions when I wanted to talk about anything *except* my dissertation. Thanks to the rest of my family and friends for putting up with me, or more accurately, the absence of me. I know I missed countless birthday parties, barbeques, and other fun events. The completion of my dissertation should mean I'm around more – be careful what you wish for!

Last, an enormous thank you to my wife, Kristen. This accomplishment would not have been possible without you. You allowed me to disappear for hours on end and often for entire weekends in order to get work done, all without complaint or attitude. Someone should do a dissertation on the effects of a Ph.D. program on the student's spouse. Maybe for my next one, right? I love you and can't wait to spend more time with you and Cameron.

# TABLE OF CONTENTS

DEDICATION	
ACKNOWLEDGEMENTS	
LIST OF TABLES	viii
LIST OF FIGURES	ix
Chapter One: Overview of the Study The Story of David Low-Income Students in Higher Education Introduction to College Student Engagement Statement of the Problem The Lakefield University Pinnacle Alliance Significance of the Study Research Questions Research Methodology	<b>1</b> 1 1 3 4 5 6 7 7 0
Chapter Two: Literature Review Introduction The Landscape of Higher Education General Benefits of Higher Education Unequal Access to Higher Education Unequal Access to Elite Institutions Unique Benefits of Elite Institutions Low-Income Students at Elite Institutions	<b>10</b> 10 10 10 12 13 14 16
Academics and Financial Aid College Student Engagement Increased Focus on College Student Engagement Theories Related to College Student Engagement Astin's Theory of Involvement Astin's IEO Model Tinto's Interactionalist Model of Student Departure Critiques of Tinto's Theory Policies and Programs Related to Increased Student Engagement	16 19 19 21 22 24 26 29 31
Measuring College Student Engagement The National Survey of Student Engagement Components of the NSSE Critiques of the NSSE Sense of Belonging Gaps in the Literature Conceptual Framework	36 36 39 41 44 46 50

Chapter Three: Methodology	51
Introduction	51
Research Questions	51
The Lakefield University Pinnacle Alliance	52
Overview of Mixed Methods Research Design	55
Research Site	60
Target Population and Sample	61
Research Design	63
Quantitative Phase	63
Qualitative Phase	79
Researcher Positionality	85
Ethical Considerations	87
Summary of Research Design	88
Chapter Four: Findings	89
Introduction	89
Qualitative Findings	89
Research Question One	92
Regression Diagnostics	103
Regression Results	111
ANOVA	112
Model Summary	113
Coefficients	115
Research Ouestion Two	120
Dissonance between Statistics and Write-In Answers	122
Oualitative Findings	125
Introduction	125
Removal of Financial Constraints	127
Research Question Four and Motivational Constraints	131
Research Question Three and Specific PA Benefits	137
Further Statistical Analysis of Sense of Belonging	146
Summary of Findings	148
Chapter Five: Discussion	151
Introduction	151
Overview of the Study	151
Research Questions	153
Overview of Findings	153
Discussion of Major Quantitative Findings	155
Discussion of Major Qualitative Findings	163
Limitations	173
Recommendations for Policy and Practice	175
Recommendations for Future Research	189
Conclusion	194
REFERENCES	196

APPENDIX A:	List of PA Benefits	213
APPENDIX B:	Electronic Survey Invitations	216
APPENDIX C:	Electronic Surveys	219
APPENDIX D:	Focus Group Protocol	242
APPENDIX E:	Focus Group Consent Form	251
APPENDIX F:	ANOVA and Chi-Square Tests	254
APPENDIX G:	Descriptive Statistics of Sample	271
APPENDIX H:	Table of Outliers	273
APPENDIX I:	Students' Ranking of Top Three PA Benefits	274
APPENDIX J:	Sense of Belonging Regression Analysis	282

# LIST OF TABLES

Table 4.1	Variable Coding Schema	90
Table 4.2	Missing Data Analysis	96
Table 4.3	Missing Value Analysis on sat Variable	97
Table 4.4	Reliability Analysis for Sense of Belonging	100
Table 4.5	Descriptive Statistics	101
Table 4.6	Tests of Normality	103
Table 4.7	Residual Value Outliers	109
Table 4.8	ANOVA	112
Table 4.9	Model Summary	113
Table 4.10	Coefficients	116
Table 4.11	Frequency Table of Reasons for PA Non-Participation	132

# LIST OF FIGURES

Figure 2.1	Climbing the educational ladder (unevenly)	13
Figure 2.2	NSSE Engagement Indicators	39
Figure 2.3	Supportive Environment Engagement Indicator	41
Figure 3.1	Demographic Data for Focus Groups	82
Figure 4.1	Confirmatory Factor Analysis for Sense of Belonging	101
Figure 4.2	P-P Plot of Standardized Residuals	104
Figure 4.3	Histogram of Standardized Residuals	104
Figure 4.4	Scatterplot: Predicted vs. Residuals	106
Figure 4.5	Scatterplot: Standardized Predicted vs. Standardized Residuals	106
Figure 4.6	Bar Chart of Reasons for PA Non-Participation	132

# **Chapter One: Overview of the Study**

# The Story of David

Meet David. David is a second semester freshman at Lakefield University – a highly selective, private, liberal arts college located in the northeastern United States. David's enrollment at Lakefield University (LU) is likely to be viewed by many as an anomaly. Unlike many of his classmates, David comes from a low-income household, defined as one with annual income less than \$34,160 (The Pell Institute (TPI), 2015). His single mother did not graduate from high school and she currently works at two jobs. Making only \$20,000 per year, she still finds it difficult to pay all of her monthly bills. In fact, for much of his childhood, David's mother received governmental support through subsidized rent and food stamps. David keeps this information well-hidden from his friends at LU out of fear of being outcast.

As a low-income student enrolled in one of America's most selective institutions of higher education, David has already beaten the odds. David's story of overcoming these odds by enrolling at a highly selective institution like LU is not unique, but it is still far too uncommon. Today, at America's most competitive colleges and universities, a student is fourteen times more likely to come from a family in the top income quartile than from a family in the bottom income quartile (Greenstone, Looney, Patashnik, & Yu, 2013). The fact that David has now enrolled at Lakefield University in the face of such adversity is a success.

# Low-Income Students in Higher Education

Research and statistics suggest that low-income students will "leak out" of the educational pipeline before enrolling at a highly selective school like LU due to poor

academic performance (Bettinger & Long, 2007; Bowen, Kurzweil, & Tobin, 2005; Hoxby & Turner, 2013; Pascarella & Terenzini, 2005). Low-income students should also leak out due to financial constraints and a lack of understanding of the financial aid process (Heller, 2011; Hoxby & Turner, 2013; Mumper, 1996; Pallais & Turner, 2007). Rather than an elite school like Lakefield University, statistics indicate that low-income students in general should be enrolled at two-year community colleges or for-profit schools (Bowen & Bok, 1998; Bowen, et al., 2005; IPEDS, 2013). David is a rare exception to these data and statistics.

While the ongoing inequality in overall postsecondary enrollment based on family income and the underrepresentation of low-income students at the most selective colleges and universities continue to be problematic, these issues are not the focus of this research study. Rather, the focus of this research study is on David's next chapter. For even after overcoming the considerable obstacles faced by low-income students in order to gain admission and subsequently enroll at Lakefield University, David still faces significant challenges. How will David perform now that he is enrolled? Will he be an active member of the academic community? Will he persist through to graduation? Will his experiences at LU be the same as those of his higher income peers?

Data continue to indicate that David may be in trouble. Low-income students are less likely to graduate than their classmates from higher income families. For 2013, the six-year graduation rate for all first-time, full-time undergraduate students at 4-year institutions was 59% (NCES, 2015a). However, a review of graduation rates based on income quartile reveals the dire situation that David is in. Only 26% of first-time, fulltime, undergraduates from the lowest income quartile who began college at a 4-year

institution graduate within six years (TPI, 2015). Once again, the odds are squarely against David. The prospects of David graduating lag well behind those of his higher income peers.

#### **Introduction to College Student Engagement**

As discussed, financial barriers and academic preparedness are two major forces influencing low-income student behavior and performance in higher education. Yet for high-achieving low-income students like David, academic preparedness is not an issue. David was accepted at Lakefield because of his academic credentials, not in spite of them. Additionally, at elite schools like LU, need-based financial aid can cover most, if not all of the costs associated with enrollment (Hoxby & Turner, 2013). Such was the case for David. If finances and academics are not an issue, then why do low-income students' graduation rates continue to trail behind the graduation rates of students from higher income backgrounds?

The literature suggests student engagement as a third factor influencing college students' persistence and graduation rates. The concept of student engagement has received increased scrutiny because it has been shown to be related to a host of positive educational outcomes, including academic performance, persistence, and graduation rates (Astin, 1984, 1993, 1999; Kuh, 2001, 2003, 2009; Pascarella & Terenzini, 2005; Tinto, 1975, 1993, 2006). If higher levels of student engagement are linked to increased persistence and graduation rates, surely it is in the best interest of students to become as involved as possible so that they can ultimately graduate and enjoy the benefits associated with a postsecondary degree.

Tinto's (1993) interactionalist model of student persistence stresses the importance of academic and social integration as the primary determinants of whether college students will persist in higher education. Integration with these realms necessarily means being an active and engaged participant in academic and non-academic activities. The literature varies regarding the precise definition of engagement and involvement, but two of the primary experts on this topic, George Kuh (2003) and Alexander Astin (1984), agree that engagement depends upon the amount of time and energy that students devote to their educational experience inside and outside of the classroom.

# **Statement of the Problem**

Despite the importance of engagement and its effects on grades and persistence, getting involved and staying engaged while at college can be especially challenging for low-income students like David in large part due to the costs associated with doing so. Financial aid may cover the full cost of attendance at elite colleges and universities, but the college experience is so much more than just tuition, room, and board. At Lakefield, the school actively touts the "full LU experience" as a defining piece of its undergraduate education. The administration understands that learning also takes place outside the classroom and that extracurricular activities are critical for developing well-rounded students.

These extracurricular activities include cultural events, dances and formals, service-based trips, and retreats designed for self-reflection (Pinnacle Alliance, Student Resource Center, 2015). However, the costs of these activities can be substantial. Federal regulation does not allow for these ancillary expenses to be included as part of

the cost of attendance, therefore financial aid cannot cover these costs (Federal Student Aid, 2015). This presents an issue for low-income students like David who cannot afford the costs of participating, which consequently may adversely impact their engagement levels.

Much of the learning and development in higher education takes place outside the classroom. Getting the "full LU experience" requires more than just financial aid funds to cover the cost of tuition, room, and board. There are also the extra costs associated with participating in out-of-class activities. Being unable to afford the fees required for participation means that David and other low-income students suffer an immediate disadvantage and are unable to become fully engaged in the available learning and co-curricular opportunities, potentially leading to underachievement, dissatisfaction, alienation, or attrition (Astin, 1993; Pascarella & Terenzini, 2005; Tinto 1993; Titus, 2006).

# The Lakefield University Pinnacle Alliance

Let us return to David's story for a moment, now with an eye on the critical nature of student engagement and its connection to positive educational outcomes. Recognizing the financial challenges faced by its low-income student population in getting actively involved in the Lakefield campus community, administrators at LU developed and funded a new initiative called the Pinnacle Alliance (PA). The Pinnacle Alliance is a program that serves low-income undergraduate students at Lakefield University by reducing, and in many cases completely removing the costs of participating in a host of co-curricular activities including sporting events, dances, concerts, cultural events, and theater productions (see Appendix A for a full list of PA benefits). The goal

of the PA is to "break financial barriers so that Pinnacle Alliance students have the opportunity to experience and utilize all that LU has to offer" (Pinnacle Alliance, For Parents, 2015). The PA should allow David and other low-income students at Lakefield University to actively participate in all co-curricular activities, thus increasing access to the "full Lakefield experience" that their higher income peers have always been able to afford to experience.

Eligibility for participation in the Pinnacle Alliance is determined by the Office of Financial Aid. Students who receive a Federal Pell Grant, reserved for students with the highest financial need, are considered eligible to participate in the program. It is important to note that PA participation is completely voluntary. Eligible students are not required to participate. Those that do wish to participate must meet with a PA staff member to discuss their individual situation before any benefits are distributed.

# Significance of this Study

While there is an abundance of literature surrounding college student engagement in general, little research exists concerning intervention programs designed to increase engagement in the social realm of higher education, which is precisely the aim of the Pinnacle Alliance.

The premise of the Pinnacle Alliance is that by making the cost of joining in these activities a non-factor for students who could not otherwise afford to participate, engagement levels of LU's lowest income students should increase. If engagement is associated with increased persistence and graduation rates, then the PA has the potential to assist low-income students in reaping the benefits that accompany graduating from an elite institution like Lakefield University. An intervention program like the Pinnacle

Alliance may prove to be a new high-impact practice along the lines of programs and policies previously identified by Kuh and associates (Kuh, 2008; Kuh, Kinzie, Schuh, & Whitt, 2005).

Therefore, the specific purpose of this study was to expand the literature by examining the effectiveness of the Pinnacle Alliance to determine if student engagement has been affected by this auxiliary program targeted towards low-income students at Lakefield University. As the program is voluntary, this research study also explored why some PA-eligible students chose not to participate in the program. Accordingly, this study sought to answer the following research questions:

# **Research Questions**

- 1. Is there a difference in students' scores on the Supportive Environment indicator between PA-participants, PA-non participants, and non-PA eligible students?
- 2. Which benefits offered by the PA are most associated with higher levels of Supportive Environment scores?
- 3. Why do PA-participating students choose certain benefits over others?
- 4. Why do some PA-eligible students choose not to participate?

#### **Research Methodology**

This study utilized an explanatory mixed methods research design to answer the posed research questions. This design choice is characterized by an initial quantitative analysis, followed by a supplementary qualitative analysis to triangulate and help explain the quantitative findings (Creswell, 2009). During the quantitative phase an electronic survey was offered to three groups of Lakefield University undergraduate students: PA-participating, PA-non-participating, and PA-ineligible. The main outcome variable on the

survey was modeled after a question on the National Survey of Student Engagement (NSSE) pertaining to the Supportive Environment Engagement Indicator. This theme is an indicator summarizing students' perceptions of how much their institution emphasizes activities and programs that promote their learning and development (NSSE, 2015a), and it was selected because it most closely aligns with the goals of the Pinnacle Alliance.

Survey results were linked to key student background variables which were controlled for along with an indicator of PA status. A multiple regression analysis was then performed to determine if there was a statistically significant difference in Supportive Environment scores between the three distinct groups of students. The survey also asked respondents to rank the PA benefits in terms of their perceived value and importance.

After initial quantitative data collection and analysis was performed, focus groups were conducted with PA-participants and PA-non-participants in order to further inform the results and interpretations of the quantitative survey. Focus group interaction allowed for data triangulation, corroboration of existing findings, and investigation of any unexpected results (Creswell, 2007, 2009). Other benefits of using focus groups are that they put the emphasis on the respondent instead of the researcher and focus on the respondent's voice to reveal deeper meaning of findings in the respondent's own words (Krueger, 1994; Patton, 1980). Discussions with students in a group setting also encouraged dialogue about why certain benefits were more often used and why some eligible students chose not to participate in the program.

# Limitations

Limitations exist within this study and must be acknowledged. The fact that the survey instrument of this research relies on a certain level of self-reported data is a limitation due to the inability to ensure 100% accuracy. I attempted to mitigate this issue by not asking students to report many demographic-level variables, instead choosing to link those data via institutional databases and the students' ID numbers. A second limitation is the result of this study being performed at a single institution. This confines the generalizability of any findings to Lakefield University; extrapolation beyond this one institution is not valid and would require a future multi-site analysis to be performed. But the purpose of this specific study was expressly designed to examine only LU since it currently has an existing intervention program designed to promote engagement of its low-income students. Finally, as with any regression-based analysis, the regression model is only as good as the variables it contains. I attempted to include all of the pertinent variables as suggested by the literature. However, there is always a chance that some unknown variable(s) may have been excluded which could lead to inaccurate interpretations and conclusions.

# **Chapter Two: Literature Review**

#### Introduction

How do low-income college students respond to an intervention program specifically designed to promote access to co-curricular activities? To answer this question, this study must be firmly grounded in the literature concerning the topic of interest. To that end, Chapter Two of this study reviews the existing landscape of higher education in the United States. The benefits of higher education in general and of elite institutions in particular will be detailed along with a discussion on who exactly is enrolling in, and graduating from college. Next, literature concerning the reasons behind the disparity in enrollment and graduation rates will be discussed before turning to the main topic of interest for this study: college student engagement. A thorough review of the concept of college student engagement followed by a detailed analysis of the major theories on this topic are then presented. As shall be demonstrated, there is scarce research concerning low-income college students and their access to activities related to the "full collegiate experience," and how this affects their engagement. This presents an opportunity to add to the literature concerning this topic. To do so, Chapter Two ends by exploring the primary instrument used to measure college student engagement: the National Survey of Student Engagement.

#### The Landscape of Higher Education

# **General Benefits of Higher Education**

Students departing higher education before graduating raise concerns for the individual student and for greater society. Higher education is said to be a great equalizer, but persistence through graduation is necessary for this equalization

mechanism to function properly. Chapa and Lazaro (1998) have highlighted higher education as the key factor enabling individuals to improve their social, political, and economic mobility. Financial benefits associated with a postsecondary degree include higher average earnings (NCES, 2015c), a lifetime wage premium approaching one million dollars (Pennington, 2004), better employment prospects (Pascarella & Terenzini, 2005; Seidman, 2012), and fewer and shorter instances of unemployment (McMahon, 2009).

Non-financial benefits of postsecondary education include social mobility, with college graduates often advancing along the social and class spectrums (Bowen & Bok, 1998; Teitelbaum, 2011). College graduates are also more likely to hold white-collar positions which have higher levels of prestige associated with them than blue-collar jobs (Habley, Bloom, & Robbins, 2012). Overall, college graduates also live longer and have fewer health-related issues than non-college graduates (Pascarella & Terenzini, 2005). College-educated individuals make better prenatal decisions and are more involved in their child's education, leading to lifelong benefits for the child (Habley et al., 2012; Pascarella & Terenzini, 2005). By departing college before earning a degree, an individual student is foregoing the potential for all of these benefits.

In addition to the private benefits that a college degree can provide, education also serves as a public good benefitting greater society, which intimates that it is good public policy to graduate as many students as possible from postsecondary education. Public economic benefits include increased tax revenue, increased consumption of goods and services, and less reliance on government financial support (Habley et al., 2012; McMahon, 2009; Pascarella & Terenzini, 2005; Task Force on Higher Education and

Society, 2000). McMahon (2009) found that college-educated individuals also give more to charity, are more involved in community service activities, and have higher levels of civic engagement than non-college-educated individuals. People with postsecondary degrees are also more likely to accept diversity and understand the benefits that are associated with a diverse society (Habley et al., 2012; McMahon, 2009).

Higher education also serves as a public good by functioning as a lever of democracy. "Higher education makes a direct contribution to the underpinnings of a well-functioning democracy by educating to a high level students from every background who will vote, govern, or legislate thoughtfully" (Bowen, et al., p. 4, 2005). Finally, the rise of the new knowledge-based economy has made postsecondary education even more important to national interests. In order for our country to remain competitive on an increasingly global front, employers are demanding ever-more intelligent employees, who possess the ability to think critically and create novel solutions to solve progressively more complex problems (Barber, Donnelly, & Rizvi, 2013).

# **Unequal Access to Higher Education in General**

Despite the large number of public and private benefits associated with obtaining a college degree, enrollment in higher education is not an equal proposition. Research has shown that low-income students and students from lower socioeconomic backgrounds are underrepresented in the higher education pipeline (Astin, 1993; Astin & Oseguera, 2004; Berg, 2010; Bowen & Bok, 1998; Bowen, et al., 2005; Pallais & Turner, 2007; Pascarella & Terenzini, 2005). During 2012, 81% of students in the 18 to 24 year old age cohort from the highest income quartile (household income of \$108,650+) were enrolled in postsecondary education. This compares with just 45% of 18 to 24 year olds

in the lowest income quartile (less than \$34,160) (TPI, 2015). Figure 2.1 further illustrates the educational attainment levels of students from the lowest and highest socioeconomic quartiles.



Figure 2.1. Climbing the educational ladder (unevenly)

Of every 100 potential members of the class of 2004, roughly how many reached each rung?

Gladieux and Swail (1999) confirm this large gap in postsecondary enrollment based on family income, revealing a relatively steady disparity between low and highincome students of approximately 30% since the 1960's. These data suggest that who goes to college is highly correlated with family income and socioeconomic status (SES), with students from the lowest income and SES tiers being largely underrepresented in postsecondary education.

# **Unequal Access to Elite Institutions**

While low-income and low-SES students are underrepresented in higher education in general, this underrepresentation is even more pronounced as the selectivity

Figure 2.1. Reprinted with the permission of Simon & Schuster, Inc. from OUR KIDS: THE AMERICAN DREAM IN CRISIS by Robert D. Putnam. Copyright © 2015 Robert D. Putnam. All rights reserved

of the institution increases. Examining highly selective institututions in detail provides further evidence of this enrollment imbalance. The composition of enrolled students at these colleges and universities shows a very strong skew towards high-income students (Berg, 2010; Bowen et al., 2005; Carnevale & Rose, 2004). Results from Pallais and Turner (2007) indicate that fewer than 11% of students from the lowest income quartile were enrolled in one of the highly selective institutions in their study. Research by Berg (2010) yields similar results, with only 10% of the lowest-income quartile students enrolling at the most selective schools. In summary, students from low-income backgrounds are underrepresented in higher education in general, and severely underrepresented at America's most elite institutions.

# **Unique Benefits of Elite Institutions**

These results are problematic because of the unique benefits that elite colleges confer on their graduates over and above the previously discussed benefits associated with higher education in general. Graduates from these selective schools realize greater educational and financial benefits as well as increased employment-related advantages than graduates of less selective institutions (Berg & Krueger, 2002; Bowen et al., 2005; Pascarella & Terenzini, 2005; Zhang, 2005). First, these institutions have substantially more resources than non-elite schools and are therefore more equipped to offer more, and in many cases better programs and services to their students (Bowen & Bok, 1998; Pascarella & Terenzini, 2005). Elite schools are well-resourced and most of them employ need-based financial aid policies and meet the full financial need of their students (Hoxby & Turner, 2013; Snider, 2015). In addition to generous financial aid policies, the vast level of resources also influences the level of spending per student at selective

institutions, which typically dwarfs spending levels at the least selective institutions. Carnevale and Rose (2003) suggest that selective institutions spend as much as four times more per student than the least selective schools.

Simply by their position atop the hierarchy of higher education, highly selective schools grant a host of educational and occupational benefits that lower-tiered institutions cannot offer (Astin & Oseguera, 2004; Bowen & Bok, 1998; Carnevale & Rose, 2003; Karabel, 2005). The prestige associated with these elite institutions confers a mystique on their graduates. The most desirable employers and many of the top graduate programs favor the graduates of these elite schools (Astin & Oseguera, 2004; Bowen, et al., 2005; Karabel, 2005). These results lead to lifelong advantages for the graduates of these elite colleges.

Additionally, most highly selective institutions are residential, with the majority of their undergraduates living on campus (Astin & Oseguera, 2004). On-campus residency status has been shown to be linked to better academic performance and higher persistence and graduation rates (Bean & Metzner, 1985; Pascarella & Terenzini, 2005).

Finally, research has shown that there is an association between positive educational outcomes, including persistence and graduation rates, and institutional selectivity (Carnevale & Rose, 2003; NCES, 2015a; Titus, 2006). For example, at institutions employing highly selective admissions (acceptance rate less than 25%), the 2013 6-year graduation rate for first-time, full-time students was 89% (NCES, 2015a). In stark contrast, the 6-year graduation rate for students at two year community colleges employing open enrollment was only 29% for the same time period (NCES, 2015b).

These data confirm that students at highly selective colleges and universities persist and graduate at higher rates than students at less selective institutions.

# Low-Income Students at Elite Institutions

The literature surrounding low-income students and their experiences and performance at America's most selective colleges and universities is sparse. Although graduation rates are higher at selective institutions, not all those who enroll will persist and graduate. At these elite colleges and universities, low-income students still trail behind students from more affluent backgrounds in terms of academic performance and graduation rates. Research by Bowen, et al. (2005), has shown that students from the lowest income quartile are overrepresented in the bottom third of their class in terms of academics and are less likely to graduate than their wealthier classmates at elite institutions. Supporting this notion, Carnevale & Rose (2003) found that at elite institutions only 76% of students from the bottom SES quartile graduated within six years, compared to 90% of students from the highest SES quartile over that same time frame.

The fact that low-income students are enrolling in and graduating from the most selective colleges and universities at lower rates is concerning. If the most economically advantaged students are disproportionately benefiting via higher enrollment and graduation rates, education may no longer function as the great equalizer it was designed to be.

# **Academics and Financial Aid**

The reasons for low-income students' underrepresentation at elite institutions and the fact that they persist and graduate at lower rates are not entirely clear as there is no

general consensus in the literature. Overall, the larger literature concerning low-income students in higher education in general paints a picture of poorly prepared students with inadequate financial aid. At elite institutions, in contrast, low-income students suffer from neither of these problems but still may be barred from taking full advantage of the college experience because enrichment opportunities cost money above and beyond the costs covered by financial aid.

While the larger literature suggests that low-income students are academically underprepared for the rigors of higher education, this argument does not reflect the reality of the low-income student population at elite institutions. Low-income students do exhibit lower aggregate scores on college entrance exams in general (Bowen et al., 2005; Pallais & Turner, 2007). Yet while there are fewer overall numbers of high-achieving, low-income high school students, there is nevertheless a small minority of low-income students who do have excellent test results and possess the academic ability to thrive at selective postsecondary institutions. The main issue is not that these students are academically underprepared, but that there are not enough of them to go around; highly selective colleges and universities must battle amongst themselves over this small pool of well-qualified, academically prepared, low-income applicants (Bowen & Bok, 1998; Bowen et al., 2005; Pallais & Turner, 2007).

Another theory found in the broader literature concerning low-income students' underrepresentation and lower graduation rates is based on finances and college affordability. The high price of college can deter low-income students from even applying; further, for those that do apply, escalating costs make it financially difficult to persist (Hoxby & Turner, 2013). The literature suggests that there is a high degree of

confusion and misunderstanding about the financial aid process, especially among students from low-SES backgrounds and that these same students are also the most sensitive to the publicized price of college (Bowen & Bok, 1998; Bowen et al., 2005; Heller, 2011; Mumper, 1996; Pallais & Turner, 2007).

But despite charging some of the highest prices, most of America's highly selective colleges offer need-based financial aid and meet the full financial need of their applicants (Snider, 2015). In addition, a number of these institutions have recently initiated targeted programs aimed at reducing the financial barriers of enrolling and persisting for low-income students, such as the Illinois Promise, AccessUVA, and the Carolina Covenant (Pallais & Turner, 2007).

One such program, Harvard's Financial Aid Initiative (HFAI) requires zero payments from families earning less than \$65,000 (Harvard, 2015). In their evaluation of the HFAI, Avery, et al. (2006) found that the program increased the overall number of applicants from the lowest-income backgrounds and that these students were just as qualified as low-income students from prior applicant classes, thus showing no adverse impact in terms of the quality of applicants. Through these need-based financial aid programs, selective colleges and universities typically have lower true out-of-pocket costs than the non-selective institutions that low-income students mainly attend. In many cases, the lowest-income students can actually attend the highly selective institutions virtually cost-free (Hoxby & Turner, 2013).

These results suggest that contrary to the general literature concerning lowincome students in higher education, academic preparedness and financial aid concerns

are not crucial factors in low-income students' enrollment or persistence patterns at highly selective institutions.

# **College Student Engagement**

Student engagement has emerged in the literature as another factor influencing college student behavior. Defined by Kuh (2003) as "the time and energy students devote to educationally sound activities inside and outside the classroom, and the policies and practices that institutions use to induce students to take part in these activities," (p. 25), student engagement is currently a major area of focus for institutions of higher education. There is an abundance of scholarly information pertaining to the positive benefits associated with higher levels of engagement. Especially pertinent to this study is the association between engagement and higher persistence and graduation rates (Astin, 1984, 1993, 1999; Kuh, 2001, 2003, 2009; Pascarella & Terenzini, 2005; Tinto, 1975, 1993, 2006).

# **Increased Focus on College Student Engagement**

Before reviewing the theories and research surrounding student engagement it is beneficial to first examine how and why this concept has become a pivotal framework for understanding and evaluating the effectiveness of institutions of higher education. According to McCormick, Kinzie, and Gonyea (2013), the emergence of student engagement as a useful tool for analysis is a result of two major themes affecting American higher education.

The first of these themes is the increased attention placed on all levels of education by the federal government. Commencing with President H.W Bush's 1989 push to set national education goals and continued via President Clinton's "Educate

America Act," the federal government elevated the importance of America's education system, including higher education (McCormick, et al., 2013). With this increased emphasis on education came increased accountability and the need to measure progress towards these newly legislated national goals. The National Center for Higher Education Management Systems (NCHEMS) was called upon to identify existing measurement techniques that could be used to evaluate progress towards these goals.

Through a series of articles and reports, NCHEMS identified the Cooperative Institutional Research Program (CIRP) survey and the College Student Experience Questionnaire (CSEQ) as suitable "process indicators" that link outcome data with the actual experiences of the surveyed students (McCormick et al., 2013). The CIRP and CSEQ both rely on theoretical underpinnings from several key authors concerning college student experiences and retention including Astin's (1984) theory of student involvement and Chickering and Gamson's (1987) seven principles for good practices, both of which illuminate the importance of engagement in promoting positive outcomes. McCormick et al. (2013) suggest that the results of these surveys provide a practical guide for evaluators because they link the results to actionable intervention steps that institutions can take to improve their performance towards nationally established goals.

In addition to the proliferation of process indicators and increased accountability measures, the second theme spurring the use of student engagement as a framework for evaluating the quality of higher education came from the growing concern over the public's conception of "college quality" (McCormick, et al., 2013). In the 1980s, the magazine *U.S. News & World Report* began publishing its annual list of "America's Best Colleges" which claimed to rank postsecondary institutions based on a series of factors.

Despite receiving extensive criticism from the higher education community, the rankings proved popular with the general public (McCormick, et al., 2013).

One of the lasting complaints from academia is that these rankings emphasize institutional reputation and resources over any actual measure of teaching or student learning (McCormick, et al., 2013). Kuh (2001, 2003) has agreed with this criticism and suggested that it is both imprudent and impractical to evaluate the quality of a college or university based on established measures such as its reputation, level of resources, or faculty credentials. Kuh posited that an institution could excel in all of these factors but still fail to induce student success. The reason for this failure according to Kuh (2003) is that despite scoring well on all traditional measurement criteria, students may still fail to have academic experiences or take part in extracurricular activities that promote authentic learning. Put simply, if students fail to actively take part in their education they will not experience a high degree of positive educational outcomes regardless of the institution's potentially high ranking on the *U.S. News & World Report* ranking list.

# **Theories Related to College Student Engagement**

While the term student engagement is relatively new, having first surfaced in the late 1990s, the concepts surrounding the idea of student engagement have existed for much longer (McCormick, et al., 2013). Relying on such principles as effort, commitment, and integration, theories related to college student engagement include Astin's theory of involvement and Tinto's model of student departure. In addition, Astin offers his IEO model as a guide for systematically examining how college affects students, which can be applied to this study to examine the effects of an institutional intervention program on college student engagement.

Astin's (1984) Theory of Involvement. Alexander Astin is a leading researcher on the topic of student engagement, with studies and published articles dating back several decades. As the topic of student involvement began to emerge, Astin was troubled by the overall lack of understanding by researchers concerning the actual process of student achievement and development in higher education (Astin, 1984). Prior to his own model, Astin suggests that researchers had treated students as a "black box," with institutional programs and policies as the inputs and educational outcomes like GPA and persistence as the output. But nothing explained what went on inside this mysterious box. *How* were student outcomes shaped by institutional policies and actions? Disturbed by this lack of understanding, Astin (1984) offered his own theory of student involvement to explain this transformative process.

In his theory, Astin (1984) describes student involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (p. 297). A highly involved student therefore, is one who devotes significant time and energy to academic studies and extracurricular activities, while an uninvolved student is one who devotes little time and energy to academics, has infrequent contact with faculty and peers, and does not participate in extracurricular activities. Astin's concept of involvement seems to closely resemble the idea of motivation. However, he distinguishes between the two by clarifying that motivation is a psychological state, while involvement necessarily relates to actual student behavior (Astin, 1993; McCormick, Kinzie, & Gonyea, 2013). It is what students actually *do* while in college that matters.

Astin's (1984) theory of student involvement has five postulates, summarized below:
- Involvement refers to the investment of psychological and physical energy in various objects.
- Involvement occurs along a continuum and students can exert different levels of engagement towards different objects.
- 3) Involvement has both qualitative and quantitative factors.
- The amount of learning and development associated with a specific program is directly proportional to the quantity and quality of student involvement in that program.
- 5) The effectiveness of an educational program or policy is directly related to the ability of that program or policy to increase student involvement.

Of special significance to this study are postulates four and five. The effectiveness of an educational intervention is highly dependent upon the capacity for that program to increase student involvement. This explicitly indicates that institutional action can have an effect on student experiences within higher education. Therefore, through targeted intervention programs, institutions should be able to influence student involvement and behavior. In turn, highly involved students should realize the largest changes in learning and development according to Astin's (1984) involvement theory. But what if students are unable to become more involved, not because they don't want to, but because they cannot afford to do so?

As the postulates suggest, successful student progress and development (i.e. effective interventions) are the joint responsibility of students and the institution. Pascarella and Terenzini (2005) confirm this interpretation and further indicate that institutions play a vital role in the process by making available the opportunities for

students to become involved in the academic and social aspects of the collegiate experience. However, the individual student remains the key figure in Astin's (1984) model, for the change and growth that is to occur is dependent upon the degree to which the student becomes involved in the opportunities that the institution has made available (Pascarella & Terenzini, 2005).

So while colleges and universities have a responsibility to make educationally beneficial activities available for their students, the students share an equal responsibility to put forth the requisite quantity and quality of effort necessary to become appropriately engaged in these activities. Yet for low-income students, involvement can be a challenge because of the financial barriers associated with becoming involved. As the research has shown, low-income students tend to be less involved on campus than students from higher income backgrounds (Astin, 1993; Bowen & Bok, 1998; Bowen, Kurzweil, & Tobin, 2005).

In summary, whereas earlier theories focused mainly on the educational outcomes, Astin's (1984) model of student involvement focuses more on the processes associated with student growth and development. The more that students are involved in the academic and extracurricular arenas, the more they will learn and grow. As Astin (1984) has suggested, his theory concentrates on *how* college can change students, while prior theories focused on *what* was changed.

Astin's (1993) IEO model. Following up on his earlier theory of student involvement, Astin (1993) developed his Input-Environment-Output (IEO) model in order to further analyze college student development and how students change during their time in higher education. The IEO model provides a framework for analyzing how,

and by how much, institutional policies and programs change students that are exposed to those policies and programs.

The strength of the IEO model is that it can be as straightforward or as complicated as practitioners wish to make it. At its root the model is quite simple, having only three basic elements. Inputs refer to the characteristics of the student at the time he or she matriculates to the institution. Examples of inputs include educational background, age, gender, ethnicity, and socioeconomic status (Astin, 1993). The environment is comprised of all of the experiences that students are exposed to while enrolled at the institution including the policies and programs of the institution as well as the faculty, staff, classmates, and friends that the student has contact with. Finally, outcomes refer to the student's characteristics after being exposed to the educational environment. Common outcomes of interest for researchers and college administrators include grade point average, student persistence, and degree attainment (Astin, 1993).

By comparing input characteristics to outcome characteristics, it becomes possible to determine the degree of change in individual students. As Astin (1993, p. 7) indicates, the purpose of the IEO model is "to assess the impact of various environmental experiences by determining whether students grow or change differently under varying environmental conditions." Accordingly, the IEO model provides a mechanism for analyzing the impact of targeted interventions in higher education, but it is not without its faults.

As suggested, the core of the IEO model is uncomplicated. Yet one of the challenges embedded in this model is the necessity of including all relevant input, environmental, and outcome variables of interest to the particular study – a fact which

Astin (1993) readily acknowledges. By adding additional student background characteristics or studying multiple environmental factors, researchers can quickly add complexity to what would otherwise have been a very basic model. This can result in a muddled outcome where the true cause of the effect in question cannot be determined. The IEO model has been quite useful in practice, providing researchers a conceptual framework on which to base future studies, and providing administrators a useful analytical tool to examine one measure of institutional effectiveness (Pascarella & Terenzini, 2005).

Beyond precisely specifying the variables of interest, Astin (1993) also recommends that researchers clearly define the methodology that will be employed for evaluating the change in student characteristics. In order to obtain the most accurate representation of the impact of a specific intervention on college students it is imperative that the specific techniques that will be used during the evaluation are carefully described and explained before the analysis begins.

**Tinto's (1993) Interactionalist Model of Student Departure.** Another leading researcher in the field of higher education, Vincent Tinto is also interested in the impact that college has on students, but focuses more on the student withdrawal process and the reasons behind such decisions (Pascarella & Terenzini, 2005). Tinto's (1993) interactionalist model of student departure is pertinent to the discussion of student engagement because it hinges upon the interaction between student and the academic and social systems of campus. A highly engaged student is one who has many interactions in both of these realms during their college experience.

Much like Astin's (1993) IEO model, Tinto's (1993) interactionalist model suggests that students enter college with specific traits and characteristics as well as specific intentions and commitment levels. Intention refers to a student's educational and occupational goals, while commitment refers to a student's willingness to work towards achievement of those goals. Central to Tinto's theory is the concept of integration, or the degree to which a student's values, norms, and beliefs align with those of the institution (Tinto, 1993). Academic integration involves meeting the explicit standards of the institution and the ability for students to identify with normative values in the academic system (Kuh et al., 2006; Tinto, 1993). Social integration is shaped by peer group interactions, extracurricular activities, and interaction with faculty in non-academic settings, and refers specifically to the level of congruence between the individual student and the social system of the institution (Kuh et al., 2006). The more integrated a student is with the academic and social systems of higher education, the more committed that student will be to his or her institution and to the goal of graduating, resulting in an increased likelihood of that student persisting (Kuh, et al., 2006; Tinto, 1993).

The challenge for students is determining how to successfully integrate with these two realms. This integration process can be especially difficult for students whose entrance characteristics deviate strongly from the norms of campus, such as students of color on a predominantly white campus (Tinto, 1993). Following this logic, low-income students may face significant challenges integrating with the academic and social systems at elite colleges and universities where the majority of students come from higher income backgrounds.

Integration requires involvement and interaction within the academic and social realms of the institution (Tinto, 1993). In particular, social integration necessitates a certain amount of interaction between student and peers and faculty outside of the formal classroom setting. Social integration is dependent upon students' perceptions of their interactions with peers, faculty, and staff, via their involvement in extracurricular and co-curricular activities (McCormick, Kinzie, & Gonyea, 2013). However, low-income students can find it difficult to become involved and to interact due to financial constraints, especially in the social realm on campus where there is typically some cost associated with participation. This incongruence between the norms of low-income students and the norms of the majority on campus may ultimately lead to increased instances of student departure from the institution on the part of low-income students if the gulf between values, norms, and beliefs is too wide to overcome.

According to Tinto (1993), less than 25 percent of all institutional departures are the result of academic dismissal, which means that over 75 percent are voluntary withdrawals. Tinto attributes these non-academic withdrawals to poor academic and/or social experiences during the student's time of enrollment resulting in low levels of integration across these two systems. Tinto (1993) posits that the lack of integration can arise from two sources. First is incongruence, more commonly called lack of institutional fit. Students in this state feel at odds with the institution and are unwilling to integrate. Contrast incongruence with the second source – isolation. Isolated students lack sufficient interaction that is required for successful integration (Tinto, 1993). It is not that isolated students are unwilling to integrate; it is that they have not had the opportunity to interact, such that integration has not been possible. The concept of

isolation is especially important for this research study where low-income students lack the financial resources necessary to participate in extracurricular activities impacting their integration with the social system on campus.

However, according to Tinto's interactionalist model, student intentions and commitment are malleable concepts that are constantly in flux. As Pascarella and Terenzini (2005) indicate, "These intentions and commitments are subsequently modified and reformulated on a continuing basis through a longitudinal series of interactions between the individual and the structures and members of the academic and social systems of the institution" (p. 54). Accordingly, institutions can take action to promote inter-group interactions, which by Tinto's theory should result in positive impacts on student intentions and commitment. As a result, Tinto's interactionalist model of student persistence serves as another guide when evaluating student engagement.

# **Critiques of Tinto's Theory**

Despite gaining near-paradigmatic status, Tinto's theory of student persistence has received its share of criticism. Similar to earlier research (McNeely, 1937; Spady, 1970; Meyer, 1970), Tinto's (1975, 1993) theory places little responsibility on the institution for its part in why students depart higher education. While Tinto (1993) does indicate that institutional action can impact college student retention, his model places much of the responsibility for departure on the student. By ascribing the reason for departure to a student's inability to successfully integrate with the academic and social systems of higher education, it incorrectly frames the problem in the form of a deficit model; it is as if there is something wrong with the students who leave college. This is a misguided conclusion, as some students who depart may have very reasonable reasons

for doing so. Critical theorist William Tierney is also disapproving of Tinto's logic. Tierney suggests that by framing the model in the manner he does, Tinto has automatically marginalized certain populations by ascribing 'outsider' status to them (Braxton, Sullivan, & Johnson, 1997). As a critical theorist, perception and positioning is important for Tierney and his critique of Tinto's model is a valid one.

In addition to its failure to address the role and impact of the institution on college student attrition and the incorrect framing of student departure as a failure of students to assimilate to the normative values of the institution, Tinto's model has several other flaws. In spite of its widespread use, the theory lacks significant empirical evidence to validate many of its suggestions. Braxton, et al. (1997) examined single- and multi-institutional studies of Tinto's model and found that in almost half of the single-institutional studies (19 of 40) there was no statistically significant relationship between academic integration and persistence. Conversely, evidence of the impact of social integration on persistence provided more robust statistical results. Most applicable to this study, Braxton et al. (1997) found strong statistical support in single-institution studies for Tinto's propositions that (1) higher levels of social integration are related to higher levels of institutional commitment and (2) higher levels of institutional commitment increase the likelihood of student persistence at the institution.

Additional criticism of the Tinto model centers on its lack of qualitative explanatory factors and analysis. Some of the criticism comes from Tinto himself, who acknowledged that his model does not distinguish between students transferring to another institution and those who are truly dropping out of higher education altogether (Braxton, et al., 1997). Bean (1980) was also critical of Tinto and earlier researchers'

failure to distinguish between the actual determinants of student attrition (analytical variables) and correlates of student attrition such as demographic and background variables (p. 156).

Tinto has acknowledged some of the limitations of his own model, first by explaining that it is only intended to help explain the student departure process at a single institution, not across the entire higher education system (Tinto, 1993, p. 112). Further, Tinto stresses that his model is only meant to explain voluntary student withdrawal and not intended for cases of institutionally-forced dismissal. Finally, the interactionist model of student persistence focuses on the entire process of postsecondary education including the cumulative effects of the myriad of interactions a student has over time while enrolled. As Tinto explains, the model is not meant to merely describe the various attributes of student and institution that are related to student departure. But rather, "the model seeks to explain how interactions among different individuals within the academic and social systems of the institution and the communities which comprise them lead individuals of different characteristics to withdraw from the institution prior to degree completion" (Tinto, 1993, p. 113).

## Policies and Programs Related to Increased Student Engagement

As indicated, the literature suggests academic ability and financial concerns are less of a problem for low-income students enrolled in highly selective institutions. However, engagement remains a key factor in determining student behavior in higher education. A lack of engagement in academic and social activities can lead to isolation, lower academic achievement, and ultimately result in withdrawal from the institution

(Kuh, 2009; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Pascarella & Terenzini, 2005; Tinto, 1993).

Student engagement is a critical concept because unlike other factors affecting persistence that lie beyond the direct control of institutions such as student pre-college characteristics, engagement represents an aspect of student behavior that institutions can influence, at least to a certain degree (Kuh, et al., 2006). Through targeted policies and programs, institutions can attempt to elevate the engagement level of their students, which according to the literature should in turn increase persistence, academic achievement, and graduation rates. Highly selective colleges and universities are the highest-resourced institutions in higher education and in many cases have the capital necessary to offer programs designed to impact student engagement (Bowen & Bok, 1998; Hoxby & Turner, 2013; Pascarella & Terenzini, 2005; Snider, 2015).

**DEEP institutions.** Who benefits from higher education and to what degree depends largely upon the institutional policies and practices designed to induce increased student engagement in what Kuh has termed "educationally purposeful activities" inside and outside the classroom (Kuh, 2009, Pascarella & Terenzini, 2005). What do colleges and universities whose students exhibit high levels of engagement have in common?

To answer this question, Kuh et al. (2005) performed a study documenting effective education practices (DEEP). The study examined 20 undergraduate institutions that excelled in two metrics: student engagement and graduation rates. Findings from this study indicate that DEEP institutions did two things exceptionally well. First, they taught students what the institution values and what successful students do in that specific context. The DEEP institutions also taught their students how to take advantage of institutionally sponsored programs and services designed to promote participation and learning. The researchers referred to this process as *acculturation* (Kuh et al., 2005). This concept of acculturation is comparable to Tinto's theory on integration. For Tinto (1993), student integration is dependent upon the degree to which students recognize and assimilate with the dominant attitudes, values, and beliefs of the campus environment. Kuh et al.'s (2005) acculturation is a similar concept in that DEEP colleges and universities recognize the difficulty that students have in identifying, understanding, and reacting to the normative values of campus. Therefore, effective institutions are ones that made expectations explicitly clear so that students know what to expect.

The second thing that DEEP institutions excelled at was making services and resources available to students when they were needed (Kuh et al., 2005). The research team called this *alignment* – a matching of resources to institutional mission, educational purpose, and student needs. Establishing these infrastructures of support is an important element of student success. Kuh et al. (2005) found that DEEP colleges utilized documented policies and procedures that were specific and precise in nature. In addition, measurable performance standards, advising, early warning systems, and redesigning of programs to meet student needs were other noticeable features of DEEP institutions (Kuh et al., 2005). By being able to determine what students need and subsequently being able to meet those needs, DEEP institutions are able to maintain a high level of engagement amongst their students.

**High impact practices.** According to Kuh (2008, 2009), many institutions have initiated programs that have been shown to increase the engagement levels of their students resulting in various beneficial outcomes associated with higher engagement. For

Kuh et al. (2005), "what students do in college counts more for what they learn and whether they will persist in college than who they are or even where they go to college" (p. 8). Therefore, it is important to delve deeper to uncover the specific programs that DEEP institutions (and other successful schools) use to increase student engagement. What are some of these specific policies and practices that institutions with higher levels of student engagement employ?

