ABSTRACT

Lawrence Hodgkins, HEARING FROM THE 8%: PERCEPTIONS OF PRE-COLLEGE EXPERIENCES FROM SUCCESSFUL COLLEGE STUDENTS FROM LOW AND MODERATE SOCIOECONOMIC BACKGROUNDS (Under the direction of Dr. Matthew Militello). Department of Educational Leadership, April 2017.

A college degree is an important gateway for entering our modern economy; the net value of a college degree is more than $800,000 above a high school diploma. Nationally only 8% of students from families in the lowest income quartile earn a four-year degree by age 24 compared to 82% of students from the top income quartile. The purpose of this study was to understand high school success factors from the perspective of successful college students from low and moderate socioeconomic backgrounds. The InQuiry process was used to assess student perspectives. InQuiry is a research technique that combines a sorting activity to collect quantitative data and follow-up focus group interviews to gather qualitative data. Four distinct student perspectives emerged from the data collected in this study. They were designated: (1) *Self Determination High School*, (2) *Utopia High School*, (3) *On My Own High School*, and (4) *Great Expectations High School*. The findings indicated that beyond important internal factors there are a number of easy to implement external strategies that may have an immediate impact on this issue.

HEARING FROM THE 8%:

PERCEPTIONS OF PRE-COLLEGE EXPERIENCES FROM SUCCESSFUL COLLEGE STUDENTS FROM LOW AND MODERATE SOCIOECONOMIC BACKGROUNDS

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by

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DEDICATION

I dedicate this dissertation in memory of my grandmothers; Gladys Lowden Metz and Viola Armandi for their dedication to education and the unwavering inspiration and support they gave me.

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Many individuals have supported me in completing this project. These groups of family, colleagues, and friends have kept me motivated to reach my goal.

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Thank you to the students who participated in this study. Your input was critical to the research, and I appreciate your perspectives and thoughtful responses you shared during the interview process. I knew many of you as middle and high school students and it was great to catch up. I look forward to hearing about more successes for you in the future.

A sincere thanks to my parents, Brud and Nancy for supporting me in everything I have ever done. You set an example for me on how to live a purposeful life. To my sister Laura, your enduring sense of humor always lifts my spirits and keeps me moving forward.

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CHAPTER 1: INTRODUCTION

Background

According to research, nationally only 8% of students from families in the lowest income quartile earn a four-year degree by age 24 (Cahalan & Perna, 2015; Mortenson, 2010). What does that mean for us as educators and school leaders? What are the long-term implications for our society? Current efforts to ameliorate the notion of socioeconomic status as destiny have centered on making everyone college ready. Those efforts are manifested as high stakes testing and intervention strategies such as Early College High Schools

In April of 2014, Secretary of Education Arne Duncan announced that American high school students in the class of 2012 graduated at a rate of 80%, a record high. Graduation rates have risen about 15 percentage points since the early 1990s. Duncan also noted "high school graduation may have once been a finish line, but today it is just a beginning" (Layton, 2014) emphasizing the importance of post-secondary education.

A college degree is an important gateway for entering our modern economy. According to recent calculations, the net value of a college degree is more than $800,000 above a high school diploma, as measured by the increased lifetime earnings of a graduate less the cost of attending college (Daly & Bengali, 2014). A college degree is no longer a luxury, it is a necessity.

Graduating from college to unlock that higher earning potential is a longitudinal process that requires several distinct steps (Cabrera & LaNasa 2001; Perna & Thomas 2006):

- having college aspirations
- being a college-ready high school graduate
- applying and gaining acceptance to college

- persisting in college through graduation.

High school graduation is an important component in the college degree pipeline, and record high rates are a worthy accomplishment. As such, understanding what fosters or inhibits high school success is of paramount importance. Figures 1 and 2 present the rates at which students from each socioeconomic quartile are successful at each step in the process towards earning a college degree by age 24 in 2009 (Mortenson, 2010) and 2012 (Cahalan & Perna, 2015) respectively. Income levels by quartile from 2012 are (Cahalan & Perna, 2015):

- highest: above $108,650
- third: $63,600 to $108,650
- second: $34,160 to $63,600
- lowest: below $34,160

Data from 2009 and 2012 depict similar patterns. Students from the highest income quartile earn degrees at nearly the same rate at which they enter college. Rates of completion at each successive step decline steadily for students from the lowest quartile, with only about one out of five who enter college earning a degree by age 24. Students from the second and third quartiles also suffer from low rates of college completion particularly when compared to rates of college entry. College completion is a problem for all students except those from the highest income quartile as evidenced by nearly parallel graphs for the lowest three quartiles from "enter college" to "4-yr graduates".