Research by Kuh has identified several policies and programs that have proven to be consistently related to increased student engagement. These programs, which have been referred to as high-impact practices (HIPs), include first-year seminars, learning communities, writing-intensive courses, collaborative projects, undergraduate research, global learning, internships, and capstone courses and projects (Kuh, 2008; Kuh et al., 2005). Requiring students to live on campus is another policy that institutions can utilize to encourage student engagement (Kuh et al., 2005), and on-campus residency status has also been associated with higher rates of persistence (Bean & Metzner, 1985).

These HIPs all have common elements that promote engagement. First, they require that students devote significant time and effort to purposeful endeavors (Kuh, 2008). Second, the nature of these activities places students in situations where they necessarily must interact with faculty and peers in and out of the classroom, usually over an extended period of time. Take for example a service trip over the week of spring break. Small groups of students are typically accompanied by a faculty or staff advisor to volunteer their time for a charitable cause. Living together and working on a shared goal along with the pre-trip planning efforts means that students are constantly interacting about important topics with other members of the campus community. Third, most HIPs

increase the likelihood that students will interact with a diverse group of people and learn about different perspectives (Kuh, 2008). The fourth common element of high impact practices is that students usually get prompt feedback about their performance concerning each activity. "Working with a faculty member on research, having a paper checked by a peer writing partner, and having one's performance evaluated by the internship supervisor are all rich with opportunities for immediate formal and informal feedback" (Kuh, 2008, p. 23). Finally participating in a high impact practice allows students to see how what they are learning can be put into practice. The opportunity to synthesize and apply newly learned knowledge to real-world situations is an essential element of meaningful learning experiences (Kuh, 2008).

Understanding these essential elements of high impact practices, the majority of the 20 DEEP institutions had intense orientations and first-year-experience programs designed to communicate institutional expectations to new students. Many DEEP schools also had freshman-only housing units and several had routine social events reserved for first-year students (Kuh et al., 2005). It is this level of attention to detail that separates DEEP institutions from other colleges and universities in terms of clearly communicating the characteristics and behaviors that are necessary for success in higher education and providing the institutional support to foster success. According to Tinto (1993), the clear communication of institutional norms and expectations can make the process of integration easier for students, leading to improved performance and retention.

High impact practices pertain to the social and academic systems of higher education. As Tinto (1993) has indicated, retention is largely dependent upon the degree to which students can integrate with both of these systems. A meta-analysis of

engagement studies by Pike and Kuh (2005) supports defining academic and social integration as two separate constructs, which justifies this study and its focus on an intervention program designed to increase engagement in the non-academic social system of higher education at a particular institution.

### Measuring College Student Engagement

Understanding the theories and benefits associated with college student engagement and the currently identified high-impact practices associated with increased engagement, it is necessary to examine how engagement is actually measured. Institutions need an instrument to be able to quantify and measure the construct of engagement so that they have a manner by which to benchmark their progress. The National Survey of Student Engagement (NSSE) is the leading tool in evaluating college student engagement. NSSE was designed to assess college students' engagement levels by querying students about the frequency and level of involvement in activities that have been tied to positive educational outcomes (Kuh, 2001).

**The National Survey of Student Engagement.** The National Survey of Student Engagement was born during the 1990's era of increased accountability out of a desire to more accurately measure institutional quality in higher education. As discussed, prior methods of evaluation focused on university resources, accreditation, and third party rankings based on institutional selectivity and faculty credentials (Kuh, 2001, 2003; NSSE, 2015e). Yet these criteria failed to answer exactly *how* college was affecting students and what students were doing while at college that promoted their growth and development. Per NSSE (2015e), "none of these [prior existing criteria] gets at the heart of the matter: the investment that institutions make to foster proven instructional practices

and the kinds of activities, experiences, and outcomes that students receive as a result" (para, 3).

Concerned that these existing measures of quality were focusing on the wrong criteria, The Pew Charitable Trust commissioned a group of leading higher education scholars to discuss this issue. One of the main conclusions of this panel of experts was that an actual survey of quality in the undergraduate education would be a worthwhile tool, providing more detailed and valuable information to institutional administrators and other stakeholders, allowing them to make more informed decisions (NSSE, 2015e).

The resulting data collection initiative came to be known as the National Survey of Student Engagement and was purposefully designed to "query undergraduates directly about their educational experiences" (NSSE, 2015e, para. 5). NSSE is based upon the abundance of researching linking specific activities and practices with positive educational outcomes. For example, the quantity and quality of student effort towards their studies has been shown to directly impact the quality of learning and the student's overall educational experience (Astin, 1984; NSSE, 2015e). As a result, the type and degree of student engagement has come to be used as a proxy for the overall quality of education that the student is receiving (NSSE, 2015e).

Therefore, NSSE focuses on what students actually *do* at college. The survey instrument used by NSSE is called the College Student Report (CSR). The content of the CSR was selected based upon research which provides empirical evidence of a relationship between the content questions and college student learning and development (McCormick, et al., 2013). For example, one question on the CSR asks about students' residency status, since prior research has linked on-campus residency with higher rates of

retention (Bean & Metzner, 1985). During the design phase, many of the items contained on the CSR were derived from existing college student questionnaires including the CSEQ and CIRP, which as discussed, are themselves based on research concerning retention, the college student experience, and positive educational outcomes (NSEE, 2015e). Accordingly, questions on the CSR "represent empirically confirmed 'good practices.' That is, they reflect behaviors by students and institutions that are associated with desired outcomes of college" (NSSE, 2015b).

NSSE is administered on an annual basis at participating four-year colleges and universities. NSSE collects self-reported information about first-year and Senior undergraduate students' participation in the programs and activities that schools have made available for their learning and development (NSSE, 2015b). In 2015, 587 institutions and over 300,000 undergraduate students participated in NSSE (NSSE, 2015b). While many other surveys focus on students' values or their satisfaction with the college experience, NSSE is unique in that it focuses on the actions and behaviors of students (McCormick, et al., 2013). The benefit of this focus is that it often provides a clear course of action in light of NSSE results. For example, if NSSE shows that students (in aggregate) at a particular institution are not involved in extensive group work or have limited interaction with faculty, both of which are linked to positive outcomes, then the institution can take steps to remedy these deficiencies. That is what makes NSSE such a powerful tool – it can provide a thorough assessment for what students are doing (or *not* doing), and allow institutions to pinpoint areas in need of potential intervention.

A second benefit of NSSE is its central and independent administration. The Center for Postsecondary Research (CPR) at the Indiana University School of Education

is responsible for the administration and upkeep of NSSE. Because CPR is in control of all functions of NSSE (sampling, invitation messages, data file creation, and computation of results), it ensures uniformity and consistency (McCormick, et al., 2013). This uniformity of procedures allows for results to be compared between years and also across institutions. The ability to compare results between institutions allows administrators to place their student engagement results in the context of engagement results from peer schools. Comparisons (over time or between institutions) also help to satisfy the calls for increased accountability in higher education. The potential exists for specific engagement goals to be implemented, which gives institutions and external stakeholders such as federal and state governments a measurable metric through which to judge progress.

**Components of the NSSE.** In order to accurately represent the multidimensional nature of student engagement, NSSE has developed 10 Engagement Indicators (EI) organized loosely around four main themes as illustrated in Figure 2.2 (NSSE, 2015a).

Theme	Engagement Indicators
Academic Challenge	Higher-Order Learning
	Reflective & Integrative Learning
	Learning Strategies
	Quantitative Reasoning
Learning with Peers	Collaborative Learning
	Discussion with Diverse Others
Experiences with Faculty	Student-Faculty Interaction
	Effective Teaching Practices
Campus Environment	Quality of Interactions
	Supportive Environment

Figure 2.2. NSSE Engagement Indicators

Figure 2.2. NSSE Engagement Indicators and related themes of engagement. Adapted from "Engagement Indicators," NSSE, 2015a.

NSSE was redesigned in 2013. The prior NSSE benchmarks utilized from 2000 to 2012 were modified and expanded to more granularly measure student engagement, resulting in the ten Engagement Indicators used today (NSSE, 2015f). In total, NSSE contains 47 survey items across the ten EIs, with each EI designed to measure a precise component of student engagement.

Many of the Engagement Indicators focus on the academic experience and interaction with other members of the campus community. For example, the four EIs related to the Academic Challenge theme deal with how the student spends time preparing for class, analyzing information, and developing his or her academic abilities. Additionally, the EIs linked to the Learning with Peers and Experiences with Faculty themes contain survey items inquiring about students' interactions with classmates, diverse others, faculty, and students' perceptions of the teaching practices at their institution.

Central to this study is the theme of Campus Environment because it is comprised of two Engagement Indicators, one of which is the main theme of this study. Prior to 2013, this benchmark was titled 'Supportive Campus Environment,' but has since been expanded into two IEs which focus separately on student interactions with key people at the institution and student perceptions of the learning environment (NSSE, 2015f). Quality of Interactions is the first Engagement Indicator linked to the Campus Environment theme and contains survey items asking students to rate the quality of interactions they have with other students, faculty, staff, and academic advisors. While these interactions are an important component of overall student engagement they are not the principal focus of this research study.

The Engagement Indicator of particular interest to this study is entitled Supportive Environment (SE). As detailed in Figure 2.3 below, this Supportive Environment indicator asks students to indicate how much their institution emphasizes specific activities and behaviors.

Figure 2.3. Supportive Environment Engagement Indicator	
How much does your institution emphasize the following:	
Spending significant amounts of time studying and on academic work	
Providing support to help students succeed academically	
Using learning support services (tutoring, writing center, etc.)	
Encouraging contact among students from different backgrounds (social, racial/ethnic, religious, etc.)	
Providing opportunities to be involved socially	
Providing support for your overall well-being (recreation, health care, counseling, etc.)	
Helping you manage your non-academic responsibilities (work, family, etc.)	
Attending campus activities and events (peforming arts, athletic events, etc.)	
Attending events that address important social, economic, or political issues	

Figure 2.3 Supportive Environment Engagement Indicator question block.

Adapted from "Benchmarks to Engagement Indicators and High-Impact Practices. NSEE, 2015f.

Like the other indicators, the Supportive Environment EI focuses on what students do while at college and also asks about their perceptions of how their university supports them in these activities. Yet while the other EIs focus more on issues and activities related to academics, the Supportive Environment indicator is the one component of NSSE that emphasizes the non-academic activities and behaviors of students. This makes the SE indicator an important tool with which to evaluate students' participation in out-of-class activities and the degree to which students feel that their institution supports them in becoming involved.

#### **Critiques of the NSSE**

Despite NSSE's widespread use as the leading indicator of the activities and programs that students participate in during college, it is not without its detractors. One off-cited critic of the NSSE and its use as a tool to aid policymakers is Stephen Porter. Porter's (2011) critique questions the validity of all student survey questions, with a focus on the NSSE because in his view, these surveys erroneously assume that college students can easily and accurately report information about their attitudes, values, and beliefs. In addition, Porter questions the construction of the five broadly defined NSSE benchmarks suggesting that "...the domain is so widely defined that almost any student survey question could be included under the areas 'engagement,' 'student outcomes,' and 'instructional quality'" (Porter, 2011, p. 51).

Other criticism of the NSSE comes from Campbell and Cabrera (2011) whose research indicates substantial correlation among the five benchmarks. A high degree of correlation between two benchmarks is evidence that they may be measuring the same element of student engagement and raises concerns of construct validity. While a multiinstitutional research project conducted over a period of time by Pascarella, Seifert, and Blaich (2008) supports the use of NSSE's benchmarks as appropriate measures of positive educational outcomes, the single-institution study of Campbell and Cabrera (2011) does not reach the same conclusion due to these validity concerns.

A final concern with NSSE is its use as a tool for institutional comparisons. Schneider (2009) uses NSSE annual report data to confirm that almost all of the variation (90%) in the NSSE benchmarks of effective educational practice occurs among students *within* an institution. This leaves a paltry 10% of the variance attributable to the institutions themselves. This suggests that despite its extensive use as a tool to compare results across institutions, the NSSE may not be suited for that role, but should rather be used to compare results within the same college or university – a fact that may decrease NSSE's value and applicability.

NSSE, and the authors and researchers responsible for its inception and maintenance have acknowledged the criticisms and responded in turn. First, there is evidence that suggests that the CSR is a valid instrument for measuring student engagement. Kuh (2009) offers confirmation of the CSR's strong reliability and test-retest correlation. Second, research by Pike (2013) found that the NSSE benchmarks did provide reliable results for larger samples of students (n>50) and that the benchmarks were significantly related to positive outcomes such as retention and graduation rates.

Third, the NSSE was redesigned in 2013 and transitioned from the five benchmarks to ten Engagement Indicators. These indicators are more detailed and nuanced. By expanding upon the dimensions of student engagement, the redesigned NSSE addresses Porter's (2011) issue of overly generalized categories. Finally, McCormick, the current NSSE director, has admitted that the NSSE is not perfect, but currently represents the most cost-effective tool for assessing student engagement (Jaschik, 2009). In his interview with Jaschik (2009), McCormick is dismissive of Porter's (2011) suggestion that institutions have their students keep time-use journals to keep track of their activities, calling this recommendation costly and impractical. In addition, McCormick states that "given that a core purpose behind the NSSE's founding was to inform institutional improvement, it is appropriate to interrogate the longitudinal data for evidence of impact: are there signs of improvement?" (McCormick, Kinzie, & Gonyea, 2009, p. 69). This indicates that a primary use for the NSSE is for colleges and universities to benchmark progress against themselves and not necessarily against other institutions.

## **Sense of Belonging**

While the focus of this research study is on college student engagement, it is necessary to briefly discuss the concept of students' sense of belonging, as it is a direct correlate of engagement. Strayhorn (2012) defines sense of belonging for college students as "...the perceived social support on campus, a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group (e.g., campus community) or others on campus (e.g., faculty, peers)" (p. 3). Like engagement, sense of belonging has been linked to important educational outcomes including academic achievement and persistence (Hausmann, Schofield, & Woods, 1997; Strayhorn, 2012). The need for belonging and acceptance takes special prominence during adolescence when young people begin to contemplate who they are, who they want to become, and with whom they feel they belong (Goodenow, 1993). As such, sense of belonging is a necessary construct to examine due to its effects on college students.

Sense of belonging is an important concept for this study because it can influence the degree to which college students are able to integrate with their campus community. Students who feel like they do not matter, feel that they are not respected or valued, or feel unimportant will have a more difficult time integrating with both the academic and social systems on campus (Strayhorn, 2012). Research suggests that sense of belonging is a particularly important and influential component of integration with the social system of higher education and has been shown to affect institutional commitment (Bean & Metzner, 1985; Berger & Millen, 1999; Tinto, 1993). The greater the sense of belonging

to the institution, the more likely that student is to persist in his or her educational endeavors (Stebleton, Soria, & Huesman, 2014).

As discussed, integration is the key factor in Tinto's (1993) model of student persistence, with lower levels of integration being suggestive of early departure from the institution. Similarly, if students feel that they do not belong to the educational community of their institution it can negatively impact their level of involvement in academic and social activities. Astin's (1984) theory of involvement is predicated on the quantity and quality of effort students put forth in educationally purposeful activities. Therefore, students with a lower sense of belonging may exhibit lower levels of effort, and in turn may experience fewer and lower degrees of educational benefits.

Work by several researchers has highlighted particular academic activities and membership in specific organizations that are associated with increased sense of belonging among college students. Examples of these activities include discussing course material with classmates outside of class, tutoring other students, conversing with professors outside of class, and participating in academic support programs (Hurtado & Carter, 1997; Maestas, Vaquera, & Zehr, 2007). In addition, participation in religious clubs or student government, being a member of a fraternity or sorority, socializing with students from different racial/ethnic backgrounds, living on campus, and perceptions of the campus racial climate have proven to be non-academic activities and group memberships that can positively impact sense of belonging (Hurtado & Carter, 1997; Maestas et al., 2007; Strayhorn, 2012).

Because sense of belonging can impact the integration and involvement of college students, it is an important variable to include in the statistical analysis of this research

study. Following the paradigm of Astin's (1993) IEO model to study the impact of the college environment, it is prudent to include some measure of students' sense of belonging so as to account for as many student variables as possible in order to isolate the effect of the Pinnacle Alliance on engagement scores.

To formally measure sense of belonging many educational researchers employ the Perceived Cohesion Scale developed by Bollen and Hoyle (1990). This scale is comprised of questions related to participants' sense of belonging and their feelings of morale. Central to this study are the three questions that comprise the sense of belonging score. Bollen and Hoyle (1990) indicate that sense of belonging is an essential element for the existence of groups; if individuals do not feel that they are members of a specific group, the group norms and values should not affect them. Therefore, sense of belonging is essential to members' identification as part of that group. Details on the specific questions on this scale related to sense of belonging and how they are scored will be discussed in the methodology chapter of this research study.

In summary, the evidence for the importance of sense of belonging is clear: to effectively integrate with the systems of higher education and to be motivated to actively participate in their own education, students must feel a sense of belonging to their college. Therefore, it is imperative that institutions establish and maintain conditions that promote feelings of belonging for their students (Strayhorn, 2012).

#### Gaps in the Literature

As previously discussed, the literature has shown that low-income students enrolled in America's highly selective colleges and universities have the academic ability to succeed (Bowen & Bok, 1998; Bowen et al., 2005; Pallais & Turner, 2007). In

addition, generous need-based financial aid policies have made the cost of enrolling a virtual non-factor for the neediest students (Avery et al., 2006; Hoxby & Turner, 2013; Snider, 2015).

Yet as Walpole (2003) has indicated, there is a lack of research focusing on lowincome students in higher education beyond studies showing that this population is underrepresented and that they persist and graduate at lower rates than their higherincome classmates. Walpole is critical of the state of the existing literature and suggests the lack of attention towards low-income students is due to the fact that these students lack a group identity and political mobilization. Kuh et al. (2005) echo this sentiment and stress the importance of determining the institutional policies and practices that are successful with different groups of students, including those from low-income backgrounds.

It bears repeating that as Kuh et al. (2005) have suggested, "what students *do* in college counts more for what they learn and whether they will persist in college than who they are or even where they go to college" (p.8). In other words, it is the programs and activities that students participate in both inside and outside the classroom that determine educational outcomes more than their individual background characteristics or even what institution they attend. This is actually welcome news for institutions. Since they are unable to control student background variables and to a large extent, unable to control where individual students choose to enroll, the only option for institutions to influence student outcomes is by making educationally purposeful activities available to their students.

Many of these activities occur outside of the classroom walls and comprise a large part of the full college experience, but have costs associated with participation. According to Tinto (1993), it would follow that when low-income students are not able to participate in these activities they become isolated. It is not that they do not wish to participate, but rather that the costs required to do so erect a financial barrier prohibiting low-income students from getting more involved in outside-of-class activities. Isolation is one of Tinto's (1993) two causes of students' failure to integrate with the campus environment, and is especially pertinent to the social realm.

Though institutions can control what programs and activities they make available to their students, simply making them available is not enough. If low-income students are unable to participate because of the costs associated with these programs and activities, are they really readily accessible to all members of the campus community? What happens, for example, when low-income students can't attend the homecoming ball or participate in service trips because of the fees required to do so?

While the high impact practices highlighted by Kuh (2008) have been shown to increase college student engagement, there is a lack of scholarly research concerning the experience of low-income students in higher education, specifically regarding their involvement in non-academic co-curricular activities that comprise such a large part of the college experience. There is a gap in the literature concerning the effects of institutional programs designed to increase access to co-curricular programs by reducing the costs of participation. Colleges and universities are reticent to release information concerning the design and effects of these programs.

The Harvard University Student Events Fund (SEF) is an example of one of these intervention programs and while limited information is available concerning the program, that information is quite revealing. Instituted in 2002, the SEF is funded with university funds through the Financial Aid Office and provides students on full financial aid with free tickets to performances and cultural events on campus, thus allowing low-income students the opportunity to fully participate in this aspect of campus life (McLoughlin, 2011). McLoughlin (2011) further indicates that the number of SEF-eligible students has grown from 500 in 2006 to approximately 1290 during the 2009-2010 academic year. While this expansion in students served is a positive result in terms of increasing access, costs for the program rose by 400% over the same time period (McLoughlin, 2011). Despite the promising results of the SEF, it is unclear if and how the program impacted low-income students' engagement levels.

This lack of understanding of how intervention programs targeted toward increasing low-income students' access to the full college experience presents an opportunity for further research. As a result, this study was designed to examine how one of these programs (the Pinnacle Alliance at Lakefield University) has impacted lowincome students' engagement levels. Specifically, this study relied upon the Supportive Environment indicator from NSSE to examine how low-income students at Lakefield have been impacted by the Pinnacle Alliance.

As such, the purpose of this research study was to add to the limited literature concerning low-income students' experiences at elite institutions with a specific focus on student engagement in the social realm of higher education.

### **Conceptual Framework**

Scholarly research should be grounded in a conceptual framework to help determine the analytical techniques to be used and to assist with the interpretation of results (Pedhazur, 1997). This study operated under a pragmatic worldview, borrowing both qualitative and quantitative data collection and analysis techniques in order to capitalize on the benefits of each and in order to best answer the research questions being posed. This study was grounded in the literature concerning college student engagement. Student engagement research by George Kuh (2001, 2003, 2009) and Kuh & Associates (2005) provided a general guideline for this research, while Alexander Astin's (1984) theory of student involvement and Vincent Tinto's (1993) interactionalist model of student persistence served as the theoretical cornerstones for analysis. Finally, Astin's (1993) Input-Environment-Output (IEO) model served as the foundation for a systematic and organized approach to evaluating the effect(s) of the Pinnacle Alliance on lowincome students at Lakefield University. "The I-E-O model was designed to address the basic methodological problem with all nonexperimental studies in social sciences, namely random assignment of people (inputs) to programs (environments)" (Astin & Sax, 1998, p. 252). Accordingly, the IEO model is an appropriate paradigm to employ for this study based on the inability to purposefully assign students to treatment and control groups. This research study is not a true scientific experiment, but rather an analysis of a naturally occurring phenomenon.

## **Chapter Three: Methodology**

### Introduction

The literature review has highlighted the need for further research on college student engagement, with particular emphasis on intervention programs designed to reduce the financial barriers to participation in co-curricular activities for low-income students so that they may enjoy the full college experience. This study used a mixed methods research design to examine the effectiveness of one such program - the Pinnacle Alliance (PA) at Lakefield University – and prompted students for further details to uncover why they did or did not participate in the program. To maintain anonymity, Lakefield University and the Pinnacle Alliance are both pseudonyms.

This study used the Supportive Environment Engagement Indicator from the National Survey of Student Engagement (NSSE) as the outcome variable of interest to evaluate the level of engagement exhibited by PA-participants, PA-eligible nonparticipants, and non-PA-eligible students at Lakefield University.

#### **Research Questions**

Ultimately, this research study was designed to be a program evaluation of the Pinnacle Alliance in order to determine if it has had an impact on low-income students' engagement at Lakefield University, specifically in relation to non-academic, cocurricular activities. Accordingly, this study sought to answer the following research questions:

1. Is there a difference in students' scores on the Supportive Environment indicator between PA-participants, PA-non participants, and non-PA-eligible students?

- 2. Which benefits offered by the PA are most associated with higher levels of Supportive Environment scores?
- 3. Why do PA-participating students choose certain benefits over others?
- 4. Why do some PA-eligible students choose not to participate?

## The Lakefield University Pinnacle Alliance

The Pinnacle Alliance began in 2008 and was formalized with Lakefield University funding in 2010. Lakefield University is a private, highly selective institution located in the Northeast United States. A more detailed discussion of Lakefield University follows in the Research Site section of this chapter. The Alliance is comprised of over 40 administrators and faculty members from across the Lakefield community who have committed institutional resources "that this population needs for success and accessibility to the 'full Lakefield experience'" (Pinnacle Alliance, General Information, 2015). The PA aims to provide access so that students can explore the "social, spiritual, and intellectual" areas of the institution in addition to offering the support needed to confront the challenges that many of the financially strained Pinnacle Alliance students experience (Pinnacle Alliance, General Information, 2015). Many students with limited financial means are precluded from campus events and activities due to the costs associated with attending. The goal of the Pinnacle Alliance is to promote access to the myriad of activities and programs available to undergraduate students by reducing or removing the financial barriers associated with participation.

Consideration for the PA is based on the individual student's financial need, as determined by the Office of Financial Aid. Students demonstrating the highest level of financial need, defined as having received a Federal Pell Grant, are eligible for the

program. Once the Office of Financial Aid determines eligibility, individual students are contacted by the Pinnacle Alliance Program Manager or Graduate Assistant who informs the students of their membership and the benefits of the Pinnacle Alliance. All information concerning the student's financial situation as well as his or membership in the PA is kept confidential in order to avoid stigmatization. Lakefield students have no way of knowing who is eligible for the Pinnacle Alliance unless the student self-discloses that information.

As of May 9, 2016 there were 1436 undergraduate students representing approximately 15% of the undergraduate enrollment at Lakefield University who qualified for membership in the Pinnacle Alliance (Pinnacle Alliance Manager, personal communication, May 9, 2016). It is important to note that participation in the Pinnacle Alliance is completely voluntary. While 1,486 students were eligible, 684 students had actively received some form of benefit for the 2015-2016 academic year. This number was obtained from the Pinnacle Alliance office, and represents the number of unique students that have swiped their student I.D. card upon entry to the office in preparation for their counseling appointment to receive any form of benefit beyond the automatic athletic tickets which are awarded to all PA students (Pinnacle Alliance, General Information 2015).

The original intention of the Pinnacle Alliance was to provide free entrance to a limited number of social events at Lakefield University. As the program has expanded over time, so too have the offerings. In addition to distributing free tickets to sporting events, concerts, and theater productions, the PA has also assisted eligible students by offering funding for EMT courses, retreats, service programs, independent studies, and

research (Pinnacle Alliance, Student Resource Center, 2015). The LU Athletic Department has also provided funding so that all PA students receive a free "Gold Pass" which entitles the holder to free entry into all home athletics events that are not sold out. For a full list of benefits offered by the Pinnacle Alliance, refer to Appendix A.

The aforementioned benefits are quite generous but are mostly monetary in nature. Were it just for these benefits, it would seem that the Pinnacle Alliance is merely a transactional relationship between students and the program. However, this is not the case. Beyond the free tickets and payments towards program costs, the PA offers a litany of non-tangible benefits. The other components of the program are the mentoring, counseling, and guidance that are provided to students by Pinnacle Alliance members. The Pinnacle Alliance was designed to be a holistic program, not just a mechanism to award free tickets to sporting events.

With any request for assistance besides the ticket lottery, students are required to meet with a PA staff member. During these meetings, staff members discuss the specifics of the student's request along with trying to get to know the student better, if not already familiar with their situation. It is through these dialogs that other topics are often discussed. Typical areas of concern or apprehension for this low-income population include financial aid, housing, study abroad, and student employment (Pinnacle Alliance Manager, personal communication, February 4, 2016). The PA also has a secure website where eligible students can log in and navigate to detailed sections that review the basics of each of these topics.

Each of the programs that the Pinnacle Alliance covers represents a way for eligible Lakefield students to become more involved outside the classroom, while the

counseling sessions represent a way to encourage low-income students to talk about any issues they may be experiencing. By helping to reduce or in many cases completely remove the costs associated with participation in co-curricular activities, the Pinnacle Alliance is enabling low-income students to have access to the "full Lakefield experience" that is such a vital part of a Lakefield education.

### **Overview of Mixed Methods Research Designs**

Mixed methods designs are most appropriate when the researcher seeks to understand complex phenomena since these phenomena are often not understood using a single method alone (Morse & Niehaus, 2009). Incorporating both quantitative and qualitative research methods broadened the understanding of both the effects of the Pinnacle Alliance on low-income students at Lakefield University and gave meaning to their experiences with the program (Creswell, 2009). Creswell (2009) defines mixed methods research as:

An approach to inquiry that combines or associates both the qualitative and quantitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study. Thus, it is more than simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research. (p. 4).

According to Tashakkori and Teddlie (2003), mixed methods research is still in its adolescence, having emerged from the earlier "paradigm war" between quantitative and qualitative designs as a third type of acceptable research methodology. Initially, quantitative research with its positivist (and later postpositivist) worldview, focusing on

reductionist, logical, and cause-and-effect types of analyses dominated the social sciences (Creswell, 2007). For postpositivists, causes most likely determine outcomes. In order to derive meaning and formulate interpretations, it is necessary to reduce ideas into small discrete items able to be tested in scientifically controlled experiments with clearly defined variables and hypotheses (Creswell, 2009). Therefore, using a specific set of carefully selected predictor variables in the experimental analysis, researchers adopting a postpositivist worldview seek to reduce the phenomenon under examination to its most basic elements in order to best estimate the precise outcomes of that phenomenon (Tashakkori & Teddlie, 2003).

Qualitative researchers critical of this postpositivist stance published several books and articles during the 1970-1985 period, offering a constructivist worldview (Tashakkori & Teddlie, 2003). Constructivists focus more on understanding the experiences of individuals in their natural environment, since this worldview espouses the idea that individuals' realities are shaped by their experiences. Because each individual will have unique experiences, the meaning and understanding ascribed to these experiences will vary by individual (Creswell, 2009). "The goal of the research is to rely as much as possible on the participants' views of the situation being studied. The questions become broad and general so that the participants can construct meaning of a situation" (Creswell, 2009, p. 8). By gathering the views of several participants, the qualitative constructivist researcher is able to better understand and interpret the phenomenon being studied.

These two opposing worldviews led to what researchers have termed the "incompatibility thesis," which suggests that quantitative and qualitative research

methods cannot be mixed due to the conflicting assumptions and goals of each type of methodology (Tashakkori & Teddlie, 2008). More recently, researchers seeking to end the paradigm wars have introduced a new worldview dubbed "pragmatism." According to Tashakkori and Teddlie (2008), "...many active theorists and researchers have adopted the tenets of paradigm relativism, or the use of whatever philosophical and/or methodological approach works for the particular research problem under study" (p. 9). Those who hold a pragmatic worldview reject the incompatibility thesis and blend the use of both types of research methods to the degree that will help answer the specific research question posed.

Pragmatists understand the benefits associated with both quantitative and qualitative methods and seek to capitalize on the strengths of each by utilizing both methods to complement each other. Yet while a qualitative approach generally relies upon inductive reasoning and a quantitative approach generally uses deductive reasoning, researchers who hold a pragmatic worldview typically employ abductive reasoning, vacillating back and forth between deduction and induction as the situation warrants (Morgan, 2008). Because abductive reasoning can quickly become complex, it is essential that researchers adopting a pragmatic approach to their methodology focus on effectively communicating their results.

### **Rationale for Mixed Methods**

It was important to keep the goals of the study in mind when determining the proper research design, as the design necessarily must align with the research questions being posed (Creswell, 2009; Plano Clark & Creswell, 2008). This study was designed to determine if the Pinnacle Alliance has had an effect on low-income students' engagement

levels, specifically in relation to their involvement in co-curricular activities, and to then contextualize the meaning of those results through the voices of the students.

When evaluating potential research designs, careful consideration must be used concerning the timing of quantitative and qualitative data collection, the weight given to each type of data, and if, how, and when the data will be mixed (Creswell, 2009, pp. 206-207). The answers to these questions will determine the most appropriate type of research design to be employed.

While determining how the Pinnacle Alliance at Lakefield University has affected students' engagement levels, and which benefits offered by the PA are most associated with higher levels of Supportive Environment scores could have been readily answered using a quantitative statistical methodology, in order to make deeper meaning of these findings it was necessary to incorporate a certain degree of qualitative data and analysis. Discussions with students who participated in the Pinnacle Alliance and with students who were eligible but did not participate helped to answer the third and fourth research questions as well as provide context and detail with respect to the first two research questions. This combination of quantitative and qualitative data collection and analysis methodologies was the most effective technique to adequately answer the specific research questions being posed as using only one without the other would have resulted in a study lacking breadth, detail, and context.

### **Explanatory Sequential Mixed Methods Design**

Specifically, this study employed an explanatory sequential mixed methods design. Explanatory sequential mixed methods designs collect and analyze quantitative data in the initial phase of research and then collect and analyze qualitative data in the
supplementary phase which builds on the results of the first phase (Creswell, 2009). A quantitatively-driven sequential mixed methods design uses the supplementary qualitative component to give further meaning to the core quantitative analysis. The quantitative analysis is typically sufficient to stand on its own, but the supplementary qualitative component is usually not a "complete" study, but rather is used to enhance the findings of the quantitative analysis and increase the validity of the research (Morse & Niehaus, 2009).

Morse and Niehaus (2009) indicate the general benefits of mixed methods designs are that when performed properly, mixed methods research can enhance the validity of the research findings by incorporating results from the supplementary component to expand the understanding of the primary research component or to verify the results of the primary research component. The particular benefit of a sequential mixed methods design is that it uses the qualitative data to triangulate and corroborate the quantitative findings. The qualitative data is also used in a complementary fashion to elaborate, enhance, and explain the results of the quantitative phase of inquiry (Plano Clark & Creswell, 2008). This explanation and contextualization of the so-called "hard data" from the quantitative phase of research can be even more powerful when it is achieved through the words of the student-participants. Who better to explain the quantitative survey results and what they mean then the Pinnacle Alliance students themselves?

In addition, explanatory sequential mixed methods approaches benefit from their straightforward design, which makes it "easy to implement because the steps fall into clear, separate stages" (Creswell, 2009, p. 211). This logical step-wise progression also makes the results easier to describe and report (Creswell 2007, 2009). The major

drawback of explanatory sequential mixed methods designs is the time it takes to gather and analyze the data, since this occurs in two separate phases (Creswell, 2009; Morse & Niehaus, 2009). Proper planning was used in this research study in order to carefully select when each specific step of the research process began and ended, enabling a concrete schedule to be followed.

### **Research Site**

This site for this study was Lakefield University, a private, mid-sized, religiouslyaffiliated, Doctoral/Highest Research Activity Carnegie-classification institution located in the Northeast United States (Carnegie, 2015). Total enrollment for the 2015-2016 academic year was approximately 14,000 students, with just over 9,000 undergraduates, 53% of which identified as female and 47% identified as male. Thirty percent of undergraduates indicated they were members of a racial minority group. This site was selected due to the existence of the unique Pinnacle Alliance intervention program targeted towards low-income students. While several institutions of higher education offer generous financial aid packages covering full financial need, no research is available on ancillary programs designed to assist low-income students afford the costs of co-curricular activities that financial aid is prohibited from covering.

Further, by nature of its place atop the higher education hierarchy, Lakefield University and other highly selective institutions are poised to make policy decisions that can impact the landscape of higher education. For example, the last several decades have witnessed the proliferation of full need-based financial aid policies, a practice that began at these elite institutions. Understanding how low-income students at Lakefield University respond to a targeted intervention program has the potential to promote

broader initiatives through policy choices at other institutions, state-wide, or perhaps even on a national level.

### **Target Population and Sample**

The target population for this study was all undergraduate students at Lakefield University. In order to make inferences about the impact of the Pinnacle Alliance, a sample of Lakefield students were invited to participate in this study. To determine the necessary sample size required to adequately answer the research questions of this study, a power analysis was conducted using GPower 3.1 software. In statistical terms, beta ( $\beta$ ) is used to denote the rate of type II error, or the failure to identify an effect when one is actually present. Conversely, alpha ( $\alpha$ ) is used to denote the significance level, which is the probability of committing a type I error - detecting an effect that is not truly present (Field, 2013). Finally, statistical power refers to the probability that a test will find an effect given that an effect actually exists and in mathematical terms is 1 -  $\beta$  (Field, 2013). The convention in social science is to utilize a beta of 0.2 and an alpha of 0.05 in order to optimize analysis of the effect under investigation (Field, 2013; Cohen, 1988). This ratio suggests that researchers are willing to commit a type II error of failing to find a significant effect when one exists at four times the rate of a type I error, finding a significant effect when no such effect is present.

Applying these guidelines to this study, the resulting power level  $(1-\beta)$  was 0.80, meaning that if a difference in Supportive Environment scores did exist between students, it would have been detected 80% of the time. In his critique of NSSE, Porter (2011) advocates the use of a small effect size and suggests one of 0.10 when trying to detect a difference that may not be expected. For the purposes of this study, I wanted to detect

even small effect sizes, so as not to miss any possible effect of Pinnacle Alliance participation on students' SE scores, regardless of how small those effects might have been. To be conservative and to detect these small effect sizes, I elected to use an effect size of 0.02. The resulting sample size necessary to yield an analysis with these parameters (power=0.80,  $\alpha$ =0.05, and effect size=0.02 (small)) was 395 total students.

The goal was to have each of the three groups (PA-participating, PA-nonparticipating, PA-ineligible) be relatively equal in size, resulting in desired group sizes of approximately 132 students each. Research by Cook, Heath, & Thompson (2000) has shown that online response rates hover between 35 and 40 percent. In an attempt to be conservative in order to obtain the necessary sample size, I estimated the response rate to be only 25 percent. Therefore, the minimum number of students to be offered the survey from each group was 528. The total number of PA participating students was 684, so all of these students were sent survey invitations. I also offered the survey to all students who were eligible for the program, but chose not to participate. There were a total of 752 of these eligible non-participating students. Finally, in order to compare results to students who were not eligible for the Pinnacle Alliance, it was necessary to obtain a random sample of students who did not receive a Pell Grant. I anticipated that this group would have the lowest response rate and therefore offered the survey to 1,000 students from this group.

During the findings and analysis stages of this research study, the real-world implications of the potential effects will be analyzed. As discussed in the review of the literature surrounding the NSSE, the Supportive Environment Engagement Indicator is the variable of particular interest for this study. This Engagement Indicator is comprised

of 9 questions on a 4-level Likert scale which means that possible scores on the Supportive Environment (SE) indicator could range from 9 to 36. Further details concerning the Supportive Environment indicator are outlined in the Instrumentation discussion in this chapter.

Electing a small effect size when determining the necessary sample size enabled me to identify even small differences in SE scores based on PA participation. Interpretation of what these potential differences actually mean for practitioners and policy makers will be discussed in the findings and recommendation chapters when applicable. For example, if a very small difference is identified (PA participation increases scores by 0.25 points), and it proves to be statistically significant, what does it mean in actuality? Having a student change from an SE score of 20 before he participates in the Pinnacle Alliance to 20.25 after he participates is likely not a change large enough to warrant program expansion or replication, despite the potential for these results to be statistically significant.

### **Research Design**

# **Quantitative Phase**

Based on the selection of a quantitatively driven sequential mixed methods research design, the first phase of this research study was quantitative in nature and involved administering an online survey to the target sample of students and statistically analyzing the results in order to answer the first two research questions. IBM SPSS Statistics version 22 was the computer software used to perform the statistical calculations in this research study. Surveys are an appropriate method of data collection when the data sought is not currently collected through any other route (Calder, 1998). As there is no pre-existing data set either nationally or at Lakefield University containing variables related to lowincome students' attitudes and behaviors towards co-curricular activities, a survey allowed for this data to be collected. The goal of this survey, as any other survey, was to use the data collected from the smaller sample of respondents to make general inferences about the larger population (Tourangeau, Conrad, & Couper, 2013). In this specific case, what can be inferred about the population of all low-income students at LU based on the sample of low-income students who participated in this survey?

The National Survey of Student Engagement administers its annual College Student Report (CSR) survey at hundreds of four-year colleges and universities. The results of the CSR reveal important information about how undergraduate students spend their time at college and what they gain from enrolling in postsecondary education (NSSE, 2015b).

The CSR is comprised of ten Engagement Indicators (EI), which are "sets of items that have been grouped into ten key dimensions of student engagement" (NSSE, 2015c, p. 21). This research study focused on the tenth Engagement Indicator, "Supportive Environment." This theme is an indicator summarizing students' perceptions of how much their institution emphasizes activities and programs that promote their learning and development (NSSE, 2015a).

This EI was purposefully selected because out of the ten total indicators, the first eight focus primarily on the academic and learning environment. The Supportive Environment indicator is unique in that it has a non-academic focus and is most directly

related to the mission of the Pinnacle Alliance – increasing social opportunities for lowincome students.

**Variables of interest.** As a result, this study focused solely on this co-curricular component of student engagement and the degree to which students at Lakefield University felt supported by the university in participating in these activities. Therefore, the question block from the College Student Report (CSR) survey instrument designated as belonging to the Supportive Environment Engagement Indicator was utilized to calculate the primary outcome variable for the quantitative portion of this study. Selecting just one Engagement Indicator for this study also helped to address Campbell and Cabrera's (2011) criticism that NSSE benchmarks may be highly correlated.

The Supportive Environment indicator contains nine questions, each answered on a four point Likert scale. Accordingly, a new total engagement variable (*toteng*) was calculated for each participant as the sum of the 9 individual questions and had a possible range of 9 to 36. Adhering to NSSE protocol, participants who answered seven or fewer of the nine questions were excluded from further analysis (NSSE, 2015a). This new '*toteng*' variable was used as the outcome variable in this study and allowed me to determine how much of the variance in students' scores on the Supportive Environment indicator was attributable to participation in the Pinnacle Alliance intervention program.

The main predictor variable of interest to this study is whether or not the student participated in the Pinnacle Alliance. The survey asked students which, if any, benefits of the PA they have received. Using skip-logic functionality, if the respondent answered that they had not received any benefits, he or she was not asked any further questions about the Pinnacle Alliance. To confirm that students truly did receive PA benefits,

answers to this question were validated against data from the PA office which tracks the specific students that have received benefits. Respondents who incorrectly indicated that they were PA-eligible but were truly ineligible had their data removed from the regression analysis.

It is plausible that there were other variables beyond PA participation that may have influenced students' scores on the Supportive Environment indicator at Lakefield University and these were also included in the analysis to the extent possible. Through his IEO model, Astin (1993) stresses the importance of controlling for student background variables in order to effectively isolate the effect that college has had on an individual student. In order to measure the effect of participation in the Pinnacle Alliance on students' scores on the SE indicator as precisely as possible, this study included the background characteristics that the literature suggests are influential to student engagement (Astin, 1993; Kuh, 2008, 2009; Kuh et al., 2005; Pascarella & Terenzini, 2005, Tinto, 1993). Accordingly, the specific background attributes utilized as the first block of predictor variables in this analysis were:

- Student's gender identification
- Student's racial/ethnic identification
- Student's class level
- Student's SAT score
- Student's current college grade point average
- Student's expected highest level of education to be completed
- Parent's highest level of education completed

Income and socioeconomic status have also been linked to student engagement across the literature (Bowen & Bok, 1998; Reason, 2003; Tinto, 1993), but are noticeably absent from the list of student background variables above, and this is for good reason. The nature of the Pinnacle Alliance and its eligibility requirements already embed this information in the study. As explained, only students who have been awarded a Federal Pell Grant as part of their financial aid are eligible for participation in the Pinnacle Alliance. The Pell Grant is often used as a proxy for low-income status in educational research as it is awarded to students with the highest financial need (The Pell Institute, 2015). Therefore, for the purposes of this study all students who received a Pell Grant were considered members of the low-income category, while students who did not received a Pell Grant were grouped into the non-low-income category.

In addition to student background characteristics, other programs or offices at Lakefield University beyond the Pinnacle Alliance may influence Supportive Environment scores. In particular, the Learning Experience (LE) office "seeks to support low-income, underrepresented, first-generation college students, and students with disabilities to excel academically and to provide a nurturing environment where our target population can achieve their full potential" (Learning Experience, Mission Statement, 2015). Programs offered by LE are open to all students, regardless of income and include academic, personal, and career advising, graduate school application support, a college transition program, and many seminars and guest speakers (Learning Experience, Programs & Services, 2015).

The AALANA Multicultural Center (AALANAMC) of Lakefield University is another office that has the potential to influence student engagement. AALANA is a

term used to describe students who identify as African American, Latino, Asian, or Native American. Programs and benefits offered by AALANAMC include academic counseling sessions, the Opportunity from Education summer program for incoming freshmen, tuition remission for summer classes or summer study abroad, retreats, seminars, and various talks and gatherings concerning cultural awareness (AALANAMC, Programs & Services, 2015).

The survey also asked respondents to indicate if they had taken part in any high impact practices (HIPs) such as studying abroad or holding a formal leadership role in an organized student organization. The question related to HIPs is from the NSSE and is intended to provide data on exactly what students are doing while they are at college, as Kuh et al. (2005) have urged. The questions related to LE, AALANA, and HIP participation were included in the survey in order to be able to compare the three groups of students in terms of the quantity and types of activities they engaged in, exclusive of the Pinnacle Alliance. It may be the case that higher income students participate in more high impact practices and devote considerably more time per week to other educationally purposeful activities than their lower income classmates. Including these questions in the survey allowed for such analyses to be performed.

In addition, participation in any of the high impact practices identified in the survey or in any of the programs or activities offered by LE or AALANAMC has the potential to influence student engagement and must be accounted for in the analysis of the Pinnacle Alliance and its overall effect on engagement. Therefore, participation in any of these programs was used in the second block of predictor variables in the

regression equation so as to isolate the effect of the Pinnacle Alliance as precisely as possible.

Finally, as outlined in the review of the literature on student engagement, sense of belonging is another factor that has the potential to influence engagement. The survey instrument included the three questions contained in Bollen and Hoyle's (1990) sense of belonging scale. These questions were:

- I feel a sense of belonging to Lakefield University
- I feel that I am a member of the Lakefield University community
- I see myself as part of the Lakefield University community

Following Bollen and Hoyle's convention, the three questions were each scored on a 0-10 Likert scale, with 0 corresponding to 'strongly disagree' and 10 corresponding to 'strongly agree.' A confirmatory factor analysis was performed using SPSS AMOS 21 and after confirmation, the sum of the resulting sense of belonging scores were be input into the regression model as a third variable block (*sob* variable) to account for Lakefield University students' sense of belonging.

**Regression equation and hypotheses.** Based on the predictor and outcome variables included in this study, the regression equation used to answer research question number one is:

 $\hat{Y}_{SE} = \beta_0 + \beta_{gender} + \beta_{race} + \beta_{class \ level} + \beta_{SAT} + \beta_{college \ GPA} + \beta_{expected \ educ}$   $+ \beta_{parent \ highest \ educ} + \beta_{LE \ Participation} + \beta_{AALANAMC \ Participation} + \beta_{HIPs} + \beta_{SoB} + \beta_{PA \ particiption}$ 

The predicted score on the Supportive Environment indicator is expected to be a linear function of the student's demographic characteristics (i.e. gender, race, class level, SAT

score, college GPA, expected highest level of education, parent's highest level of education attained), participation in high impact practices or programming offered by other offices on campus (Learning Experience, AALANAMC), students' sense of belonging, and the variable of interest, Pinnacle Alliance participation.

The research questions warrant examination of the Pinnacle Alliance in three ways. First is a test to determine if the overall regression model which includes student background variables and the PA participation variable is predictive of Supportive Environment scores. While this was not the main focus of this research study, answering this question was a necessary first step to determine if the overall regression model holds any predictive power. The statistical hypotheses associated with this question are  $H_0: \beta_i = \beta_2 = \beta_k = 0$  and  $H_1: \beta_j \neq 0$ . The null hypothesis suggests that all slope coefficients are zero. Stated in relation to this study, the null hypothesis suggests that none of the predictor variables are a statistically significant predictor of SE scores, and therefore that the model itself is not predictive of student engagement. The alternative hypothesis suggests that at least one of the predictor variables is a statistically significant predictor of SE scores. This was tested using the ANOVA table and interpreting the significance level of the F-statistic.

The second test is to determine if the addition of the PA participation predictor variable improves the overall model's variance explained (predictive ability). The resulting null and alternative hypotheses are:  $H_0$ : change in  $\rho^2 =$ 

0 and  $H_1$ : change in  $\rho^2 > 0$ . The null hypothesis suggests that there is no additional variance in SE scores that is explained by adding the PA participation variable to the overall model. Conversely, the alternative hypothesis suggests that there is some

additional variance explained in the overall model when adding the PA participation variable. This was tested using the model summary output from SPSS and examining the r-square changed and whether that change was statistically significant.

The final test is to determine if the PA participation variable by itself is a statistically significant predictor of the change in SE scores. The null and alternative hypotheses for this test are:  $H_0$ :  $\beta_{SE} = 0$  and  $H_1$ :  $\beta_{SE} \neq 0$ . The null hypothesis suggests that the regression coefficient for PA participation equals zero. Restated, this means that there is no relationship (zero predictive power) of the PA participation variable and SE scores. The alternative hypothesis suggests that there is some relationship between PA participation and SE scores. This was tested via the coefficients table from the resulting SPSS output and examining the t-statistic and associated significance level of the variable of interest – PA participation.

**Instrumentation.** As discussed, the College Student Report (CSR) is the survey instrument used to compile the National Survey of Student Engagement. The questionnaire collects information from respondents across four major themes, which NSSE then groups into ten Engagement Indicators. These indicators are (NSSE, 2015a):

- Higher-Order Learning
- Reflective & Integrative Learning
- Learning Strategies
- Quantitative Reasoning
- Collaborative Learning
- Discussions with Diverse Others
- Student-Faculty Interaction

- Effective Teaching Practices
- Quality of Interactions
- Supportive Environment

All but the final two indicators are academic in nature. The Quality of Interactions Engagement Indicator focuses on the respondent's interactions with other members of the campus community and is not of direct interest for this research study. For this study, the final Engagement Indicator, Supportive Environment (SE) was utilized to measure the responding students' attitudes towards Lakefield's level of support for non-academic activities. NSSE defines the Supportive Environment Engagement Indicator as the "amount the institution emphasized help for students to persist and learn through academic support programs, encouraged diverse interactions, and provided social opportunities, campus activities, health and wellness, and support for non-academic responsibilities" (NSSE, 2015c, p. 21). This Engagement Indicator was purposefully selected because it most closely aligned with the goals of the Pinnacle Alliance, which is to get low-income students more involved as members of the Lakefield community.

In order to analyze if and how low-income students' scores on the Supportive Environment indicator were influenced by participation in the Pinnacle Alliance, a survey was developed (Appendix C) and offered to Lakefield University students identified in the discussion on the targeted sample. The survey contained the question block from the CSR that NSSE has indicated pertains directly to the Supportive Environment indicator, which allowed for the survey to capture Lakefield students' perceptions of the university's focus on supporting students in non-academic areas.

It is important to note that the full version of the NSSE was being administered at Lakefield University during the spring 2016 semester. All first year and Senior undergraduate students were solicited to participate and complete the CSR. This presents the potential that some of the first year and senior students may have completed the full NSSE and the survey designed for this research study, which repeats one of the questions from the full NSSE. This should not represent a major problem, as the electronic survey utilized in this study took less than 8 minutes to complete, so it should not have been overly burdensome to students.

Linking survey data with institutional records. The survey requested that respondents provide their student ID number. That information allowed the Office of Institutional Research to link respondents' survey results to individual students' background characteristics which are compiled and stored by OIR, and deliver the compiled data set to me for analysis. All background variables were obtained and linked to survey results in this manner with the exception of student's expected highest level of education to be completed and parent's highest level of education completed, which was asked directly on the survey because OIR does not collect or store these data.

While obtaining the student ID number via the survey removed the necessity of including questions pertaining to demographics and background characteristics on the survey, I did still choose to include them in order to compare students' self-reported answers to data from official institutional records. In the rare case where these data disagreed, I used institutional records. Obtaining student demographic level data from institutional databases also helped in reducing the number of cases with missing data because even if students skipped these questions on the survey, the data were obtained

from OIR. Gathering demographic and background characteristics directly from institutional records also reduced any issues connected with respondents misreporting their information. The ability to link respondents' survey answers back to institutional records via the student ID number helped to increase the accuracy of the survey instrument.

In order to answer the second research question, "which benefits offered by the PA are most associated with higher levels of Supportive Environment scores?" the survey asked respondents to rank the top three PA benefits in terms of their perceived value. A second regression analysis was to be performed containing data from only PA-participating respondents. A forced-entry method with all PA benefits included was to be utilized to ensure that all benefits are considered and to determine which, if any, were statistically significant. Significant results were to then be reviewed in descending order of standardized regression coefficient value to ultimately answer which benefit(s) are most associated with higher Supportive Environment scores. As shall be discussed in the findings of Chapter Four, this analysis was not possible due to non-significant results. Instead, Frequency Tables were obtained to increase the understanding of which benefits students ranked as most valuable.

The survey instrument was replicated three times – once for each sampled group. Students who did not participate in the Pinnacle Alliance or who were ineligible were not asked questions pertaining to the program.

**Piloting rationale.** A pilot study was not performed for this research because the NSSE has been adequately tested for validity and reliability. There is ample evidence that suggests that the CSR is a valid instrument for measuring student engagement. For

example, Kuh (2009) provides data that illustrate the CSR's strong reliability (Cronbach alpha = .85), normal distribution of results, and high (.83) test-retest correlation. Cronbach's alpha is a measure of internal consistency, which shows how closely items that are intended to measure the same concept or construct produce similar results (Pedhazur, 1997). These figures represent NSSE results across all institutions during the first five administrations of the NSSE, but results for individual institutions also generally support the notion that educationally purposeful activities are positively associated with student achievement, satisfaction, and persistence (Astin, 1993; Kuh, 2009; Pascarella & Terenzini, 2005).

In addition, NSSE (2015d) itself offers internal consistency statistics for each of the Engagement Indicators for first year students and for seniors. For the Engagement Indicator of interest to this study (Supportive Environment), Cronbach's alpha for both first-year and senior students was 0.89 (NSSE, 2015d). This suggests that the set of questions related to the Supportive Environment Engagement Indicator consistently produce similar scores and support the use of this indicator as the outcome variable in this study.

The survey instrument used in this study requested student ID numbers so that demographic level data could be linked to survey results. Two questions pertain to educational aspirations of the student and highest level of education completed by the parents. Next was a series of questions pertaining to student activities and perceptions of their sense of belonging and the supportiveness of Lakefield University. The final questions asked which benefits (if any) of the Pinnacle Alliance the student had taken advantage of, and to rank the PA benefits in order of perceived value. Since the

questions on this survey instrument were based on demographics and students opinions and activities, and because the NSSE has already been independently validated, a pilot study was not warranted for this research study.

**Survey administration.** The survey was administered through Qualtrics, a secure, online, electronic survey system. The nature of this study should have increased the response rate for two reasons. First it focused on education (rather than commercial purposes) and second, the topic should have been of high interest to at least some of the participants (Fan & Yang, 2010). Selected Lakefield students were sent an introductory email with general information about the study including a link to the actual survey. Tourangeau, Conrad, and Couper (2013) provide evidence indicating that emailed invitations can elicit higher response rates than mailed postcards, especially in the realm of higher education. The survey should have taken no more than 8 to 10 minutes to complete, which conforms to the findings of Fan and Yan's (2010) research indicating that the ideal length of time to complete a survey should be less than 13 minutes in order to obtain an acceptable response rate.

Qualtrics was selected as the medium to administer the survey because of the many benefits associated with electronic data collection, including the speed and convenience that electronic communication affords the researcher, the simplicity of the software, and the facts that email communication and Qualtrics survey administration are free (Sue & Ritter, 2012). The NSSE survey instrument, the CSR, is also administered electronically (NSSE, 2015a). To maintain as much accuracy and validity as possible in terms of the Supportive Environment Engagement Indicator, this study mimicked the

CSR administration as much as possible, and therefore the survey was conducted via electronic means.

The initial email invitation was emailed to students after approval from the institutional review board on Wednesday, May 11<sup>th</sup>, 2016 at 10:00 am. A study by Faught, Whitten, and Green Jr. (2004) showed that emailing survey invitations on Wednesday mornings has the potential to markedly increase response rates (54% over the mean response rate in their study). Students who had not completed a survey were sent a reminder email two days later, on Friday, May 13, again at approximately 10am. A final reminder email was sent one week after the initial invitation, on Wednesday, May 18 at 10am. Reminder emails have proven beneficial to increasing response rates, but the research does point out a pattern of diminishing returns (Tourangeau et al., 2013). The survey was closed on May 22, 2016 after the necessary sample size for each group had been reached.

**Incentives.** The use of incentives significantly increases the number of invitees who actually begin an online survey (Tourangeau et al., 2013). It is then necessary to determine what type of incentive is most effective. The literature suggests that pre-paid cash incentives are generally more effective than promised or conditional forms of incentives. However, web researchers typically prefer conditional incentives for several reasons. First, prepaid incentives cannot be delivered electronically. Second, the return on investment for prepaid incentives can be low, especially with lower response rates. Finally, the cost of a sweepstakes giveaway is capped at a fixed, known figure, which helps the researcher properly budget for his or her study (Tourangeau et al., 2013). For these reasons, I offered participating students a chance to enter a random drawing for one

of five \$50 Visa gift cards. Participating students were prompted to submit their email address on a secondary web interface if they wished to be entered into the random drawing for the gift cards. This secondary web page allowed for the data from the actual survey to be kept separate from the incentive drawing, thus ensuring anonymity.

**Quantitative data analysis.** A full discussion on the quantitative analysis is presented in Chapter Four. Here, I have provided an outline for the statistical procedures used in this study. For cases with missing data, I used a list-wise deletion strategy. List-wise deletion calls for deleting an entire case if it contains any missing data. This strategy is acceptable with larger sample sizes and is an appropriate technique for analyses containing demographic-level variables such as this study, where imputation of gender or ethnicity is not advisable (Field, 2013; Pedhazur, 1997). Further details on missing data are also discussed in Chapter Four.

The data was examined for outliers by visually inspecting scatterplots which also included a 95% confidence interval. Cases identified as potential outliers were also examined for the level of influence they were having on the overall regression equation by calculating the Cook's Distance for these data points and comparing them in relation to the rest of the data set (Pedhazur, 1997).

A thorough fit analysis was then conducted in order to determine the validity of the regression model and how well it explained the data. Scatterplots were generated of residuals versus predicted values in order to confirm linearity of the data. Homoskedasticity was confirmed via Q-Q plots as well as a histogram combined with reviewing skew and kurtosis (Fox, 1991). Variance inflation factors (VIF) were calculated to determine if any of the predictor variables were highly correlated and if

multicollinearity posed a problem for this study. However, since 11 of the 12 predictor variables pertain to student background characteristics and function as control variables for this study, even if some of them did exhibit a high degree of multicollinearity it would not necessarily suggest a problem with this regression analysis. Pedhazur (1997) indicates that as long as the variable of interest (PA participation in this case) does not have a concerning VIF value, then one may safely ignore control variables with high VIF values. Again, full regression diagnostics are discussed in detail in Chapter Four.

Once all data had been thoroughly examined it was analyzed using multiple regression techniques. Quantitative research designs are best utilized when the researcher is interested in explaining the variance of a particular phenomenon (Pedhazur, 1997). Multiple regression is a common statistical technique used by researchers interested in explaining the variability of the dependent variable based on a given set of independent variables. "Multiple regression analysis is eminently suited for analyzing collective and separate effects of two or more independent variables on a dependent variable" (Pedhazur, 1997, p. 3). For these reasons, multiple regression analysis was the specific statistical method employed in order to analyze the effect of participation in the Pinnacle Alliance on students' scores on the Supportive Campus Environment indicator question. Conforming to existing standards of research in higher education, a statistical significance level of .05 was used in this study ( $\alpha = .05$ ) to determine whether to accept or reject the null hypotheses.

# Qualitative phase

As Creswell (2007) has suggested, qualitative research should strive to learn and understand the meaning that the participants hold about the particular issue being studied,

while being mindful not to focus on the meaning that the researcher or existing literature ascribes to the situation. This research study heeded Creswell's warning and avoided making generalizations based on the individual researcher's point of view by employing a mixed methods approach. Therefore, the second, supplementary phase of this research design was qualitative in nature and sought not only to corroborate and triangulate results of the survey, but also to make deeper meaning of the survey results via focus group discussions with several students from the initial sample.

**Focus groups.** Focus groups are a way for researchers to shift attention away from the interviewer and onto the respondent (Krueger, 1994). "The open-ended approaches allow the subject ample opportunity to comment, to explain, and to share experiences and attitudes as opposed to the structured and directive interview that is lead by the interviewer" (Krueger, 1994, p. 7). This technique can help increase validity by confirming initial results uncovered through the quantitative survey or by identifying false conclusions through in-depth discussion with participants (Patton, 1980). The intent of a focus group is to encourage dialogue between participants who have experienced a similar phenomenon in order for the researcher to understand diverse perspectives about their research topic (Patton, 1980). Focus groups also add context and depth to the research topic by offering the interpretation of the phenomenon through the point of view of the participants (Solorzano, Ceja, & Yasso, 2000). By stimulating group discussion, focus groups can uncover details that may not have surfaced during a one-on-one interview, because group dynamics often make participants feel more at ease and open to conversing (Krueger, 1994). Finally, focus groups serve as a form of data verification because participants can form consensus about a specific topic or phenomenon and it lets

the researcher understand reality from the participant's point of view (Krueger, 1994; Patton, 1980).

For this study, focus groups were conducted with two subpopulations of students. The first set of focus groups were comprised of students who received any form of benefit from the Pinnacle Alliance during the 2015-2016 academic year. Students for this focus group were identified using a purposive sampling technique in order to obtain cases with rich data. The goal was to invite students who had received multiple benefits from the Pinnacle Alliance so that they could discuss in more detail why they chose these benefits over others. These students were selected based on the total number of visits they made to the PA office during the 2015-2016 academic year. A total of two focus groups for this subpopulation of PA-participating students were conducted, at which point data saturation was evident, and participants began to repeat themes and ideas from the first focus groups. Results from the second focus group were used to corroborate the findings of the initial focus group and the results of the quantitative survey.

The second set of focus groups was comprised of students who were eligible to participate in the Pinnacle Alliance but chose not to receive any benefits from the program. The students for this set of focus groups were obtained via an email invitation to a random sample of PA-non-participants. A total of two focus groups for this subpopulation of non-participating PA students were also conducted, at which point data saturation occurred. Very quickly into the second focus group similar themes became dominant and it was clear that these were the salient topics for non-participating PA students.

Conducting focus groups with these non-participating students allowed this study to gain valuable insight into the mindset of PA-eligible students to tease out the reasons for their non-participation. The goal of this set of focus groups was to encourage group discussion to get a true sense for why students would choose to forgo what seem to be very generous benefits of the Pinnacle Alliance.

Figure 3.1 (below) illustrates the demographic-level data for the 14 students who participated in the focus groups and who also completed an electronic survey.

Demographic-level data were not available for the remaining focus group participants because they did not complete the electronic survey.

Pseudonym	PA Status	Gender	Race	College GPA	SAT
Meaghan	Participant	Female	African American	2.406	1860
Cindy	Participant	Female	Asian	3.763	2200
Patrick	Participant	Male	Latino/a	2.384	1530
Dinesh	Participant	Male	Asian	3.263	2160
Lynn	Participant	Female	White	2.858	2030
Erica	Participant	Female	Asian	3.651	2030
Allison	Participant	Female	White	3.763	2130
Jessica	Participant	Female	African American	2.441	2080
Lucy	Participant	Female	Asian	3.735	2050
Sarah	Participant	Female	White	3.600	2060
Amy	Participant	Female	Asian	3.485	1760
Diane	Non-Participant	Female	White	3.506	2100
Katherine	Non-Participant	Female	Asian	3.325	2250
Sean	Non-Participant	Male	White	3.268	1800

Figure 3.1

Krueger (1994) has indicated that the size of focus groups can range from four to twelve participants, and while there is no 'right' size, the number of required participants is affected by two factors. It must be small enough so that everyone has an opportunity to share their insights, yet large enough to capture a diverse set of viewpoints. An advantage to a smaller group size is that they are easier to administer from a logistical standpoint. The focus groups I conducted ranged in size from two to seven students and were held in late September and early October of 2016. I waited until after the start of the semester had passed in order to allow students to re-acclimate themselves and for the business of the back-to-school period to settle down.

Through this explanatory sequential mixed methods design, results from the quantitative survey analysis were used to inform the specific questions asked during the follow-up focus groups, such that the results of the survey could be confirmed or refuted by the student participants in their own words (Creswell, 2009). While the structure and question design of the two sets of focus groups had some order and logical flow, portions were left open-ended and unstructured. Creswell (2007) is adamant in his requirement that qualitative researcher utilize an emergent design and maintain the ability to change as needed. For example, interviews rarely follow the script exactly as designed. Often, as conversations proceed, new ideas emerge which in turn lead to new, previously unidentified questions that could not have been anticipated before the conversation began (Creswell, 2007).

Accordingly, the focus groups were conducted using a semi-structured protocol of topics and questions were developed after results from the initial phase of this research study were analyzed (Appendix D). Once the surveys had been analyzed in order to ascertain answers to the first two research questions, the focus group protocol was developed based off of these initial findings, thus allowing corroboration and triangulation across the two phases of research in order to increase validity. The ability

to follow up on initial findings and the corroboration and validation of data are additional benefits of mixed methods designs (Creswell, 2009; Krueger, 1994).

**Incentives for focus group.** Each member of the focus groups received dinner during the focus group and a \$5 gift card to a popular off campus restaurant that is within walking distance to Lakefield University.

**Qualitative data analysis.** The focus groups were audio-recorded and the results were transcribed to text. The text was then manually coded using HyperResearch software and a combination of pre-set codes (a priori codes) and emergent codes. The pre-set codes were developed after analysis of the survey results had been performed.

For the emerging coding a combination of in vivo coding and evaluation coding was used. As the name implies, evaluation coding is often used to analyze the value, or effectiveness of a particular program or policy. The data analyzed through evaluation coding "...describes, compares, and predicts. Description focuses on patterned observations or participant responses of attributes and details that asses quality" (Saldaña, 2013, p. 119). The transcripts were reviewed for consistent themes with a focus on discovering any information that may discuss the value, quality, or effectiveness of the Pinnacle Alliance. Saldaña (2013) further indicates that in vivo coding is an effective technique to prioritize and honor the participant's voice. Therefore, this study also used in vivo coding in order to bolster the qualitative analysis by focusing on the actual words and terms that survey participants used, rather than researcher-defined terms. In this manner, the Pinnacle Alliance was evaluated through the voices of the students. While the use of pre-set codes resulting from initial survey data and the use of in vivo coding may seem contradictory, this combination allowed me to confirm and refute any of the

pre-defined codes that had initially been developed and served as another triangulation method to strengthen this analysis. I used a member checking method during the focus groups in order to confirm some of the codes I employed and to ensure that their meaning was accurate in terms of what the students thought these meanings were. In addition, inter-rater reliability was checked and confirmed by having another doctoral candidate review my transcripts and coding schema. This furthered the data triangulation efforts by being able to compare quantitative data from my survey to the qualitative focus group data, along with another set of eyes confirming the codes and themes that emerged.

The qualitative data gathered during the focus groups allowed the results from the survey to be better interpreted via the lived experiences of Pinnacle Alliance participants. The focus groups enriched the meaning of the survey data, and that meaning came directly from the students, in their own words, thus reducing researcher bias. This triangulation of research findings also made the results more impactful and situated them within the context of being a low-income student at Lakefield University. In addition, the focus groups revealed a dissonance between the statistical results and the qualitative data from my discussions with students.

### **Researcher Positionality**

When conducting any research study, especially those employing qualitative methodologies, the researcher must be aware of his or her own assumptions, biases, and pre-conceived notions that may be brought to the study (Patton, 1980).

Acknowledgement of these factors places the survey in the context of who the researcher is and how that may influence his or her decisions during the research study. I am deeply invested in this study for personal and professional reasons. Professionally, I work in the Financial Aid Office of an elite, private, college in the Northeast. This college cares about the well-being of all of its students and is especially attuned to the escalating costs of higher education. To that end, my institution meets the full demonstrated need of all undergraduate financial aid applicants through a combination of loans, work study, and institutional grant funding, thereby increasing access to higher education for many students who do not have the financial resources to pay the full costs themselves. My job responsibilities include counseling low-income families on the true out-of-pocket costs of college and how financial aid can defray the published costs which can be much higher.

This dissertation topic is also important to me personally. I am a third-generation college graduate and education has always been important in my family. I came from a working class family and was fortunate in that my undergraduate institution also met the full financial need of its financial aid applicants, making my enrollment at the expensive college a possibility for a family struggling to pay its monthly bills. The Pinnacle Alliance is a program that I am very intrigued by. Had this program existed at my alma mater, as a Pell Grant recipient, I would have been eligible and would have actively participated. Participating in some of the costly extracurricular activities when I was in college was certainly a challenge for me, so I can empathize with the low-income students at Lakefield University who also struggle to get involved due to financial constraints.

Overall, this research study represents a topic that is very near to my heart. I acknowledge that I bring certain attitudes, views, and beliefs to this study. The results of this study were filtered and delivered through my own personal lens and the disclosure of

my own positionality is a necessary step to make readers aware of the potential reasons behind why I made certain decisions in this study.

### **Ethical Considerations**

This research study was non-experimental in nature. I had no control over which students were eligible for the Pinnacle Alliance program under examination. Therefore, the ability to cause unintended harm to participants was minimal. The known risks associated with participation were the time it took to complete the survey which may have precluded the student from taking part in some other activity. This should have posed a minimal risk as the survey should have taken only ten minutes to complete. Another potential risk of this study was that anonymity could not be guaranteed for students who took part in the focus groups, but every effort was be made to keep individuals' responses confidential.

The survey requested students include their student identification number. This allowed for individual scores to be linked to the associated respondent's demographic data and reduced the burden on respondents. There was a risk that this information could be used to identify students. However, once demographic-level data had been linked to survey results and PA-participation data had been validated through the Pinnacle Alliance office, student ID numbers were removed from the data set that was used for analysis. The original list containing student IDs was maintained so that specific students could later be invited to the focus groups but it was not analyzed in the statistical software. In addition, all data was stored on a password-protected computer in my office which is further protected via secure swipe-card access. Focus group recordings were stored on a

thumb drive in a locked file cabinet in my office. The audio records were destroyed after they had been transcribed and analyzed.

Finally, this study was reviewed and approved by the Institutional Review Board before any data collection or analysis began. I also have a valid, non-expired CITI human subjects' certification. All of these measures have grounded this study in the necessary ethical standards required for acceptable research.

## Summary of the Research Design

This chapter has described the steps that were taken to answer the research questions of this study. Blending both quantitative and qualitative methodologies allowed for a more in-depth and contextualized understanding of the effects of the Pinnacle Alliance on low-income students and why some PA-eligible students choose not to take advantage of the program.

Following a sequential mixed methods design, the data was not "mixed" until the final interpretation of the results. Results from the quantitative survey were analyzed and used to inform the specific questions asked during the qualitative focus group phase of the research design. Data from the focus groups was then coded and analyzed in order to give further meaning to the survey results. Finally, the data from both the initial qualitative phase (survey) and supplementary qualitative phase (focus groups) was reviewed and analyzed together in order to confirm initial findings or clarify any unexpected results.

## **Chapter Four: Findings**

### Introduction

This study examined the relationship between participation in the Lakefield University Pinnacle Alliance (PA), and student engagement. This chapter presents the results of the data analysis outlined in Chapter Three in order to answer the four research questions posed in this study. The first research question investigated whether participation in the PA had an effect on student engagement as measured by students' scores on the Supportive Environment indicator. The second research question sought to discover which PA benefits were most closely associated with higher levels of Supportive Environment scores.

Adding a qualitative dimension to this study, research questions three and four analyzed why PA-participating students choose certain benefits over others and why some eligible students choose not to participate in the Pinnacle Alliance.

Employing a sequential mixed method research design, this chapter is accordingly divided into two main sections: the quantitative data findings and analysis, and the qualitative data findings and analysis. Each main section is further divided into subsections to appropriately attend to the many details examined in this study.

# **Quantitative Findings**

### Variable Description and Coding

Table 4.1 below lists all variables contained in this study including the coding schema utilized.

Variable	Coding Description
lugender	Gender Identity
Male	Dummy Variable
Female	(Male=0, Female=1)
lurace	Racial/Ethnic Identity
White	Reference Group (white $= 0$ , non-white $= 1$ )
Black/African American	Dummy Variable (Yes=1, No=0)
Asian	Dummy Variable (Yes=1, No=0)
Hispanic of any race	Dummy Variable (Yes=1, No=0)
Unknown	Dummy Variable (Yes=1, No=0)
Non-Resident Alien	Dummy Variable (Yes=1, No=0)
Two or more races	Dummy Variable (Yes=1, No=0)
sat	SAT Score. ACT scores were converted to SAT scores using the
	Concordance Table from the College Board
	https://collegereadiness.collegeboard.org/educators/higher-
	ed/scoring-changes/concordance
cpga	College G.P.A.
luclass	Class Level
	1 = Freshman
	2 = Sophomore
	3 = Junior
	4 = Senior
	5 = Other
stueduc	Student's Highest Expected Level of Education
	1 = Some college, but less than a bachelor's degree
	2 = Bachelor's degree (B.A., B.S., etc.)
	3 = Master's degree (M.A., M.S., etc.)
	4 = Doctoral or professional degree (Ph.D., J.D., M.D., etc.)

# Table 4.1 Variable Coding Schema

pareduc	Parent's Highest Level of Education Completed
	2 = High school diploma or G.E.D. 3= Attend college but did not complete degree 4 = Associate's degree (A.A., A.S., etc.)
	4 = Associate's degree (A.A., A.S., etc.) 5 = Bachelor's degree (B.A., B.S., etc.)
	6 = Master's degree (M.A., M.S., etc.) 7 = Doctoral or professional degree (Ph.D., J.D., M.D., etc.)
sob	Sense of Belonging. Score range 0 to 30
Irnexp	Learning Experience Participation
	0 = No 1 = Yes (participated)
aalana_yes	AALANA Participation
	$0 = N_0$
	1 = Yes (participated)
hiptot	Total Number of High Impact Practices Participated In
padummy1	Pinnacle Alliance Participation #1
	Dummy Variable
	0 = PA-Ineligible and PA non-Participants 1 = PA-Participants
padummy2	Pinnacle Alliance Participation #2
	Dummy Variable
	0 = PA-Ineligible and PA-Participants
	1 = PA non-Participants
toteng	Total Engagement Score. Score range 9 to 36

# **Research Question One**

Research question one focused on the relationship between participation in the Pinnacle Alliance and students' engagement levels. More specifically, this study examined if and how participation in the PA affected students' Supportive Environment scores as measured by an electronically administered survey. Before actual analysis occurred, the data collected were examined for between PA-group differences and the presence of missing data. In addition, a host of regression diagnostics were performed in order to confirm that the data did not violate any assumptions of ordinary least squares regression.

# **Comparisons between PA Groups**

The data were initially reviewed for any indications of coding or data input errors. Next, a series of ANOVA and chi-square analyses were performed in order to compare the three Pinnacle Alliance groups to each other (Appendix F).

To summarize these analyses, the chi-square tests were used to compare differences in the categorical variables used in this study between students in each of the three PA groups. These chi-square tests revealed statistically significant differences in race/ethnicity, AALANA participation, and Learning Experience participation between the three groups of PA students.

ANOVA procedures were performed to compare differences in the continuous variables used in this study between students in each of the three PA groups. These ANOVAs revealed several statistically significant differences across these continuous variables between the three PA groups. First, PA-participating and PA eligible nonparticipating students exhibited statistically significantly lower G.P.A.s than their PA-

ineligible (higher income) peers. Second, PA-participating and PA eligible nonparticipating students exhibited statistically significantly lower SAT scores than their PAineligible peers. PA-participating students also exhibited statistically significantly lower SAT scores than the PA eligible non-participating students. Third, both PA-participating and PA eligible non-participating students exhibited lower sense of belonging scores than their PA-ineligible peers. Finally, PA-participating students exhibited statistically significantly lower total engagement scores than their PA-ineligible peers. However, the difference between total engagement scores between PA-participating and PA eligible non-participating students was not statistically significant. Also of note is that the total number of high impact practices (HIPs) participated in did not differ in a statistically significant manner between any of the three PA groups.

This information was important to analyze in order to ascertain differences between the three groups of PA students in this study. The identification of these statistically significant differences further supported the inclusion of the corresponding variables in the final regression model in order to control for their potential effect on total engagement. As a reminder, eligibility for the Pinnacle Alliance is based on receipt of a Federal Pell Grant as part of the student's financial aid package. Pell Grant eligibility is driven by a family's income. Therefore, it makes sense that many of these variables would differ in a statistically significant manner, since many of them are also related to income and socio-economic status.

As one example, the literature has shown that students from wealthier backgrounds tend to achieve higher SAT scores, on aggregate, than students from lowerincome backgrounds. The fact that the PA eligibility is dependent upon income helps

explain why the group differences across many of the variables exist, especially when comparing PA-participating and PA eligible non-participating students (lower income) to PA-ineligible students (higher income).

Detection of these differences between the three PA groups also justified the decision of separating Pinnacle Alliance status into three groups (participating, eligible non-participating, and ineligible) and coding them as such during analysis. This coding schema allowed for more granular comparisons to be made between the three groups rather than simple comparisons between PA-eligible and PA-ineligible had PA status been coded as a dichotomous yes/no variable.

# **Missing Data Analysis**

Next, SPSS was used to perform a missing data analysis to determine the quantity of missing data and if the presence of missing data presented significant problems for further analysis. The data set contained several cases where respondents did not complete the entire survey. Out of the 638 total surveys submitted, 582 (91.2%) completed every single question. Of the 56 cases with incomplete data, the majority (30) of respondents only input their student ID number and did not complete any other questions. The remaining 26 cases with missing data were also very incomplete with only a small portion of the survey questions answered; these cases typically left the questions pertaining to the variable of interest – supportive environment scores – blank.

It is important to note that the majority of these incomplete responses occurred during the final two days that the electronic survey was open, after the final reminder email had been sent out. This suggests reminder fatigue on the part of these respondents, who likely got tired of being reminded to take the online survey, so they started it and
never finished. Finally, it is also important to highlight that the distribution of cases with missing data did not come from just one group of students, but rather from all three groups. PA-ineligible students accounted for 27 of the 56 cases (48%) with missing data. PA non-participating students accounted for 11 cases (20%), and PA-participating students accounted for the remaining 18 cases (32%) with missing data. This shows that there was nothing specific to a certain group of students that caused them to not complete the survey.

While there are many methods for dealing with missing data, including multiple imputation and dummy variable adjustments, the choice was made to delete all cases that contained any missing data, with the exception of SAT score. A sample size of 582 is sufficiently large enough that the deletion of the 56 cases with mostly missing data is not problematic. Each of the three groups of students (PA-participating, PA-nonparticipating, PA-ineligible) had more than the requisite 132 students necessary to achieve the desired 0.80 power outlined in Chapter Three.

In addition, since almost all of the cases with missing data were significantly under-completed, attempting to use multiple imputation to estimate missing values would not have been prudent. This is especially true for the majority of cases containing missing data where questions pertaining to the variable of interest (Supportive Environment) were left partially or completely blank. Imputing values for the variable of interest can be problematic and is best avoided if possible as it will inflate the degree of error in the regression estimates (Pedhazur, 1997). In this case, the benefit of a more accurate regression analysis outweighed the limited risk of missing any important data trends that may have been present in the cases with partially completed responses.

Therefore, the decision to delete the cases with missing data, rather than attempting to estimate the missing values through multiple imputation or other procedures was justified.

The final data set used in this study had 582 cases. After initial deletion of the cases with missing data as outlined above, a second missing data analysis was performed on all variables. The variable '*sat*' merits special attention in this discussion as the secondary missing data analysis in Table 4.2 revealed 25 cases (4.3%) that did not have an SAT score reported. All other variables used in this study contained no missing data.

			Std.	Mis	ssing	No. of Ex	tremes <sup>a</sup>
	Ν	Mean	Deviation	Count	Percent	Low	High
cgpa	582	3.30874	.431008	0	.0	19	0
sat	557	1985.19	192.783	25	4.3	7	0
hiptot	582	1.51	1.261	0	.0	0	46
lugender	582			0	.0		
lurace	582			0	.0		
stu_educ	582			0	.0		
par educ	582			0	.0		
luclass	582			0	.0		
lrnexp	582			0	.0		
aalana_yes	582			0	.0		
padummy1	582			0	.0		
padummy2	582			0	.0		

Table $4.2 - N$	Missing	Data	Analysis
Univariate S	Statistics	7	

a. Number of cases outside the range (Q1 - 1.5\*IQR, Q3 + 1.5\*IQR).

Before making a decision about the 25 missing SAT scores, it was first necessary to try and understand why they were missing. The SAT score for each respondent was obtained via institutional records, rather than asking students to self-report this information on the survey. In the case of Lakefield University, there is a very reasonable answer for the 25 missing SAT scores. Lakefield University's Office of Institutional Research records the SAT scores of incoming freshmen obtained during the admissions process. However, for transfer students, this information is not requested; rather, the LU Admissions Office utilizes college transcripts as part of its decision-making process for students wishing to transfer to LU in lieu of SAT scores.

All 25 cases in the data set with missing SAT scores were transfers students, which explains why this information was not available via Lakefield University institutional databases. But despite missing SAT scores, the survey results from these 25 students were otherwise fully complete and rich with data. However, when a missing value analysis was performed on the *sat* variable using SPSS, it revealed that estimated means and the estimated standard deviations of the *sat* variable were exactly the same before and after the cases with missing values were deleted via listwise deletion. (See Table 4.3 below).

Table 4.3Summary of EstimatedMeanssatListwise1985.19All Values1985.19Summary of EstimatedSummary of EstimatedStandard DeviationssatListwise192.783All Values192.783

These results suggest that using multiple imputation for the 25 cases with missing SAT data is not advisable, since it does not add any benefit to the final analysis. Further, because an imputation would use the SAT scores of non-transfer students as part of the calculation to predict the SAT scores of transfer students, it would introduce bias into the

final model. For these reasons, it was determined to let SPSS perform the final regression analysis using a listwise deletion method, which ultimately dropped the 25 cases with missing SAT scores. This technique was the most conservative approach to the analysis, and has reduced the bias in the regression analysis as much as possible.

All 25 cases with missing SAT scores were missing in a non-random pattern and are attributed to the 25 transfer students in the final data set. The listwise deletion entry method in SPSS dropped these 25 cases from the regression model. It is important to then note that the results of this study are confined to non-transfer students at Lakefield University. Any attempt to extrapolate the results to the entire undergraduate population that specifically *includes* transfer students would be erroneous and invalid. Ultimately, the final data set used for analysis in this study contained 582 cases, 25 of which were missing SAT scores, with the remaining 557 cases not missing a single data value.

To confirm that the listwise deletion method was appropriate I also imputed the value of SAT score using SPSS and then ran the multiple regression analysis. When conducting a multiple imputation procedure it is necessary to determine the required number of imputations to perform in order to achieve the most accurate imputed values. Allison (2012) suggests the formula: 1/(1+(F/M)), where F is equal to the percent of missing data, and M is the number of imputations. The result is the percentage of accuracy based on M number if imputations versus an infinite number if imputations. Based on the missing value analysis, approximately 5% of cases have missing values for SAT score. Using Allison's (2012) formula yields results that indicate performing 5 imputations.

The output of a regression analysis using multiple imputation offers pooled results which come from each of the individually imputed data sets. The pooled output of the regression analysis using 5 imputations for the value for SAT scores yielded statistically similar results to the regression performed when SAT score was deleted via list-wise selection (non-significant results for the variable of interest and identical significant predictor variables). The fact that the results of the two regression analyses yielded similar statistical outcomes confirms the selection of list-wise deletion for the cases with missing SAT scores was an acceptable and prudent choice as that method introduced less bias into the final model than multiple imputation would have.

# **Reliability Analysis for Sense of Belonging**

This study also included the construct of sense of belonging as one of the predictor variables in the final regression analysis. The electronic survey asked three questions related to students' feelings of belonging to the Lakefield University community. Before including this construct in the final model, a confirmatory factor analysis was performed using IBM SPSS AMOS 21 in order to validate the internal consistency of these three questions and their ability to truly measure the essence of sense of belonging. SPSS was also used to obtain Chronbach's Alpha, the corrected item-total correlation, and the reliability statistic if each of the three sense of belonging questions were individually removed from the analysis. These measures give an indication of the degree to which each individual question has in common with the others and how each contributes towards the overall reliability of the sense of belonging construct in this study.

As Table 4.4 (below) illustrates, the resulting Chronbach's Alpha of 0.970 indicates a very high internal consistency between the three sense of belonging survey questions, suggesting they are very closely related and measure the latent construct of sense of belonging extremely well. Similarly, the values for Chronbach's Alpha for each of the three items if they were deleted does not deviate substantially from their original values, indicating that there is little benefit from removing any of these items from the analysis. Finally, the confirmatory factor analysis (Figure 4.1, next page) supports the high Chronbach Alpha level and the conclusion that the three survey questions are accurately measuring students' reported sense of belonging. For example, the first survey question, 'sob\_1' has a factor loading of 0.92, indicating that 92% of the variability in that sob\_1 question is attributable to the latent construct of sense of belonging. Chronbach Alpha levels and factor loadings of this magnitude mean that the overall reliability for the sense of belonging construct in this study is very high.

# Table 4.4 - Reliability Analysis for Sense of Belonging

Reliability Statistics				
Cronbach's				
Alpha	N of Items			
.970	3			

Item-To	Item-Total Statistics				
		Cronbach's			
	Corrected	Alpha if			
	Item-Total	Item			
	Correlation	Deleted			
sob_1	.910	.973			
sob_2	.953	.942			
sob_3	.940	.950			

Figure 4.1 – Confirmatory Factor Analysis for Sense of Belonging



These results are unsurprising given that this study used the three questions related to sense of belonging from Bollen and Hoyle's (1990) Perceived Cohesion Scale. Scholarly literature has routinely confirmed the high degree of internal consistency for the three questions pertaining to sense of belonging in this scale. Accordingly, including the data from these three questions is justified. A new '*sob*' variable was computed as the sum of each of the three individual sense of belonging questions, and this '*sob*' variable was included in the final regression analysis.

# **Final Data Review**

Having attended to cases with missing data and analyzing the sense of belonging variable via a confirmatory factor analysis, the final data set used in this study contained 582 cases. Descriptive statistics for all variables of interest are presented in Table 4.5 below.

	Ν	Range	Minimum	Maximum	Mean	Std. Deviation
Gender	582	1	0	1	.65	.478
Race/Ethnicity	582	1	0	1	.58	.494
Student's expected highest level of education	582	3	1	4	2.99	.892

Table 4.5Descriptive Statistics

Parent's highest level of education	582	6	1	7	4.57	1.803
College G.P.A.	582	2.405	1.575	3.980	3.30874	.431008
SAT score Class level Sense of belonging score	557 582 582	1090 4 30	1260 1 0	2350 5 30	1985.19 2.65 20.64	192.783 1.117 7.559
Learning Experience Participation	582	1	0	1	.24	.426
AALANA participation	582	1	0	1	.39	.488
Total HIPs	582	5	0	5	1.51	1.261
padummy1	582	1	0	1	.40	.491
padummy2	582	1	0	1	.26	.437
toteng Valid N (listwise)	582 557	26	10	36	24.36	4.827

As anticipated, PA participating students had the highest response rate at 34.2%, while PA non-participating and PA ineligible students had virtually identical response rates of 19.8% and 19.9% respectively. These results, along with a frequency table of each variable broken down by Pinnacle Alliance status are included in Appendix G in order to provide further details to the descriptive statistics above.

## **Regression Diagnostics**

**OLS assumptions.** Standard regression diagnostics were then performed on the final data set of 582 cases. First, the assumptions of Ordinary Least Squares (OLS) regression were tested. Graphing each predictor variable in SPSS against the total engagement (*'toteng'*) outcome variable revealed a linear relationship in each case, thus confirming OLS as an appropriate choice for analyzing these data and satisfying the linearity assumption of OLS.

Second, the data were checked for independence and autocorrelation. For any two observations, the residual values should be independent and exhibit no autocorrelation in order to satisfy this assumption of OLS regression. This assumption is checked via the Durbin Watson test, which tests for serial (over time) correlation between the errors (Field, 2013). Comparing the observed Durbin Watson statistic of 1.914 (Model Summary - Table 4.9) to the corresponding upper and lower limit critical values based on the associated number of predictors and sample size in this study, it was concluded that the residuals are independent and they did not exhibit any autocorrelation and that the errors were truly independent..

Third, the data were checked to confirm the residuals were normally distributed. This was accomplished by performing the Kolmogorov-Smirnov (KS) and Shapiro-Wilk (SW) tests of normality. As seen in Figure 4.6 below, both tests were non-significant, indicating the residuals were normally distributed.

# Table 4.6

Tests	of Norma	alitv
-------	----------	-------

	Kolmogorov-Smirnov <sup>a</sup>			Shap	iro-Wil	k
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized	.032	557	.200*	.995	557	.052
Residual						

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

In addition, a P-P plot and histogram were generated and visually inspected to confirm

normality (Figure 4.2 and Figure 4.3 below).

# Figure 4.2



Figure 4.3



104

Based on the results of the KS and WS tests, the P-P plot of the standardized residuals, and the histogram of the standardized residuals, the assumption of normality was satisfied. The residuals fell very close to the 45 degree diagonal on the P-P plot, indicating a normal distribution. The histogram of the standardized residuals also conformed to a generally normal distribution as seen when a normal curve was imposed. In addition, the skew and kurtosis values for all predictor variables fell within +/- 2.0, again suggesting normality (Field, 2013).

Fourth, the OLS assumption of homoskedasticity was checked by generating plots of the predicted total engagement scores against the standardized residuals (Figure 4.4, next page) and the standardized predicted total engagement scores against the standardized residuals (Figure 4.5, next page). The scatterplot in Figure 4.4 shows that the errors were evenly distributed above and below the line of best fit, indicating that the variance around the regression line was nearly the same for all values. Further, Figure 4.5 illustrates the randomness of the errors, with no discernable pattern or fan shape. Both of these plots confirm that the OLS assumption of homoskedasticity was satisfied and that the errors were evenly distributed. Figure 4.4



Figure 4.5



The final OLS assumption is that no multicollinearity exists and that each predictor variable is truly independent from the other predictor variables. When performing a regression analysis containing more than one predictor variable, it is essential to confirm that there is no multicollinearity present. Multicollinearity exists when there is a strong correlation between two (or more) of the predictor variables contained in the regression analysis (Field, 2013). While low levels of collinearity between predictor variables do not threaten the viability of the model, as collinearity increases, the accuracy and applicability of the regression model decreases. Higher levels of collinearity are associated with increases in the standard errors of the beta coefficients and collinearity also limits the amount of variance that can be explained by the model, creating diminishing returns when adding an increasing number of highly correlated predictor variables.

Simply put, the addition of one or more highly correlated predictor variables will not appreciably increase the variance explained by the model due to the variables being highly correlated; they are all explaining the same (or very similar) amount of variance. Finally, multicollinearity also makes it difficult to determine which predictor variable is truly of importance. If the predictor variables are highly correlated, there is no way of knowing which predictor variable is actually explaining the variance in the outcome variable, since the model could include any of the highly correlated variables interchangeably (Field, 2013).

To detect if multicollinearity was present in this study, the variance inflation factor (VIF) values and tolerance values were requested in SPSS and examined via the Coefficients Table (Table 4.10). Bowerman and O'Connell (1990) have suggested that if

the average VIF is substantially greater than 1 and if the largest VIF value is greater than 10, multicollinearity may be present which would bias the results. In addition, Menard (1995) indicates that tolerance values below 0.2 suggest the presence of multicollinearity. The values for each of the variables in the regression model of this study all complied with the critical values identified above (VIF values were not substantially greater than 1 and all tolerance values were greater than 0.2). These values indicate that multicollinearity was not a problem in this study and that the predictor variables were truly independent of one another.

**Influential cases and outliers.** After having confirmed that all assumption of Ordinary Least Squares regression had been satisfied, other regression diagnostics were employed. The first of these was to examine the data for any cases that may have been exerting undue influence on the final model. Analyzing the data for influential cases determines if we were to delete a specific case, would it result in different regression coefficients. This examination allows one to determine whether the final regression model is stable across the entire sample, or if it biased by a small number of overly influential cases (Field, 2013).

One of the more common ways to identify these influential cases is by obtaining the Cook's Distance value for each case. Cook's distance quantifies the effect of a single case on the regression model as a whole (Field, 2013). I requested Cook's distance from SPSS during the regression analysis and then sorted the data by the Cook's distance values. Cook and Weisberg (1982) suggest that Cook's distance values greater than 1.0 may be cause for concern as these cases may overly bias the regression model. The largest Cook's distance value in this data set was 0.056, well below the 1.0 threshold

established by Cook and Weisberg. As a result, there were no individual cases in the data set that were exerting undue influence on the final model. The final regression was therefore free of excess bias that could have been caused by any one potential influential case.

The final regression diagnostic reviewed was the potential presence of outliers. Outliers occur when the difference between the predicted value determined by the model and the actual value are large. These differences are known as residuals and the question then becomes, how big can a residual be for it to be considered an outlier?

Standard convention suggests that when converted to z-scores, 95% of the data in a normal distribution should fall within two standard deviations of the mean (Field, 2013; Pedhazur, 1997). With this in mind, I requested SPSS to produce a list of all residuals outside of this 95% confidence interval. As Table 4.7 below shows, there were 19 cases (3.3% of the total) that could be considered outliers. The table shows the total engagement score ('toteng'), the predicted value from the model, and the residual value as the difference between the two.