The Purpose of Education

It is important to examine the concept of social mobility (the ability to move out of one social class into another) as a goal of education. Labaree (1997) explored this idea within the framework of the historical goals of American public education. Civic participation (creating

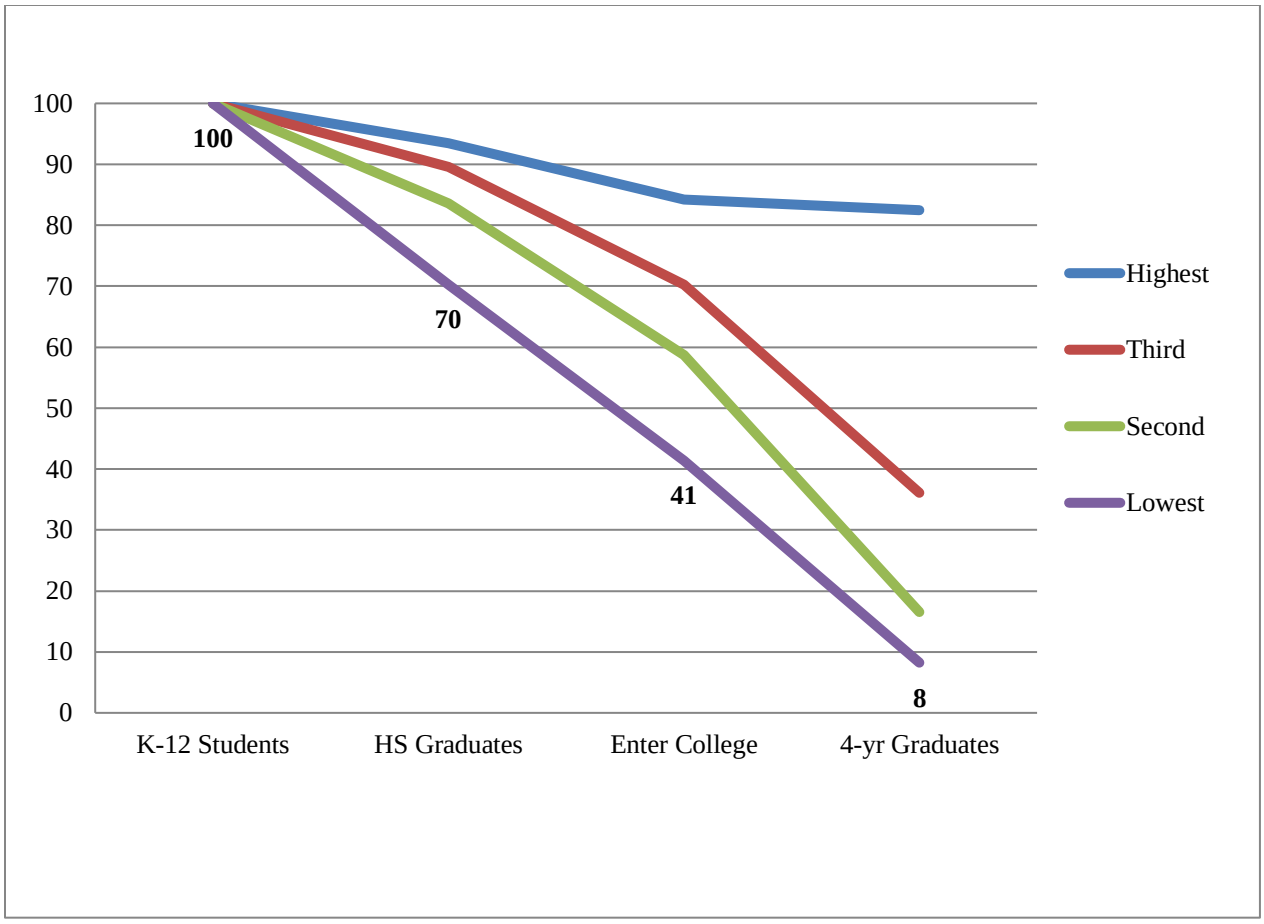

Figure 1. The path to degree completion by age 24 per 100 U.S. students by income quartile, 2009.