	0	00	Predicted	
Case ID	Std. Residual	toteng	Value	Residual
18	2.096	36	26.85	9.145
70	2.174	33	23.51	9.486
136	2.188	36	26.46	9.544
167	2.021	33	24.18	8.819
183	2.007	36	27.24	8.757
204	-2.167	17	26.46	-9.456
220	2.311	32	21.92	10.083
237	-2.065	17	26.01	-9.009
312	3.787	36	19.48	16.522
313	2.006	30	21.25	8.750
351	-2.233	16	25.74	-9.740
451	2.047	33	24.07	8.929
455	-2.030	17	25.86	-8.858
468	2.020	35	26.19	8.811

 Table 4.7

 Residual Value Outliers for Total Engagement

482	2.205	34	24.38	9.620
500	2.402	36	25.52	10.478
558	-2.980	10	23.00	-13.001
575	2.831	36	23.65	12.352
582	2.895	32	19.37	12.629

a. Dependent Variable: toteng

In order to determine if of these cases should have been removed from the data set before further analysis took place, each of the 19 cases from the table of outliers above was examined individually to ascertain whether there was anything truly unique that would cause them to be considered outliers. In all 19 cases there was nothing substantially "different" that warranted any case to be excluded.

Appendix H was constructed to give further detail to each of these 19 cases identified as falling beyond the 95% confidence interval. For cases falling both above and below the 95% confidence interval (positive and negative residual values), there were males and females, students of several races, and students from all three Pinnacle Alliance status groups (eligible non-participating, ineligible, and eligible participating), which indicates there was not something different or exceptional about any of these individual cases. One thing of note, however, is that 11 of these 19 (58%) potential outliers identified themselves as Asian students. The electronic survey did not address this nor was this study designed to examine specific differences based upon the racial identity of students. There is no way from these data to explain what it means that 58% of the outliers identified themselves as Asian, but this does present an area for future researchers to more closely examine. Beyond identifying themselves as Asian students, there was nothing else unique or exceptional about these 11 students, so it was ultimately decided to retain them in the final data set.

# **Regression Results**

After satisfying all OLS assumptions and reviewing potential outliers and influential cases, a multiple regression analysis was performed to determine what impact Pinnacle Alliance participation was having on students' Supportive Environment scores. For clarity, a brief discussion concerning the four hierarchical regression models is necessary in order to understand the resulting statistical output tables.

In all models, the sum of students' scores on the nine Supportive Environment questions was used as the dependent outcome variable which I labeled 'toteng.' The initial model (Model 1 in the tables) included what I have termed "student background variables" as the independent predictor variables. These variables include gender, race/ethnicity, class level, SAT score, college G.P.A., students' expected highest level of education, and parents' highest level of education. These variables are also noted in the footnote of the ANOVA table (Table 4.8).

With multiple regression modeling, each new model includes the variables from the preceding model with the addition of one or more new variables to analyze how they affect the relationship between predictor variables and the outcome variable. As such, Model 2 in this study contained all of the student background variables from Model 1 and added the sense of belonging variable. Similarly, Model 3 contained all of the variables from Model 2 and added what I have termed "participation variables," which include if the student participated in any Learning Experience or AALANA activities and the total number of high impact practices the student was engaged in.

Finally, Model 4 is the true model of interest to this study. It contains the student background variables, the sense of belonging variable, the participation variables, and

added the ultimate variable of interest – PA participation. It was necessary to enter PA participation as two dummy variables (PAdummy1 and PAdummy2) in order to isolate the PA participating students from the PA ineligible and PA non-participating students.

Having outlined the details of the four levels of models, the actual regression results are presented and discussed in sequential order below.

**ANOVA.** With any regression analysis, the first thing to examine is the significance of the overall model via the ANOVA table. In terms of this study, the ANOVA output contains information indicating if the overall regression model is predictive of Supportive Environment scores. Based on the ANOVA output in Table 4.8, Model 4 was statistically significant ( $\rho$ <0.001). In other words, at least one of the variables from Model 4 was a statistically significant predictor of SE scores. While the ANOVA table gives information about the significance of the overall model, it does not reveal which of the individual predictor variables themselves are significant. This information will be discussed shortly.

Table 4.8	
ANOVA <sup>a</sup>	

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	513.951	7	73.422	3.235	.002 <sup>b</sup>
	Residual	12459.952	549	22.696		
	Total	12973.903	556			
2	Regression	2493.676	8	311.710	16.299	.000°
	Residual	10480.227	548	19.125		
	Total	12973.903	556			
3	Regression	2524.653	11	229.514	11.971	.000 <sup>d</sup>
	Residual	10449.250	545	19.173		
	Total	12973.903	556			
4	Regression	2638.318	13	202.948	10.662	.000 <sup>e</sup>
	Residual	10335.586	543	19.034		
	Total	12973.903	556			

#### a. Dependent Variable: toteng

b. Predictors: (Constant), Class level, Gender, Parent's highest level of education, Student's expected highest level of education, College G.P.A., Race/Ethnicity, SAT score

c. Predictors: (Constant), Class level, Gender, Parent's highest level of education, Student's expected highest level of education, College G.P.A., Race/Ethnicity, SAT score, Sense of belonging score

d. Predictors: (Constant), Class level, Gender, Parent's highest level of education, Student's expected highest level of education, College G.P.A., Race/Ethnicity, SAT score, Sense of belonging score, AALANA participation, Learning Experience Participation, Total HIPs

e. Predictors: (Constant), Class level, Gender, Parent's highest level of education, Student's expected highest level of education, College G.P.A., Race/Ethnicity, SAT score, Sense of belonging score, AALANA participation, Learning Experience Participation, Total HIPs, padummy2, padummy1

**Model summary.** The second table to review during a multiple regression analysis is the Model Summary output (Table 4.9). The table illustrates the percentage of

variance explained by each sequential model for students' Supportive Environment

scores. For example, including just student background variables (Model 1) explained

4.0% of the variance in SE scores. This result was expected, as the abundance of

literature on student engagement has confirmed student background characteristics

typically account for approximately 1-5% of the variance in engagement levels (Pike &

Kuh, 2005a; Pike & Kuh, 2005b).

The final model (Model 4) utilizes all predictor variables as outlined in Chapter Three of this study, including PA participation. This final model explained 20.3% of the variance in students' Supportive Environment scores.

		~								
				Std. Error		Change	Stati	stics		
Mod		R	Adjusted	of the	R Square	F			Sig. F	Durbin-
el	R	Square	R Square	Estimate	Change	Change	df1	df2	Change	Watson
1	.199ª	.040	.027	4.764	.040	3.235	7	549	.002	
2	.438 <sup>b</sup>	.192	.180	4.373	.153	103.518	1	548	.000	
3	.441°	.195	.178	4.379	.002	.539	3	545	.656	
4	.451 <sup>d</sup>	.203	.184	4.363	.009	2.986	2	543	.051	1.914

Table 4.9 Model Summary<sup>e</sup> a. Predictors: (Constant), Class level, Gender, Parent's highest level of education, Student's expected highest level of education, College G.P.A., Race/Ethnicity, SAT score

b. Predictors: (Constant), Class level, Gender, Parent's highest level of education, Student's expected highest level of education, College G.P.A., Race/Ethnicity, SAT score, Sense of belonging score

c. Predictors: (Constant), Class level, Gender, Parent's highest level of education, Student's expected highest level of education, College G.P.A., Race/Ethnicity, SAT score, Sense of belonging score, AALANA participation, Learning Experience Participation, Total HIPs

d. Predictors: (Constant), Class level, Gender, Parent's highest level of education, Student's expected highest level of education, College G.P.A., Race/Ethnicity, SAT score, Sense of belonging score, AALANA participation, Learning Experience Participation, Total HIPs, padummy2, padummy1

e. Dependent Variable: toteng

Beyond the overall variance explained in the Supportive Environment outcome

variable, the Model Summary also contains information regarding the significance of adding each additional block of variables. By interpreting the significance F-change statistic, one can determine if the addition of each new block of predictors had a statistically significant effect on the percentage of variance explained in the outcome variable. For example, Model 1 contained the student background variables. Model 2 added sense of belonging as a second block of predictor variables. The addition of the sense of belonging variable increased the overall amount of variance explained in SE scores from 4.0% in Model 1, to 19.2% in Model 2. Equally important is that this change in r-square value was statistically significant ( $\rho$ <0.001), which indicates that the inclusion of the sense of belonging measure was a worthwhile addition in improving the model's predictive ability.

Repeating this analysis, the addition of the participation variables in Model 3 increased the variance explained from 19.2% in Model 2 to 19.5% in Model 3. This increase was not statistically significant ( $\rho$ =0.656). In practical terms, this result suggests that the addition of the participation block of predictor variables did not appreciably increase the predictive power of Model 3 over Model 2.

Finally, the addition of PA participation variables in Model 4 increased the variance explained in SE scores from 19.5% in Model 3 to 20.3% in Model 4. However,

this increase was not statistically significant ( $\rho$ =0.051). Adding PA participation as the 4<sup>th</sup> block of predictor variables did not appreciably increase the predictive power of Model 4 over Model 3.

Ultimately, the final Model 4 is a statistically significant predictor of SE scores based on the ANOVA table ( $\rho$ <0.001), explaining 20.3% of the variance in those scores. However, the PA participation variable of interest in this study proved to be a nonsignificant addition to my final model ( $\rho$ =0.051).

**Coefficients.** Although the overall model was a statistically significant predictor of SE scores as outlined in the review of the ANOVA table, it was still unknown which of the independent predictor variables were contributing to this result. To answer this question, it was necessary to review the Coefficients table for the significance level of each individual predictor variable. As Table 4.10 below shows, for Model 4 only college G.P.A ( $\rho$ =0.038), SAT score ( $\rho$ =.005), and sense of belonging ( $\rho$  <0.001) were statistically significant. Neither PAdummy1 which tested PA participating students ( $\rho$ =.113), nor PAdummy2 which tested PA-eligible non-participating students ( $\rho$ =.540) were significant.

					ω												2									1	Model		Table Coeffic
	of education College G.P.A.	ngnest level of education Parent's highest level	Student's expected	Gender Race/Ethnicity	(Constant)	score	Sense of belonging	Class level	SAT score	College G.P.A.	of education	Parent's highest level	highest level of education	Student's expected	Race/Ethnicity	Gender	(Constant)	Class level	SAT score	College G.P.A.	of education	education	Student's expected	Race/Ethnicity	Gender	(Constant)			4.10 cients <sup>a</sup>
	1.011	.020	341	- 196 - 190	23.739		.266	392	003	.998		-015		332	179	.142	24.246	396	003	1.209	. 100	160	358	823	.144	27.832	В	Unstandardize	
	.522	.128	.213	.397	2.498		.026	.169	.001	.509		.122		.212	.419	.394	2.323	.184	.001	.555	. 13 1	1 - 1	.231	.451	.429	2.501	Std. Error	d Coefficients	
	.091	.007	062	- 019			.410	091	132	.089		-006		061	018	.014		092	115	.108	.000	000	065	084	.014		Beta	Standardized Coefficients	
	1.938	.155	-1.603	.494 - 268	9.504		10.174	-2.313	-2.812	1.959	i.	- 124		-1.569	427	.361	10.438	-2.145	-2.243	2.181	1.219	1 2 10	-1.550	-1.825	.336	11.128	t		
	.053	.877	.109	.622 789	.000		.000	.021	.005	.051		.901		.117	.670	.718	.000	.032	.025	.030	.224	2	.122	.069	.737	.000	Sig.		
	.085	.065	082	.028			.406	086	024	.085		.065		082	119	.028		086	024	.085	.000	000	082	119	.028		Zero-order	Cor	
	.083	.007	069	.021			.399	098	119	.083		- 005		067	018	.015		091	095	.093	200.	050	066	078	.014		Partial	rrelations	
	.074	.006	062	.019 - 010			.391	089	<del>-</del> .108	.075	.000	- 005		060	016	.014		090	094	.091	.001	051	065	076	.014		Part		
1	.676	.646	.976	.969			.906	.948	.664	.707		.710		.983	.802	.982		.948	.665	.708	.120	305	.983	.820	.982		Tolerance	Collinearity	
16	1.480	1.548	1.025	1.032			1.103	1.055	1.506	1.414		1.408		1.017	1.247	1.018		1.055	1.504	1.412	1.300	1 200	1.017	1.219	1.018		VIF	v Statistics	

a. Depen																				4									
lent Variable: toteng	padummy2	padummy1	Total HIPs	participation	AALANA	Participation	Learning Experience	score	Sense of belonging	Class level	SAT score	College G.P.A.	of education	Parent's highest level	education	highest level of	Student's expected	Race/Ethnicity	Gender	(Constant)	Total HIPs	participation	AALANA	Participation	Learning Experience	score	Sense of belonging	Class level	SAT score
	.328	814	108		214		.635		.268	324	003	1.083		022			322	067	.235	24.242	088		352		.532		.268	325	003
	.534	.513	.187		.445		.527		.026	.207	.001	.522		.132			.212	.463	.396	2.514	.188		.443		.524		.026	.206	.001
	.029	083	028		022		.056		.414	075	138	.097		008			059	007	.023		023		036		.047		.415	076	129
	.614	-1.588	576		481		1.205		10.191	-1.566	-2.834	2.075		164			-1.517	146	.595	9.642	468		796		1.015		10.189	-1.573	-2.649
	.540	.113	.565		.630		.229		.000***	.118	.005**	.038*		.870			.130	.884	.552	.000	.640		.427		.310		.000	.116	.008
	.025	125	002		059		014		.406	086	024	.085		.065			082	119	.028		002		059		014		.406	086	024
	.026	068	025		021		.052		.401	067	121	.089		007			065	006	.026		020		034		.043		.400	067	<del>-</del> .113
	.024	061	022		018		.046		.390	060	109	.079		006			058	006	.023		018		031		.039		.392	060	102
	.636	.539	.609		.727		.670		.889	.633	.616	.671		.603			.975	.652	.967		.611		.739		.682		.892	.639	.622
	1.572	1.856	1.641		1.376		1.493		1.125	1.579	1.623	1.490		1.657			1.026	1.533	1.034		1.637		1.353		1.466		1.121	1.564	1.608

Because the two variables that measured PA participation were non-significant, their coefficients are not able to be interpreted (Pedhazur, 1997). It is possible however, to interpret the effect of the three statistically significant variables. By converting the non-standardized coefficients to standardized coefficients it puts the different variables in the same unit terms so that are able to be compared effectively. These standardized coefficients indicate how many standard deviations the outcome variable will change given a one standard deviation increase in the predictor variable, holding all other variables constant (Field, 2013). Without this standardization process it would be impossible to accurately compare and interpret the unstandardized coefficients for SAT, G.P.A. and sense of belonging since they all exist in different units of measurement.

College G.P.A. was the first statistically significant variable in the final regression model. Table 4.10 shows that for a one unit increase in G.P.A. there is an expected increase in SE scores of 1.083 points. For example, if a student were to increase his or her G.P.A. from 2.5 to 3.5, we would expect an increase in his or her SE score of 1.083 points. In standardized terms, a one standard deviation increase in G.P.A. is expected to increase the SE score by 0.097 standard deviation units.

SAT score was the second statistically significant predictor variable in this study. Interestingly, it appears that as SAT score increases, expected SE scores decrease. Specifically, for each one point increase in SAT score, SE scores are expected to decrease by 0.003 points. While this may seem counterintuitive, it is necessary to put this result into proper perspective. To that end, a 100 point increase in SAT score would decrease SE scores by only 0.3 points, which is a negligible decrease for such a large increase in

SAT score. In standardized terms, a one standard deviation increase in SAT score results in a 0.138 standard deviation decrease in SE scores.

Finally, sense of belonging was the last statistically significant variable in this study. The Coefficients table indicates that for each one unit increase in sense of belonging score, the expected SE score will increase by 0.268 points. The standardized coefficient suggests that a one standard deviation increase in sense of belonging score increases expected SE scores by 0.414 standard deviation units.

Reviewing the standardized coefficients for the regression model in this study, it is clear that sense of belonging (0.414) is having a much larger impact on SE scores than either college G.P.A. (0.097) or SAT score (-0.138). These results are not entirely unexpected based on the results of the Model Summary output in Table 4.9. Recall that the largest increase in variance explained occurred in Model 2 when the sense of belonging variable was introduced. Model 1 contained student background variables including SAT and college G.P.A. and it only explained 4.0% of the variance of SE scores. When sense of belonging was added as a new variable block in Model 2, the variance explained increased from 4.0% to 19.2% and was statistically significant. This supports the notion that sense of belonging is the key variable influencing Supportive Environment scores in this study.

## **Final Regression Equation**

In summary, the final model in this study was statistically significant, predicting 20.3% of the variance in students' Supportive Environment scores and takes the form of:

$$\begin{split} \hat{Y}_{SE} &= 24.242 + 0.235_{gender} - 0.067_{race} - 0.324_{class\ level} - 0.003_{SAT} \\ &+ 1.083_{college\ GPA} - 0.322_{expected\ educ} - 0.022_{parent\ highest\ educ} \\ &+ 0.635_{LE\ Participation} - 0.214_{AALANAMC\ Participation} - 0.108_{HIPs} \\ &+ 0.268_{SOB} - 0.814_{PA\ dummy1} + 0.328_{PA\ dummy2} \end{split}$$

Most of the variables included in the final model proved to be non-significant, making interpretation for each of them inappropriate for predictive research such as this (Pedhazur, 1997). The only three variables that were statistically significant were college G.P.A., SAT score, and sense of belonging, with sense of belonging having the largest impact on predicted SE scores. Despite many of the variables being non-significant, the choice was made to retain them in the final model based on the literature concerning their importance. Finally, the addition of PA participation in the final model proved to be non-statistically-significant, indicating that PA participation was not having a dramatic impact on students' SE scores.

## **Research Question Two**

The next section of the quantitative results pertains to research question two. Research question two asked which benefits of the Pinnacle Alliance are most associated with higher levels of Supportive Environment scores. Since PA participation proved to be non-statistically-significant, it was not possible to directly answer this question. However, the electronic survey did ask respondents to select the PA benefits that were the most valuable to them. These data provide insight as to which PA offerings students are most interested in.

As illustrated in Appendix I, for students who actively participated in the Pinnacle Alliance, there were three benefits that students consistently ranked as the most valuable.

These benefits were the free tickets to social events, counseling services, and financial support for retreats and service trips. Of the 215 PA-participating students who answered this question, 27.0% indicated that tickets to social events at Lakefield University were the most valuable. Another 24.7% indicated that the counseling services provided by the PA were the most valuable, while 21.9% said that financial support for retreats and service trips was the most valuable PA benefit.

To confirm that these results were consistent across varying engagement levels, PA participating students were then divided into three groups based on their total engagement scores from the survey. The first third of students had total engagement scores ranging from 0 to 20.99 and were placed in the "low" engagement group. The second third of students had total engagement scores ranging from 21 to 24.99 and were placed in the "medium" engagement group. Finally, the final third of students had total engagement scores of 25 and greater and were placed in the "high" engagement group. Results for each of the three groups can also be found in Appendix I and are consistent with the overall frequency distribution of the entire (non-stratified) PA participating sample of students. Tickets to social events, counseling services, and financial support for retreats and service trips were routinely found in the top three of ranked benefits. The only other finding to highlight is that the textbook loan program had higher levels of importance for lower engaged students. For "high" engaged students, 7.0% selected the textbook loan benefit as most valuable, while 15.1% of "medium" and 10.7% of "low" engaged students ranked it most valuable.

Overall, while these data are not able to directly answer which benefits are most associated with higher supportive environment scores, they do give an indication of

which PA benefits students think are the most valuable. The fact that the ranking of most valuable benefits is consistent across all levels of engagement scores confirms that these three benefits are what students care about the most. These results influenced the questions I asked during my focus groups in order to determine why students ranked tickets to social events, counseling, and financial support for retreats and service trips as most important. What was it about these benefits specifically that students thought was valuable? The second section of Chapter Four presents and discusses these qualitative findings in detail.

## **Dissonance between Statistics and Write-In Answers**

While the first phase of this study was largely quantitative in nature, the electronic surveys did contain several open-ended questions for students to provide free-form responses in order to capture a small level of qualitative data and to put the quantitative survey data in better context. One of these questions asked PA eligible but non-participating students why they chose not to participate in the Pinnacle Alliance. This directly attends to research question number 4 and begins to discern why eligible students are foregoing what appears to be a consequential benefit. The open-ended responses generally fell into four main categories: not having enough time to participate, social stigma/judgement, not enough information, and no interest. I have included two quotes which seemed especially telling. One senior man wrote about the stigmatization of the program:

Social stigma. Within LU the worst thing you can be is low SES. It's somewhat unspoken. Yet the majority of all social activities require money i.e. Spring

break, weekend trips to the Cape, going to bars, Ubers, going out to eat, having to stay at LU during Thanksgiving.

A freshman woman expressed her lack of knowledge about the Pinnacle Alliance. "I was never really sure how to get involved. I also didn't have anyone to go with to say hi and talk to people so I thought I would be too shy." These quotes reinforce the quantitative survey data. They also informed the focus group protocols. Capturing this information on the survey allowed me to gain a preliminary understanding of the four primary reasons for non-participation in the Pinnacle Alliance and to target individuals from each of these groups for the qualitative phase of my study.

As discussed, another of these open-ended questions asked PA participants about the most important PA benefit they received. Despite the statistical analysis showing that Pinnacle Alliance participation was a non-significant factor in predicting students' SE scores, students' responses to this open-ended question indicate that PA participation is perceived as beneficial in a variety of ways and helped to address research questions two (which benefits offered by the PA are most associated with higher levels of SE scores) and three (why do PA-participating students choose certain benefits over others). To illustrate, students who participated in the Pinnacle Alliance remarked in the following ways about importance of the Pinnacle Alliance. From a senior woman:

I was able to partake in a lot of events that I believe are really important for the LU college experience. I avoided feeling "left out"" in much more instances that[sic] I really should have because of financial reasons. It was also nice feeling supported and understood in terms of how hard it is to not feel isolated from the rest of my peers.

A sophomore woman:

Pinnacle Alliance has made it possible for me to participate in a variety of experiences at LU that would have otherwise been unavailable to me. Some of the experiences have included retreats such as Acadia and Halfway Home as well as participation in service trip programs such as Habitat for Humanity. Those programs have really helped to shape who I am as a person and who I want to become. I cannot imagine my LU experience without them and yet the only reason I was able to have those experiences is because the Pinnacle Alliance made it possible.

First year woman:

Probably the atmosphere. They are so helpful with financial support and providing advice on situations which I have not before been exposed to but the most comforting thing is when you abashedly say "I'm in the Pinnacle Alliance" to a person and they respond "Hey me too!" It's nice to know I'm not the only one struggling to keep up here in terms of finances and new experiences.

Shorter explanations came from a sophomore male student, "Feeing like I am not alone at LU as a student of a low-income household." Another senior female student indicated that "Financial support that has allowed me to have access to opportunities on campus I otherwise would not have been able to fund." And finally, a junior woman said that "I truly appreciate that PA allowed me to take advantage of a service trip that transformed me and my appreciation of LU. Without PA I wouldn't have even considered applying."

Without getting too deep into analyzing what these quotes mean in terms of the impact of the Pinnacle Alliance (the qualitative findings will address this in detail), clearly the quantitative statistical analysis was missing something. Why were students indicating that the Pinnacle Alliance truly made a difference in getting them involved and engaged on campus when the statistical regression analysis indicated PA participation made virtually no difference in engagement scores? At first blush, these quotes suggest that being an active member of the Pinnacle Alliance made students feel like part of a supportive community and allowed them to take part in certain activities and events that would not have been possible otherwise. The dissonance between the statistical results and what students were actually saying about the Pinnacle Alliance formed the basis of the focus group protocol for the subsequent qualitative phase of this study. My intention during the focus groups was to get more information about how the PA made a difference in these students' lives at LU and flesh-out the open-ended response in the surveys. The results of these focus groups are now presented and discussed as the second part of Chapter Four.

# **Qualitative Findings**

## Introduction

In order to attend to the qualitative research questions of this study and to further develop the understanding of the quantitative survey results, focus groups were conducted with groups of PA-participating and PA-eligible non-participating students. The overarching theme that emerged from the focus groups centered on the financial constraints associated with involvement and participation. In general, students recognized that specific events, activities, and programs at Lakefield University hold

value but that there are financial constraints that inhibit participation. Though the Pinnacle Alliance removes these financial constraints, thus allowing low-income students to make participation choices, motivation and a student's level of desire to participate is another constraint that must be overcome. The fact that there was a large group of PAeligible students who elected to not get more involved shows that students' motivation plays a critical role in their engagement in college. The theme of constraints, both financial and motivational, will now be reviewed in more detail. A discussion concerning research questions three and four and how they relate to these constraints will also be presented. The quotations utilized to illustrate major findings were selected as exemplars of the feelings that focus group members shared during our discussions.

On the surface the Pinnacle Alliance may appear to those unfamiliar as merely a transactional relationship, whereby students receive a one-off ticket to a specific program or event. Based on focus group feedback from PA students, the reality is much more complex and bears further explanation. The ability to actively choose which events, activities, or programs to attend without concern for the financial impacts of those choices may be routine and taken for granted by many higher-SES students, but is not a luxury common to the lower-income student population of Lakefield University. Deciding which social activities to attend is typically a very deliberate process for lower-income students, and usually involves the cold calculus of economics and sacrifice.

However, the focus groups revealed that the Pinnacle Alliance helped to reduce, and in most cases, completely remove these sacrifices and concerns about the financial costs of participation in co-curricular activities. By eliminating the costs of participation and removing the worry over what paying for a ticket would mean in terms of foregoing

another benefit, the PA has enabled students to have the luxury of choice absent the worry of cost, which higher-income students enjoy all the time.

To set the stage, Jessica provided an excellent example of the predicament that most lower-income students at Lakefield University find themselves in. The lack of choice free from financial constraints is readily apparent, as is the need to make sacrifices – sacrifices that are not seemingly made by her higher-income roommates. Jessica works on campus in order to afford her textbooks and sacrifices going out with her friends in order to be able to purchase these more essential items.

But freshman year just in terms of -- money was a big thing for me. My roommates this year, they're all my best friends but they're all wealthy white girls who have money to go out all the time. Most of the time it was I getting left behind because I cannot afford to go out Thursday through Saturday and riding Ubers back and forth. That's not something that I can pay for. And so, in that sense my freshman year I kind of felt left out of a lot of activities. I love the friends that I have and they're really cool. They're great people. They don't intend to make me feel like I can't do certain things because of money but that's kind of the reality of the situation. I do work on campus. I have two jobs but the money that I make for me is more like concerning getting textbooks. I'm not spending my money going out every single weekend. I guess that would be one thing is socioeconomic status.

## **Removal of Financial Constraints**

Yet the Pinnacle Alliance has helped many of the focus group members I spoke with by increasing their options to participate by removing the financial constraints and

thus eliminating the need for sacrifice. As an example of the PA enabling choice free of cost concerns, Allison was able to go to a concert because she won tickets through the Pinnacle Alliance. Had she not received free tickets, Allison would not have gone to the concert because the price of the ticket represented the very real cost of a dinner instead, and she did not want to make that sacrifice:

There is a concert tonight that I actually got a ticket through it [Pinnacle Alliance]. It's not a super expensive concert. Probably could have bought one on my own but I feel like I probably wouldn't have bought it if I didn't have a nothing to lose lottery just because I would have thought, that \$12 could have been my dinner instead.

My discussion with Lucy provided further evidence of the typical evaluative process lowincome students perform when deciding where and how to spend their money and for her it fell into a 'wants versus needs' analysis. But the Pinnacle Alliance allowed her to attend the event that all of her friends were going to and eliminated the need for her to make any sacrifice. Lucy did not have to skip the event in order to be able to afford to purchase her textbook; through the PA she was able to choose to do both.

I would say that if I would need it anyway I'm more apt to spend money on it. So for textbooks I need it regardless of if I get it from Pinnacle Alliance or if I get it myself. So I might buy my textbook myself and then something that I wouldn't spend money on like a concert if it was just me I wouldn't pay for it but if Pinnacle Alliance were offering it I'd take that because all of my friends are going to that event. I would never spend my own money on it but if someone was saying you don't have to spend money I would take that. But if I'm planning on

budgeting that money anyway I would use my own money and then take the event ticket.

Adam agreed with this sentiment, and indicated that the PA helped him get more involved by removing the costs of participation:

I was going to say something about that too. I'm involved in theater on campus but unfortunately it costs money to go to each of the shows. So, I'm involved in my show and I couldn't go to any of the other ones. This kind of connects with clubs as well but through the Pinnacle Alliance I'm able to go to all the shows because they just give me the tickets and I don't have to pay for it. I think that definitely helps me get more involved in theater and just have a time to hang out with my friends and then see what else is going on in the department.

Michelle was able to get participate in several retreats that normally would have cost upwards of \$250. With the help of the Pinnacle Alliance, that cost was reduced to just \$15 and her desire to participate in these activities became a reality. A significant reduction in the cost of these retreats allowed her to make the choice of whether she wanted to be involved. Ultimately, she determined that paying \$15 in total was a worthy investment. The ability to make these choices with cost no longer presenting itself a limiting factor put Michelle more on equal footing with the rest of the LU undergraduate population.

Yeah, I was going to say retreats, I'm a huge retreat person and I went on three retreats last year. I ended up paying \$15 for all three of them because of Pinnacle Alliance.

Facilitator:

Do you have a rough estimate of what they would have cost? Michelle:

MidPoint is like \$160. I went on Aflame which was \$75 and the other one was like \$50. And then when I wasn't sure, people were like you're not going on MidPoint. But then I talked to Pinnacle Alliance and they let me go on those retreats, which is really nice.

Interestingly, John, a non-participating PA student, indicated that he works on campus in order to give him the financial ability to make the choice of whether or not to participate in certain events and activities. In effect, John's job was providing him a similar benefit to what the Pinnacle Alliance would have – the ability to make a choice regarding participation without finances impacting his decision. However, it must be remembered that John was sacrificing his time while working in order to be able to make these conscious choices regarding participation.

I would echo that in that I think sometimes I also have had a more steady job on campus so far. I'm a junior so I've had one all three years now. So I think that's part of the reason why I have that is so that I have that spending money so I can go to these different events and what not. So I haven't taken advantage of many PA lotteries.

These quotes illustrate the impact that the Pinnacle Alliance has had on the focus group members I spoke with. By removing the financial barriers to participation, PA students were able to make choices regarding co-curricular activities without having to worry about the financial ramifications or the need to make sacrifices for perhaps the first time in their collegiate careers. This level of autonomy was usually something reserved
for their wealthier peers who don't share the same concerns over money and are not constrained by the financial aspects of participation. The Pinnacle Alliance, through its ability to reduce or remove the cost to participate in events and activities, was putting low-income Lakefield undergraduates more on par with their higher-income peers through the gift of choice free from financial constraints. The Pinnacle Alliance also eliminated the need for low-income students to make certain sacrifices in order to get involved in other areas of the campus social scene.

### **Research Question Four and Motivational Constraints**

Still, the removal of financial barriers represents only piece of the complex equation of undergraduate involvement. Once cost is no longer a concern, students must also *want* to participate. Despite the Pinnacle Alliance solving the problem of financial constraints associated with participation, many of the low-income students at Lakefield University still chose not to get involved, as evidenced by the large number of students (n=752) who were eligible for participation in the program but elected not to during the 2015-2016 academic year. This concept of motivational constraints is directly tied to research question number four, which asked why did some PA-eligible students chose not to participate in the program.

As discussed, the statistical analysis based on survey data revealed four main reasons why students who were eligible for the Pinnacle Alliance did not actively participate. These reasons were: not having enough time, no interest, not enough information, and social stigma. A frequency table and bar chart illustrating the distribution of the reasons for non-participation from the survey are shown below in Table 4.11 and Figure 4.6

	Frequency	Percent	Cumulative Percent	
No Time	30	20.1	20.1	
No Interest	22	14.8	34.9	
Not Aware	8	5.4	40.3	
Stigma	7	4.7	45.0	
Other	5	3.4	48.3	
Not Answered	77	51.7	100.0	
Total	149	100.0		

Table 4.11Reasons for PA non-participation







The theme of motivational constraints is apparent from these figures. Three of the reasons given on the survey for non-participation fell under this theme: no time (20.1% of respondents), no interest (14.8%), and the stigma associated with being labeled a PA student (4.7%). I followed up with focus group members regarding these categories in order to triangulate my findings. Students confirmed these major reasons for non-participation and provided additional details to lend perspective to these findings.

No time. For example, not having enough time to participate in events or activities was a common theme that was reaffirmed during the focus groups. Many students have so many things going on that they don't have time to participate in the various social events that the Pinnacle Alliance makes more accessible. Others are more focused on their academic work which takes up much of their free time, as illustrated by Stephen:

I mean, one of the main issues for me is time. The work that my classes require and also last semester I worked 10 hours a week so that took up a lot of time. After that I want to be able to have time to be with friends and relax a little bit. This year I'm working a little bit less but again, my classes are harder so I'm not going to as many extracurricular things.

Adam indicated that he did not participate in as many events or activities not because of financial concerns, but again because of the time commitment and not wanting to sacrifice his weekends. "I'd say it's more about the time than the money. If it's that weekend when you can't really afford to go somewhere. For me it's more of a time issue."

**No interest.** Other non-participating students confirmed that they had little interest in many of the events offered by the Pinnacle Alliance, or the additional effort of applying for a ticket lottery to an event they were marginally interested in was not worth it. John expressed these feelings:

For me it's just that a lot of the events in general that they have tickets for just some of them I'm not interested in. If it's a baseball game at the ballpark I don't care about baseball. But it's partially some events I'm just not going to go to

either way and then partially for me it's more of if it's I want to go to this event but it's some sort of lottery it kind of turns me off a little bit. I understand that just because Pinnacle Alliance, it's a newer think so it's like they're still working out all the kinks. If they can't get a bunch of tickets for the event they have to restrict it and that's how it has to work. For me personally that's just like might as well not do it then. For me it's extra work. I feel like that's me more being a little bit lazy.

Adam agreed with John's sentiment about having to enter a lottery for tickets not being worth his time, especially for something that he was not overly enthusiastic about. "Yeah. You know? Because there's all these events but if I'm not certain that I'm incredibly passionate about it, it's like let someone else go in line for it."

Not aware. I brought up the notion of a general lack of awareness of the Pinnacle Alliance from the electronic survey in the non-participating focus groups I conducted and most of the students were surprised by this. Almost all of them had heard of the Pinnacle Alliance and knew they were eligible for the program. They all knew that they receive the Gold Pass as one of their benefits. But digging deeper, I learned that lower-income students did not lack awareness of the Pinnacle Alliance overall, but rather they did not understand all of the specific benefits offered by the program. Cindy clarified this point very succinctly:

I'm in Pinnacle Alliance too and I think it's definitely been really helpful so far. Honestly through, all the resources they provide you with are kind of overwhelming. I don't even know about all of them. But, I would say just going back to Pinnacle Alliance and just overall activities and how we were saying you

can usually say 'I really can't afford this is there any way you can help me out' and they usually will. I think that there should be more awareness that that is an option because a lot of people don't want to admit to that and they also don't realize that they qualify for the support.

**Stigma.** According to the electronic survey, the final major reason for not participating in the Pinnacle Alliance was the social stigma attached to being considered a low-income student at Lakefield University. This reason was met with differing opinions during the focus groups. On one hand, students said they agreed with the stigmatization of low-income students at Lakefield and not wanting to proactively reveal the fact that they had limited financial resources – a point that Sarah talked about:

I know it's something I don't actively bring up with people [being a member of the PA]. I don't know if that's unconsciously feeling a stigma around it. It's not something that I'm just open and up front about. I wouldn't talk about it to a stranger. But obviously if someone is closer to me where it's relevant they should probably know I don't have the money to be going out all the time with them. It's like I feel the need to tell them.

When I asked students what they would say to someone who asked them what the Pinnacle Alliance is and why they qualified for the program, further evidence of the potential stigma of membership revealed itself. Adam would try to dance around the issue if pressed. "I -- let's see. I made it very vague. I just said it was for students who met a certain level of financial need." Even if this stigmatization had never happened to them, students could realize the potential for it occurring, as Jenny pointed out:

Also another thing, this might depend on our friend groups because it might be another friend group like some people are more judgmental about being low income. But at least with my friends I've never had that problem or anything.

On the other hand, many of the students I spoke with, both PA-participating and non-participating, were open to divulging the fact that they were members of the Pinnacle Alliance and that it was reserved for students with limited financial resources as evidenced by the exchange between myself, Amy, and Michelle as one example.

Facilitator:

Have you all been asked? If someone were to ask you, Pinnacle Alliance, what is that? Why are you a member of it? What would your answer be?

Amy:

It'd probably be because I don't have the necessary funds to do everything that's available to me.

Facilitator:

Would you be okay divulging that?

Amy:

Yeah.

Facilitator:

Yes?

Michelle:

Yeah, I mean, I'm one of two daughters of a single mother. I've been raised by a single mother my entire life. And she'd doing the best that she can and I just think that's more of something to be proud of than ashamed of. Because she

works really hard to make sure that both of her kids have gotten an education and are happy. I don't think that's anything to be ashamed of.

The notion of there being a stigma surrounding the Pinnacle Alliance and lowincome status seems to be real, yet it also seems to be vary on an individual student basis. The focus group data suggest that some students would be more forthright in revealing their low-income status and their membership in the Pinnacle Alliance than other students.

Ultimately, the theme of motivational constraints was reinforced through the focus groups. Lakefield students are extremely busy. Almost all of them expressed their commitment to academics with studying and classwork occupying much of their time. Many held on-campus jobs, while others just wanted to relax when not studying. Several non-participating students admitted that most of the events and activities offered by the Pinnacle Alliance were simply not of interest to them. They did not want to waste time on a ticket lottery or potentially take someone else's spot who they perceived may be more interested in the specific event ticket being offered. Finally, the notion of a stigma being attached to the Pinnacle Alliance or low-income status at Lakefield also presented itself as a motivational constraint. Some students may be embarrassed about their financial situation, or at the very least, they could understand how one could be judged at Lakefield based on one's economic circumstances.

## **Research Question Three and Specific PA Benefits**

If the Pinnacle Alliance removes the financial constraints associated with participation in social activities for low-income students at Lakefield University, then non-participation must necessarily be due to these motivational constraints discussed

above. This concept is related to research question three which asked why PAparticipating students chose certain benefits over others. To uncover the answer to this question and to shed more light on the theme of motivational constraints I brought up these topics during my focus groups with PA-participating students.

Based on focus group data, PA-participating students are choosing specific benefits because of their genuine interest in the underlying events or activities that the benefits are associated with. For example, if a student was interested in participating in various retreats or service trips he would apply for PA benefits designed to defray the cost of participating in those activities. Another student may be more interested in the counseling services provided by the PA office and rank them as more important than receiving financial support for a retreat.

Not to fit in. Further exploring research question three during the focus groups helped to contextualize and add depth to the concept of motivational constraints. To begin with, PA students are not participating in the events, activities, and programs at Lakefield University just in order to fit in more; fitting in is not the motivating factor, as Michelle explicitly states below:

Facilitator:

And why is taking part in any of those or all of those -- why is that important to you guys?

Michelle:

It's to make you feel like an LU student. I don't use Pinnacle Alliance to make me fit in more. I use it to pursue things that I want to do but can't financially afford it such as going on retreats. I didn't go on MidPoint because every

freshman goes on MidPoint. I went because I wanted to go on a retreat to better myself and take that opportunity. I think Pinnacle Alliance also helps for that. Facilitator:

So, the Pinnacle Alliance gives you the ability to make that choice whether you wanted to go or not?

Michelle:

Yeah.

**Not because of expectations.** Nor are students participating in these activities because they think it's expected of them or that being overly involved is what a typical LU student does. Rather, students participate in specific activities because again, they have a genuine interest in them as Jason and Erica made very clear during my exchange with them.

Facilitator:

Do others feel that attending or participating in these things is expected? Jason:

I don't really think it has anything to do with expectation. If there is a concert on campus it's not that I'm expected to go, it's that I want to experience that. If my friends are going to a football game it's not that I'm an LU student and LU students tailgate, it's that I want to be with my friends and I want to have the experience. I don't think doing all those things has to do with the expectation that I have to do them. I think that it's more so there's all these opportunities that are happening and why wouldn't I take advantage of the opportunities that someone is putting right in front of me?

Facilitator:

And the Pinnacle Alliance is allowing you to?

Jason

Yes, exactly.

Erica:

I agree with that. I feel like it has less to do with expectations and more having to do with just being in college and having fun. Some of these experiences, these events that we attend, these social gatherings, there are probably going to be things we do remember and we can take. We can look back on college and be like, I remember that rather than the four hours I studied for an exam. So it's just like the Pinnacle Alliance kind of pushing you, you know, there is this opportunity. You can go to this event for free or we're allowing something that seems impossible, to be possible, for it to happen.

Building on this notion of motivational factors influencing the decision to participate, Lynn and Paul from my second focus group both expressed their feeling that they are not typical LU students but that the Pinnacle Alliance made it ok to be atypical.

Facilitator:

You're taking advantage of all of these things that they [PA] offer - do you think that makes you feel like you belong more here at LU? Has that impacted that at all? Does it make you feel like more of a typical LU student? Paul: I'd say not necessarily. I guess the whole point of the support is because we're not typical LU students. But it definitely makes us feel like we're more capable of succeeding here.

Facilitator:

Okay.

Lynn:

It makes it feel more okay that we're not the typical LU student. Like it helps with the fact that I don't have to conform to one type because I know that there's a community of people.

# Pinnacle Alliance as a Sub-Community of Lakefield University

The preceding exchange introduced the concepts of community and belonging and segues into the notion that the Pinnacle Alliance exists as a sub-community within the greater Lakefield community. Focus group data suggest that the PA is an entity that lower-income students feel more connected to for a variety of reasons. According to focus group members, low-income undergraduates at Lakefield realize that they may not be stereotypical LU students, but the PA has helped them recognize that there are many other students with similar financial circumstances and that it is not something to be ashamed of. The Pinnacle Alliance appears to have engendered an increased sense of belonging for low-income students at Lakefield University by fostering feelings of community, acceptance, and mutual respect and understanding:

Facilitator:

So how does the Pinnacle Alliance kind of help you feel like you're more a part of the Lakefield community then? Or does it?

Patrick:

I think it kind of just reassures that I'm not the only one in this boat. I didn't realize how comforting that would be coming into college. I wasn't anticipating all the spectrum of people that I would encounter...So I think Pinnacle Alliance does a good job of bringing those people together without having to ask to be brought together. I feel like it's something that you don't know that you need until you've needed it.

Facilitator:

And does it [Pinnacle Alliance] make you feel like you fit in more here? Kristen:

Yeah, I would say it definitely helps me engage in things that I wouldn't be able to engage in.

Jenny:

I feel like I agree with what you guys had said. Pinnacle helped me realize that when I came to LU I belonged to a community within a community. I don't have to be a typical Lakefield student. And it also helped me realize that I don't have to be different. Or I don't have to rave about certain things and force myself to be the typical LU student. There are others like me. I don't have to feel any different than I feel back home when I was middle class and I lived in a very diverse neighborhood and I came from a very diverse place and I didn't feel like I was - I stuck out. When I came here I was like, whoa. I felt like - I don't feel like I can connect with as many people with differences on a variety of levels. The Pinnacle Alliance definitely touched me. Just feel comfortable just the way I am.

And at first in orientation I met my roommate now who is also my best friend on campus and one of the first similarities we both picked up is we're both in the Pinnacle Alliance and then we picked up more similarities and things. It was a right off the bat thing. The Pinnacle Alliance isn't just something that's helping me out. It's a way for me to know others that are just like me. Patrick:

I think it has just knowing that there's a lot of people in a similar situation as you. It's really hard to tell just by looking at somebody where they come from and what they're all about. I think having the existence of this group on campus confirms there are people like me.

Dinesh:

And I also think with Pinnacle it's more of an unsaid understanding. Because I went to see Ms. Happy last year and I left with a bunch of stuff that she just gave me like the T-shirt and the resume portfolio. I just think that there's some sort of warmth around it. I don't feel like I'm different. I don't feel like I have to prove that I'm not just this pitiable person. My socioeconomic status isn't who I am, it doesn't define me.

Clearly the Pinnacle Alliance is impacting how students feel connected to their school. By sending the explicit message that there are many students enrolled at LU with limited financial means, the PA is helping to form and cultivate this new sub-community of students with similar backgrounds who all know what it is like to have to worry and sacrifice due to monetary concerns.

# **Gold Pass**

Finally, the Gold Pass is one of the specific benefits of the Pinnacle Alliance that resonated across all of the focus groups I conduced and it perfectly encapsulates this discussion about the broad concept of college student engagement and how it is influenced by financial and motivational constraints. Focus group data suggest that the Gold Pass also influences students' feelings of belonging and fitting in at Lakefield University. All students eligible for the Pinnacle Alliance automatically receive the Gold Pass each year. Funded through the LU Athletic Department, the Gold Pass allows free entry to all home athletic events, thus removing any monetary constraints and enabling low-income students to make a cost-free choice regarding participation.

In addition, one of the features of the Gold Pass is that the digital tickets are automatically loaded onto PA students' ID cards and students swipe their IDs upon entry just like any other LU undergraduate. The fact that Gold Pass tickets function in exactly the same manner as the tickets purchased outright by higher-income students gives PA members the benefit of confidentiality. There is no way to discern which student is entering the event via a regularly purchased ticket and which student is entering through a free Gold Pass ticket.

The anonymity of the Gold Pass removes some of the motivational constraints associated with attending athletic events. While there are certainly students who simply have no interest in sports, the Gold Pass has at least removed the stigma of having to wait in a separate line or get special tickets because they are somehow different than other LU undergraduates. As the focus group data have shown, by not singling out their lowincome status the Gold Pass benefit has also helped PA students to fit in more and feel more connected to the Lakefield community.

As Jenny explained, the Gold Pass allowed her to attend games that she probably was not all that interested in, but since her friends were going and it was free, she was able to feel like more a part of the community:

With the Gold Pass and everything, all my friends going to sports games and stuff, one of my friends was saying that she didn't feel like spending her own money on it and she would buy tickets individually and that's just so nice not to have the stress of having to do that. I'm not that big of a sports goer but knowing that I can -- if I didn't have it I wouldn't go to any one ever because I'd feel like what's the point? To go with all of my friends having the community sort of thing and being able to get excited over it definitely makes a huge difference for me.