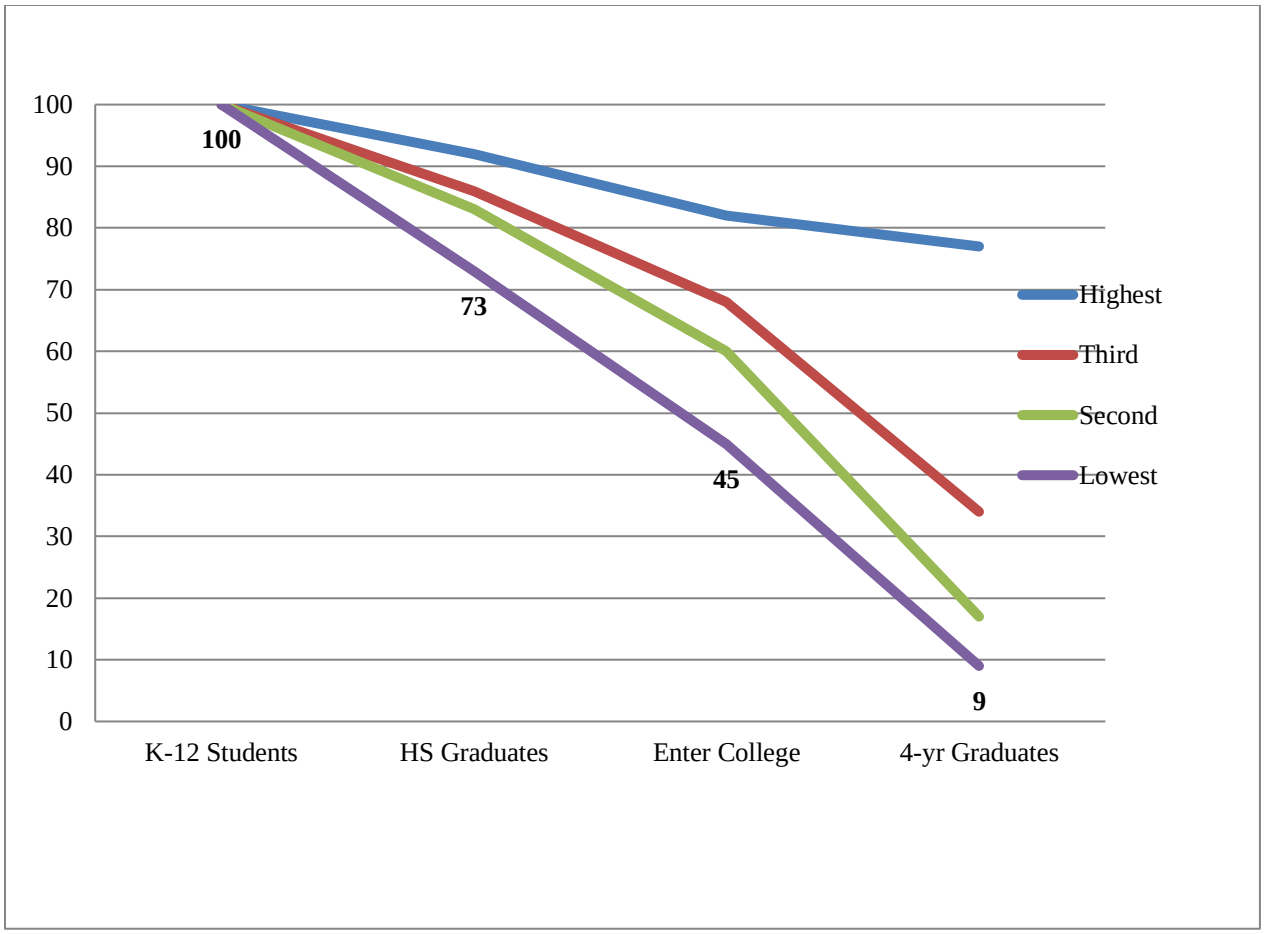

Figure 2. The path to degree completion by age 24 per 100 U.S. students by income quartile, 2012.

citizens able to participate fully in a democratic society) and workforce development (providing a supply of capable workers to support economic prosperity) have long been the two primary goals of education. Labaree argues that social mobility has become a third goal of education that has risen from our modern economy. Previous attempts at educational reform dating back to John Dewey (Tyack & Cuban, 1995) have been a pendulum swing between the two competing, but not mutually exclusive, goals of equality and efficiency. Individuals have always enjoyed social mobility as a result of educational success but that is more a positive effect for that individual rather than a goal of the system.

However, for the past few decades, social mobility has developed as an educational goal. The school choice movement that views the student as a consumer has promoted this new outcome. The problem is that "education becomes a private good and only benefits the owner, an investment in my future, not yours" (Labaree, 1997, p. 38). Under this scenario, no one is left to look out for the public good. Education becomes a sorting process as students compete against each other, and the "purpose of education is not for democracy or economy but what can it do for me" (Labaree, 1997, p. 38). The resultant evolution over the past 15 years has completely transformed the character of education such that social mobility has become *sine qua non* of both education and our economy. However, all these purposes hinge on meaningful high school experiences, opportunities, and relationships.

High School Success Today

Low and moderate-income students are at a decided disadvantage when education is a private commodity and individual success is valued over collective gains. In fact, despite record high school graduation rates, too many students from lower socioeconomic backgrounds do not attend college and most who do attend do not graduate. As discussed earlier, nationally only 8%

of students from families in the lowest income quartile earn a four-year degree by age 24 (Cahalan & Perna, 2015; Mortenson, 2010). Comparatively, 82% of students from the top income quartile and 31% of all Americans earn a four-year degree by age 24. Thus the advantages of a college degree are still primarily reserved for students from well-to-do families.

Such a dramatic discrepancy in college completion rates for the poorest students has major implications in my district. In 2012, the lowest income quartile nationally was less than or equal to $34,160 per year. The median annual household income in my district was $35,000 in 2015. Therefore, fully half of the residents in my district are in the lowest income quartile, and nearly all of the rest are in the second and third quartiles.

Local high school graduation rates are near 70%, and about 40% of high school seniors aspire to attend college when surveyed at graduation according to guidance counselors. These statistics are comparable to national averages among students from lower socioeconomic households. Most districts do not track college completion rates but statistically only 8% of students from these families will earn college degrees.

The low rate of college completion reinforces systemic poverty, particularly in areas with high concentrations of low-income families. This is a chronic problem and is often acute in rural and urban settings with economic blight. For example, in my context in northeast North Carolina, there are very few local career opportunities for those with only a high school diploma. The once plentiful agricultural and textile jobs in the area are no longer available. Farming has become increasingly mechanized and the mills moved to foreign soil for lower-wage workers.

Increasing the number of college degrees earned by students would benefit not only those individuals but also the broader community. More highly educated citizens earning better wages

would raise local tax bases and provide an educated workforce for sustainable economic development.

Statement of Problem

As a nation there is a projected shortfall of three million college educated workers by the year 2018 (Carnevale, Smith, & Strohl, 2010). Co-author Nicole Smith focused on the lack of capacity of the post-secondary education system when she said, "We have no reason to believe there will be a huge increase in graduation rates" in a 2013 Washington Post article (Bidwell, 2013).

Graduating from college is a multi-step, sequential process that is much more than a pure academic endeavor. At a minimum, students must graduate from high school, apply to and enroll in college, and then persist in college until earning a degree. This complex process is highly dependent on access to social capital in the form of knowledge about how to navigate the academic, social, and financial aspects of college.