I received similar answers about the Gold Pass from my second focus group. Michelle, Erica, and Sarah all agreed that the Gold Pass was a major benefit, enabling PA students to attend athletic events "normally" like all other LU students and feel like they fit in and belong more to the overall community. These students also affirmed that the anonymity of the process was invaluable, removing any stigma that could have otherwise been attached to getting a free ticket:

Michelle:

I think the main one would be, at least for me, the Gold Pass because it's definitely made a huge difference. I don't know what it would be like if I didn't have one. I think that having that and be able to just go normally with your friends and not have it be this awkward thing where you want to go but can't

afford to go and just a really nice. So it's automatically on your card and you're able to go to all the games and stuff.

Erica:

I definitely agree with the Gold Passes. It's very useful. There are no questions asked either so I think it's just really seamless. Especially at a school where sports are so important. I think it really helps us feel like we're a part of the LU community.

Sarah:

To go off of that it's like we're the same. It doesn't set you apart. You don't have to go through a special line.

# Further Statistical Analysis on Sense of Belonging

The Pinnacle Alliance is removing the financial constraints associated with participation and giving low-income students at Lakefield University the benefit of autonomy by enabling them to choose if they want to participate in a myriad of cocurricular activities without regard to their costs. PA students are not participating in order to fit in more or to be more like the typical LU student; quite the opposite in fact – they do not want to be a typical LU student and recognize that they aren't. In addition, the goal of participation is not to increase one's sense of belonging; rather, an increased sense of belonging is the product of one's involvement and engagement on campus, seemingly facilitated by students' connection to the Pinnacle Alliance.

This research study was not originally designed to investigate the impact of Pinnacle Alliance participation on students' sense of belonging scores. However, the qualitative findings from the focus group suggest that this question should be explored

further. While students are not participating with the express goal of fitting in more or increasing their sense of belonging, focus group data suggest that the act of participating in the Pinnacle Alliance *did* affect students' sense of belonging.

In order to test these important qualitative findings, I ran additional multiple regression analyses with sense of belonging as the outcome variable and Pinnacle Alliance status as one of the predictor variables (Appendix J). PA-ineligible (higher income) students were filtered out of the data set before performing this regression analysis in order to focus solely on PA-participating and PA eligible non-participating students. The statistical results in Appendix J show that while the overall model is statistically significant, participation in the Pinnacle Alliance is not statistically significant. In other words, it is not the act of participating in the PA that is contributing to students' sense of belonging; rather as the output indicates, it is the students' race, his or her parents' highest level of education, and the total number of high impact practices that are the statistically significant contributors to sense of belonging. While these statistical analyses did not uncover any significant findings in relation to students' PA status and their sense of belonging, focus group data clearly show that the Pinnacle Alliance is affecting students' sense of belonging by fostering a sub-community of equals based on their shared low-income status.

As a reminder, the original multiple regression analysis showed that 15.2% of the variance in students' Supportive Environment scores was explained by the sense of belonging variable, the variable with by far the largest amount of explanatory power. For comparison, the block of variables containing students' background characteristics accounted for only 4.0% of the variance in SE scores, which was next highest amount of

variance explained. The abundance of literature has shown that college student engagement is heavily influenced by a student's sense of belonging. If over 15% of the variance in SE scores is attributable to students' sense of belonging and in turn, if Pinnacle Alliance participation has been shown to increase students' sense of belonging based on focus group data, then the PA may be indirectly influencing student engagement.

This finding is attributable to the mixed methods research design employed in this study. While the statistics did not expose any statistically significant relationship between PA participation and sense of belonging, the focus group discussions made this fact very clear. That the PA made students feel more connected to campus and fostered their feelings of belonging was one of the dominant themes of the focus groups. This will be an important concept to keep in mind when reviewing Chapter Five concerning the implications of these findings, since the literature has shown that sense of belonging has a direct influence on student engagement.

# **Summary of Findings**

This chapter reported the findings of this study on an intervention program designed to remove the costs associated with co-curricular activities and its effect on college student engagement. Specifically, this study examined the relationship between Pinnacle Alliance participation and students' Supportive Environment scores. The regression analyses showed that this relationship was not statistically significant. Still, multiple regression did reveal that college G.P.A., SAT scores, and students' sense of belonging were all statistically significant predictors of Supportive Environment scores. In addition, answers to open-ended survey questions suggest that the Pinnacle Alliance is, in fact, having a large impact on students who participate in the program by allowing them to take part in many social events that would have otherwise been cost-prohibitive.

Since PA-participation proved non-significant it was not possible to answer research question two concerning the PA benefits most associated with higher SE scores directly. However, survey data did reveal financial support for social events, counseling services, and financial support for service trips and retreats as the three benefits ranked as most valuable by PA-participating students. These rankings were also consistent across all levels of SE scores.

In terms of the qualitative findings of this research study, the numerous focus groups I conducted confirmed that college student engagement is a multi-faceted concept. The removal of financial barriers via the Pinnacle Alliance is but one piece to the puzzle. Motivation and the desire to participate represent another critical component of this complicated equation and the reasons behind student motivation are as diverse as the students themselves. While the Pinnacle Alliance offered low-income students at Lakefield University the autonomy to make choices free of financial barriers, some of these students still chose not to get involved in social activities for several reasons, including a lack of interest, not having enough time, and the perceived stigma of being considered a low-income student at LU.

Further, the Pinnacle Alliance seems to have created a sub-community at Lakefield University, one which low-income students feel more connected to. Focus group members voiced that the PA helped them understand that they were many students with limited financial resources and that they were treated with respect and care by Pinnacle Alliance staff. The Pinnacle Alliance fostered feelings of inclusion and

belonging by attending directly to the needs of this specific population at Lakefield University.

# **Chapter Five: Discussion**

### Introduction

This chapter will discuss the findings of this study on low-income college student engagement and is divided into seven sections. The first section provides an overview of the study including its purpose and the formal research questions. Second, a brief summary of the findings is presented. Third, the major quantitative findings and how they relate to the existing literature on college student engagement will be discussed. Fourth, the major qualitative results will be examined. The fifth section details the limitations of this study. Section six offers recommendations for policy, practice, and future research. Finally, Chapter Five concludes with a short summary of the outcomes of this study along with my own closing thoughts.

Let us return to the story of David for another moment. As David finishes his freshman year at LU, he is entering a critical period. Has he gotten involved on campus? Does he feel like he is a part of the Lakefield community? Will he return for his sophomore year? The essence behind these questions lies in the theories related to college student engagement – a multifaceted and complex construct. This study was guided by prior literature and research concerning student engagement, including Astin's (1984) theory of student involvement, Tinto's (1993) interactionalist model of student departure, and Kuh et al.'s (2005) work on documenting effective educational practices. Astin's (1993) Input-Environment-Output model was also used as a framework for analysis.

# **Overview of the Study**

As the literature has stated, what students do in college has a greater impact on their learning and persistence than their background characteristics or even what institution they attend (Kuh et al., 2005). Yet the issue for many low-income students like David is that even after generous financial aid awards, they still cannot afford the ancillary costs associated with participation in the various co-curricular activities and events that encompass such a large part of the full college experience. This presents a problem for low-income college students: their engagement is being limited due to financial constraints imposed by the costs associated with these events and activities. Inhibiting engagement can lead to lower academic performance, dissatisfaction, alienation, and attrition (Astin, 1993; Pascarella & Terenzini, 2005; Tinto 1993; Titus, 2006).

This study was conducted to add to the literature on college student engagement by examining the effects of an intervention program called the Pinnacle Alliance, which removes the costs associated with participation in co-curricular activities. The Pinnacle Alliance is a program targeted towards low-income students at Lakefield University, a highly-selective, Doctoral/Highest Research Activity Carnegie-classification institution located in the Northeast United States (Carnegie, 2015).

This mixed methods study first determined if participation in the Pinnacle Alliance made a statistically significant difference in students' engagement levels as well as which (if any) PA benefits were most associated with higher levels of engagement. Next, focus groups were conducted with students in order to discover why certain PA

benefits were chosen over others and why some students chose not to participate in the program. The formal research questions are listed below.

### **Research Questions:**

- 1. Is there a difference in students' scores on the Supportive Environment indicator between PA-participants, PA-non participants, and non-PA eligible students?
- 2. Which benefits offered by the PA are most associated with higher levels of Supportive Environment scores?
- 3. Why do PA-participating students choose certain benefits over others?
- 4. Why do some PA-eligible students choose not to participate?

# **Overview of Findings**

The findings from this study expand prior research on the broad topic of college student engagement by focusing on the interaction between students and the social system of higher education. There is a dearth of scholarly literature concerning lowincome college students, how they negotiate their participation choices in non-academic activities, and interventions designed to alleviate the cost barriers associated with participation. A brief summary of the answers to the four research questions of this study are now presented.

As detailed in Chapter Four, multiple regression analysis revealed that the final model containing Pinnacle Alliance participation variables was statistically significant, explaining 20.3% of the variance in students' Supportive Environment scores. Despite the overall final regression model being a statistically significant predictor of SE scores, the addition of the PA participation variables into this final model was non-significant.

In other words and to answer research question one, participating in the Pinnacle Alliance did not influence engagement levels in any appreciable manner.

Since PA participation proved non-significant, it was not possible to directly answer research question two concerning the PA benefits most associated with higher levels of SE scores. However, frequency tables showed that the top three most valuable benefits listed by students on the online survey were tickets and financial support for social events, counseling services, and financial support for service trips and retreats (Appendix I). These top three benefits were also consistent across all levels of engagement scores.

Qualitatively, focus group data suggest that students are electing to receive specific PA benefits because of their genuine interest in the underlying activity the benefit is related to. For example, low-income students who wanted to take part in service trips but could not afford to do so were assisted by the Pinnacle Alliance offering financial support for these trips. Students in the focus groups made it very clear that they were not participating in order to fit in or belong more to the Lakefield community. Rather, it seems that fitting in and an increased sense of belonging are the results of participation, made possible by the removal of financial constraints via the Pinnacle Alliance.

Last, students eligible for benefits from the PA indicated that they chose not to participate for four main reasons: lack of time, lack of interest, not aware of the benefits offered, and the stigma associated with being labeled a low-income student at Lakefield University (Table 4.11 and Figure 4.6).

What then, does all this mean for David and other low-income students at Lakefield University? If he participates in the Pinnacle Alliance, will it have a positive impact on David's experience at LU? The answer is complicated; the statistical results indicate that PA participation is not a factor that influences low-income students' engagement, while students in the focus groups said that the PA was instrumental to their involvement in campus activities. Considering the complexity of the topic of student engagement, this conflict between the quantitative and qualitative results is not overly surprising.

### **Discussion of Major Quantitative Findings**

## PA Participation as a Non-Statistically Significant Predictor of Engagement

According to Astin's (1984) theory of involvement, the effectiveness of an educational program is directly related to the ability of that program to increase student involvement (Pascarella & Terenzini, 2005). This implies that institutions, through targeted intervention methods, can influence student engagement. Research question one was posed to investigate the effectiveness of one such intervention and the degree to which it affected low-income student engagement at Lakefield University. Using his IEO model (1993) to isolate the effect of the PA, if judged by his own criteria, then Astin would likely say that the Pinnacle Alliance is an unsuccessful intervention based on the non-significant statistical results ( $\rho$  =0.051) of the addition of the PA participation variable (Table 4.9). This is in spite of the overall model being a statistically significant predictor of engagement. The fact remains that the statistics show that participating in the PA did not affect students' engagement levels in a statistically significant manner.

Contrast the statistical results with the findings from the focus groups and it is clear that the Pinnacle Alliance is doing *something* for the low-income students of Lakefield University. To reconcile the non-significant statistical results with the powerful themes discovered from the qualitative data is difficult, but warrants discussion. An analysis of the important statistical results of this study will first be presented followed by an analysis of the qualitative findings. As will become evident, there was a certain degree of overlap in the results from the different methodologies employed in this study. Many of the findings were consistent with the overall engagement literature but there were some divergent results.

# **Student Background Variables Show Minimal Impact on Engagement**

Prior research by Pike and Kuh (2005a, 2005b) has shown that student background and demographic-level variables account for approximately 1-5% of the variance in college student engagement. The results of this study support these prior research efforts, as Model 1 from the multiple regression analyses containing only student background variables accounted for 4.0% of the variance in student engagement levels (Table 4.9). These variables included gender, ethnicity, students' expected highest level of education, parents' highest level of education, college G.P.A., SAT score, and student class level.

These results should be encouraging for administrators and policymakers. Student demographic and background variables are beyond the control of institutions; a student's gender or race cannot be altered via institutional action. Yet since these factors have been shown to only account for a minimal amount of variance (5%) in student engagement, it leaves considerable opportunity for institutions to influence engagement

via the engagement-influencing factors they *can* control. Again, as Astin (1984) has stated, there is an institutional responsibility to make programs available to students and to entice students to become involved in order to increase positive educational outcomes.

Research has shown that institutions where students are highly engaged and graduate at high rates all have specific mechanisms in place to support their students, including measurable performance standards, early warning systems, and intense advising (Kuh et al., 2005). In addition, making high-impact practices such as first yearseminars, internships, and capstone courses accessible and encouraging students to participate are all actionable items tied to increased student engagement that are within the control of the institution (Kuh, 2008, 2009). While the addition of a high-impact practices variable in this study proved to be non-significant in terms of predicting engagement ( $\rho$ =.565), policymakers should rely on the larger literature concerning HIPs before determining the fate of these initiatives at their own institution. Finally, institutions may want to consider expanding on-campus housing options or requiring students to live in university-sponsored residence halls, as this is also an area that the institution can control and has been linked to higher engagement and graduation rates (Bean & Metzner, 1985). Housing status was not included as a predictor variable in this study due to the fact that the vast majority of LU undergraduates live on campus. The point remains that there are many areas affecting student engagement that the institution can control beyond the fixed student background characteristics which only contribute a minimal degree to student engagement levels.

#### Academic Attributes as Statistically Significant Predictors of Engagement

Despite student background variables only accounting for 4.0% of the total variance in engagement levels in this study, it is still valuable for the state of knowledge on college student engagement to discuss which of these background variables were contributing to the explanatory power of the final regression model. The two student background variables that were statistically significant were SAT score and college G.P.A. That both SAT score ( $\rho$ =.005) and college G.P.A. ( $\rho$ =.038) were statistically significant also supports the larger literature on student engagement (Table 4.10). Academic preparedness and achievement have been cited as key components of college success and retention, with a high correlation between low-income status and students "leaking out" of the educational pipeline as a result of their below average results (through no fault of their own) on these two metrics (Bowen et al., 2005; Hoxby & Turner, 2013; Pascarella & Terenzini (2005). Tinto (1993) has urged researchers to consider student integration within both the academic and social systems of higher education. This study concentrated on the social system, but the significant results of student academic variables support Tinto and other authors' claims concerning the importance of the academic system. In addition, focus group data seem to suggest the importance of academics as well, since many students in the focus groups recounted how busy they were with school work.

## Sense of Belonging as the Primary Predictor of Engagement

While student background variables accounted for only 4.0% of the variance in student engagement scores, with the addition of the sense of belonging variable in Model 2 the variance explained increased to 19.2% (Table 4.9). This represents an improvement

in explanatory power of 15.2% and was the largest increase that occurred between all four models. Sense of belonging was the only variable in the model besides the aforementioned student background variables that was statistically significant. These results reveal the relatively large impact that sense of belonging had on students' engagement levels in this study. In more practical terms, the quantitative results indicate that for every one unit increase in a student's sense of belonging score, his or her expected Supportive Environment score will increase by .268 points. When converting the coefficients of the significant variables (SAT, college G.P.A., sense of belonging) to standardized units, the impact of sense of belonging can be interpreted in comparative terms. A standardized coefficient yields the amount of increase or decrease in standard deviation units that the variable of interest will change based on a one unit increase in the predictor variable. As the findings in Chapter Four have shown, the standardized coefficient for sense of belonging (.414) was much higher than the standardized coefficients for either college G.P.A. (.097) or SAT score (-.138), further illustrating its importance in influencing engagement (Table 4.10). Despite the relative importance of sense of belonging compared to these other variables, when viewed in terms of its overall impact on engagement the impact may not be as impressive. Considering SE scores can range from 0 to 36, a .268 point increase for every one point increase in sense of belonging score is not an overwhelming gain.

Nonetheless, the fact that this study has shown the importance of sense of belonging and its impact on engagement is in line with the current literature on engagement. Strayhorn (2012) has indicated that students who exhibit low sense of belonging and feel that they do not matter have difficulties integrating with the social and

academic systems of higher education. Additional research suggests that sense of belonging is an especially important component of social integration and has been shown to influence institutional commitment (Tinto, 1993; Bean & Metzner, 1985; Berger & Millen, 1999).

#### PA Participation as a Non-Significant Predictor of Sense of Belonging

Based on the revealed importance of sense of belonging, both in terms of its statistical significance and in terms of the overall amount of variance in engagement scores that it explained in this study, I chose to perform additional statistical analyses that were not part of the original research design. To test whether PA participation was having a statistically significant impact on students' sense of belonging scores, I ran additional multiple regression analyses with sense of belonging as the outcome variable and Pinnacle Alliance status as one of the predictor variables (Appendix J). As illustrated in Appendix J, the overall model was significant, explaining 11.4% of the variance in sense of belonging scores, but the addition of the PA participation variable was not significant ( $\rho$ =.684). Participating in the Pinnacle Alliance did not affect students' sense of belonging scores in any significant fashion. These quantitative results related to sense of belonging, however, are in direct opposition to the qualitative findings from the focus groups, the results of which will be discussed shortly.

# **Inconsistency with Existing Literature**

The preceding quantitative findings generally conformed to the overall literature on student engagement. However, one of the results of this study does run counter to the literature, specifically Kuh et al.'s (2005) suggestion that it is what students do in college, rather than who they are that matters in terms of engagement. The findings of this study

contest the notion that two students could differ in terms of their demographic profile, but if they participate in similar activities and interact with the similar groups (i.e. *do* the same things), then their engagement levels should be relatively similar. Recall that the results of the ANOVA and post-hoc tests (Appendix F) revealed the differences in engagement levels between PA-participating and PA-eligible, non-participating students were non-significant. In other words, despite controlling for background characteristics, participation in the Pinnacle Alliance did not affect the engagement level of students in a statistically significant fashion; doing different things (as a result of PA participation) made no appreciable difference in engagement. But according to Kuh et al. (2005), holding all other variables constant, PA-participating students should have had different engagement scores than their non-participating classmates because they were "doing" different things.

The most likely explanation for this incongruence with prior work on college student engagement and something the academic community should keep in mind, is that the model used in this study to measure engagement was incomplete. This study employed Astin's (1993) Input-Environment-Output model as a framework for isolating and analyzing the Pinnacle Alliance program and its effect on low-income students' engagement. I adhered to Astin's (1993) strong suggestion of including as many student background variables as possible based on the literature in order to control for them and to best isolate the effect of the Pinnacle Alliance.

Yet understanding and accounting for all possible predictor variables which affect the variable of interest in a research study such as this is one of the challenges in the social sciences. As scholars, we do not know all of the variables that could potentially be

impacting student engagement. In spite of the best efforts of the researcher to include all pertinent predictor variables, there still must be some variable(s) that is missing from the multiple regression analysis in this study to explain why the final model exhibited a relatively low amount of variance explained (20.3%). This is not conjecture, it is fact. Astin (1993) cautions that the IEO model is only as good as the inputs and specific output measure(s) that are used in the analysis. This fact is readily apparent from the results of this study. Since the final regression model explained 20.3% of the total variance in student engagement scores, there remains nearly 80% of the variance that has still yet to be explained. There are other variables beyond the ones included in this study and still to be discovered that influence college student engagement.

This should give future researchers an additional goal and sense of purpose. If the scholarly community can increase the overall body of knowledge regarding the factors influencing college student engagement it would have positive impacts throughout higher education. Policymakers and administrators could make more informed decisions about how to better meet the needs of their students. Teachers could individualize lesson plans and class assignments in order to better reach students and facilitate learning and growth. And students could recognize their own 'engagement profile' and align their own interests and activities based on how they best learn and interact in order to more readily integrate within the academic and social systems of higher education.

## PA Benefits Most Associated with Higher Engagement

Research question two asked: Which benefits offered by the PA are most associated with higher levels of Supportive Environment scores? As outlined in the findings from Chapter Four, since PA participation proved to be a non-statistically-

significant variable, it was not possible to answer this question directly. However, the electronic survey requested students to rank the top three benefits in terms of their perceived value. Frequency tables were generated from these data and free tickets to social events, counseling services, and financial support for service trips were consistently ranked as the top three benefits across all levels of engagement (Appendix I).

When these results are considered in conjunction with the qualitative data from the focus groups a clearer picture begins to emerge. Social events and service trips are two of the most visible activities at Lakefield University. It makes sense that students would choose to receive PA benefits to remove the costs of participating in these activities. In turn, by participating in these highly visible concerts, social gatherings, dances, and service trips, students reported feeling like they fit in more and belonged more to the LU community. Engaging in these activities helps to align the values, norms, and beliefs of the participating student with those of the dominant culture at LU. This process of acclimating and adjusting to the dominant norms of campus is part of Tinto's (1993) integration process.

#### **Discussion of Major Qualitative Findings**

Having discussed the quantitative findings, attention is now turned to the qualitative research results. These findings must be considered in light of the demographic makeup of the students who participated in the focus groups. As table 3.1 indicated, the majority of the students in my focus groups were white, which reflects the racial characteristics of Lakefield University where over 60% of the undergraduate population is white. In addition, the many undergraduates at LU come from very wealthy backgrounds. A recent study by Chetty, Friedman, Saez, Turner, and Yagan (2017)

indicated that LU enrolls more undergraduates from families with incomes in the top 1% of all wage earners than students from families with incomes in the bottom 60% of all wage earners. Attending a wealthy and predominantly white institution has very likely influenced students' attitudes and beliefs, and subsequently influenced what we discussed during our focus groups.

While qualitative data can never be used to prove causation, the focus group data from this study can be used to make inferences about the effects of Pinnacle Alliance participation. Possible outcomes of PA participation based on the results of this research study are theorized below.

# Pinnacle Alliance as a Sub-Community for Low-Income Students

Authors such as Hurtado (2007) and Braxton et al. (1997) have critiqued Tinto's (1993) model of student departure for its failure to account for the strong possibility that ethnic minority students may have difficulty in integrating into predominantly white campuses. Hurtado (2007) specifically, has implied that Tinto's model suggests a "normative congruence" where non-majority students are forced to assimilate to the dominant norms on campus in order for integration to be successful.

This same critique could be applied to low-income students and the difficulty they may face in integrating into a predominantly wealthier undergraduate population such as the one that exists at Lakefield University. Low-income students can face challenges in normalizing with the dominant ("rich") culture on campus even if their perception of the dominant culture is not completely accurate. For example, if low-income LU students think and believe that most other students are from higher-income backgrounds, then they may face challenges in integrating. Even if this notion is not completely factually

accurate it does not matter, for it is low-income students' perception of their reality that influences their integration.

Tinto has responded to these criticisms by suggesting that absolute conformity to the dominant norms of the institution is not completely necessary. Instead, Tinto (1993) posits that marginalized students can form subgroups on campus and feel like they are members of this subset of the campus culture in order for integration to still occur.

This notion seems to have played out in this study, as the Pinnacle Alliance appears to be functioning as a sub-community within Lakefield University. Students reported that the PA made them aware that they were not the only low-income student at LU and that they were supported and cared for. As Jenny stated "Pinnacle helped me realize that when I came to LU I belonged to a community within a community... It's a way for me to know others that are just like me." This sub-community is comprised of some of the low-income students of LU. These students all know what it means to sacrifice, to have to make difficult participation choices because of financial obstacles, to be forced to go without. By helping students to understand that they are not alone at Lakefield, the Pinnacle Alliance has created and nurtured this sub-community of equals who share similar struggles and can relate to one another. Though the statistical analyses may not necessarily concur, by getting involved with the Pinnacle Alliance and this subcommunity, low-income students have likely been impacted in the following ways:

## **Reduced Isolation**

Tinto (1993) has indicated that one of the reasons that students fail to integrate with the academic or social systems of higher education is due to their isolation. Isolated students lack the necessary quantity and quality of interactions that are required for

successful integration. It appears that the Pinnacle Alliance is directly addressing the issue of isolation. When answering the open survey question about why the PA was important, one woman wrote that "It was also nice feeling supported and understood in terms of how hard it is to not feel isolated from my peers." Focus group participants reported being able to participate in a variety of activities such as homecoming, athletic events, theater performances, and retreats because of the PA. By removing the costs of participation, low-income students were able to get involved in many non-academic endeavors and have meaningful interactions with their peers. Increasing the opportunity for participation has the potential to influence isolation, and in turn integration – specifically in this case, integration with the social system of higher education.

## **Increased Sense of Belonging and Institutional Fit**

The qualitative data also suggest that by removing the financial constraints associated with participation the PA has increased students' sense of belonging and the degree to which they feel like they fit in at Lakefield University. For example, all students in all focus groups commented on the importance of the Gold Pass and its twofold benefit: first, it allowed PA students to attend athletic events for free and second, it allowed them to attend anonymously. This anonymity helped PA students to feel like they fit in more. They were able to attend the football and basketball games (and other sports) just like their higher-income peers, which enmeshed them in the culture of Lakefield University where athletics are a large part of the social scene.

The literature has shown that the feelings of mattering and belonging, as well as a supportive campus infrastructure are critical to the actualization of positive educational outcomes, including engagement. According to Wolf-Wendel, Ward, and Kinzie (2009),
"engagement also is associated with institutional environments that are perceived by students as inclusive and affirming" (pp. 412-413). The Pinnacle Alliance appears to be attending to the needs of LU's low-income population based on their reported feelings of belonging to this sub-community. The qualitative data suggest that the Pinnacle Alliance has created a welcoming environment where the specific needs of Lakefield's lowincome student population are attended to.

For example, counseling services was the third benefit consistently ranked in the top three most valuable by PA-participating students and this benefit also resonated with students in the focus groups. Students I spoke with commented how the Pinnacle Alliance has created a sub-community at LU, where low-income students feel welcome and unashamed of who they are. Pinnacle Alliance staff were said to be extremely sympathetic and attentive to the needs of the low-income population. Recall the words of Dinesh: "I just think there's some sort of warmth around it [PA]. I don't feel like I have to prove that I'm not just this pitiable person."

A plausible conclusion is that by fostering this sense of community among lowincome students and listening and responding to their needs, Lakefield University (via the PA) has made students feel like they truly mattered and that the administration was listening to them. Mattering is a key component of sense of belonging, and asks the question: are others concerned about my fate? If PA students feel like they matter, if they feel like the Pinnacle Alliance is concerned about their happiness and educational experiences, then their sense of belonging should benefit (Schlossberg, 1989). And indeed, it appears that this was the case in this study. While no student explicitly stated that the PA made them feel like they mattered more, the qualitative data strongly suggest

this was the case. Low-income students felt connected to the Pinnacle Alliance because they reported feeling that it was a program specifically designed for them. In addition, the Pinnacle Alliance represents the manifestation of the LU administration's desire to help students; that the Pinnacle Alliance is a tangible, functioning, and targeted program is proof that the administration does care about its low-income students.

### **Removal of Sacrifice and Financial Concerns as a Benefit**

The PA allows low-income students to make choices free from the financial constraints they are usually faced with. Perhaps it is the fact that low-income students no longer need to make a financial sacrifice in order to participate in co-curricular activities, rather the actual act of participation itself, that is the true benefit of the PA. Recall Allison from the focus groups, who would have skipped buying a concert ticket so that she could buy dinner instead. The PA gave Allison the ability to not have to make this sacrifice – she was able to buy dinner and go to the concert. I am suggesting that it may be this removal of sacrifices and concern over finances that are the real benefits behind the PA.

This is a nuanced concept and one that would very likely be difficult to measure, but it could help to explain why PA participation was non-significant in this study but focus group data indicated the large impact the program is having. It could be that it's not the actual act of participating that is affecting engagement, but more so the knowledge and feeling of not having to forgo one thing in order to do or buy another. Research has shown the correlation between poverty and anxiety. Students from lowincome households have exhibited higher rates of anxiety, depression, and social withdrawal (Brooks-Gunn & Duncan, 1997; Najam et al., 2010). Further, additional

work by Patel and Kleinman (2003) indicates that "the psychological impact of living in poverty is mediated by shame, stigma, and the humiliation of poverty" (p. 611). By removing the financial barriers of participation, the PA is allowing low-income students to also make participation choices without having to worry about the financial consequences. It is likely that the PA is also removing this anxiety attached to lowincome students and their deliberation over what constitutes a worthy sacrifice when making participation decisions. High-income students enjoy this state of mind all the time – their participation choices are not inhibited by cost constraints. By removing the discomfort, fear, and anxiety related to having to choose one thing over another, the PA may be having a profound, albeit nuanced and difficult to measure, impact on lowincome students.

Astin (1984) would disagree with my attempted explanation because of his concentration on involvement over intentions. For Astin, the quantity and quality of what students actually do is more important to engagement than the motivation behind their actions. Despite Astin's likely objections, future researchers may choose to add to the student engagement literature by following up on my suggestion of focusing more on the psychological aspects of the removal of the costs of participation. What is it specifically about cost that causes anxiety in low-income students? What is the relationship between sacrifice and participation? How do students determine what sacrifices are worth making and which are not worth making? Where I do agree with Astin (1984) is that the motivational or psychological factors of engagement are likely to be more difficult to define and measure than the involvement factors because they are not directly observable. Other scholars also agree on the difficulty of measuring motivation. "Motivation is an

internal state that causes people to behave in a particular way to accomplish particular goals and purposes. It is possible to observe the outward manifestations of motivation but not motivation itself" (Denhardt, Denhardt, Aristigueta, 2013, p. 147).

### **Reasons for Non-Participation**

Beyond an institutional responsibility to make educationally beneficial programs available to its students, the other half of Astin's (1984) model of student involvement is the role of the student. Astin stresses the student as the key driver of growth and development while in college because such growth and development is dependent upon the student actually becoming involved in the many academic and social opportunities made available by their institution (Astin, 1984; Pascarella & Terenzini, 2005). Other research has also stressed the central role of the student and his or her actions as influential to engagement (Kuh, 2008; Kuh et al., 2005; McCormick et al., 2013; Tinto, 1993).

Much of the aforementioned literature on engagement focuses on students' actual behaviors because researchers have suggested actions are what influence engagement. Recall Kuh's (2005) words that "what students do in college counts more for what they learn and whether they will persist in college than who they are or even where they go to college" (p. 8). Because of this intent focus on what students do, researchers may be overlooking an important issue uncovered in this study. Why don't some students *do* what other students are doing? As the results of this study have shown, even after the Pinnacle Alliance removed the financial barriers associated with participation in various social activities, there were still hundreds of students (n=752) who chose not to get

involved. Research question four addressed this phenomenon by asking: Why did some PA-eligible students choose not to participate.

The answer to research question four came from the electronic surveys and was confirmed with focus group data. Eligible but non-participating students reported that they did not have time, did not have interest, were not aware, or that there was a stigma associated with participation.

That students expressed having no time to participate in the Pinnacle Alliance is another finding consistent with the extant literature on student engagement. Astin's (1984) theory of involvement suggests that time is a student's most precious resource, and presents itself as a 'zero-sum' game, "in which the time and energy that the student invests in family, friends, job, and other outside activities represents a reduction in the time and energy the student has to devote to educational development" (p. 301). In addition to the quantitative survey findings, this idea was also confirmed with the data from the focus groups of this study, as many students voiced how busy they were with studying, projects, and group work and how that impacted their ability to get more involved in non-academic events and activities. LU scholars of all economic backgrounds appear to be extremely busy students and therefore many do not have time to become involved in extracurricular programming despite the administration's best efforts to make these activities accessible to all.

# **Motivational Constraints**

In a broader sense, several of the reasons for non-participation (no time, no interest, stigma) are related to one of the major themes that emerged from the findings of this study, and that is the concept of motivational constraints as another factor that

influences student engagement. Once costs barriers have been removed, students must also want to participate in the programs and activities made available to them by their institution. Institutions cannot simply make programs available to students, wash their hands of the issue, and expect engagement levels to be affected in all students. Results from the qualitative portion of this study confirm this assertion. There were many PAeligible students who chose not to participate even after cost was no longer a limiting factor.

It is difficult in the literature to differentiate between interest and motivation. In general, motivation has been linked to promoting action whereas interest does not necessarily promote action. According to Hernandez, Schultz, Estrada, Woodcock, and Chance (2013), the most widely used definition of motivation comes from Pintrich and Schunk (2002), who define motivation as "the process whereby goal-directed activity is instigated and maintained" (p. 4). There are many theories on the topic of motivation, but according to Huitt (2001) there is not much overlap among the theories concerning the factors that actually influence motivation. As a result, Huitt (2001) suggests researchers ask study participants how their needs could be met and then for the researcher to meet those needs and observe the reactions, rather than relying solely on motivational theory. Conversely, the literature does agree on certain aspects of motivation - specifically that motivation is not directly observable, is not the same thing as satisfaction, and is not directly controllable (Denhardt et al., 2013). These facts, in conjunction with the lack of a dominant and prevailing theory(s), make motivation a more difficult phenomenon to study.

Astin (1984) further acknowledges a difference between motivation and involvement by suggesting motivation as a psychological state and involvement as the physical manifestation of that motivational state (p. 300). This seems dismissive of the significance of motivation. While other scholars (Denhardt et al., 2013) and I do agree with Astin in that involvement may be easier to measure because it is an observable construct, this does not lessen the importance of student motivation and its impact on engagement. Based on the results of this study, motivation plays a critical role in determining engagement. Even after costs had been removed, there were still many students who had no interest in the various events and activities the Pinnacle Alliance was making accessible.

While the Pinnacle Alliance was not designed to influence student motivation, nor was this study designed to measure this aspect of involvement, these results do have implications for policy and practice which will be discussed shortly.

### Limitations

This study has several limitations. First, as with any study performed at a single institution, there is a threat to external validity. As a result of this intentional single site selection, the results are confined exclusively to the institution in question and cannot be extrapolated beyond Lakefield University. Further, the results of this study only apply to undergraduate, non-transfer students since all 25 transfer students were intentionally removed from the sample. Therefore, it is not possible to generalize the findings of this study to other low-income students not included in this sample, or to low-income students at other elite institutions of higher education.

Second, the survey instrument relied on a certain level of self-reported data which is prone to inaccuracy and may also result in cases with missing data (Patton, 1980; Plano Clark & Creswell, 2008). To minimize the risks of inaccuracy inherent to self-reported data, I obtained as many student demographic variables (gender, race, class level, SAT score, and college GPA) from the LU institutional databases rather than relying on students to report this information themselves.

Third, the final model used in this study to predict Support Environment scores had a relatively low r-square value. In other words, the independent variables only explained 20.3% of the variance in SE scores. These independent variables were selected based on the literature concerning student engagement. Yet as Astin (1993) readily admits, beyond the basis demographic-level variables there may be unknown variables that influence student engagement which have yet to be analyzed. The exclusion of these unknown variables has the potential to lead to an inaccurate regression model yielding incorrect conclusions for the population under study, as is the case with any regression model.

A final limitation was that this study used students' scores on the Supportive Environment Engagement Indicator from the NSSE as the outcome variable for the statistical analyses. This indicator was selected for use in this study because the NSSE is the recognized authority on measuring college student engagement and the SE indicator most closely aligned with the goals of the Pinnacle Alliance. As will be discussed in the recommendations, this indicator may not have been the most accurate measure of students' engagement within the social system of higher education at Lakefield

University. There may be opportunity for new, more valid measures of engagement within the social system to be developed.

### **Recommendations for Policy and Practice**

This study was an answer to Astin's (1984) call for new research to test his involvement theory by exploring ways to assess different forms of involvement (p. 305). Prior research has indicated the importance of academic and social involvement and integration, what students actually do while in college, and the impact these factors have on engagement (Astin, 1984, Kuh, 2008; Kuh et al., 2005; Pascarella & Terenzini, 2005; Tinto, 1993). Despite the quantitative and qualitative results of this research offering opposing conclusions about the degree to which the Pinnacle Alliance influences student engagement, there are several key recommendations for policy and practice that can be derived from this study. In addition, this study has raised several questions that present opportunities for other scholars to explore in future research efforts. These recommendations are now discussed.

### Develop an Integrated Office Devoted to the Unique Needs of Low-Income Students

All postsecondary institutions are faced with various limitations including time, space, personnel, and cost constraints. In order to realize the greatest benefit from the limited resources they do possess, institutions need to carefully consider how these resources are deployed. It is critical to institutional reputation, student success, and ultimately institutional survival that resources are not wasted.

With the concept of scarce resource allocation in mind, it is recommended that institutions develop an integrated office responsible for the well-being of their lowincome students. This office should function as a 'one-stop-shop' for low-income

students and be the first place they call or visit when they are having any sort of issue. For the sake of this discussion, I will call this newly proposed office the Opportunity for Engagement Office (OEO). A coordinated effort must be made not only to ensure that resources are not wasted, but more importantly to ensure that the unique needs of the low-income population in higher education are being attended to.

Results of this study have shown how low-income students felt like they fit in more at Lakefield University and that they reported a greater sense of belonging as a result of participation in the Pinnacle Alliance. The creation of a so-called one-stop-shop specifically designed for low-income students could similarly foster feelings of inclusion and impart the message that these students mattered and were valued by their institution.

In addition, some students reported not being aware of the Pinnacle Alliance as reasons for non-participation. Discussions during the focus group clarified that most students were at least aware of the program, but that they were not aware of all of the specific benefits and opportunities offered by the PA. The new OEO could solve this problem immediately by organizing all campus resources devoted to low-income student success. By consolidating the various areas on campus that interact with low-income students, the OEO would send a cohesive message and be able to communicate its exact purpose and the exact benefits it could offer to low-income students.

### Acculturation and Alignment

This new Office of Engagement Opportunities would also promote the foundations of successful DEEP institutions outlined in the study by Kuh et al. (2005), namely acculturation and alignment. In terms of acculturation, an integrated office serving low-income students is better prepared to make the institutional values, goals, and

expectations explicitly clear to this population by controlling and coordinating the messaging from all areas of the university that come into contact with these students. A consistent and coordinated message is vital so that students, especially ones from low-income and low-SES backgrounds, understand the normative values on campus. By increasing the frequency and coordination of the messaging concerning institutional expectations students should show increased integration, since the number and quality of interactions as well as the clear demonstration of norms are central tenets of Tinto's (1993) interactionalist model.

In terms of alignment, colleges and universities should align institutional resources with student needs, as successful DEEP institutions have accomplished (Kuh et al., 2005). While the quantitative results of this study showed no appreciable difference in engagement based on PA participation, the qualitative findings revealed just how important the Pinnacle Alliance was in giving low-income students the opportunity to participate in extracurricular activities. In order to meet the needs of their low-income students and allow them to make participation choices free from financial constraints, institutions should consider programs similar to the Pinnacle Alliance. This program should be managed and coordinated through the OEO so that it can be consistently branded and so that students can associate the program with that office in order to reinforce its identity as the one-stop-shop for all of their needs.

### **Attend to Motivational Constraints**

The results of this study have also made it clear that motivational constraints play a part in student involvement over and above cost constraints. Even when the costs of participation were removed, some PA-eligible students chose not to participate. In order

to get the most return on institutionally expended resources and in order to benefit as many students as possible, institutions need to determine how to overcome the various motivational constraints exhibited by their students. The concepts of motivation and stigma were not the focus of this research study; rather motivation and stigma as inhibitors to involvement were outcomes that emerged in the findings. However, there is a large body of literature to support my assertion regarding the importance of motivation and its influence on engagement, goal-achievement, and educational performance (Beck, 2000; Denhardt et al., 2013; Elliot, Hufton, Willis, & Illushin, 2005; Hernandez, et al., 2013; Huitt, 2001). Evidence from this study also supports this assertion; the nonparticipating students in this study were not getting involved because they could not overcome the motivational constraints of participation even after cost barriers were removed.

Stigma is also an important concept for this study because it threatens one's personal identify and self-esteem (Crocker, Major, & Steele, 1998; Major & O'Brien, 2005). Stigmatized individuals exhibit lower self-esteem, lower academic performance, and a downward placement in the social status hierarchy (Link & Phelan, 2001; Major & O'Brien, 2005). As Link and Phelan (2001) have indicated, changing stigma is a difficult endeavor because it is a multifaceted and multilevel problem and requires a remedy that is also multidimensional. According to the authors, any true approach to fixing stigma must address the root causes of the problem. "It must either change the deeply held attitudes and beliefs of powerful groups that lead to labeling...or it must change circumstances to limit the power of such groups to make their cognitions the dominant ones" (Link & Phelan, 2001, p. 381). This presents an area for future research, where

scholars may choose to focus on effective ways of shifting the power dynamics on college campuses.

Having introduced these concepts, I now present specific recommendations to try and reduce the degree to which they can inhibit involvement.

**Remove the stigma associated with being a low-income student.** Care must be taken to integrate the proposed Office of Engagement Opportunities and the students it would serve with the rest of the campus community. As the results of this study have shown, low-income students are already wary of the social stigma of being considered low-income. This stigma was one of the reasons students gave for not participating in the Pinnacle Alliance; they did not want others to know about their low-income status. The Gold Pass benefit also provides evidence of the stigma attached to low-income status at LU, as focus group members cited the anonymity of the free tickets as one of its major advantages. Therefore, this new campus unit must strive to highlight the benefits it offers rather than the fact that the students it will serve are somehow different than other students at the institution.

The concept of stigma must also be considered in conjunction with the differences in expectations, attitudes, and behaviors of individuals based upon their race and ethnicity. For example, there are certain cultures that have a more difficult time asking for and accepting help than other cultures. The fact that the Pinnacle Alliance requires students to receive counseling before they can receive any benefits could be another inhibitor of participation in the program. If students do not understand that it is not actual clinical counseling that they receive from the Pinnacle Alliance, but rather a more general check-in to determine if there are other areas on campus that could also assist them, then

students from specific cultures that have negative views concerning counseling may be dissuaded from asking for and receiving help from the Pinnacle Alliance.

Briefly, the literature on stigma suggests that stigma occurs as part of a power dynamic in regards to social, economic, and political power. Those wielding the power recognize and label differences in individuals and then the dominant group ascribes labels to undesirable characteristics (Link & Phelan, 2001). This is where the concept of stereotype comes from. Next, labeled individuals are separated into categories so that "us versus them" comparisons can be made between the dominant group and the labeled group. Finally, those in the labeled group experience discrimination and status loss which lead to unequal outcomes (Goffman, 1974; Link & Phelan, 2001; Page, 1984). The negative effects of stigma related to this particular study are that stigma has been linked to academic underachievement and low social status (Major & O'Brien, 2005).

As previously indicated, this stigmatization was a salient topic in the focus groups I conducted. Low-income students reported feeling left out by not being able to participate. They also indicated that the "typical" LU student is one who is wealthy, wears specific clothing, and is involved in so many activities, clubs, and events that PA students questioned whether their involvement was for genuine purposes or more to build their resumes. The dominant group on campus seems to be ascribing outsider or "other" status to low-income students based partly on their lower levels of participation in these various activities. The concept of stigmatization emerged as an outcome of this study; it was not the primary topic of investigation. Therefore, no empirical evidence of these assertions exists. However, based on the reactions I received during the focus groups, the notion that low-income students appear to be given an "other" status at LU appears valid.

This is why it is so important for any institutional reorganization efforts to focus on ways to combat the stigma associated with being a low-income student.

In addition, recall from the focus group data that students differed in the degree to which they were comfortable revealing their Pinnacle Alliance membership. Sarah indicated that her PA membership was "something I don't actively bring up with people. I don't know if there's unconsciously feeling a stigma around it. It's not something I'm just open and up front about." Michelle on the other hand, had no problem divulging her low-income status and was proud of her upbringing in a single-parent household with limited financial means. "I've been raised by a single mother my entire life. And she'd doing the best that she can and I just think that's more of something to be proud of than ashamed of." Students also reported that the anonymity associated with the Gold Pass was a large benefit beyond just getting free tickets to athletic events. It allowed them to keep their low-income status private if they chose to. That students differ in their willingness to openly identify with the Pinnacle Alliance is also supported by the literature concerning stigma.

According to Major and O'Brien (1998), members of stigmatized groups may cope with stigmatization by either identifying more closely with their group, and thus increasing their sense of belonging to that group, or by disassociating themselves with their group as much as possible (pp. 405-406). This may also help to explain why Pinnacle Alliance students reported a higher sense of belonging as a result of PA participation. These students may be choosing to more closely identify with their stigmatized group (PA students) and the net result is an increased sense of belonging. PA students reported that the Pinnacle Alliance functioned as a type of sub-community

within Lakefield University – one that is reserved for its low-income students, also reinforces this notion.

Removing the stigma from participation in programs offered by the new OEO may actually be easier through this proposed integrated structure than it would have been in a fragmented structure such as the one at Lakefield University. At LU, the Pinnacle Alliance is clearly designed to help low-income students get involved in social activities. But through an integrated one-stop-shop model, the OEO would offer many different benefits beyond financial support for social events. As such, it would be more difficult for non-members to discern who is benefitting from the OEO and for what specific reasons each student was visiting the OEO. For example, a student could be going to the OEO for academic support, career advice, social support, counseling, or dozens of other reasons. It seems that this overarching and integrated office would help to mask the specific reasons for students' visits. Contrast this with the Pinnacle Alliance, where it is relatively clear that students are visiting the office for financial support because they are from a low-income background. I am not suggesting that students be ashamed of their economic situation; rather I am suggesting that a coordinated office structure aimed at facilitating low-income students' educational experiences based on its broad and encompassing goals would be less explicit in its purpose such that students would not attach the same level of stigma to it. Based on Link and Phelan's (2001) recommendations, the anonymity of the new OEO could help to limit the power of the dominant group on campus (higher income students) by removing its ability to ascribe "other" status to OEO students, thereby reducing the stigma associated with the program.

In addition, it would be prudent for Lakefield University to offer training to faculty and staff so that they are better equipped to handle the unique challenges that lowincome students face and offer assistance to these students if and when they are approached for help. Currently, not all members of the university community are aware that the Pinnacle Alliance even exists. The new OEO should facilitate training efforts so that all members of the campus community are aware of the difficulties that the lowincome student population faces and so that employees know that there is a dedicated office to assist this group of students. Faculty and staff should be resources and key partners in the effort to promote the educational achievement and success of Lakefield's low-income students.

**Expand benefits to include academics.** Astin (1984) has asserted that time is a valuable commodity in higher education and is a student's most precious resource. This study discovered that most students are extremely busy and that coursework, projects, and studying occupies much of their time. To further align institutional resources with student needs, schools should focus on ways to reduce students' time constraints and ease their academic burdens. To be clear, this is not to suggest that colleges and universities alter their curricula to make them less challenging and rigorous. That would be counterproductive. Instead and as just one example, institutions should consider reducing the number of courses per semester in which students are required to enroll. For instance, undergraduate students at Lakefield University enroll in five classes per semester in order to fulfill their degree requirements. Perhaps it would be beneficial to reduce this course load to only four classes per semester in order for students to have the time required to become more involved in the co-curricular activities that their institutions have made

available. Re-shaping the way we look at academics and how they interact with the social system of higher education is a necessary step in order to encourage progress and implement positive changes.

One place where the Pinnacle Alliance already has traction related to academics is the textbook loan program. Removing the need to pay hundreds of dollars for required textbooks has been a significant relief for students taking advantage of this benefit. In broader terms, academic advising, counseling, and tutoring – coordinated and delivered through the proposed one-stop-shop model - are examples of matching student needs with institutional resources. As Tinto (1993) states in his interactionalist model of student departure, student engagement is predicated on students' integration with both the social and academic systems of higher education. By attending to low-income students' academic needs in addition to their social needs, programs like the Pinnacle Alliance have a higher likelihood of making an impact on the engagement of low-income college students.

Other institutions should consider offering academic services through the proposed Office of Engagement Opportunities in order to address the academic needs of their low-income population. Again, in order to be as successful as possible, the goal of the institution should be to make the OEO the primary point of contact for low-income students, not just in terms of social activities but in terms of all aspects of campus life, including academics. Offering academic services on top of counseling and support for social activities would further reinforce the concept that the institution truly cares about the needs of its low-income students and that the OEO was the support structure on campus where these students should go to seek help.

### **Opportunities for Lakefield University and the PA**

With respect to Lakefield University specifically, the university needs to determine whether it wants to continue to facilitate participation by giving out tickets and financial support via the Pinnacle Alliance, or if it wants the program to do more? Based on the results of this study, I strongly recommend the latter. There is definite opportunity for departmental reorganization in order to better serve LU's low-income population. Currently, David and other low-income LU students must navigate a tangled warren of offices and program areas depending on the specific services they require. The AALANA Multicultural Center, the Office of Residential Life and Housing, Career Services, Health Services, and University Counseling Services are housed under the Division of Student Affairs. The Learning Experience office and the Office of Academic Advising report directly to the Vice Provost for Academic Affairs. Finally, the Pinnacle Alliance and the Freshmen First Year (FFY) program are part of the Office of University Mission and Values.

The current reporting structure at Lakefield University may be duplicating certain efforts unnecessarily while simultaneously disadvantaging its students. For example, the fact that there are multiple reporting lines for these different areas increases the cost and administrative burden for the university. In addition, if students don't know where to go to get the services they need it presents a problem. Fortunately, the solution is relatively easy to design, but may prove more challenging to implement. Rather than keeping these various offices as siloes, Lakefield administrators should consider their consolidation into one formal reporting line. This would decrease the overlap of administrative duties,

likely decrease various forms of overhead, and would be beneficial to all students, regardless of their income levels.

It seems logical to house this new departmental structure under the Division of Student Affairs. This would allow for offices with existing reporting lines to remain intact. It would necessitate reorganizing the Learning Experience office, Academic Advising, the Pinnacle Alliance, and the Freshman First Year program into the Division of Student Affairs. Under this new reporting structure, an integrated and organized student experience could be developed. Specific programs could be developed and targeted towards low-income students through a coordinated effort among all offices under the Student Affairs umbrella. As one example, financial support for service trips could still be offered through the Pinnacle Alliance, but now in addition to being able to participate in these trips, low-income students could also attend a seminar put on by the Career Center for how to leverage these trips as part of their resume to increase the odds of a job or internship offer.

It is this level of integration and cohesiveness that can be so beneficial to both the students and the university. The students obviously benefit by the increased attention and reduced burden of figuring out how to connect with many different areas on campus. But the university also stands to gain because they have a captive audience of students on which to focus their programmatic efforts. The coordination between different offices, now all contained under the same Student Affairs umbrella, would make program offerings more targeted, pertinent, and cost-effective.

The Carolina Covenant serves as an example of the level of institutional commitment and cohesiveness that are required to make a meaningful impact in the lives

of low-income college students. Formally, the Carolina Covenant is a program at the University of Carolina at Chapel Hill that allows eligible low-income students to graduate from the institution with no student loans. But the program is much more than that. It provides a "comprehensive infrastructure of support services and special programming" for students enrolled in the program (Ort & Willford, 2009, p. 7). These services include outreach and promotion by the Admissions office, faculty mentoring, academic advising and peer mentoring through the College of Arts and Sciences, leadership initiatives through the Office of Diversity and Multicultural Affairs, fundraising for the program by the Development Office, career services and counseling via the Office of Student Affairs, and program evaluations through the Office of Institutional Research (Ort & Willford, 2009).

The program has been an unequivocal success: the 4-year graduation rate for eligible students has increased by 9.6% since the program began (Ort, 2010) and the average G.P.A. for Covenant scholars is now within 0.2 points of the average for all UNC undergraduate students (Ort & Willford, 2009). What is striking about the Carolina Covenant program is just how many different areas of the university are invested and involved in ensuring the success of participating students. The positive outcomes of the program should give Lakefield University reason to reflect upon how it reaches its lowincome student population and to consider a reevaluation of its own structure and programming efforts to make improvements in this area.

One of the reasons that students in this study gave for their non-participation in the Pinnacle Alliance was the stigma associated with being considered a low-income student at LU. This is an unfortunate outcome, but one that has the potential to be

remedied. The new campus unit should focus on how it can be perceived as a welcoming office and ways to foster feelings of inclusion. One way for the office to achieve these goals, and something that focus group members suggested themselves, would be to offer their own social programs such as barbeques or movie nights instead of just offering free tickets and financial support for other activities on and off campus. Many PA students remarked how they did not know how many other students were in situations similar to their own until they got involved in the Pinnacle Alliance. By bringing together lowincome students in these relatively low-pressure social gatherings it would go a long way towards raising the awareness of the program. If students can come to understand just how many other students come from similar backgrounds as their own, it has the potential to remove the stigma and embarrassment associated with the PA program. This is just one example of how the PA could become more directly involved in its own programming efforts in order to directly influence engagement (and in this case reduce stigma), rather than functioning as a conduit to other activities. Part of what makes the program so impactful is the sense of community and belonging that students reported. The Pinnacle Alliance should focus on ways to further enhance this perceived sense of belonging by increasing the frequency and quality of the interactions PA students have with each other.

A new initiative started by the Pinnacle Alliance in the last few years has been to invite alumni of the program back to campus to speak to current PA students about their experiences in the program and their post-graduation life. The Pinnacle Alliance manager as well as several focus group members commented on how beneficial this was to be able to see how the PA helped former students to succeed while at LU and what possibilities

exist after graduation. Upperclassmen that are involved in the Pinnacle Alliance have also begun to operate a welcome table during the freshmen orientation sessions in order to advertise the benefits of the PA to incoming students. Finally, the PA office sends out a weekly email blast to remind students about free tickets to upcoming events and activities. While some students from the focus group complained that they were not aware of all the benefits offered by the PA, after speaking with the PA manager it is clear that this is somewhat intentional. The program has a limited budget, so at the current time it is not able to offer an unlimited number of free tickets or financial support to all students. According to the manager, that is why not all benefits are advertised on the Pinnacle Alliance website.

### **Recommendations for Future Research**

### **Explore the Relationship between Motivational Constraints and Engagement**

Based on the results of this study there are several recommendations concerning areas for future research. First, the results of this study confirmed Astin's (1984) theory of student involvement that beyond the institutional responsibility to make educationally beneficial programs available to its students, students also bear a responsibility to become involved. The Pinnacle Alliance was LU's attempt to make educationally beneficial programs available to its students. Yet not all students wanted to participate. As alluded to in the recommendations for policy and practice, future research efforts should explore the relationship of motivational constraints and student engagement. Further, what causes students to be uninterested in specific programmatic offerings? What can be done to entice non-interested students to participate? Answers to these questions would help to

further refine the programs that institutions offers so that they are more targeted and impactful for these students on the fringe of participation.

## **Discover Other Variables That Impact Engagement**

Future research should also focus on discovering other variables that influence college student engagement. As this study has shown, nearly 80% of the variance in students' SE scores was left unexplained, which leaves a considerable opportunity for further investigation. Researching the factors behind motivational constraints is one example of potential variables that could also influence engagement. Examples could include a student's degree of anxiety over choice and decision making, his or her commitment towards goal-achievement, and a student's perceived level of stigmatization (similar to Bollen and Hoyle's (1990) sense of belonging scale, as an example). If these were developed and refined through new research efforts they could be used in new regression analyses as another set of predictor variables to control for in order to isolate the phenomenon under study. It would be very interesting to perform this same study again with these new variables to see if the results of PA participation remained non-significant after these additional motivational factors were controlled for.

## **Develop a More Precise Measure for Social Involvement**

A final recommendation for future research would be to examine the Supportive Environment Engagement Indicator from the NSSE and its use as the outcome variable in this study as a proxy for engagement. The SE indicator contains nine questions (Figure 2.3) but of these nine, only three deal directly with social activities (opportunities to be involved socially, attending campus activities/events, attending events that address social, economic, or political issues). Three questions pertain to academics (spending time studying/academic work, support to help students succeed academically, using learning support services). The remaining three questions focus on activities that are tangentially related to the academic and social systems. While the psychometric properties of the NSSE have been tested and well-documented (Kuh, 2009; NSSE, 2015f, 2015g; Pike, 2013), the fact remains that the SE indicator may still not be the most valid measure of student involvement in the social system of higher education.

The focus of the NSSE is on actionable items that are related to highly effective educational practices (McCormick et al., 2013). Accordingly, the NSSE does not measure students' intentions or motivations, but rather what students actually do while enrolled in higher education. The critical notion of choice free from financial constraints does not exist within NSSE's CSR instrument. This may be a reason why the quantitative results of this study failed to detect a significant relationship between PA participation and engagement. As focus group data have shown, a student's motivation is also an important component of engagement, but this construct is not part of the NSSE. The concept of motivation was also not included as part of the electronic surveys administered as part of this research study because it was not until the data were analyzed and further triangulated with focus group findings that this theme emerged; it was not known at the time of the research design. Despite these drawbacks, the Supportive Environment indicator was selected as the outcome variable in this study because it was the NSSE indicator that most closely aligned with the goals of the Pinnacle Alliance

In order to further develop our understanding of student involvement in the social system of higher education and its impact on college student engagement, it is necessary to refine the instruments we use to measure this construct. In order to increase the

validity of future studies, researchers should work on developing an instrument to more precisely measure student involvement within the social realm of higher education. It seems prudent that scholars use prior research by Tinto (1993), who initiated the notion of involvement and integration within the social system of higher education to guide them in this endeavor. In addition, it would behoove those undertaking this recommendation to also familiarize themselves with work by Kuh et al. (2005) on DEEP institutions to understand how institutions matched institutional resources with student needs. Understanding the needs of students and the specific high impact practices they chose to engage in could offer clues as to how to refine the measure of social involvement.

The results of this study should also serve as a caution to institutions. Colleges and universities should not blindly rely on results from the NSSE when making institutional decisions. As this study has shown, the pure statistical analysis using data from the NSSE Supportive Environment indicator suggested that the Pinnacle Alliance was having no impact on student engagement. However, focus group data strongly disagreed with the statistical results. Had LU used only NSSE data to make a decision regarding the future of the Pinnacle Alliance, the LU administration may have chosen to reduce funding for the program or potentially even eliminate it, when in fact, low-income students have said that the program was vital to getting them involved. Based on this study, it would be in the interest of all institutions to include a certain level of qualitative analysis when making broad programmatic decisions. It would be unwise to rely solely on the NSSE since it does not capture (not does it claim to capture) student motivation.

The fact that the true benefits of the Pinnacle Alliance were unknown until the qualitative component of this study was performed further illustrates the need to develop a new instrument to measure student engagement. NSSE itself may want consider redesigning their College Student Report to make it a more beneficial and useful tool for institutional decision-making. Perhaps it could include both what students do while in college (akin to the current NSSE) and add a motivational component. Factors such as students' commitment towards goal-achievement, student anxiety level regarding making choices, and students' perceived level of stigmatization seem like valuable variables that could more deeply explain engagement.

The data captured by this new tool has the potential to more clearly answer the questions concerning the effects of involvement (or lack thereof) in the social system and its influence on important educational outcomes like engagement, academic performance, satisfaction, retention, and graduation. These data would provide valuable information for institutions when they are determining how to allocate their budgets towards programs such as the Pinnacle Alliance. With limited finances, all institutions want to ensure that the money they earmark for individual programs and offices is being put to good use and benefiting its students. The data obtained from this new instrument would be able to assess the impact of program such as the Pinnacle Alliance better than the NSSE as it is currently constituted.

One final consideration for future research is the idea of including some measure of social capital in the model to more accurately measure student engagement. What else can be learned about college student experience by framing the topic using a social

capital lens? I suspect that there is a large overlap between income levels and the levels of social capital in terms of their influence on engagement.

### Conclusion

With education said to be the great equalizer, is it enough that some elite institutions are enrolling low-income students and funding them with significant financial aid packages? Are low-income students at these institutions being done a disservice by allowing them to enroll, but then precluding them from all of the extracurricular activities that make up so much of the full college experience because of the costs associated with participation? The Pinnacle Alliance represents one way to attack this problem.

There is limited research surrounding interventions that remove the costs of cocurricular activities and their effect(s) on engagement. Ultimately, the results of this study were inconclusive. The non-significant statistical results of this study are certainly disappointing, but when reviewed in the context of the powerful themes that emerged from the qualitative research they do help to bridge the gap in scholarly knowledge concerning college student engagement. In addition, the qualitative findings do offer some hope to David and other future low-income students at LU. By creating a welcoming sub-community within LU, the Pinnacle Alliance has increased students' sense of belonging and the degree to which they reported fitting in at LU. These results are encouraging, for sense of belonging and institutional fit are also linked to student engagement, which in turn is linked to many positive educational outcomes.

I am fortunate to have been able to study a program like the Pinnacle Alliance and its noble goal of helping low-income students to get more involved on campus. Perhaps the recommendations of this study can guide both Lakefield University and the PA to

reflect upon their current practices and make adjustments that will lead to statistically significant results on top of the positive qualitative findings. I know that students such as David just want to be viewed like everyone else. They want the chance to participate in the out-of-class activities that make the college experience so enriching and they deserve the opportunity to do so. Engagement is such a broad and complex construct that it may be difficult for any individual factor to significantly alter the levels of engagement in college students. Rather, it may be the incremental contribution from dozens (if not more) of external variables that truly influences engagement in college students. The Pinnacle Alliance program is but one small piece to what may affect social integration, which in turn can influence college student engagement. My hope is that programs such as the Pinnacle Alliance will proliferate throughout higher education so that the Davids of the world are given an equal opportunity to take part in some of the non-academic experiences that can make college so fun and the subsequent educational benefits of participation can be realized by students of all income levels.

## References

- AALANA Multicultural Center. (2015). *Programs & Services*. Retrieved from www.anonymous.edu.
- Allison, P.D. (1999). *Multiple regression: A primer*. Thousand Oaks, CA: Pine Forge Press.
- Allison, P. (2012, November 9). *Why you probably need more imputations than you think*. Retrieved from: http://statisticalhorizons.com/more-imputations.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. Journal of College Student Personnel, 25(4), 297–308.
- Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco, CA: Jossey-Bass Publishers.
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. Journal of College Student Development, 40(5), 518–529.
- Astin, A. W., & Oseguera, L. (2004). The declining equity of American higher education.pdf. *The Review of Higher Education*, *27*(3), 321–341.
- Astin, A. W., & Sax, L. J. (1998). How undergraduates are affected by service participation. *Journal of College Student Development*, *39*(3), 251–263.
- Avery, C., Hoxby, C., Jackson, C., Burek, K., Pope, G., & Raman, M. (2006). Cost should be no barrier: An evaluation of the first year of Harvard's financial aid initiative. (Working Paper No. 12029). National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w12029
- Bailey, M. J., & Dynarski, S. M. (2011). Inequality in postsecondary education. In G. J.Duncan & R. J. Murnane (Eds.), *Whither opportunity? Rising inequality, schools,*

*and children's life chances* (pp. 117–131). New York, NY: Russell Sage Foundation.

- Barber, M., Donnelly, K., & Rizvi, S. (2013). Under the surface. In *An avalanche is coming: Higher education and the revolution ahead*. (pp. 9-21). London: Institute for Public Policy and Research.
- Bean, J.P. (1980). Dropouts and turnovers. The synthesis and test of a causal model of student attrition. *Research in Higher Education*, *12*(2), 155-187.
- Bean, J.P., & Metzner, B.S. (1985). A conceptual model of nontraditional undergraduate students attrition. *Review of Educational Research*, 55(4), 485-540.
- Beck, R. C. (2000). *Motivation: theories and principles* (4th ed). Upper Saddle River, N.J: Prentice Hall.
- Berg, G. A. (2010). Low income students and the perpetuation of inequality: Higher education in America. Burlington, VT: Ashgate Publishing.
- Berg, S. D., & Krueger, A. B. (2002). Estimating the payoff to attending a more selective college: An application of selection on observables and unobservables. *The Quarterly Journal of Economics*, *117*(4), 1491–1527.
- Berger, J. B., & Milem, J. F. (1999). The role of student involvement and perceptions of integration in a causal model of student persistence. *Research in Higher Education*, 40(6), 641–664.
- Bettinger, E. P., & Long, B. T. (2007). Remedial and developmental courses. In S.
  Dickert-Conlin & R.H. Rubenstein (Eds.), *Economic inequality and higher education: Access, persistence, and success* (pp. 69–100). New York, NY: Russell Sage Foundation.

- Bollen, K. A., & Hoyle, R. H. (1990). Perceived cohesion: A conceptual and empirical examination. *Social Forces*, 69(2), 479.
- Bowen, W. G., & Bok, D. C. (1998). The shape of the river: Long-term consequences of considering race in college and university admissions. Princeton, N.J: Princeton University Press.
- Bowen, W. G., Kurzweil, M. A., & Tobin, E. M. (2005). *Equity and excellence in American higher education*. Charlottesville, VA: University of Virginia Press.
- Bowerman, B.L., & O'Connell, R.T. (1990). Linear statistical models: An applied approach. Belmont, CA: Duxbury Press.
- Braxton, J. M., Sullivan, A. S., & Johnson, R. M. (1997). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 12, pp. 107–158). New York, NY: Agathon Press.
- Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *The Future* of *Children*, 7(2), 55–71.
- Campbell, C. M., & Cabrera, A. F. (2011). How sound is NSSE?: Investigating the psychometric properties of NSSE at a public, research-extensive institution. *The Review of Higher Education*, 35(1), 77–103.
- Carnegie Foundation for the Advancement of Teaching. (2011). *The Carnegie classification of institutions of higher education, 2010 edition*. Retrieved March 18, 2015 from

http://carnegieclassifications.iu.edu/descriptions/undergraduate\_profile.php Calder, J. (1998). Survey research methods. *Medical Education*, *32*(6), 636–652.

- Carnevale, A.P., & Rose, S.J. (2003). Socioeconomic status, race/ethnicity, and selective college admissions. New York, NY: Report for the Century Foundation.
- Chapa, J. & Lazaro, V.A. (1998). *Hopwood* in Texas: The untimely end of affirmative action. In G. Orfield & E. Miller (Eds.), *Chilling admissions: The affirmative action crisis and the search for alternatives* (pp. 51-70). Cambridge, MA: Harvard Education Publishing Group.
- Chetty, R., Friedman, J. N., Saez, E., Turner, N., & Yagan, D. (2017). *Mobility report cards: The role of colleges in intergenerational mobility* (pp. 1–96). The Equality of Opportunity Project. Retrieved from http://www.equality-ofopportunity.org/papers/coll mrc paper.pdf
- Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *American Association of Higher Education Bulletin*, 3– 7.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, N.J: L. Erlbaum Associates.
- College Board. (2016). *Concordance tools and tables*. Retrieved from: https://collegereadiness.collegeboard.org/educators/higher-ed/scoringchanges/concordance
- Cook, C., Heath, F., & Thompson, R. L. (2000). A meta-analysis of response rates in web-or internet-based surveys. *Educational and Psychological Measurement*, 60(6), 821–836.
- Cook, R.D., & Weisberg, S. (1982). *Residuals and influence in regression*. New York, NY: Chapman & Hall.

- Creswell, J. W. (2007). *Qualitative inquiry & research design: Choosing among five approaches*. Thousand Oaks, CA: Sage Publications.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research*. Los Angeles, CA: Sage Publications.
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. T. Gilbert, S. T. Fiske, &
  G. Lindzey (Eds.), *The Handbook of Social Psychology* (Vol. 2, pp. 504–553).
  New York, NY: Oxford University Press.
- Denhardt, R. B., Denhardt, J. V., & Aristigueta, M. P. (2013). *Managing human behavior in public and nonprofit organizations*. Los Angeles, CA: Sage Publications.
- Elliott, J. G., Hufton, N. R., Willis, W., & Illushin, L. (Eds.). (2005). *Motivation,* engagement and educational performance: International perspectives on the contexts for learning. New York, NY: Palgrave Macmillan.
- Fan, W., & Yan, Z. (2010). Factors affecting response rates of the web survey: A systematic review. *Computers in Human Behavior*, 26(2), 132–139.
- Faught, K. S., Whitten, D., & Green Jr., K. W. (2004). Doing survey research on the internet: Yes, timing does matter. *Journal of Computer Information Systems*, 44(3), 26–34.
- Field, A. P. (2013). Discovering statistics using IBM SPSS statistics. Los Angeles, CA: Sage Publications.
- Fox, J. (1991). Regression diagnostics. Newbury Park, CA: Sage Publications.

- Gladieux, L. & Swail, W.S. (1999). Financial aid is not enough: Improving the odds for minority and low-income students. In J.E. King (Ed.), *Financing a college education: How it works, how it's changing* (pp. 177-197). Phoenix, AZ:
  American Council on Education Oryx Press.
- Goffman, E. (1974). *Stigma: Notes on the management of spoiled identity*. New York, NY: Jason Aronson Inc.
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, *30*(1), 79–90.
- Greenstone, M., Looney, A., Patashnik, J., & Yu, M. (2013). Thirteen economic facts about social mobility and the role of education. Retrieved from The Brookings Institute Website:

http://www.hamiltonproject.org/papers/thirteen\_economic\_facts\_social\_mobility\_ education

- Gutmann, A. (1987). The purposes of higher education. In, *Democratic Education* (pp. 172-193). Princeton, NJ: Princeton University Press.
- Habley, W. R., Bloom, J. L., & Robbins, S. B. (2012). Increasing persistence: Researchbased strategies for college student success. San Francisco: Jossey-Bass.
- Harvard Financial Aid Initiative. (2015). Retrieved October 24, 2015, from Harvard University: https://college.harvard.edu/financial-aid/how-aid-works/harvardfinancial-aid-initiative

- Hausmann, L. R. M., Schofield, J. W., & Woods, R. L. (2007). Sense of belonging as a predictor of intentions to persist among African American and white first-year college students. *Research in Higher Education*, 48(7), 803–839.
- Heller, D. E. (Ed.). (2011). The states and public higher education policy: Affordability, access, and accountability (2nd Ed.). Baltimore, MD: Johns Hopkins University Press.
- Hernandez, P. R., Schultz, P. W., Estrada, M., Woodcock, A., & Chance, R. C. (2013). Sustaining optimal motivation: A longitudinal analysis of interventions to broaden participation of underrepresented students in STEM. *Journal of Educational Psychology*, *105*(1), 89–107.
- Hoxby, C., & Turner, S. (2013). Expanding college opportunities for high-achieving, low income students (Discussion Paper No. 12-014). Retrieved from Stanford Institute for Economic Policy Research http://blog.narotama.ac.id/wpcontent/uploads/2014/12/Expanding-college-opportunities-for-high-achievinglow-income-students.pdf
- Huitt, W. (2001). Motivation to learn: An overview. *Educational Psychology Interactive*, *12*.
- Hurtado, S. (2007). The sociology of the study of college impact. In P. Gumport (Ed.), *The sociology of higher education: Contributions and their contexts* (pp. 94–112). Baltimore, MD: Johns Hopkins University Press.
- Hurtado, S., & Carter, D. F. (1997). Effects of college transition and perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology* of Education, 70(4), 324.
- Jaschik, S. (2009, November 9). Engaged or confused? Retrieved February 21, 2016, from https://www.insidehighered.com/news/2009/11/09/porter
- Karabel, J. (2005). *The chosen: The hidden history of admission and exclusion at Harvard, Yale, and Princeton*. Boston, MA: Houghton Mifflin.
- Krueger, R. A. (1994). Focus groups: A practical guide for applied research. Thousand Oaks, CA: Sage Publications.
- Kuh, G. D. (2001). Assessing what really matters to student learning: Inside the National Survey of Student Engagement. *Change*, 33(3), 10–17.
- Kuh, G. D. (2003). What we're learning about student engagement from NSSE. *Change*, *35*(2), 24–32.
- Kuh, G. D. (2008). High-impact educational practices: What they are, who has access to them, and why they matter. Washington D.C.: Association of American Colleges and Universities.
- Kuh, G. D. (2009). What student affairs professionals need to know about student engagement. *Journal of College Student Development*, *50*(6), 683–706.
- Kuh, G. D., Kinzie, J., Schuh, J. H., & Whitt, E. J. (Eds.). (2005). Student success in college: Creating conditions that matter. San Francisco, CA: Jossey-Bass.

Learning Experience (2015). Mission Statement. Retrieved from www.anonymous.edu.

- Learning Experience. (2015). *Programs & Services*. Retrieved from www.anonymous.edu.
- Lareau, A. (2011). *Unequal childhoods: Class, race, and family life*. Berkeley, CA: University of California Press.

- Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology*, 27, 363–385.
- Maestas, R., Vaquera, G. S., & Zehr, L. M. (2007). Factors impacting sense of belonging at a Hispanic-serving institution. *Journal of Hispanic Higher Education*, 6(3), 237–256.
- Major, B., & O'Brien, L. T. (2005). The social psychology of stigma. Annual Review of Psychology, 56(1), 393–421.
- McCormick, A. C., Kinzie, J., & Gonyea, R. M. (2013). Student engagement: Bridging research and practice to improve the quality of undergraduate education. In M. B. Paulsen (Ed.), *Higher education: Handbook of theory and research* (Vol. 28, pp. 47–92). New York, NY: Springer.
- McLoughlin, P.J. (2011). Full financial aid in the Ivy League: How high-achieving, lowincome undergraduates negotiate the elite college environment (Doctoral dissertation). Retrieved from ProQuest. (3449271).
- McMahon, W. W. (2009). *Higher learning, greater good: The private and social benefits of higher education*. Baltimore, MD: Johns Hopkins University Press.
- McNeely, J.H. (1937). *College student mortality*. U.S. Department of Interior Bulletin, No. 11.
- Menard, S. (1995). Applied logistic regression analysis. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-106. Thousand Oaks, CA: Sage.

Meyer, J. W. (1970). The charter: Conditions of diffuse socialization in schools. In W. Scott (Ed.), Social process and social structures: An introduction to sociology (pp. 564–578). New York, NY: Henry Holt Co.

- Morgan, D. L. (2008). Pragmatism as a philosophical foundation. In V. L. Plano Clark & J. W. Creswell (Eds.), *The mixed methods reader* (pp. 27–65). Thousand Oaks, CA: Sage Publications.
- Morse, J. M., & Niehaus, L. (2009). *Mixed method design: Principles and procedures*. Walnut Creek, CA: Left Coast Press.
- Morse, R., & Brooks, E. (2015). *Best colleges ranking criteria and weights*. Retrieved October 18, 2015, from http://www.usnews.com/education/bestcolleges/articles/ranking-criteria-and-weights
- Mumper, M. (1996). *Removing college price barriers: What government has done and why it hasn't worked*. Albany, NY: State University of New York Press.
- Najman, J. M., Hayatbakhsh, M. R., Clavarino, A., O'Callaghan, M. J., & Williams, G.
  M. (2010). Family poverty over the early life course and recurrent adolescent and young adult anxiety and depression: A longitudinal study. *American Journal of Public Health*, 100(9), 1719–1723.
- National Association of Independent Colleges and Universities (NAICU). (2006). Twelve facts that may surprise you about private higher education. Retrieved October 10, 2015 from: http://www.cic.edu/Research-and-Data/Making-the-

Case/Pages/Graduation-Rates-by-Family-Income.aspx

National Postsecondary Education Cooperative. National Symposium on Postsecondary Student Success: Spearheading a Dialog on Student Success. Kuh, G.D., Kinzie, J., Buckley, J.A., Bridges, B.K., & Hayek, J.C. (2006). *What matters to student success: A review of the literature*. Washington, DC: National Center for Education Statistics, Office of Educational Research and Improvement, U.S. Dept. of Education.

- National Survey of Student Engagement (NSSE). (2015a). *Engagement Indicators*. Retrieved from http://nsse.indiana.edu/html/engagement\_indicators.cfm#
- National Survey of Student Engagement (NSSE). (2015b). *About NSSE*. Retrieved from http://nsse.indiana.edu/html/about.cfm
- National Survey of Student Engagement (NSSE). (2015c). *Data Codebooks*. Retrieved from http://nsse.indiana.edu/html/data\_codebooks.cfm
- National Survey of Student Engagement. (2015d). NSSE 2015 Engagement Indicators: Internal Consistency by Class Level. Retrieved from http://nsse.indiana.edu/2015\_institutional\_report/pdf/EI%20Intercorrelations%20 2015.pdf.
- National Survey of Student Engagement (NSSE). (2015e). *Our Origins and Potential*. Retrieved from http://nsse.indiana.edu/html/about.cfm

National Survey of Student Engagement (NSSE). (2015f). From Benchmarks to Engagement Indicators and High-Impact Practices. Retrieved from http://nsse.indiana.edu/pdf/Benchmarks%20to%20Indicators.pdf

- National Survey of Student Engagement (NSSE). (2015f). Validity. Retrieved from http://nsse.indiana.edu/html/validity.cfm
- National Survey of Student Engagement (NSSE). (2015g). *Reliability*. Retrieved from http://nsse.indiana.edu/html/reliability.cfm

- Ort, S.(2010). *Carolina Covenant performance report card*. Chapel Hill, NC: The University of North Carolina at Chapel Hill. Retrieved from Carolina Covenant website: http://carolinacovenant.unc.edu/research-and-reports/
- Ort, S. & Williford, L. (2009). Carolina Covenant 2009 program update. Chapel Hill, NC: The University of North Carolina at Chapel Hill. Retrieved from Carolina Covenant website: http://carolinacovenant.unc.edu/research-and-reports/
- Pallais, A., & Turner, S. E. (2007). Access to elites. In S. Dickert-Conlin & R. H. Rubenstein (Eds.), *Economic inequality and higher education: Access, persistence, and success* (pp. 128–156). New York, NY: Russell Sage Foundation.
- Pascarella, E.T., Seifert, T.A., & Blaich, C. (2008). Validation of the NSSE benchmarks and deep approaches to learning against liberal arts outcomes. Paper presented at the Annual Meeting of the Association for the Study of Higher Education, Jacksonville, FL.
- Pascarella, E. T., & Terenzini, P. T. (2005). How college affects students: A third decade of research. San Francisco, CA: Jossey-Bass.
- Patel, V., & Kleinman, A. (2003). Poverty and common mental disorders in developing countries. *Bulletin of the World Health Organization*, 81(8), 609–615.
- Patton, M. Q. (1980). *Qualitative research & evaluation methods*. San Fransico, CA: Sage Publications.
- Pedhazur, E. J. (1997). Multiple regression in behavioral research: Explanation and prediction (3rd ed). Fort Worth, TX: Harcourt Brace College Publishers.

- Pennington, H. (2004, December). Fast Track to College: Increasing Postsecondary Success for All Students. Boston: Jobs for the Future.
- Pike, G. R. (2013). NSSE benchmarks and institutional outcomes: A note on the importance of considering the intended uses of a measure in validity studies. *Research in Higher Education*, 54(2), 149–170.
- Pike, G. R., & Kuh, G. D. (2005a). A typology of student engagement for American colleges and universities. *Research in Higher Education*, 46(2), 185–209.
- Pike, G. R., & Kuh, G. D. (2005b). First and second-generation college students: A comparison of their engagement and intellectual development. *The Journal of Higher Education*, 76(3), 276–300.
- Pinnacle Alliance. (2015). General Info. Retrieved from www.anonymous.edu
- Pinnacle Alliance. (2015). For Parents. Retrieved from www.anonymous.edu
- Pinnacle Alliance. (2015). *Research and Scholarships*. Retrieved from www.anonymous.edu
- Pinnacle Alliance. (2015). Student Resource Center. Retrieved from www.anonymous.edu
- Plano Clark, V. L., & Creswell, J. W. (Eds.). (2008). The mixed methods reader. Thousand Oaks, CA: Sage Publications.
- Porter, S. R. (2011). Do college student surveys have any validity? *The Review of Higher Education*, *35*(1), 45–76.
- Reardon, S. F. (2013). Faces of poverty: The widening income achievement gap. *Educational Leadership*, *70*(8), 10–16.

- Reason, R. D. (2003). Student variables that predict retention: Recent research and new developments. *NASPA Journal*, 40(4), 171–191.
- Saldaña, J. (2013). *The coding manual for qualitative researchers*. Los Angeles, CA: Sage Publications.
- Schneider, M. (2009, November 24). Assessing NSSE. Retrieved February 21, 2016, from https://www.insidehighered.com/views/2009/11/24/schneider

Schlossberg, N. K. (1989). Marginality and mattering: Key issues in building community.
In D. C. Roberts (Ed.), *Designing campus activities to foster a sense of community (New Directions for Student Service)* No. 48, (pp. 1–15). San Francisco, CA: Jossey-Bass.

- Schunk, D. H., & Pintrich, P. R. (2002). Motivation in education: Theory, research, and applications. Englewood Cliffs, NJ: Prentice Hall.
- Seidman, A. (Ed.). (2012). College student retention: Formula for student success (2nd ed). Lanham, MD: Rowman & Littlefield Publishers.

Snider, S. (2015, September 14). Colleges that report meeting full financial need. Retrieved October 24, 2015, from U.S. News & World Report: http://www.usnews.com/education/best-colleges/paying-forcollege/articles/2015/09/14/colleges-that-report-meeting-full-financial-need

Solorzano, D., Ceja, M., & Yosso, T. (2000). Critical race theory, racial microaggressions, and campus racial climate: The experiences of African American college students. *Journal of Negro Education*, 69(1/2), 60-73.

Spady, J. (1970). Droputs from higher education: An interdisciplinary review and synthesis. *Interchange*, *1*, 64–85.

- Stebleton, M. J., Soria, K. M., & Huesman Jr, R. L. (2014). Recent immigrant students at research universities: The relationship between campus climate and sense of belonging. *Journal of College Student Development*, 55(2), 196–202.
- Strayhorn, T. L. (2012). College students' sense of belonging: A key to educational success for all students. New York, NY: Routledge.
- Sue, V. M., & Ritter, L. A. (2012). Conducting online surveys. Thousand Oaks, CA: Sage Publications.
- Tashakkori, A., & Teddlie, C. (Eds.). (2003). Handbook of mixed methods in social & behavioral research. Thousand Oaks, CA: Sage Publications.
- Tashakkori, A., & Teddlie, C. (2008). The evolution of mixed methods research. In V. L.Plano Clark & J. W. Creswell (Eds.), *The mixed methods reader* (pp. 7–26).Thousand Oaks, CA: Sage Publications.
- Task Force on Higher Education and Society. (2000). Higher education in developing countries: Peril and promise. Washington, DC: World Bank. Retrieved from http://www.tfhe.net/report/downloads/download\_report.htm.
- Teitelbaum, P. (2011). Trends in the education of underrepresented racial minority students. In L. Stulberg & S. Weinberg (Eds.), *Diversity in American higher education: Toward a more comprehensive approach* (pp. 108-116). New York, NY: Routledge.

The Pell Institute. (2015). Indicators of higher education equity in the United States: 45 year trend report. Retrieved from http://www.pellinstitute.org/downloads/publications-Indicators\_of\_Higher\_Education\_Equity\_in\_the\_US\_45\_Year\_Trend\_Report.pdf

- Tinto, V. (1975). Dropout from higher education. A theoretical synthesis of recent research. *Review of Educational Research*, *45*(10), 89-125.
- Tinto, V. (1993). Leaving college: Rethinking the causes and cures of student attrition(2nd ed). Chicago: IL: University of Chicago Press.
- Tinto, V. (2006). Research and practice of student retention: What's next? Journal of College Student Retention: Research, Theory and Practice, 8(1), 1–19.
- Titus, M. A. (2006). Understanding college degree completion of students with low socioeconomic status: The influence of the institutional financial context. *Research in Higher Education*, 47(4), 371–398.
- Tourangeau, R., Conrad, F. G., & Couper, M. (2013). *The science of web surveys*. New York, NY: Oxford University Press.
- U.S. Department of Education, Federal Student Aid. (2015). 2015-2016 EFC (Expected Family Contribution) Formula. Retrieved on October 17, 2015 from https://studentaid.ed.gov/sa/resources#efc
- U.S. Department of Education, Integrated Postsecondary Data System (IPEDS). (2013). Digest of Education Statistics, Table 331.20. Retrieved October 18, 2015 from http://nces.ed.gov/programs/digest/d14/tables/dt14\_331.20.asp
- U.S. Department of Education, National Center for Education Statistics (NCES). (2009). Education longitudinal study of 2002 (ELS: 2002), base year, second follow-up, and third follow-up. Retrieved from

http://nces.ed.gov/programs/coe/indicator\_tva.asp#f2

U.S. Department of Education, National Center for Education Statistics (NCES). (2013). 2011-2012 National Postsecondary Student Aid Study (NPSAS:12): Student *Financial Aid Estimates for 2011-12.* Retrieved on October 18, 2015 from https://nces.ed.gov/pubs2013/2013165.pdf

- U.S. Department of Education, National Center for Education Statistics (NCES). (2015a).
   *The condition of education 2015*. (NCES 2015-144). Institutional retention and graduation rates for undergraduate students. Retrieved from: http://nces.ed.gov/fastfacts/display.asp?id=40
- U.S. Department of Education, National Center for Education Statistics (NCES). (2015b).
   (NCES Table 326.20). Graduation rate from first institution attended within 150 percent of normal time for first-time, full-time, degree/certificate-seeking students at 2-year postsecondary institutions, by race/ethnicity, sex, and control of institution. Retrieved from:

http://nces.ed.gov/programs/digest/d14/tables/dt14\_326.20.asp

- U.S. Department of Education, National Center for Education Statistics (NCSE). (2015c). *The Condition of Education 2015* (NCES 2015-144), Annual Earnings of Young Adults.
- Walpole, M. (2003). Socioeconomic status and college: How SES affects college experiences and outcomes. *The Review of Higher Education*, *27*(1), 45–73.
- Wolf-Wendel, L., Ward, K., & Kinzie, J. (2009). A tangled web of terms: The overlap and unique contribution of involvement, engagement, and integration to understanding college student success. *Journal of College Student Development*, 50(4), 407–428.
- Zhang, L. (2005). Does quality pay? Benefits of attending a high-cost, prestigious college. New York, NY: Routledge.

# Appendix A

# Pinnacle Alliance - List of Benefits

Athletic Ticket Gold Pass – Funded through the Athletic Department, all Pinnacle Alliance-eligible students get a "Gold Pass" which entitles the holder to free entry into all regular season non-sellout home games in all sports

**Ticket Lottery** – When the available seating for home games exceeds the number of tickets awarded, the Athletic Department uses a tiered loyalty program to determine which students get priority access to oversold games. This typically happens with the most popular Men's Basketball and Men's Ice Hockey games. With the Pinnacle Alliance ticket lottery, PA students can enter to be considered for oversold games.

Beyond a lottery for athletic events, students can enter for chances to win free tickets to other social and cultural events held on campus such as comedy shows, dance performances, and ethnic club events.

**Frontier Fellowship** – PA students can apply for this fellowship which was designed to assist students in areas of co-curricular development such as on campus employment, career-focused internships, and research interests or independent studies. Funding can be used to cover the costs of housing and food during a summer internship or independent study. The fellowship can also be used to help pay for conference fees, or other costs associated with the internship or research interest.

213

Service Aid – Giving back to others is a large piece of the religious mission and a fundamental component of the Lakefield University experience. As a result, there are over one dozen service programs and projects offered to undergraduate students. However, "the call to serve does sometimes come with a cost" (Pinnacle Alliance, General Information, 2015). Recognizing that there are often financial barriers associated with volunteering, the PA offers service aid to help defray these costs. Service aid offered through the Alliance can cover the cost of the trip's initial deposit fee. Beyond this monetary benefit, recipients of any service aid are also required to meet in person with a PA staff member for guidance on service trips in general and to discuss strategies for fundraising whatever costs remain for the program. A few examples of these service trips are the Coronado Volunteers program, the Freshmen Leadership Project, and the Urban Initiative program. There are also international service options as well.

**Research and Scholarships** – Pinnacle Alliance students can also submit funding requests for a wide range of academic and co-curricular opportunities. The Alliance reviews all applications but not all requests are able to be granted. Academic-based requests include funding for conferences, travel, "or any other activity and/or program with which you feel with further your academic and personal aspirations" (Pinnacle Alliance, Research and Scholarships, 2015).

The Pinnacle Alliance may also provide funding for examination preparation courses including those for the GRE, LSAT, MCAT, MTEL, and NCLEX. Students can also apply for funding to cover the cost of actually sitting for these exams. The PA also has the ability to pay for EMT Training courses offered by Lakefield University. Finally,

214

PA students can apply for financial assistance to defray the cost of a summer program offered by the School of Management to non-management students. The Pinnacle Alliance has the ability to cover the full cost of this program.

**Student Initiated Requests -** In addition to these specific types of assistance, students may also submit requests concerning their specific needs. The Pinnacle Alliance has an online form that students must complete and then students must meet with an Alliance staff member to discuss the specifics of their request. Not all requests are granted, but the open-endedness of this option allows staff members to use their discretion to determine which requests are granted. Examples of previously granted requests include bus fare for a trip home between semesters, financial assistance for public transportation to participate in an internship, and assistance with paying for off-campus seminar fees.

**Individual Counseling Sessions** – PA students can meet with the Manager or one of the Graduate Assistants to discuss any specific issues they may be experiencing or any questions they may have. Typical areas of discussion include financial aid, housing, study abroad, and student employment

# Appendix B

# Initial Survey Invitation Email

Date to be sent: Wednesday April 20, 2016 Subject: Participate in LU Study for a Chance to win Visa Gift Cards!

Dear [student first name],

I am a Ph.D. candidate in the Lynch School of Education at Boston College, and my dissertation is on undergraduate students' experiences in co-curricular (out-of-class) activities at Lakefield University.

As part of my study, I am sending out a survey invitation to a sample of Lakefield University's undergraduate population. The survey should take approximately 8-10 minutes to complete and I would sincerely appreciate your help in completing the questions.

All participants will be given the opportunity to enter into a raffle for a chance to win one of five \$50 Visa gift cards.

# Follow this link to the survey: [insert URL]

Or copy and paste the URL below into your internet browser: [insert URL]

Follow this link to opt out of future emails: [insert unsubscribe link]

If you have any questions or concerns about this study, please contact me directly at <u>brian.swenson@bc.edu</u>. Thank you in advance for your participation.

Sincerely, Brian Swenson Doctoral Candidate in Higher Education Administration Boston College Lynch Graduate School of Education

# **Survey Reminder Email**

Date to be sent: Friday April 22, 2016 Subject: Still Time to Participate in LU Study for a Chance to win Visa Gift Cards!

Dear [student first name],

You still have an opportunity to participate in a study regarding your experiences in cocurricular (out-of-class) activities at Lakefield University.

I am a Ph.D. candidate in the Lynch School of Education at Boston College, and as part of my study, I am sending out a survey invitation to a sample of Lakefield University's undergraduate population. The survey should take approximately 8-10 minutes to complete and I would sincerely appreciate your help in completing the questions.

All participants will be given the opportunity to enter into a raffle for a chance to win one of five \$50 Visa gift cards.

# Follow this link to the survey: [insert URL]

Or copy and paste the URL below into your internet browser: [insert URL]

Follow this link to opt out of future emails: [insert unsubscribe link]

If you have any questions or concerns about this study, please contact me directly at <u>brian.swenson@bc.edu</u>. Thank you in advance for your participation.

Sincerely, Brian Swenson Doctoral Candidate in Higher Education Administration Boston College Lynch Graduate School of Education

# **Final Survey Reminder Email**

Date to be sent: Wednesday April 27, 2016 Subject: Final Chance to Participate in LU Study for a Chance to win Visa Gift Cards!

Dear [student first name],

This is your final chance to participate in a study regarding your experiences in cocurricular (out-of-class) activities at Lakefield University.

I am a Ph.D. candidate in the Lynch School of Education at Boston College, and as part of my study, I am sending out a survey invitation to a sample of Lakefield University's undergraduate population. The survey should take approximately 8-10 minutes to complete and I would sincerely appreciate your help in completing the questions.

All participants will be given the opportunity to enter into a raffle for a chance to win one of five \$50 Visa gift cards.

# Follow this link to the survey: [insert URL]

Or copy and paste the URL below into your internet browser: [insert URL]

Follow this link to opt out of future emails: [insert unsubscribe link]

If you have any questions or concerns about this study, please contact me directly at <u>brian.swenson@bc.edu</u>. Thank you in advance for your participation.

Sincerely, Brian Swenson Doctoral Candidate in Higher Education Administration Boston College Lynch Graduate School of Education

# Appendix C

# **Online Survey Questions**

# **Pinnacle Alliance Non-Participants**

Informed Consent Block

## BOSTON COLLEGE

#### Department of Education Leadership and Higher Education

Research Study: College Student Engagement: Removing the Costs of Full Participation for Low-Income Students Researcher Name: Brian Swenson

#### Project Consent Form for Online Survey

#### What is the research?

You have been asked to take part in a research study about college student engagement and the costs associated with participating in extracurricular (non-academic) activities. The purpose of this study is to better understand the challenges that college students may face in terms of being able to afford to participate in these types of programs and activities.

#### Why have I been asked to take part?

You are an undergraduate student at Lakefield University, where a program called the Pinnacle Alliance exists to assist students with high financial need in participating in these extracurricular activities. You are being asked to participate in this study to gain a better understanding of your encounters and experiences with outside-of-class activities.

If you agree to participate in Phase 1 of this study I will ask that you will:

Complete an online survey about your extracurricular experiences at Lakefield University. The survey should take
approximately 6-8 minutes to complete.

#### Voluntary Participation

- · Choosing to be in this study is voluntary.
- · If you do not take part, it will not affect your current or future relations with Lakefield University.
- · You may leave the study at any time for any reason.
- · You may skip any questions you do not want to answer at any time, for any reason.
- · The PI can withdraw a participant if there is a failure to comply with the study requirements.

#### Risks

There are no expected risks associated with this study, however it may include risks that are unknown at this time.

#### Benefits

- You will probably not get any direct benefit from participating in this study, but participants will have a chance to
  reflect on their extracurricular encounters and how they have shaped their overall experience at Lakefield
  University. This data may be helpful for informing policy decisions regarding programs that can facilitate
  extracurricular engagement.
- · The results of this study may be presented at conferences or in published articles.

#### Confidentiality:

- · Your privacy will be protected.
- In any sort of report I may publish, I will not include any information that will make it possible to identify you. Your
  name will not be used in any report that is published. Any reference to your identity will be through a pseudonym.
- Your survey answers will be linked to your demographic information contained in Lakefield University institutional databases.
- · All research data will be stored in a locked file cabinet
- Mainly just the researcher will have access to information; however, please note that a few other key people may
  also have access. These might include government agencies. Also, the Institutional Review Board at Boston
  College and internal Lakefield University auditors may review the research records.
- · The PI has been trained in CITI human subjects' certification

#### Payment

- · Survey participants will be chosen at random to receive one of five \$50 Visa gift cards.
- · Participants can still enter the raffle even if they choose to enter the survey early.

#### Cost

· There is no cost to you to participate in this research study.

#### Questions

The researcher conducting this study is Brian Swenson, a doctoral student in the Lynch School of Education at Boston College. For questions or more information concerning this research, you may contact him at 617-552-3154 or <a href="mailto:brian.swenson@bc.edu">brian.swenson@bc.edu</a> or you may contact the Dissertation Adviser, Dr. Ana Martinez-Aleman at <a href="mailto:ana.martinez-aleman@bc.edu">ana.martinez-aleman@bc.edu</a> or you may contact the Dissertation Adviser, Dr. Ana Martinez-Aleman at <a href="mailto:ana.martinez-aleman@bc.edu">ana.martinez-aleman@bc.edu</a>.

If you have any questions about your rights as a person in this research study, you may contact The Office for Research Protections of Boston College at (617) 552-4778, or <u>irb@bc.edu</u>.

The Boston College IRB has approved this protocol from May 2, 2016 - May 1, 2017.

## Print

I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.



E# and Education Block

What is your 8-digit Student ID number? (enter without dashes or spaces eg. 12345678. This is the first 8 digits on your ID card).



What is your gender identity?

- O Man
- O Woman
- Another gender identity

What is your racial or ethnic identity? (Select all that apply.)

- O American Indian or Alaska Native
- Asian
- O Black or African American
- O Hispanic or Latino
- O Native Hawaiian or Other Pacific Islander
- O White
- O Other

What is the highest level of education you ever expect to complete?

- O Some college, but less than a bachelor's degree
- O Bachelor's degree (B.A., B.S., etc.)
- O Master's degree (M.A., M.S., etc.)
- O Doctoral or professional degree (Ph.D., J.D., M.D., etc.)

What is the highest level of education completed by either of your parents (or those who raised you)?

- O Did not finish high school
- O High school diploma or G.E.D.
- O Attend college but did not complete degree
- O Associate's degree (A.A., A.S., etc.)
- O Bachelor's degree (B.A., B.S., etc.)
- O Master's degree (M.A., M.S., etc.)
- O Doctoral or professional degree (Ph.D., J.D., M.D., etc.)

### Engagement Block

## In your opinion, how much does Lakefield University emphasize the following?

	Very much	Quite a bit	Some	Very little
Spending significant amounts of time studying and on academic work	0	0	0	0
Proving support to help students succeed academically	0	0	0	0
Using learning support services (tutoring services, writing center, etc.)	0	0	0	0
Encouraging contact among students from different backgrounds (social, racial/ethnic, religious, etc.)	0	0	0	0
Providing opportunities to be involved socially	0	0	0	0
Providing support for your overall well-being (recreation, health care, counseling, etc.)	0	0	0	0
Helping you manage your non- academic responsibilities (work, family, etc.)	0	0	0	0
Attending campus activities and events (performing arts, athletic events, etc.)	0	0	0	0
Attending events that address important social, economic, and political issues	0	0	0	0

## Sense of Belonging

Please indicate the degree to which you agree or disagree with the following statements:

0		10
(strongly	5	(strongly

	disagree)	1	2	3	4	(neutral)	6	7	8	9	agree)
I feel a sense of belonging to Lakefield University	0	0	0	0	0	0	0	0	0	0	0
I feel that I am a member of the Lakefield University community	0	0	0	0	0	0	0	0	0	0	0
I see myself as part of the Lakefield University community	0	0	0	0	0	0	0	0	0	0	0

### Please indicate the likelihood of the following statement:

	Very unlikely	Unlikely	Likely	Very Likely
l will stay at Lakefield University until I graduate	0	0	0	0

#### Activities Block

What are the primary reason(s) that you have not participated in the LU Pinnacle Alliance?

Have you participated in any activities or received any benefits from the Learning Experience Office?

- 🗌 Yes
- No No

Which activities, events, or services sponsored by the Learning Experience Office have you participated in? (Check all that apply.)

- College Transition Program
- Graduate Mentor Program
- Sullivan Program
- Committed Individuals for Others
- Women Get Involved
- Advising (academic, financial aid, personal)

Laptop Loan program

Workshops	seminars	quest	sneakers/	lecturers
www.shops,	seminars,	guest	speakers/	lecturers

Other (please specify)

Have you participated in the Summer Bridge program?

0	Yes

O No

Have you participated in any activities or received any benefits from the AALANA Center?

O	Y	'es
-		

O No

Which activities, events, or services sponsored by the Thea Bowman AHANA and Intercultural Center have you participated in? (Check all that apply.)

- Benjamin Smith mentoring program
- Nursing student support (peer group meetings and meetings with nursing professionals)
- Summer study abroad tuition assistance
- Tuition assistance for summer classes at BC
- Community Research program
- Spiritual engagement and outreach
- Racial identify development experience (weekend retreats)
- SPARK Leadership program
- The Collaborative Institute
- Conversations on Race program
- Cultural Diversity Training
- Commitment to Equality program
- Counseling services (academic, financial aid, personal)

Other	(please	specify	)

Which of the following have you done during the past academic year (2015-2016)? (Check all that apply).

- Participated in an internship, co-op, field experience, student teaching, or clinical placement
- Held a formal leadership role in a student organization or group

- Participated in a study abroad program
- Worked with a faculty member on a research project

Completed a culminating senior experience (capstone course, senior project or thesis, comprehensive exam, portfolio,

Held a Resident Assistant position

etc.)

Were a member of a Division 1 (non-intramural) sports team

## About how many hours do you spend in the typical 7-day week doing the following?

Preparing for class (studying, reading, writing, doing homework or lab work, OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO	an 30 ours Week
Participating in co-curricular activities (organizations, campus publications, student O O O O O O O	0
government, intercollegiate or intramural sports, etc.)	0
Working for pay on campus O O O O O O O	0
Working for pay off campus O O O O O O O	0
Doing community service or OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO	0
Relaxing and socializing (tine with friends, video games, TV or videos, keeping up with friends online, etc.)	0
Providing care for dependents (children, parents, etc.)	0
Commuting to campus (driving, OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO	0

Approximately how many Lakefield University home games did you attend for Football, Men's Ice Hockey, and Men's Basketball combined in the last academic year (2015-2016)?

- O 0 games per year
- 0 1-5
- 0 6-10
- 0 11-15
- U 11-13
- O more than 15 games per year

# **Students Ineligible for Pinnacle Alliance**

Informed Consent Block

### BOSTON COLLEGE

#### Department of Education Leadership and Higher Education

Research Study: College Student Engagement: Removing the Costs of Full Participation for Low-Income Students Researcher Name: Brian Swenson

#### Project Consent Form for Online Survey

#### What is the research?

You have been asked to take part in a research study about college student engagement and the costs associated with participating in extracurricular (non-academic) activities. The purpose of this study is to better understand the challenges that college students may face in terms of being able to afford to participate in these types of programs and activities.

#### Why have I been asked to take part?

You are an undergraduate student at Lakefield University, where a program called the Pinnacle Alliance exists to assist students with high financial need in participating in these extracurricular activities. You are being asked to participate in this study to gain a better understanding of your encounters and experiences with outside-of-class activities.

If you agree to participate in Phase 1 of this study I will ask that you will:

Complete an online survey about your extracurricular experiences at Lakefield University. The survey should take
approximately 6-8 minutes to complete.

#### Voluntary Participation

- · Choosing to be in this study is voluntary.
- · If you do not take part, it will not affect your current or future relations with Lakefield University.
- · You may leave the study at any time for any reason.
- · You may skip any questions you do not want to answer at any time, for any reason.
- . The PI can withdraw a participant if there is a failure to comply with the study requirements.

#### Risks

· There are no expected risks associated with this study, however it may include risks that are unknown at this time.

#### Benefits

- You will probably not get any direct benefit from participating in this study, but participants will have a chance to
  reflect on their extracurricular encounters and how they have shaped their overall experience at Lakefield
  University. This data may be helpful for informing policy decisions regarding programs that can facilitate
  extracurricular engagement.
- · The results of this study may be presented at conferences or in published articles.

### Confidentiality:

- · Your privacy will be protected.
- In any sort of report I may publish, I will not include any information that will make it possible to identify you. Your
  name will not be used in any report that is published. Any reference to your identity will be through a pseudonym.
- Your survey answers will be linked to your demographic information contained in Lakefield University institutional databases.
- · All research data will be stored in a locked file cabinet
- Mainly just the researcher will have access to information; however, please note that a few other key people may
  also have access. These might include government agencies. Also, the Institutional Review Board at Boston
  College and internal Lakefield University auditors may review the research records.
- · The PI has been trained in CITI human subjects' certification

#### Payment

- · Survey participants will be chosen at random to receive one of five \$50 Visa gift cards.
- · Participants can still enter the raffle even if they choose to end the survey early.

#### Cost

· There is no cost to you to participate in this research study.

#### Questions

The researcher conducting this study is Brian Swenson, a doctoral student in the Lynch School of Education at Boston College. For questions or more information concerning this research, you may contact him at 617-552-3154 or <u>brian.swenson@bc.edu</u> or you may contact the Dissertation Adviser, Dr. Ana Martinez-Aleman at <u>ana.martinez-aleman@bc.edu</u>.

If you have any questions about your rights as a person in this research study, you may contact The Office for Research Protections of Boston College at (617) 552-4778, or irb@bc.edu.

The Boston College IRB has approved this protocol from May 2, 2016 - May 1, 2017.

Print

I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.

0	Yes
0	No

E# and Education Block

What is your 8-digit Student ID number? (enter without dashes or spaces eg. 12345678. This is the first 8 digits on your ID card).

What is your gender identity?

- O Man
- O Woman
- Another gender identity

What is your racial or ethnic identity? (Select all that apply).

- O American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- O Native Hawaiian or Other Pacific Islander
- O White
- O Other

What is the highest level of education you ever expect to complete?

- O Some college, but less than a bachelor's degree
- Bachelor's degree (B.A., B.S., etc.)
- Master's degree (M.A., M.S., etc.)
- O Doctoral or professional degree (Ph.D., J.D., M.D., etc.)

What is the highest level of education completed by either of your parents (or those who raised you)?

- O Did not finish high school
- O High school diploma or G.E.D.
- Attend college but did not complete degree
- O Associate's degree (A.A., A.S., etc.)
- O Bachelor's degree (B.A., B.S., etc.)
- Master's degree (M.A., M.S., etc.)
- O Doctoral or professional degree (Ph.D., J.D., M.D., etc.)

## Engagement Block

## In your opinion, how much does Lakefield University emphasize the following?

	Very much	Quite a bit	Some	Very little
Spending significant amounts of time studying and on academic work	0	0	0	0
Proving support to help students succeed academically	0	0	0	0
Using learning support services (tutoring services, writing center, etc.)	0	0	0	0
Encouraging contact among students from different backgrounds (social, racial/ethnic, religious, etc.)	0	0	0	0
Providing opportunities to be involved socially	0	0	0	0
Providing support for your overall well-being (recreation, health care, counseling, etc.)	0	0	0	0
Helping you manage your non- academic responsibilities (work, family, etc.)	0	0	0	0
Attending campus activities and events (performing arts, athletic events, etc.)	0	0	0	0
Attending events that address important social, economic, and political issues	0	0	0	0

### Sense of Belonging

Please indicate the degree to which you agree or disagree with the following statements:

0		10
(strongly	5	(strongly

	disagree)	1	2	3	4	(neutral)	6	7	8	9	agree)
I feel a sense of belonging to Lakefield University	0	0	0	0	0	0	0	0	0	0	0
I feel that I am a member of the Lakefield University community	0	0	0	0	0	0	0	0	0	0	0
I see myself as part of the Lakefield University community	0	0	0	0	0	0	0	0	0	0	0

## Please indicate the likelihood of the following statement:

	Very unlikely	Unlikely	Likely	Very Likely
l will stay at Lakefield University until I graduate	0	0	0	0

What are the key things that make you feel connected to Lakefield University?

## Activities Block

Have you participated in any activities or received any benefits from the Learning Experience Office?

Yes

No No

Which activities, events, or services sponsored by the Learning Experience Office have you participated in? (Check all that apply.)

- College Transition Program
- Graduate Mentor Program
- Sullivan Program
- Committed Individuals for Others
- Women Get Involved
- Advising (academic, financial aid, personal)

Laptop	Loan	program

Workshops, seminars, guest speakers/lecturers

Other (please specify)

Have you participated in the Summer Bridge program?

Ο	Yes
-	

O No

Have you participated in any activities or received any benefits from the AALANA Center?

O Yes
-------

O No

Which activities, events, or services sponsored by the AALANA Center have you participated in? (Check all that apply.)

- Benjamin Smith mentoring program
- Nursing student support (peer group meetings and meetings with nursing professionals)
- Summer study abroad tuition assistance
- Tuition assistance for summer classes at LU
- Community Research program
- Spiritual engagement and outreach
- Racial identify development experience (weekend retreats)
- SPARK Leadership program
- The Collaboration Initiative
- Conversations on Race program
- Cultural Diversity Training
- Commitment to Equality program
- Counseling services (academic, financial aid, personal)
- Other (please specify)

Which of the following have you done during the past academic year (2015-2016)? (Check all that apply).

- Participated in an internship, co-op, field experience, student teaching, or clinical placement
- Held a formal leadership role in a student organization or group

- Participated in a study abroad program
- Worked with a faculty member on a research project
- Completed a culminating senior experience (capstone course, senior project or thesis, comprehensive exam, portfolio,
- Held a Resident Assistant position

etc.)

Were a member of a Division 1 (non-intramural) sports team

## About how many hours do you spend in the typical 7-day week doing the following?

	0 hours per week	1-5	6-10	11-15	16-20	21-25	26-30	More than 30 hours per week
Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	0	0	0	0	0	0	0	0
Participating in co-curricular activities (organizations, campus publications, student government, intercollegiate or intramural sports, etc.)	0	0	0	0	0	0	0	0
Working for pay on campus	0	0	0	0	0	0	0	0
Working for pay off campus	0	0	0	0	0	0	0	0
Doing community service or volunteer work	0	0	0	0	0	0	0	0
Relaxing and socializing (tine with friends, video games, TV or videos, keeping up with friends online, etc.)	0	0	0	0	0	0	0	0
Providing care for dependents (children, parents, etc.)	0	0	0	0	0	0	0	0
Commuting to campus (driving, walking, etc.)	0	0	0	0	0	0	0	0

Approximately how many Lakefield University home games did you attend for Football, Men's Ice Hockey, and Men's Basketball combined during the last academic year (2015-2016)?

- O 0 games per year
- O 1-5
- O 6-10
- O 11-15
- O more than 15 games per year

# **Pinnacle Alliance Participants**

Informed Consent Block

#### BOSTON COLLEGE

#### Department of Education Leadership and Higher Education

Research Study: College Student Engagement: Removing the Costs of Full Participation for Low-Income Students Researcher Name: Brian Swenson

#### Project Consent Form for Online Survey

#### What is the research?

You have been asked to take part in a research study about college student engagement and the costs associated with participating in extracurricular (non-academic) activities. The purpose of this study is to better understand the challenges that college students may face in terms of being able to afford to participate in these types of programs and activities.

#### Why have I been asked to take part?

You are an undergraduate student at Lakefield University, where a program called the Pinnacle Alliance exists to assist students with high financial need in participating in these extracurricular activities. You are being asked to participate in this study to gain a better understanding of your encounters and experiences with outside-of-class activities.

If you agree to participate in Phase 1 of this study I will ask that you will:

Complete an online survey about your extracurricular experiences at Lakefield University. The survey should take approximately 6-8 minutes to complete.

#### Voluntary Participation

- · Choosing to be in this study is voluntary.
- · If you do not take part, it will not affect your current or future relations with Lakefield University.
- · You may leave the study at any time for any reason.
- · You may skip any questions you do not want to answer at any time, for any reason.
- · The PI can withdraw a participant if there is a failure to comply with the study requirements.

#### Risks

· There are no expected risks associated with this study, however it may include risks that are unknown at this time.

#### Benefits

You will probably not get any direct benefit from participating in this study, but participants will have a chance to
reflect on their extracurricular encounters and how they have shaped their overall experience at Lakefield

University. This data may be helpful for informing policy decisions regarding programs that can facilitate extracurricular engagement.

· The results of this study may be presented at conferences or in published articles.

## Confidentiality:

- · Your privacy will be protected.
- In any sort of report I may publish, I will not include any information that will make it possible to identify you. Your
  name will not be used in any report that is published. Any reference to your identity will be through a pseudonym.
- Your survey answers will be linked to your demographic information contained in Lakefield University institutional databases.
- All research data will be stored in a locked file cabinet
- Mainly just the researcher will have access to information; however, please note that a few other key people may
  also have access. These might include government agencies. Also, the Institutional Review Board at Boston
  College and internal Lakefield University auditors may review the research records.
- · The PI has been trained in CITI human subjects' certification

#### Payment

- · Survey participants will be chosen at random to receive one of five \$50 Visa gift cards.
- · Participants can still enter the raffle even if they choose to end the survey early.

#### Cost

· There is no cost to you to participate in this research study.

#### Questions

The researcher conducting this study is Brian Swenson, a doctoral student in the Lynch School of Education at Boston College. For questions or more information concerning this research, you may contact him at 617-552-3154 or <u>brian.swenson@bc.edu</u> or you may contact the Dissertation Adviser, Dr. Ana Martinez-Aleman at <u>ana.martinez-aleman@bc.edu</u>.

If you have any questions about your rights as a person in this research study, you may contact The Office for Research Protections of Boston College at (617) 552-4778, or introducedu.

The Boston College IRB has approved this protocol from May 2, 2016 - May 1, 2017

### Print

I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.

0	Yes
0	No

E# and Education Block

What is your 8-digit Student ID number? (enter without dashes or spaces eg. 12345678. This is the first 8 digits on your ID card)

What is your gender identity?

O Man

- O Woman
- Another gender identity

What is your racial or ethnic identity? (Select all that apply.)

- O American Indian or Alaska Native
- O Asian
- Black or African American
- Hispanic or Latino
- O Native Hawaiian or Other Pacific Islander
- O White
- O Other

What is the highest level of education you ever expect to complete?

- O Some college, but less than a bachelor's degree
- Bachelor's degree (B.A., B.S., etc.)
- Master's degree (M.A., M.S., etc.)
- O Doctoral or professional degree (Ph.D., J.D., M.D., etc.)

What is the highest level of education completed by either of your parents (or those who raised you)?

- O Did not finish high school
- High school diploma or G.E.D.
- Attend college but did not complete degree

- Associate's degree (A.A., A.S., etc.)
- O Bachelor's degree (B.A., B.S., etc.)
- Master's degree (M.A., M.S., etc.)
- O Doctoral or professional degree (Ph.D., J.D., M.D., etc.)

#### Engagement Block

### In your opinion, how much does Lakefield University emphasize the following?

	Very much	Quite a bit	Some	Very little
Spending significant amounts of time studying and on academic work	0	0	0	0
Proving support to help students succeed academically	0	0	0	0
Using learning support services (tutoring services, writing center, etc.)	0	0	Ο	0
Encouraging contact among students from different backgrounds (social, racial/ethnic, religious, etc.)	0	0	Ο	0
Providing opportunities to be involved socially	0	0	0	0
Providing support for your overall well-being (recreation, health care, counseling, etc.)	0	0	Ο	0
Helping you manage your non- academic responsibilities (work, family, etc.)	0	0	Ο	0
Attending campus activities and events (performing arts, athletic events, etc.)	0	0	0	0
Attending events that address important social, economic, and political issues	0	0	0	0

#### Montserrat Block

Which of the following services offered by the Pinnacle Alliance have you used during your time at Lakefield University? (Check all that apply.)

- I have not participated in the Pinnacle Alliance
- Counseling services (advice on financial aid, housing, study abroad, employment, etc.)
- Ticket lottery to sporting events
- Ticket lottery to social events (cultural events, homecoming, fall/spring concerts, etc.)

- Financial support for service trips/retreats
- Financial support for exam preparation courses or exam test fees (GRE, LSAT, MTEL, etc.)
- Explorer Fellowship
- Textbook Loan Program
- Funding for Metro Passes
- Gift card for groceries
- Clothing/personal items (coat, shoes/boots, eye glasses/contact lenses
- Other (please specify)

Please select the Pinnacle Alliance benefit that is most important to you from the drop down list

Please select the Pinnacle Alliance benefit that is second most important to you from the drop down list

v.

v

Ŧ

Please select the Pinnacle Alliance benefit that is third most important to you from the drop down list

What has been the most important benefit of the Pinnacle Alliance that you have received?

Sense of Belonging

Please indicate the degree to which you agree or disagree with the following statements:

0										10
(strongly					5					(strongly
disagree)	1	2	3	4	(neutral)	6	7	8	9	agree)

I feel a sense of

belonging to Lakefield University	0	0	0	0	0	0	0	0	0	0	0
I feel that I am a member of the Lakefield University community	0	0	0	0	0	0	0	0	0	0	0
I see myself as part of the Lakefield University community	0	0	0	0	0	0	0	0	0	0	0

## Please indicate the likelihood of the following statement:

	Very unlikely	Unlikely	Likely	Very Likely
l will stay at Lakefield University until I graduate	0	0	0	0

Activities Block

Have you participated in any activities or received any benefits from the Learning Experience Office?

- Yes
- No No

Which activities, events, or services sponsored by the Learning to Learn Office have you participated in? (Check all that apply.)

- College Transition Program
- Graduate Mentor Program
- Sullivan Program
- Committed Individuals for Others
- Women Get Involved
- Advising (academic, financial aid, personal)
- Laptop Loan program
- Workshops, seminars, guest speakers/lecturers

	Other (please specify)	
--	------------------------	--

Have you participated in the Summer Bridge program?

О	Yes
0	No

\_
Have you participated in any activities or received any benefits from the AALANA Center?

Ο	Yes
0	No

Which activities, events, or services sponsored by the AALANA Center have you participated in? (Check all that apply.)

- Benjamin Smith mentoring program
- Nursing student support (peer group meetings and meetings with nursing professionals)
- Summer study abroad tuition assistance
- Tuition assistance for summer classes at BC
- Community Research program
- Spiritual engagement and outreach
- Racial identify development experience (weekend retreats)
- SPARK Leadership program
- The Collaborative Institute
- Conversations on Race program
- Cultural DiversityTraining
- Commitment to Equality program
- Counseling services (academic, financial aid, personal)
- Other (please specify)

Which of the following have you done during the past academic year (2015-2016)? (Check all that apply)

- Participated in an internship, co-op, field experience, student teaching, or clinical placement
- Held a formal leadership role in a student organization or group
- Participated in a study abroad program
- Worked with a faculty member on a research project
- Completed a culminating senior experience (capstone course, senior project or thesis, comprehensive exam, portfolio, etc.)
- Held a Resident Assistant position
- Were a member of a Division 1 (non-intramural) sports team

About how many hours do you spend in the typical 7-day week doing the following?

More than 30

	0 hours per week	1-5	6-10	11-15	16-20	21-25	26-30	hours per week
Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	0	0	0	0	0	0	0	0
Participating in co-curricular activities (organizations, campus publications, student government, intercollegiate or intramural sports, etc.)	0	0	0	0	0	0	0	0
Working for pay on campus	0	0	0	0	0	0	0	0
Working for pay off campus	0	0	0	0	0	0	0	0
Doing community service or volunteer work	0	0	0	0	0	0	0	0
Relaxing and socializing (tine with friends, video games, TV or videos, keeping up with friends online, etc.)	0	0	0	0	0	0	0	0
Providing care for dependents (children, parents, etc.)	0	0	0	0	0	0	0	0
Commuting to campus (driving, walking, etc.)	0	0	0	0	0	0	0	0

Approximately how many Lakefield University home games did you attend for Football, Men's Ice Hockey, and Men's Basketball combined in the last academic year (2015-2016)?

- O games per year
- O 1-5
- O 6-10
- 0 11-15
- O more than 15 games per year

#### **Raffle Entry Survey**

#### **Default Question Block**

Thank you for completing the survey. Would you like to enter the raffle for a chance to win a \$50 Visa gift card?

O Yes

O No

Please enter your Student ID number below. (Enter without dashes or spaces)

Enter your first name

Enter your last name

Enter your email address

#### Appendix D

#### Focus Group Protocols

The goal of this study is to understand if and how a targeted intervention program has affected low-income college students' engagement levels by increasing access to cocurricular activities. These focus groups will enable quantitative data from the initial online surveys to be triangulated and contextualized. In addition, early focus group data can be substantiated and confirmed (or refuted) via subsequent focus groups. The focus groups will allow students to respond directly, and in their own words to the themes that the research has identified from online survey data

#### **Objective:**

- To triangulate the findings and themes from the online survey pertaining to students' feeling of belonging and feelings concerning the supportiveness of Lakefield University.
- To validate findings, or to identify and examine findings that pose as outliers based on initial quantitative survey results.
- To put the survey results in the context of what they means for students, in the words of students themselves.

#### Logistics:

• The researcher will schedule and facilitate focus group interviews with 4-10 students per focus group. There will be two sets of groups. The first group will be comprised of students who actively participated in the Pinnacle Alliance. The second group will be comprised of students who were eligible for the Pinnacle Alliance but chose not to participate.

- Two focus groups per set will be conducted in order to reach data saturation. The goal is for consistent themes to emerge for each set of groups.
- For the PA-participating groups, a purposive sample will be obtained through coordination with the PA office. Students who have received the most benefits and been the most active with the PA will be targeted for this set of focus groups.
- For PA-non-participating students, a random sampling technique will be used.
- Focus groups will ideally take place in late September and October of 2016.
   Focus groups will last approximately 60 minutes and will take place in a private conference room.
- Focus group interviews will be audio recorded and saved by the date and number of the focus group (i.e. 09-28-16 PA-Participate-1). Recordings will be destroyed upon transcription.

#### Focus Group Agenda:

- Welcome
- Review agenda, informed consent and purpose of the focus group
- Identify use of recorder and sign informed consent forms
- Introductions and selection of pseudonyms
- Focus group questions (based off of findings from online survey)
- Wrap up, thank you, and distribution of gift cards

#### **Focus Group Protocol:**

Students will first be asked to talk about what they find most beneficial about participation in the Pinnacle Alliance. Then students will be asked a series of questions about the particular benefits of the Pinnacle Alliance from their own perspective so that the voices of the students can be incorporated in order to contextualize the quantitative survey results. Students who were eligible for the Pinnacle Alliance but chose to not participate will be asked a series of questions about why they did not participate.

#### **PA Non-Participating Focus Group Protocol**

#### Hi Everyone,

Thanks for taking the time out of your busy schedule to meet today. As I mentioned, whatever we discuss in this room will be kept confidential. Any writing I do as a result of this focus group will anonymize all of your information, so please feel comfortable to speak freely. I also ask that we each respect each other's privacy and that whatever we discuss today will be kept in this room.

My dissertation is about the Pinnacle. Last spring, I sent out a survey that many of you took – thank you again for your participation. It was designed to see how big of an impact the PA is having on getting students more involved in social activities at LU.

So to start off, I'd like to talk about your connection with the LU community [SOB Questions]

How do you feel like you are part of the LU campus community?

- Are there any sub-groups within the LU community that you feel more connected to than the overall LU community?
  - $\circ$  Which ones + why?

• How do you know?

How do you feel like you are valued by Lakefield University?

• How do you know – can you give me some examples?

If you had to rate on a 1-10 scale (10 = feeling like you 100% belong) how much you feel like you belong at LU, what would that be?

- What factors have contributed to that rating? (academic, friends, social)
- Where do you go for support?

To transition a little, I'd like to talk about what you think a "typical" Lakefield student is?

- What sort of things do they do what activities?
- How expensive are these activities?
- Have *you* needed to forgo some things in order to participate in others? For example, did you have to decide to skip the fall concert in order to be able to attend the Homecoming dance?

How did it make you feel that you couldn't participate in all the activities you wanted to?

- Which activities/events did you choose to spend money on over other activities/events?
- Why did you choose to do ABC and not do XYZ?
- Why are taking part in these activities/events important to you?
  - Does it influence your overall experience at LU?
  - Do you feel more engaged/involved by participating?

- Does it make you feel like you are more valued or 'fit in' more by attending?
- Does it make you feel like more of a 'typical' LU student?
- Is attending these events expected of LU students?

The Pinnacle Alliance is a program at LU that was designed to increase access to lots of these extra-curricular activities on campus that cost money. Many students are not able to afford to participate in these activities (like Homecoming or the AALANA Ball) because they are so expensive. The PA helps students in this situation by offering free or reduced cost tickets to many of these events and activities (among other things).

To me the PA seems like a great opportunity to be able to go to a lot of shows and events that I know I would not have been able to afford back when I was an undergrad. But many of you have not actively participated – can you help me understand why not?

[After initial answers prompt for more details. Stats seem to suggest 4 main reasons (no time, no interest, did not know about PA, social stigma)].

- How did you find out about the PA?
  - What made you decide not to participate? [Ask this if I did not get specific details from prior question]
  - What is your overall perception of the PA?

- Some survey respondents indicated that there's a social stigma associated with being a PA student can you talk to me a little more about that?
  - How does it make you feel if someone knows you are an Pinnacle Alliance student?
  - How do other students know someone is a PA student?

In closing, is there anything else you'd like to add in regards to the Pinnacle Alliance? Any closing remarks? Anything that you'd like the PA office to consider for the future that would make you more likely to participate?

#### **PA-Participating Focus Group Protocol**

#### Hi Everyone,

Thanks for taking the time out of your busy schedule to meet today. As I mentioned, whatever we discuss in this room will be kept confidential. Any writing I do as a result of this focus group will anonymize all of your information, so please feel comfortable to speak freely. I also ask that we each respect each other's privacy and that whatever we discuss today will be kept in this room.

My dissertation is about the Pinnacle Alliance. Last spring, I sent out a survey that many of you took – thank you again for your participation. It was designed to see how big of an impact the PA is having on getting students more involved in social activities at LU. I've done most of my statistical analysis over the summer, and the stats say that PA isn't really having a very big impact.

BUT... I had a write-in section on the survey that you took, and most students who participated in the MC said it *did* make a difference.

### Can you help me to understand how you think the PA did or did not make a difference in terms of your involvement in campus activities?

#### [SOB Questions]

How do you feel like you are part of the Lakefield campus community?

- Are there any sub-groups within the LU community that you feel more connected to than the overall LU community?
  - $\circ$  Which ones + why?
  - How do you know?

How do you feel like you are valued by LU?

• How do you know – can you give me some examples?

If you had to rate on a 1-10 scale (10 = feeling like you 100% belong) how much you feel like you belong at Lakefield, what would that be?

- What factors have contributed to that rating? (academic, friends, social)
- Where do you go for support?

To transition a little, I'd like to talk about what you think a "typical" LU student is?

- What sort of things do they do what activities?
- How expensive are these activities?
- Have *you* needed to forgo some things in order to participate in others? For example, did you have to decide to skip the fall concert in order to be able to attend the Homecoming dance?

How did it make you feel that you couldn't participate in all the activities you wanted to?

How does the PA make you feel like you are more a part of the LU community?

• What does it mean to you to "belong" to the LU community?

• What are some of the barriers that prevent you from feeling that you belong at LU?

Were there activities/events that you were you able to do that you would not have been able to without the Pinnacle Alliance?

- Which ones?
- Why are taking part in these activities/events important?
  - Does it influence your overall experience at LU? .
  - Do you feel more engaged/involved by participating?
  - Does it make you feel like you are more valued or 'fit in' more by attending?
  - Does it make you feel like more of a 'typical' LU student?
  - Is attending these events expected of LU students?

Which benefits of the PA do you think are the most important or most valuable?

- Why do you say that? [How come?]
- What specifically about XYZ makes it valuable or important to you?
- And how else have you interacted with the PA office?
  - After initial responses, prompt for other areas of interaction beyond just free tickets if that's all that students mention.

Finally, is there anything else you'd like to add in regards to the Pinnacle Alliance? Any closing remarks? Anything that you'd like the PA office to consider for the future?

Appendix E

Focus Group Consent Form



#### **BOSTON COLLEGE** Department of Education Leadership and Higher Education

**Research Study:** College Student Engagement: Removing the Costs of Full Participation for Low-Income Students **Researcher Name:** Brian Swenson

#### **Project Consent Form**

#### What is the research?

You have been asked to take part in a research study about college student engagement and the costs associated with participating in extracurricular (non-academic) activities. The purpose of this study is to better understand the challenges that college students may face in terms of being able to afford to participate in these types of programs and activities.

#### Why have I been asked to take part?

You are an undergraduate student at Lakefield University, where a program called the Pinnacle Alliance exists to assist students with high financial need in participating in these extracurricular activities You are being asked to participate in this study to gain a better understanding of your encounters and experiences with outside-of-class activities.

If you agree to participate in this study I will ask that you will:

• Participate in a focus group to discuss your experiences with the Pinnacle Alliance and your opinions about the program. The focus group will last no longer than 75 minutes. **The focus group will be audio recorded.** 

#### **Voluntary Participation**

- Choosing to be in this study is voluntary.
- If you do not take part, it will not affect your current or future relations with Lakefield University.
- You may leave the study at any time for any reason.
- You may skip any questions you do not want to answer at any time, for any reason.

- You may ask to turn off the audio recording of the focus group at any time, for any reason.
- The researcher can withdraw a participant if there is a failure to comply with the study requirements.

#### Risks

- There are no expected risks associated with this study, however it may include risks that are unknown at this time.
- Anonymity cannot be guaranteed during the focus group portion of this study, but every attempt will be made to maintain the confidentiality of individual's responses.

#### Benefits

- Participants will have a chance to reflect on their extracurricular encounters and how they have shaped their overall experience at Lakefield University. This data may be helpful for informing policy decisions regarding programs that can facilitate extracurricular engagement.
- The results of this study may be presented at conferences or in published articles.

#### **Confidentiality:**

- Your privacy will be protected.
- In any sort of report I may publish, I will not include any information that will make it possible to identify you. Your name will not be used in any report that is published. Any reference to your identity will be through a pseudonym.
- All research data will be stored in a locked file cabinet
- The audio recordings will be stored on a thumb drive which will also be kept in a locked file cabinet. The audio recordings of the focus groups will be destroyed after the data has been analyzed.
- Mainly just the researcher will have access to information; however, please note that a few other key people may also have access. These might include government agencies. Also, the Institutional Review Board at Boston College and internal Boston College auditors may review the research records.
- The researcher holds a CITI human subjects' certification

#### Payment

• Each of the focus group participants will be served dinner during our meeting, along with a \$5 restaurant gift card.

#### Cost

• There is no cost to you to participate in this research study.

#### **Audiotape Permission**

- I have been told that the focus groups will be tape recorded only if I agree.
- I have been told that I can state that I don't want the discussion to be taped and it will not be. I can ask that the tape be turned off at any time.

I agree to be audio taped \_\_\_\_\_ Yes \_\_\_\_\_ No

#### Questions

The researcher conducting this study is Brian Swenson. For questions or more information concerning this research, you may contact him at 617-552-3154 or <u>brian.swenson@bc.edu</u> or you may contact the Dissertation Adviser, Dr. Ana Martinez-Aleman at <u>ana.martinez-aleman@bc.edu</u>.

If you have any questions about your rights as a person in this research study, you may contact the Office for Research Protections of Boston College at (617) 552-4778, or irb@bc.edu

#### **Statement of Consent**

I have read (or have had read to me) the contents of this consent form. I have been encouraged to ask questions. I have received answers to my questions. I have received (or will receive) a copy of this form. I have indicated my choice on whether to participate in this study below.

Please print your name below and check yes or no if you want/do not want to participate in this study. Please sign your name at the bottom.

NAME

Yes, I would like to take part in this study.

\_\_\_\_\_No, I would not like to take part in this study.

SIGNATURE

DATE

#### Appendix F

#### ANOVA and Chi-Square Test

#### **Chi-Square Tests**

A series of chi-square tests to examine the differences across the categorical variables of this study between the three groups of PA students were performed These variables were gender, race, class level, students' expected highest level of education, parents' highest level of education, ALAANA participation, and Learning Experience participation.

		8						
		Cases						
	Valid		Mis	sing	Total			
	N	Percent	N	N Percent		Percent		
Pinnacle Alliance status * Gender	582	100.0%	0	0.0%	582	100.0%		
Pinnacle Alliance status * Race/Ethnicity	582	100.0%	0	0.0%	582	100.0%		
Pinnacle Alliance status * Student's expected highest level of education	582	100.0%	0	0.0%	582	100.0%		
Pinnacle Alliance status * Parent's highest level of education	582	100.0%	0	0.0%	582	100.0%		
Pinnacle Alliance status * Class level	582	100.0%	0	0.0%	582	100.0%		
Pinnacle Alliance status * Learning Experience Participation	582	100.0%	0	0.0%	582	100.0%		
Pinnacle Alliance status * AALANA participation	582	100.0%	0	0.0%	582	100.0%		

Case Processing Summary

#### **Results for Gender variable**

#### Crosstab Gender Male Female Total Pinnacle PA non-Count 59 90 149 Alliance status participating % within 39.6% 60.4% 100.0% Pinnacle Alliance status PA-ineligible 199 69 130 Count % within 65.3% 34.7% 100.0% Pinnacle Alliance status PA-participating 77 234 Count 157 32.9% % within 67.1% 100.0% Pinnacle Alliance status Total Count 205 377 582 % within 35.2% 64.8% 100.0% Pinnacle Alliance status

			Asymp. Sig.
	Value	df	(2-sided)
Pearson Chi-	1.826 <sup>a</sup>	2	.401
Square			
Likelihood Ratio	1.811	2	.404
Linear-by-Linear	1.683	1	.195
Association			
N of Valid Cases	582		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 52.48.

#### Interpretation of above tables:

The chi-square test was non-significant (p>0.05); therefore, there is no statistically significant difference in gender distribution between the 3 PA groups.

#### **Results for Race/Ethnicity variable**

Crosstab					
			Race/	Ethnicity	
			White	Non-White	Total
Pinnacle	PA non-	Count	45	104	149
Alliance status	participating	% within	30.2%	69.8%	100.0%
		Pinnacle			
		Alliance status			
	PA-ineligible	Count	141	58	199
		% within	70.9%	29.1%	100.0%
		Pinnacle			
		Alliance status			
	PA-participating	Count	60	174	234
		% within	25.6%	74.4%	100.0%
		Pinnacle			
		Alliance status			
Total		Count	246	336	582
		% within	42.3%	57.7%	100.0%
		Pinnacle			
		Alliance status			

#### Chi-Square Tests

			Asymp. Sig.
	Value	df	(2-sided)
Pearson Chi-	102.042 <sup>a</sup>	2	.000
Square			
Likelihood Ratio	103.715	2	.000
Linear-by-Linear	4.835	1	.028
Association			
N of Valid Cases	582		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 62.98.

#### Interpretation of above tables:

The chi-square test was statistically significant (p<0.001), indicating there is a statistically significant difference in race/ethnicity between the 3 PA groups. This result was expected since ineligible students were predominantly (70.9%) white, and there is a high correlation between income – which derives PA status - and race/ethnicity.

#### Results for student's expected highest level of education variable

			Student's expected highest level of education					
			Some college	Bachelor's degree	Master's degree	Doctoral/pr ofessional degree	Total	
Pinnacle	PA non-	Count	6	36	60	47	149	
Alliance status	participating	% within Pinnacle Alliance status	4.0%	24.2%	40.3%	31.5%	100.0%	
	PA-ineligible	Count	19	34	90	56	199	
		% within Pinnacle Alliance status	9.5%	17.1%	45.2%	28.1%	100.0%	
	PA-	Count	16	42	93	83	234	
	participating	% within Pinnacle Alliance status	6.8%	17.9%	39.7%	35.5%	100.0%	
Total		Count	41	112	243	186	582	
		% within Pinnacle Alliance status	7.0%	19.2%	41.8%	32.0%	100.0%	

#### Chi-Square Tests

			Asymp. Sig.
	Value	df	(2-sided)
Pearson Chi-	8.967ª	6	.175
Square			
Likelihood Ratio	9.022	6	.172
Linear-by-Linear	.423	1	.515
Association			
N of Valid Cases	582		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.50.

#### **Interpretation of above tables:**

The chi-square test was non-significant (p>0.05); therefore, there is no statistically significant difference in the distribution of student's highest expected level of education between the 3 PA groups.

#### Results for parent's highest level of education variable

#### Crosstab

				Р	arent's hig	hest level o	of educatio	n		
					Attend college				Doctoral	
			Did not finish high school	High school diploma or GED	but did not complet e	Associat e's degree	Bachelo r's degree	Master's degree	or professi onal degree	Total
Pinnacle	PA non-	Count	5	30	15	7	50	35	7	149
Alliance status	participati ng	% within Pinnacle Alliance status	3.4%	20.1%	10.1%	4.7%	33.6%	23.5%	4.7%	100.0 %
	PA-	Count	0	5	7	6	65	67	49	199
	ineligible	% within Pinnacle Alliance status	0.0%	2.5%	3.5%	3.0%	32.7%	33.7%	24.6%	100.0 %
	PA-	Count	31	50	30	15	56	38	14	234
	participati ng	% within Pinnacle Alliance status	13.2%	21.4%	12.8%	6.4%	23.9%	16.2%	6.0%	100.0 %
Total		Count	36	85	52	28	171	140	70	582
		% within Pinnacle Alliance status	6.2%	14.6%	8.9%	4.8%	29.4%	24.1%	12.0%	100.0 %

#### Chi-Square Tests

			Asymp. Sig.
	Value	df	(2-sided)
Pearson Chi-	134.363ª	12	.000
Square			
Likelihood Ratio	150.793	12	.000
Linear-by-Linear	18.266	1	.000
Association			
N of Valid Cases	582		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.17.

#### Interpretation of above tables:

The results of this chi-square test are inconclusive because each cell of a chisquare test must have more than 5 cases in order for it to be valid. The data above does not conform to this requirement; therefore the results cannot be interpreted. However, based on the literature it would be expected that PA ineligible students (higher income) had parents with a statistically significant difference in education levels, as wealthier individuals tend to be more educated. The distribution of educational levels in this study seem to conform to this trend as well, with 33.7% of PA-ineligible students' parents holding a Master's degree and 24.6% holding a doctoral degree, although again, the statistical significance of this difference cannot be determined.

Crosstab								
				Class	level			
			Freshma	Sophomor			Othe	
			n	e	Junior	Senior	r	Total
Pinnacle	PA non-	Count	22	35	45	47	0	149
Alliance	participating	% within	14.8%	23.5%	30.2%	31.5%	0.0%	100.0%
status		Pinnacle						
		Alliance						
		status						
	PA-	Count	50	42	56	51	0	199
	ineligible	% within	25.1%	21.1%	28.1%	25.6%	0.0%	100.0%
		Pinnacle						
		Alliance						
		status						
	PA-	Count	53	49	61	70	1	234
	participating	% within	22.6%	20.9%	26.1%	29.9%	0.4%	100.0%
		Pinnacle						
		Alliance						
		status						
Total		Count	125	126	162	168	1	582
		% within	21.5%	21.6%	27.8%	28.9%	0.2%	100.0%
		Pinnacle						
		Alliance						
		status						

#### Results for class level variable

Chi-Square Tests

			Asymp. Sig.
	Value	df	(2-sided)
Pearson Chi-	8.061ª	8	.428
Square			
Likelihood Ratio	8.727	8	.366
Linear-by-Linear	.946	1	.331
Association			
N of Valid Cases	582		

a. 3 cells (20.0%) have expected count less than 5. The minimum expected count is .26.

#### Interpretation of above tables:

The chi-square test was non-significant (p>0.05); therefore, there is no statistically significant difference in the distribution of class level between the 3 PA groups.

#### **Results for Learning Experience participation variable**

Crosstab

			Learning Experience Participation			
				Yes		
			No	(participated)	Total	
Pinnacle	PA non-	Count	113	36	149	
Alliance status	participating	% within	75.8%	24.2%	100.0%	
		Pinnacle				
		Alliance status				
	PA-ineligible	Count	190	9	199	
		% within	95.5%	4.5%	100.0%	
		Pinnacle				
		Alliance status				
	PA-	Count	141	93	234	
	participating	% within	60.3%	39.7%	100.0%	
		Pinnacle				
		Alliance status				
Total		Count	444	138	582	
		% within	76.3%	23.7%	100.0%	
		Pinnacle				
		Alliance status				

Chi-Square Tests

			Asymp. Sig.
	Value	df	(2-sided)
Pearson Chi-	73.773 <sup>a</sup>	2	.000
Square			
Likelihood Ratio	84.992	2	.000
Linear-by-Linear	20.217	1	.000
Association			
N of Valid Cases	582		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 35.33.

#### Interpretation of above tables:

There is a statistically significant difference (p<0.001) in Learning Experience participation based on PA group. Almost 96% of PA-ineligible students did not participate in LE events, while 75% and 76% of PA non-participating and PA-participating students took part in LE events respectively. These results are not surprising, as PA-ineligible students are from higher income backgrounds and may not need the support services that PA-eligible students might require.

Crosstab					
			AALANA	participation	
				Yes	
			No	(participated)	Total
Pinnacle	PA non-	Count	98	51	149
Alliance status	participating	% within	65.8%	34.2%	100.0%
		Pinnacle			
		Alliance status			
	PA-ineligible	Count	153	46	199
		% within	76.9%	23.1%	100.0%
		Pinnacle			
		Alliance status			
	PA-participating	Count	105	129	234
		% within	44.9%	55.1%	100.0%
		Pinnacle			
		Alliance status			
Total		Count	356	226	582
		% within	61.2%	38.8%	100.0%
		Pinnacle			
		Alliance status			

#### **Results for AALANA participation variable**

#### Chi-Square Tests

			Asymp. Sig.
	Value	df	(2-sided)
Pearson Chi-	48.186 <sup>a</sup>	2	.000
Square			
Likelihood Ratio	48.950	2	.000
Linear-by-Linear	22.959	1	.000
Association			
N of Valid Cases	582		

a. 0 cells (0.0%) have expected count less than 5.

The minimum expected count is 57.86.

#### Interpretation of above tables:

Similar to LE participation, ALAANA participation also showed a statistically significant difference (p<0.001) between PA groups. Once again, these results make sense. The ALAANA office and many of its events are geared towards serving the ethnic minority student population of Lakefield University. On average, there are more white students in the higher income group (PA-ineligible), while there are more non-white students in the lower income groups (PA-eligible and PA non-participating). This helps to explain why many PA-ineligible students (76.9%) did not participate in a single ALAANA event or activity – they were not ethnic minority students. In addition, many PA-participating students (55.1%) did participate in ALAANA events. It is likely that there is a participation effect occurring, where if a student took part in an activity from one office on campus, he or she is likely more apt to participate in other events and activities from other areas on campus. This could help explain why over half of the PA-participating students also were active with the ALAANA office.

#### **ANOVA Procedures**

ANOVA procedures were performed to compare the differences in continuous variables used in this study between the students in each of the three PA groups. These variables examined via ANOVA were college G.P.A., SAT score, sense of belonging, high impact practices, and the outcome variable – total engagement.

#### **Results for college G.P.A. variable:**

*Descriptives* College G.P.A.

			95% Confidence						
					Interval fo	or Mean			
			Std.	Std.	Lower	Upper			
	Ν	Mean	Deviation	Error	Bound	Bound	Min.	Max.	
PA non- participating	149	3.2615	.479530	.039285	3.18393	3.33919	1.575	3.946	
PA-ineligible	199	3.4359	.326411	.023139	3.39029	3.48155	2.265	3.980	
PA- participating	234	3.2306	.453052	.029617	3.17228	3.28898	1.879	3.969	
Total	582	3.3087	.431008	.017866	3.27365	3.34383	1.575	3.980	

Test of Homogeneity of Variances

Levene			
Statistic	df1	df2	Sig.
10.850	2	579	.000

ANOVA College G.P.A.

Conege U.I .A.					
	Sum of				
	Squares	df	Mean Square	F	Sig.
Between Groups	4.978	2	2.489	13.999	.000
Within Groups	102.953	579	.178		
Total	107.931	581			

#### Robust Tests of Equality of Means College G.P.A.

	Statistic <sup>a</sup>	df1	df2	Sig.
Welch	17.369	2	341.251	.000
a. Asyn	ptotically F	distrib	uted.	

Post Hoc Tests

Multiple Comparisons Dependent Variable: College G.P.A.

						95% Con	fidence
	(I) Pinnacle	(J) Pinnacle	Mean			Inter	val
	Alliance	Alliance	Difference	Std.		Lower	Upper
	status	status	(I-J)	Error	Sig.	Bound	Bound
Tukey HSD	PA non-	PA-	<b>-</b> .174361*	.045683	.000	28170	06702
	participating	ineligible					
		PA-	.030936	.044196	.764	07291	.13478
		participating					
	PA-	PA non-	.174361*	.045683	.000	.06702	.28170
	ineligible	participating					
		PA-	.205296*	.040662	.000	.10975	.30084
		participating					
	PA-	PA non-	030936	.044196	.764	13478	.07291
	participating	participating					
		PA-	205296*	.040662	.000	30084	10975
		ineligible					
Games-	PA non-	PA-	174361*	.045593	.000	28187	06686
Howell	participating	ineligible					
		PA-	.030936	.049198	.804	08494	.14681
		participating					
	PA-	PA non-	.174361*	.045593	.000	.06686	.28187
	ineligible	participating					
		PA-	.205296*	.037584	.000	.11690	.29370
		participating					
	PA-	PA non-	030936	.049198	.804	14681	.08494
	participating	participating					
		PA-	205296*	.037584	.000	29370	11690
		ineligible					

\*. The mean difference is significant at the 0.05 level.

#### **Interpretation of the above tables:**

Since the assumption of homogeneity of variances was not met for these data based on the statistically significant Levene's test ( $\rho$ <.001), the Welch's adjusted F ratio was used to determine if group differences in college G.P.A. existed. The one-way ANOVA showed that the differences in college G.P.A. between the three Pinnacle Alliance groups was statistically significant (Welch's F(2,341.25) = 17.37,  $\rho$ <.001).

In addition, A Games-Howell post-hoc test revealed that college G.P.A. was statistically significantly lower for PA-participating  $(3.23 \pm .45 \text{ points}, \rho <.001)$  and PA non-participating  $(3.26 \pm .48 \text{ points}, \rho <.001)$  students compared to the PA-ineligible students  $(3.44 \pm .33 \text{ points})$ . There was no statistically significant difference in college G.P.A. between PA-participating and PA non-participating students ( $\rho =.80$ ). In summary, PA-participating and PA non-participating students exhibited lower college G.P.A.s than their PA-ineligible (higher income) peers.

Based on the utilization of Welch's F statistic, an adjusted omega-squared value was calculated to measure the association between PA status and college G.P.A. Approximately 5.33% (adjusted  $\omega^2 = 5.33$ ) of the total variance in college G.P.A. is accounted for by Pinnacle Alliance status.

#### **Results for SAT score variable:**

#### Descriptives

SAT score

			95% Confidence						
					Interval	for Mean			
			Std.	Std.	Lower	Upper			
	Ν	Mean	Deviation	Error	Bound	Bound	Min.	Max.	
PA non- participating	140	1999.93	184.030	15.553	1969.18	2030.68	1290	2320	
PA- ineligible	190	2046.68	150.090	10.889	2025.21	2068.16	1520	2350	
PA- participating	227	1924.63	211.581	14.043	1896.95	1952.30	1260	2320	
Total	557	1985.19	192.783	8.168	1969.14	2001.23	1260	2350	

Test of Homogeneity of Variances

SAT score			
Levene			
Statistic	df1	df2	Sig.
14.177	2	554	.000

ANOVA							
SAT score	Sum	of					
	Squa	res df	Mean Squar	e F	S	Sig.	
Between Gro	oups 158155	51.696 2	790775.84	48 22.9	958	.000	
Within Grou	ips 190823	53.51 554	34444.68	81			
Total	206639	005.20 556					
Robust Tests	of Equality of	Means					
SAT score		100 0.					
Stat	tistic <sup>a</sup> dfl	$\frac{df2}{227,250}$	<u>g.</u>				
Welch 2	<u>3.545</u> 2	337.359 .0	000				
a. Asymptoti	ically F distrib	uted.					
Post Hoc Tes	ts						
Multiple Con	<i>iparisons</i>						
Dependent V	ariable: SAT	score					
Ţ,						95% Co	nfidence
	(I) Pinnacle	(J) Pinnacle	Mean			Inte	erval
	Alliance	Alliance	Difference	Std.		Lower	Upper
	status	status	(I-J)	Error	Sig.	Bound	Bound
Tukey HSD	PA non-	PA-	-46.756	20.672	.062	-95.33	1.82
	participating	ineligible					
		PA-	75.303*	19.944	.001	28.43	122.17
		participating					
	PA-	PA non-	46.756	20.672	.062	-1.82	95.33
	ineligible	participating	100 050*	10 240	000	70.17	164.04
		PA-	122.059	18.249	.000	/9.1/	164.94
	DA	<u>participating</u>	75 202*	10.044	001	100.17	20 12
	PA-	PA non-	-75.505	19.944	.001	-122.17	-28.43
	participating		122 050*	18 240	000	164.04	70 17
		ineligible	-122.039	10.249	.000	-104.94	-/9.1/
Games-	PA non-	PA-	-46 756*	18 986	038	-91 51	-2.00
Howell	participating	ineligible	10.700	10.900	.020	91.01	2.00
110	participating	PA-	75.303*	20.955	.001	25.96	124.64
		participating					
	PA-	PA non-	46.756*	18.986	.038	2.00	91.51
	ineligible	participating					
		PA-	$122.059^{*}$	17.770	.000	80.26	163.86
		participating					
	PA-	PA non-	-75.303*	20.955	.001	-124.64	-25.96
	participating	participating					
		PA-	-122.059*	17.770	.000	-163.86	-80.26
		ineligible					

\*. The mean difference is significant at the 0.05 level.

#### Interpretation of the above tables:

Since the assumption of homogeneity of variances was not met for these data based on the statistically significant Levene's test ( $\rho$ <.001), the Welch's adjusted F ratio

was used to determine if group differences in SAT score. existed. The one-way ANOVA showed that the differences in SAT score. between the three Pinnacle Alliance groups was statistically significant (Welch's F(2, 337.40) = 23.55,  $\rho < .001$ ).

In addition, a Games-Howell post-hoc test revealed that SAT scores were statistically significantly lower for PA-participating ( $1925 \pm 212$  points,  $\rho$ <.001) and PA non-participating ( $2000 \pm 184$  points,  $\rho$ =.038) students compared to the PA-ineligible students ( $2047 \pm 150$  points). Also, SAT scores were statistically significantly lower for PA-participating students ( $1925 \pm 212$  points,  $\rho$ =.001) compared to PA non-participating students ( $2000 \pm 184$  points). In summary, there were statistically significant differences in SAT scores between all groups or Pinnacle Alliance students with PA-participating students displaying the lowest mean SAT score.

Based on the utilization of Welch's F statistic, an adjusted omega-squared value was calculated to measure the association between PA status and SAT score. Approximately 7.49% (adjusted  $\omega^2 = 7.49$ ) of the total variance in SAT score is accounted for by Pinnacle Alliance status.

#### **Results for sense of belonging variable:**

#### Descriptives

Sense of belonging score

	95% Confidence Interval for Mean							
			Std.	Std.	Lower	Upper		
	Ν	Mean	Deviation	Error	Bound	Bound	Min.	Max.
PA non- participating	149	19.74	7.782	.638	18.48	21.00	0	30
PA-ineligible	199	22.85	6.979	.495	21.87	23.82	0	30
PA- participating	234	19.32	7.496	.490	18.36	20.29	0	30
Total	582	20.64	7.559	.313	20.02	21.25	0	30

#### *Test of Homogeneity of Variances* Sense of belonging score

Levene	0	-	
Statistic	df1	df2	Sig.
1.675	2	579	.188

#### ANOVA

0	01	1 .	
Vanga	ot ho	longing	coro
OCHSC.	010c	IOH VHIV	SCOLE
~~~~	0100		

	Sum of				
	Squares	df	Mean Square	F	Sig.
Between Groups	1497.191	2	748.596	13.674	.000
Within Groups	31697.586	579	54.745		
Total	33194.777	581			

Post Hoc Tests

		Mean			95% Confider	nce Interval
(I) Pinnacle	(J) Pinnacle	Difference			Lower	Upper
Alliance status	Alliance status	(I-J)	Std. Error	Sig.	Bound	Bound
PA non-	PA-ineligible	-3.111*	.802	.000	-4.99	-1.23
participating	PA-	.413	.775	.855	-1.41	2.24
	participating					
PA-ineligible	PA non-	3.111*	.802	.000	1.23	4.99
	participating					
	PA-	3.524*	.713	.000	1.85	5.20
	participating					
PA-	PA non-	413	.775	.855	-2.24	1.41
participating	participating					
	PA-ineligible	-3.524*	.713	.000	-5.20	-1.85

#### *Multiple Comparisons* Dependent Variable: Sense of belonging score Tukey HSD

\*. The mean difference is significant at the 0.05 level.

#### Interpretation of the above tables:

Since the assumption of homogeneity of variances was satisfied based on the nonsignificant Levene's test ( $\rho = .188$ ), the F ratio was used to determine if group differences in sense of belonging scores existed. The one-way ANOVA showed that the differences in sense of belonging (SOB) scores between the three Pinnacle Alliance groups was statistically significant (F(2, 579) = 13.67,  $\rho < .001$ ).

A Tukey post-hoc test revealed that sense of belonging scores were statistically significantly lower for PA non-participating ( $19.74 \pm 7.78$  points,  $\rho <.001$ ) and PA-participating ( $19.32 \pm 7.50$  points,  $\rho <.001$ ) students when compared to PA-ineligible students ( $22.85 \pm 6.98$  points). There was no statistically significant difference in SOB scores between PA-participating and PA non-participating students ( $\rho =.86$ ). In summary, both PA-participating and PA non-participating students exhibited statistically significantly lower SOB scores than their PA-ineligible (higher income) peers.

An omega-squared value was calculated to measure the association between PA status and sense of belonging scores. Approximately 4.83% ( $\omega^2 = .0483$ ) of the total variance in SOB scores is accounted for by Pinnacle Alliance status.

#### Results for number of high impact practices variable

#### *Descriptives* Total HIPs

95% Confidence Interval									
			for Mean						
		Std.	Std.	Lower	Upper				
Ν	Mean	Deviation	Error	Bound	Bound	Min.	Max.		
149	1.55	1.297	.106	1.34	1.76	0	5		
199	1.55	1.332	.094	1.37	1.74	0	5		
234	1.44	1.175	.077	1.29	1.59	0	5		
582	1.51	1.261	.052	1.40	1.61	0	5		
	N 149 199 234 582	N         Mean           149         1.55           199         1.55           234         1.44           582         1.51	N         Mean         Deviation           149         1.55         1.297           199         1.55         1.332           234         1.44         1.175           582         1.51         1.261	N         Mean         Deviation         Std.           149         1.55         1.297         .106           199         1.55         1.332         .094           234         1.44         1.175         .077           582         1.51         1.261         .052	Std.         Std.         Lower           N         Mean         Deviation         Error         Bound           149         1.55         1.297         .106         1.34           199         1.55         1.332         .094         1.37           234         1.44         1.175         .077         1.29           582         1.51         1.261         .052         1.40	N         Mean         Deviation         Error         Bound         Bound           149         1.55         1.297         .106         1.34         1.76           199         1.55         1.332         .094         1.37         1.74           234         1.44         1.175         .077         1.29         1.59           582         1.51         1.261         .052         1.40         1.61	N         Mean         Deviation         Error         Bound         Bound         Min.           149         1.55         1.297         .106         1.34         1.76         0           199         1.55         1.332         .094         1.37         1.74         0           234         1.44         1.175         .077         1.29         1.59         0		

#### Test of Homogeneity of Variances

Total HIPs

Levene			
Statistic	df1	df2	Sig.
2.176	2	579	.114

#### ANOVA

Total HIPs

101111115					
	Sum of				
	Squares	df	Mean Square	F	Sig.
Between Groups	1.742	2	.871	.547	.579
Within Groups	921.731	579	1.592		
Total	923.473	581			

#### Interpretation of the above tables:

Since the assumption of homogeneity of variances was satisfied based on the nonsignificant Levene's test ( $\rho = .114$ ), the F ratio was used to determine if group differences in the number of high impact practices (HIPs) existed. The one-way ANOVA showed that the differences in total HIPs between the three Pinnacle Alliance groups was not statistically significant (F(2, 579) = .547,  $\rho = .579$ ).

#### **Results for total engagement variable**

#### Descriptives

#### toteng

		95% Confidence Interval for Mean						
		Mea	Std.	Std.	Lower	Upper		
	Ν	n	Deviation	Error	Bound	Bound	Min.	Max.
PA non- participating	149	24.46	4.636	.380	23.71	25.21	14	36
PA-ineligible	199	25.13	5.059	.359	24.42	25.84	15	36
PA- participating	234	23.64	4.654	.304	23.04	24.24	10	36
Total	582	24.36	4.827	.200	23.97	24.75	10	36

#### Test of Homogeneity of Variances

toteng			
Levene			
Statistic	df1	df2	Sig.
1.410	2	579	.245

#### ANOVA

#### toteng

totong					
	Sum of				
	Squares	df	Mean Square	F	Sig.
Between Groups	242.173	2	121.086	5.274	.005
Within Groups	13293.774	579	22.960		
Total	13535.947	581			

Post Hoc Tests *Multiple Comparisons* Dependent Variable: toteng Tukey HSD

		Mean			95% Confid	ence Interval
(I) Pinnacle	(J) Pinnacle	Difference			Lower	Upper
Alliance status	Alliance status	(I-J)	Std. Error	Sig.	Bound	Bound
PA non-	PA-ineligible	668	.519	.404	-1.89	.55
participating	PA-	.826	.502	.227	35	2.01
	participating					
PA-ineligible	PA non-	.668	.519	.404	55	1.89
	participating					
	PA-	1.494*	.462	.004	.41	2.58
	participating					
PA-	PA non-	826	.502	.227	-2.01	.35
participating	participating					
	PA-ineligible	<b>-</b> 1.494*	.462	.004	-2.58	41

\*. The mean difference is significant at the 0.05 level.

#### Interpretation of the above tables:

Since the assumption of homogeneity of variances was satisfied based on the nonsignificant Levene's test ( $\rho = .245$ ), the F ratio was used to determine if group differences in total engagement existed. The one-way ANOVA showed that the differences in total engagement scores between the three Pinnacle Alliance groups was statistically significant (F(2, 579) = 5.274,  $\rho = .005$ ).

Additionally, a Tukey post-hoc test revealed that total engagement scores were statistically significantly lower for PA-participating students ( $23.64 \pm 4.65$  points,  $\rho$ =.004) when compared to PA-ineligible students ( $25.13 \pm 5.06$  points). There was no statistically significant difference in total engagement scores between PA-participating and PA non-participating students ( $\rho$ =.23). There was also no statistically significant difference in total engagement scores between PA-ineligible students ( $\rho$ =.40). In summary, PA-participating students exhibited statistically significantly lower total engagement scores than their PA-ineligible (higher income peers), but their total engagement scores were not statistically significantly different than the PA non-participating students.

An omega-squared value was calculated to measure the association between PA status and total engagement scores. Approximately 1.45% ( $\omega^2 = .0145$ ) of the total variance in total engagement scores is accounted for by Pinnacle Alliance status.

#### Summary of ANOVA and Chi-Square Tests

In summary, the chi-square tests revealed that there was a statistically significant difference in race/ethnicity, ALAANA participation, and Learning Experience participation between the three groups of PA students. The individual ANOVAs that were conducted revealed statistically significant differences in almost all continuous variables (college G.P.A., SAT score, sense of belonging, and total engagement) based on PA group status. The number of high impact practices was the only continuous variable that did not differ in a statistically significant manner based on PA group status. In addition and in general, most of the differences uncovered by the ANOVAs indicated that PA-participating and PA-eligible non-participating students (lower income students) had lower overall scores on these variables than the PA-ineligible (higher income) students.

This information was important to analyze in order to ascertain differences between the three groups of students in this study. There was nothing detrimental to this study in these results in and of themselves. Rather, the identification of these statistically significant results further supported the inclusion of the corresponding variables in the final regression model in order to control for their potential effect on total engagement. As a reminder, eligibility for the Pinnacle Alliance is driven by a family's income. Therefore, it makes sense that many of these variables would differ in a statistically significant manner, since many of them are also related to income and socio-economic status. As one example, the literature has shown that students from wealthier backgrounds tend to achieve higher SAT scores, on aggregate, than students from lowerincome backgrounds. The fact that the PA eligibility is dependent upon income helps explain why the group differences across many of the variables exist, especially when comparing PA-participating students (lower income) to PA-ineligible students (higher income).

#### Appendix G

#### Descriptive Statistics of Sample

	PA Partic	ipating	PA non-Participating		PA Ineligible		TOTAL	
s of Sample								
	Survey		Survey		Survey			
	Invites	684	Invites	752	Invites	1000	2436	
	Valid		Valid		Valid			
	Responses	234	Responses	149	Responses	199	582	
	Response		Response		Response			
	Rate	34.2%	Rate	19.8%	Rate	19.9%	23.9%	
	n = 234		n = 149		n = 199			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Male	77	32.9	59	39.6	69	34.7	205	35.2
Female	157	67.1	90	60.4	130	65.3	377	64.8
Total	234	100	149	100	199	100	582	100
White	60	25.6	45	30.2	141	70.9	246	42.3
Non-White	174	74.4	104	69.8	58	29.1	336	57.7
Total	234	100	149	100	199	100	582	100
Some college	16	6.8	6	4.0	19	9.5	41	7.0
Bachelor's	42	17.9	36	24.2	34	17.1	112	19.2
Master's	93	39.8	60	40.3	90	45.2	243	41.8
Doctoral/Professional	83	35.5	47	31.5	56	28.2	186	32.0
T-4-1	234	100	149	100	199	100	582	100
Iotai	234				1			
Did not finish high school	31	13.2	5	3.4	0	0.0	36	6.2
Did not finish high school High school or GED	31 50	13.2 21.4	5 30	3.4 20.1	0	0.0	36 85	6.2 14.6
Did not finish high school High school or GED Attend college but did not	31 50 30	13.2 21.4	5 30	3.4 20.1	0	0.0 2.5 3.5	36 85	6.2 14.6
Did not finish high school High school or GED Attend college but did not complete Associate's	31 50 30	13.2 21.4 12.8	5 30 15 7	3.4 20.1 10.1	0 5 7	0.0 2.5 3.5	36 85 52 28	6.2 14.6 8.9
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's	31 50 30 15	13.2 21.4 12.8 6.5 23.9	5 30 15 7	3.4 20.1 10.1 4.7 33.5	0 5 7 6	0.0 2.5 3.5 3.0 32.7	36 85 52 28	6.2 14.6 8.9 4.8 29.4
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's	31 50 30 15 56 38	13.2 21.4 12.8 6.5 23.9	5 30 15 7 50	3.4 20.1 10.1 4.7 33.5 23.5	0 5 7 6 65 67	0.0 2.5 3.5 3.0 32.7 33.7	36 85 52 28 171	6.2 14.6 8.9 4.8 29.4 24.1
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral	31 50 30 15 56 38	13.2 21.4 12.8 6.5 23.9 16.2 6.0	5 30 15 7 50 35 7	3.4 20.1 10.1 4.7 33.5 23.5 4.7	0 5 7 6 65 67 49	0.0 2.5 3.5 3.0 32.7 33.7 24.6	36 85 52 28 171 140 70	6.2 14.6 8.9 4.8 29.4 24.1 12.0
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral Total	31 50 30 15 56 38 14 234	13.2 21.4 12.8 6.5 23.9 16.2 6.0 100	5 30 15 7 50 35 7	3.4 20.1 10.1 4.7 33.5 23.5 4.7 100	0 5 7 6 65 67 49 199	0.0 2.5 3.5 3.0 32.7 33.7 24.6	36 85 52 28 171 140 70 582	6.2 14.6 8.9 4.8 29.4 24.1 12.0 100
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral Total	31 50 30 15 56 38 14 234	13.2 21.4 12.8 6.5 23.9 16.2 6.0 100	5 30 15 7 50 35 7 149	3.4 20.1 10.1 4.7 33.5 23.5 4.7 100	0 5 7 6 65 67 49 199	0.0 2.5 3.5 3.0 32.7 33.7 24.6 100	36 85 52 28 171 140 70 582	6.2 14.6 8.9 4.8 29.4 24.1 12.0 100
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral Total	31 50 30 15 56 38 14 234	13.2 21.4 12.8 6.5 23.9 16.2 6.0 100	5 30 15 7 50 35 7 149	3.4 20.1 10.1 4.7 33.5 23.5 4.7 100	0 5 7 6 65 67 49 199	0.0 2.5 3.5 3.0 32.7 33.7 24.6 100	36 85 52 28 171 140 70 582	6.2 14.6 8.9 4.8 29.4 24.1 12.0 100
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral Total Freshman	31 50 30 15 56 38 14 234 53	13.2 21.4 12.8 6.5 23.9 16.2 6.0 100	5 30 15 7 50 35 7 149 22	3.4 20.1 10.1 4.7 33.5 23.5 4.7 100	0 5 7 6 65 67 49 199	0.0 2.5 3.5 3.0 32.7 33.7 24.6 100	36 85 52 28 171 140 70 582 125	6.2 14.6 8.9 4.8 29.4 24.1 12.0 100
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral Total Freshman Sophomore	31 50 30 15 56 38 14 234 53 49	13.2 21.4 12.8 6.5 23.9 16.2 6.0 100 22.6 20.9	5 30 15 7 50 35 7 149 22 35	3.4 20.1 4.7 33.5 23.5 4.7 100 14.8 23.5	0 5 7 6 65 67 49 199 50 42	0.0 2.5 3.5 3.0 32.7 33.7 24.6 100 25.1 21.1	36 85 52 28 171 140 70 582 125 126	6.2 14.6 8.9 4.8 29.4 24.1 12.0 100 21.5 21.6
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral Total Freshman Sophomore Junior	31 50 30 15 56 38 14 234 53 49 61	13.2 21.4 12.8 6.5 23.9 16.2 6.0 100 22.6 20.9 26.2	5 30 15 7 50 35 7 149 22 35 45	3.4 20.1 10.1 4.7 33.5 23.5 4.7 100 14.8 23.5 30.2	0 5 7 6 65 67 49 199 50 42 56	0.0 2.5 3.5 3.0 32.7 33.7 24.6 100 25.1 21.1 28.2	36 85 52 28 171 140 70 582 125 126 162	6.2 14.6 8.9 4.8 29.4 24.1 12.0 100 21.5 21.6 27.8
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral Total Freshman Sophomore Junior Senior	31 50 30 15 56 38 14 234 53 49 61 70	13.2 21.4 12.8 6.5 23.9 16.2 6.0 100 22.6 20.9 26.2 29.9	5 30 15 7 50 35 7 149 22 35 45 47	3.4 20.1 10.1 4.7 33.5 23.5 4.7 100 14.8 23.5 30.2 31.5	0 5 7 6 65 67 49 199 50 42 56 51	0.0 2.5 3.5 3.0 32.7 33.7 24.6 100 25.1 21.1 28.2 25.6	36 85 52 28 171 140 70 582 125 126 162 168	6.2 14.6 8.9 4.8 29.4 24.1 12.0 100 21.5 21.6 27.8 28.9
Did not finish high school High school or GED Attend college but did not complete Associate's Bachelor's Master's Doctoral Total Freshman Sophomore Junior Senior Other	31 50 30 15 56 38 14 234 53 49 61 70 1	13.2 21.4 12.8 6.5 23.9 16.2 6.0 100 22.6 20.9 26.2 29.9 0.4	5 30 15 7 50 35 7 149 22 35 45 45 47 0	3.4 20.1 10.1 4.7 33.5 23.5 4.7 100 14.8 23.5 30.2 31.5 0	0 5 7 6 65 67 49 199 50 42 56 51 0	0.0 2.5 3.5 3.0 32.7 33.7 24.6 100 25.1 21.1 28.2 25.6 0.0	36 85 52 28 171 140 70 582 125 126 162 168 1	6.2 14.6 8.9 4.8 29.4 24.1 12.0 100 21.5 21.6 27.8 28.9 0.2
	s of Sample s of Sample s of Sample	s of Sample Survey Invites Valid Responses Response Rate n = 234  Male 77 Female 157 Total 234  White 60 Non-White 174 Total 234  Some college 16 Bachelor's 42 Master's 93 Doctoral/Professional 83 Total 234	s of Sample s of Sample Survey Invites Survey Invites Survey Survey Invites Survey Survey Survey Survey Survey Survey Surves Survey Surves Survey Surves Survey Surves Sur	s of Sample           FA Farticipating         FA non-rar           s of Sample         Survey         Invites         Survey           Invites         684         Invites         684         Invites           Valid         Responses         234         Responses         234         Responses           Response         Rate         34.2%         Rate         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	PA Participating         PA non-Participating           s of Sample         Survey         Invites         684         Invites         752           Valid         Response         234         Response         Response         149           Response         Rate         34.2%         Rate         19.8%           Image: Solution of the second of	FA Participating         FA non-Farticipating         Surrey         Invites         Response         Response	Soft Sample         FA non-Farticipating         Survey         Survey         Invites         formatter           Soft Sample         Survey         Invites         684         Invites         684         Nation         Survey         Invites         1000           Valid         Responses         234         Response         Response         149         Response         199%           Response         Rate         34.2%         Rate         19.8%         Rate         19.9%           Image: Some college         n = 234         n = 149         n = 149         n = 199         100           Male         77         32.9         59         39.6         69         34.7           Female         157         67.1         90         60.4         130         65.3           Total         234         100         149         100         199         100           White <td>FA Participating         FA non-Participating         Surrey         Invites         for an analysis           s of Sample         Survey         Invites         684         Nation         Survey         Invites         1000         2436           Valid         Response         Rate         34.2%         Response         Response         Response         Response         Response         199%         23.9%         23.9%           Image: Contrast state         n=234         n=149         n=199         n=199         100         23.9%         60         34.7         205           Male         77         32.9         59         39.6         69         34.7         205           Female         157         67.1         90         60.4         130         65.3<!--</td--></td>	FA Participating         FA non-Participating         Surrey         Invites         for an analysis           s of Sample         Survey         Invites         684         Nation         Survey         Invites         1000         2436           Valid         Response         Rate         34.2%         Response         Response         Response         Response         Response         199%         23.9%         23.9%           Image: Contrast state         n=234         n=149         n=199         n=199         100         23.9%         60         34.7         205           Male         77         32.9         59         39.6         69         34.7         205           Female         157         67.1         90         60.4         130         65.3 </td

		PA Participating		PA non-Participating		PA Ineligible		TOTAL	
		Survey Invites	684	Survey Invites	752	Survey Invites	1000	2436	
		Valid		Valid		Valid			
		Responses	234	Responses	149	Responses	199	582	
		Response Rate	34.2%	Response Rate	19.8%	Response Rate	19.9%	23.9%	
Learning Experience participation									
	No	141	60.3	113	75.8	190	95.5	444	76.3
	Yes	93	39.7	36	24.2	9	4.5	138	23.7
	Total	234	100	149	100	199	100	582	100
AALANA participation									
	No	105	44.9	98	65.8	153	76.9	356	61.2
	Yes	129	55.1	51	34.2	46	23.1	226	38.8
	Total	234	100	149	100	199	100	582	100
Total HIPs									
	0	55	23.5	36	24.2	50	25.1	141	24.2
	1	80	34.1	47	31.5	58	29.1	185	31.8
	2	54	23.1	29	19.5	50	25.2	133	22.9
	3	35	15.0	25	16.8	17	8.5	77	13.2
	4	6	2.6	9	6.0	20	10.1	35	6.0
	5	4	1.7	3	2.0	4	2.0	11	1.9
	Total	234	100	149	100	199	100	582	100
		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
	Total Engagement	23.64	4.65	24.46	4.64	25.13	5.06	24.36	4.83
	College G.P.A	3.23	0.45	3.26	0.48	3.44	0.33	3.31	0.43
	SAT Score	1924.63	211.58	1999.93	184.03	2046.68	150.09	1985.19	192.78
	Sense of Belonging Score	19.32	7.50	19.74	7.78	22.85	6.98	20.64	7.56

#### Key: Race (0 = White, 2 = Asian, 4 = Hispanic or Latino PA Status (-1 = eligible, not-participating, 0 = ineligible, +1 = eligible, participating Case Number 8 46 32 23 30 21 5 23 12 4 S œ Ν 7 17 19 5 w Case ID <u>312</u> 575 \$58 351 455 204 237 313 220 582 167 451 482 468 183 136 200 70 18 Std. Residual toteng -2.065 -2.233 -2.167 2.006 2.3112.047 2.205 2.007 2.402 2.096 2.895 2.0212.174 2.188 2.8313.787 -2.03 2.02 -2.98 32 ц С ы ដ <u>34</u> ц С 36 17 17 30 32 36 36 36 36 10 16 17 36 Predicted Value 21.25 21.9224.07 24.38 25.52 23.00 25.74 26.01 24.1823.51 26.19 27.24 26.46 26.85 23.65 19.48 25.86 26.46 19.37 Residual Gender 10.083 10.478 12.352 16.522 -13.001-9.456 -9.009 12.629 9.145 -9.740 -8.858 8.750 8.819 9.486 8.929 9.620 8.811 8.757 9.544 Female Male Male Male Male Male Male Male Male Male Race 2 4 0 0 $\mathbf{N}$ 2 $\mathbf{N}$ Ν Ν Ν $\sim$ 0 4 0 4 2 $\mathbf{N}$ 4 $\sim$ PA Status ᆣ ᆣ Ľ 0 느 0 \_ 0 0 0 -0 0 -0

## Appendix H

# Table of Outliers

#### Appendix I

#### Students' Ranking of Top 3 Most Valuable PA Benefits

#### All PA participating students

PA_rank1								
		Frequency	Percent	Valid Percent	Cumulative Percent			
Valid	Counseling	53	22.6	24.7	24.7			
	Tix - sports	9	3.8	4.2	28.8			
	Tix - social	58	24.8	27.0	55.8			
	Tix - theater	1	.4	.5	56.3			
	Support - service trips	47	20.1	21.9	78.1			
	Support - exam prep	9	3.8	4.2	82.3			
	Frontier Fellowship	2	.9	.9	83.3			
	Textbook loan	23	9.8	10.7	94.0			
	Support - Metro pass	7	3.0	3.3	97.2			
	Support - groceries	3	1.3	1.4	98.6			
	Clothing & personal	3	1.3	1.4	100.0			
	Total	215	91.9	100.0				
Missing	System	19	8.1					
Total		234	100.0					
	PA_rank2							
---------	-------------------------	-----------	---------	---------------	-----------------------	--	--	
		Frequency	Percent	Valid Percent	Cumulative Percent			
Valid	Counseling	31	13.2	14.5	14.5			
	Tix - sports	32	13.7	15.0	29.4			
	Tix - social	46	19.7	21.5	50.9			
	Tix - theater	12	5.1	5.6	56.5			
	Support - service trips	34	14.5	15.9	72.4			
	Support - exam prep	13	5.6	6.1	78.5			
	Frontier Fellowship	1	.4	.5	79.0			
	Textbook loan	22	9.4	10.3	89.3			
	Support - Metro pass	12	5.1	5.6	94.9			
	Support - groceries	8	3.4	3.7	98.6			
	Clothing & personal	3	1.3	1.4	100.0			
	Total	214	91.5	100.0				
Missing	System	20	8.5					
Total		234	100.0					

PA	rank3

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Counseling	26	11.1	12.3	12.3
	Tix - sports	19	8.1	9.0	21.3
	Tix - social	46	19.7	21.8	43.1
	Tix - theater	18	7.7	8.5	51.7
	Support - service trips	30	12.8	14.2	65.9
	Support - exam prep	25	10.7	11.8	77.7
	Frontier Fellowship	1	.4	.5	78.2
	Textbook loan	21	9.0	10.0	88.2
	Support - Metro pass	7	3.0	3.3	91.5
	Support - groceries	11	4.7	5.2	96.7
	Clothing & personal	7	3.0	3.3	100.0
	Total	211	90.2	100.0	
Missing	System	23	9.8		
Total		234	100.0		

High Engagement Students (toteng >24.99)

	PA_rank1						
		Frequency	Percent	Valid Percent	Cumulative Percent		
Valid	Counseling	25	26.9	29.1	29.1		
	Tix - sports	4	4.3	4.7	33.7		
	Tix - social	22	23.7	25.6	59.3		
	Support - service trips	21	22.6	24.4	83.7		
	Support - exam prep	3	3.2	3.5	87.2		
	Frontier Fellowship	1	1.1	1.2	88.4		
	Textbook loan	6	6.5	7.0	95.3		
	Support - Metro pass	3	3.2	3.5	98.8		
	Support - groceries	1	1.1	1.2	100.0		
	Total	86	92.5	100.0			
Missing	System	7	7.5				
Total		93	100.0				

PA rank2

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Counseling	12	12.9	14.3	14.3
	Tix - sports	13	14.0	15.5	29.8
	Tix - social	18	19.4	21.4	51.2
	Tix - theater	4	4.3	4.8	56.0
	Support - service trips	16	17.2	19.0	75.0
	Support - exam prep	4	4.3	4.8	79.8
	Textbook loan	10	10.8	11.9	91.7
	Support - Metro pass	2	2.2	2.4	94.0
	Support - groceries	2	2.2	2.4	96.4
	Clothing & personal	3	3.2	3.6	100.0
	Total	84	90.3	100.0	
Missing	System	9	9.7		
Total		93	100.0		

PA_rank3						
		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Counseling	11	11.8	13.1	13.1	
	Tix - sports	9	9.7	10.7	23.8	
	Tix - social	22	23.7	26.2	50.0	
	Tix - theater	4	4.3	4.8	54.8	
	Support - service trips	12	12.9	14.3	69.0	
	Support - exam prep	7	7.5	8.3	77.4	
	Textbook loan	7	7.5	8.3	85.7	
	Support - Metro pass	4	4.3	4.8	90.5	
	Support - groceries	5	5.4	6.0	96.4	
	Clothing & personal	3	3.2	3.6	100.0	
	Total	84	90.3	100.0		
Missing	System	9	9.7			
Total		93	100.0			

	PA_rank1						
		Frequency	Percent	Valid Percent	Cumulative Percent		
Valid	Counseling	15	18.5	20.5	20.5		
	Tix - sports	2	2.5	2.7	23.3		
	Tix - social	22	27.2	30.1	53.4		
	Support - service trips	15	18.5	20.5	74.0		
	Support - exam prep	2	2.5	2.7	76.7		
	Textbook loan	11	13.6	15.1	91.8		
	Support - Metro pass	3	3.7	4.1	95.9		
	Support - groceries	2	2.5	2.7	98.6		
	Clothing & personal	1	1.2	1.4	100.0		
	Total	73	90.1	100.0			
Missing	System	8	9.9				
Total		81	100.0				

## Medium Engagement Students (toteng 21.00 to 24.99)

PA rank2

		Enoquement	Doncont	Valid Dargant	Cumulative	
		Frequency	Percent	valid Percent	Percent	
Valid	Counseling	11	13.6	15.1	15.1	
	Tix - sports	10	12.3	13.7	28.8	
	Tix - social	16	19.8	21.9	50.7	
	Tix - theater	3	3.7	4.1	54.8	
	Support - service trips	11	13.6	15.1	69.9	
	Support - exam prep	6	7.4	8.2	78.1	
	Frontier Fellowship	1	1.2	1.4	79.5	
	Textbook loan	3	3.7	4.1	83.6	
	Support - Metro pass	8	9.9	11.0	94.5	
	Support - groceries	4	4.9	5.5	100.0	
	Total	73	90.1	100.0		
Missing	System	8	9.9			
Total		81	100.0			

	PA_rank3						
		Frequency	Percent	Valid Percent	Cumulative Percent		
Valid	Counseling	10	12.3	13.7	13.7		
	Tix - sports	6	7.4	8.2	21.9		
	Tix - social	15	18.5	20.5	42.5		
	Tix - theater	8	9.9	11.0	53.4		
	Support - service trips	11	13.6	15.1	68.5		
	Support - exam prep	9	11.1	12.3	80.8		
	Textbook loan	8	9.9	11.0	91.8		
	Support - Metro pass	2	2.5	2.7	94.5		
	Support - groceries	2	2.5	2.7	97.3		
	Clothing & personal	2	2.5	2.7	100.0		
	Total	73	90.1	100.0			
Missing	System	8	9.9				
Total		81	100.0				

# Low Engagement Students (toteng < 21.00)

	PA_rank1					
		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Counseling	13	21.7	23.2	23.2	
	Tix - sports	3	5.0	5.4	28.6	
	Tix - social	14	23.3	25.0	53.6	
	Tix - theater	1	1.7	1.8	55.4	
	Support - service trips	11	18.3	19.6	75.0	
	Support - exam prep	4	6.7	7.1	82.1	
	Frontier Fellowship	1	1.7	1.8	83.9	
	Textbook loan	6	10.0	10.7	94.6	
	Support - Metro pass	1	1.7	1.8	96.4	
	Clothing & personal	2	3.3	3.6	100.0	
	Total	56	93.3	100.0		
Missing	System	4	6.7			
Total		60	100.0			

#### PA\_rank2

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Counseling	8	13.3	14.0	14.0
	Tix - sports	9	15.0	15.8	29.8
	Tix - social	12	20.0	21.1	50.9
	Tix - theater	5	8.3	8.8	59.6
	Support - service trips	7	11.7	12.3	71.9
	Support - exam prep	3	5.0	5.3	77.2
	Textbook loan	9	15.0	15.8	93.0
	Support - Metro pass	2	3.3	3.5	96.5
	Support - groceries	2	3.3	3.5	100.0
	Total	57	95.0	100.0	
Missing	System	3	5.0		
Total		60	100.0		

	PA_rank3						
		Frequency	Percent	Valid Percent	Cumulative Percent		
· · · · ·							
Valid	Counseling	5	8.3	9.3	9.3		
	Tix - sports	4	6.7	7.4	16.7		
	Tix - social	9	15.0	16.7	33.3		
	Tix - theater	6	10.0	11.1	44.4		
	Support - service trips	7	11.7	13.0	57.4		
	Support - exam prep	9	15.0	16.7	74.1		
	Frontier Fellowship	1	1.7	1.9	75.9		
	Textbook loan	6	10.0	11.1	87.0		
	Support - Metro pass	1	1.7	1.9	88.9		
	Support - groceries	4	6.7	7.4	96.3		
	Clothing & personal	2	3.3	3.7	100.0		
	Total	54	90.0	100.0			
Missing	System	6	10.0				
Total		60	100.0				

#### Appendix J

### Sense of Belonging Multiple Regression

The ANOVA indicates the overall final model (Model 3) is significant. At least one of the variables in the model is a statistically significant predictor of SOB scores.

ANOVA								
Model		Sum of Squares	df	Mean Square	F	Sig.		
1	Regression	1753.022	7	250.432	4.812	.000 <sup>b</sup>		
	Residual	18684.956	359	52.047				
	Total	20437.978	366					
2	Regression	2320.575	10	232.058	4.560	.000°		
	Residual	18117.403	356	50.892				
	Total	20437.978	366					
3	Regression	2329.053	11	211.732	4.151	.000 <sup>d</sup>		
	Residual	18108.925	355	51.011				
	Total	20437.978	366					

ANOVA<sup>a</sup>

a. Dependent Variable: Sense of belonging score

b. Predictors: (Constant), Class level, Gender, Race/Ethnicity, Student's expected highest level of education, SAT score, Parent's highest level of education, College G.P.A.

c. Predictors: (Constant), Class level, Gender, Race/Ethnicity, Student's expected highest level of education, SAT score, Parent's highest level of education, College G.P.A., AALANA participation, Learning Experience Participation, Total HIPs

d. Predictors: (Constant), Class level, Gender, Race/Ethnicity, Student's expected highest level of education, SAT score, Parent's highest level of education, College G.P.A., AALANA

participation, Learning Experience Participation, Total HIPs, padummy3

The Model Summary output indicates that the final model (Model 3) explains 11.4% of the variance in students' SOB scores. However, the addition of the participation variable (PAdummy3) in Model 3 was non-significant. The addition of the PAdummy3 variable in Model 3 is not increasing the predictive power of Model 2, therefore researchers should use Model 2 if and when trying to predict students' sense of belonging scores because it is the more parsimonious model.

Widder Summar y										
				Std. Error	Change Statistics					
Mod		R	Adjusted	of the	R Square	F			Sig. F	Durbin-
el	R	Square	R Square	Estimate	Change	Change	df1	df2	Change	Watson
1	.293ª	.086	.068	7.214	.086	4.812	7	359	.000	
2	.337 <sup>b</sup>	.114	.089	7.134	.028	3.717	3	356	.012	
3	.338°	.114	.087	7.142	.000	.166	1	355	.684	1.910

a. Predictors: (Constant), Class level, Gender, Race/Ethnicity, Student's expected highest level of education, SAT score, Parent's highest level of education, College G.P.A.

b. Predictors: (Constant), Class level, Gender, Race/Ethnicity, Student's expected highest level of education, SAT score, Parent's highest level of education, College G.P.A., AALANA participation, Learning Experience Participation, Total HIPs

c. Predictors: (Constant), Class level, Gender, Race/Ethnicity, Student's expected highest level of education, SAT score, Parent's highest level of education, College G.P.A., AALANA participation, Learning Experience Participation, Total HIPs, padummy3 d. Dependent Variable: Sense of belonging score

The Coefficients Table indicates that for the final model (Model 3), race, parents' highest level of education, and total number of High Impact Practices are statistically

significant. PA participation (as defined and tested via PAdummy3 variable) is not statistically significant.

		Coet	ficients <sup>a</sup>			
		Unstandardized Coefficients		Standardized Coefficients		
Model		B Std. Error		Beta	t	Sig.
1	(Constant)	14.331	4.333		3.307	.001
	Gender	876	.804	056	-1.089	.277
	Race/Ethnicity	-2.517	.902	151	-2.790	.006*
	Student's expected highest level of education	391	.436	046	896	.371
	Parent's highest level of education	.602	.233	.148	2.582	.010*
	College G.P.A.	.944	.964	.059	.980	.328
	SAT score	.001	.002	.034	.554	.580
	Class level	.353	.349	.053	1.013	.312
2	(Constant)	14.844	4.709		3.152	.002
	Gender	876	.800	056	-1.095	.274
	Race/Ethnicity	-2.693	.953	161	-2.826	.005*
	Student's expected highest level of education	477	.433	056	-1.101	.272
	Parent's highest level of education	.644	.241	.159	2.677	.008*
	College G.P.A.	.351	.977	.022	.359	.720
	SAT score	.002	.002	.053	.837	.403
	Class level	316	.411	047	770	.442
	Participation	.456	.934	.029	.488	.626
	AALANA participation	.288	.879	.019	.328	.743
2	Total HIPs	1.199	.378	.198	3.173	.002*
3	(Constant)	14.584	4.758	0.55	3.065	.002
	Gender	893	.802	057	-1.113	.266
	Race/Ethnicity	-2.686	.954	161	-2.814	.005*
	Student's expected highest level of education	483	.434	057	-1.112	.267
	Parent's highest level of education	.651	.242	.160	2.696	.007*
	College G.P.A.	.315	.982	.020	.320	.749
	SAT score	.002	.002	.055	.871	.384
	Class level	312	.412	047	757	.449
	Learning Experience Participation	.445	.936	.028	.475	.635
	AALANA participation	.234	.890	.016	.263	.793
	Total HIPs	1.206	.379	.199	3.185	.002*
	padummy3	.326	.799	.021	.408	.684

a. Dependent Variable: Sense of belonging score \*Significant at p < .05