Using the most recently available data, students from the highest family income quartile have a 92% high school graduation rate, 82% will enroll in college, and 77% persist to earn a four-year degree (Cahalan & Perna, 2015). For students from the families in the lowest income quartile (less than $34,160 in 2012), the comparative educational outcomes are 73%, 45%, and 9% respectively. There are potential gains to be made. There are currently 4.5 million low-income undergraduate students (Engle & Tinto, 2008) and 30 million Americans with some college credit but no degree (Jones, 2015).

Compared to their more affluent peers, low-income students are only half as likely to enroll in college and are ten times less likely to earn a degree. Low-income students are four times as likely to leave college after the first year (Engle & Tinto, 2008). Differences in high

school graduation rates are significant but are much smaller than the post-secondary enrollment and attainment gaps. Low and moderate-income students are having difficulty attending and particularly graduating from college. A potential cause may be that high-income students are better able to access social capital from their parents and peers to provide support through higher educational expectations, motivation, discussions about college, and financial assistance.

Many programs have targeted college access and completion for low-income students (Upward Bound, GEAR-UP, Talent Search, etc.) and much research has been conducted to evaluate the effectiveness of those efforts (Cates & Schaefle, 2011; Harvill, Maynard, Nguyen, Robertson-Kraft, Tognatta, & Fester, 2011; Perna 2002; Perna, 2015). The reasons why low and moderate-income high school graduates do not complete college are varied and include purely academic deficiencies, lack of knowledge about higher education, financial factors, and behavioral habits such as time management and study skills (Tierney & Sablan, 2014). Some researchers such as Strayhorn (2014) have created mathematical models to evaluate the relative importance of factors.

However, in education, the voices that matter most (students) are often not heard. Students, parents, teachers, and researchers have different viewpoints and knowledge of the factors that lead to college completion. These perspectives are subjective in nature and based on lived experiences. The lack of understanding of the student perspective, especially from those few low and moderate-income students who have successfully completed college, is a limiting factor in the efforts to improve college graduation rates.

Purpose of the Study

The purpose of this study is to gain an understanding of how current successful (defined as persisting to at least second semester sophomores) college students and recent graduates from

low and moderate socioeconomic backgrounds, perceive their high school experiences. These data will provide insights into the experiences, opportunities, and relationships that students perceive most significantly impacted their college completion. While studies have been done to assess the effectiveness of specific interventions and conceptual models about what should be done, little is known from actual students. It is the students themselves who will best be able to provide the clearest picture of the reasons for their success.

Efforts at improving college access and completion will be researched in the educational literature. Successful strategies and key experiences that positively impact college enrollment and completion will be identified. Findings from the literature will be applied to Q methodology to gain insight into the perspectives of current upperclassmen and recent college graduates relative to which experiences they viewed as most significant. The results of this study will provide insights that will serve as a foundation for designing k-12 experiences that will increase the rates of college enrollment and completion among low and moderate-income students. This research will help me to understand the subjective student experiences towards college completion so that solutions relevant to my setting may be designed.

Research Questions

The research questions that will frame this study are outlined below:

1. What are the pre-college experiences, opportunities, and relationships that low and moderate-income students need to be successful in college?
2. How do successful low and moderate-income college students perceive the relative importance of the components identified in question 1?

3. Why did the participants perceive the experiences in a particular manner? What factors and/or knowledge influenced their decisions to value some components more than others?

Significance of the Study

Before designing practices and experiences that will prepare low and moderate-income students to become college graduates, school leaders must understand the elements of pre-college experiences that create a college graduate. This study is designed to identify the elements that educational researchers and recent low-income college graduates consider to be the most important. A more detailed examination will provide insight about the elements that recent low and moderate-income college graduates perceive as having the most impact.

Numerous risk factors have been identified that reduce the chances of earning a degree once enrolled in college. These include several that are directly related to family socio-economic status such as being financially independent, working more than 30 hours per week, attending school part-time, and delaying enrollment after high school graduation. There is danger in viewing low college completion rates through a deficit lens by focusing on what these students do not have. Data collected in this study will potentially reframe the problem by focusing on the assets that students need to be successful in their post-secondary education.

The study is an opportunity to understand the aspects of k-12 educational experiences that are most meaningful to low and moderate-income students with respect to their college success. School and district leaders may utilize findings from the study to shape policies and practices that specifically address college attendance and completion for low and moderate-income students.

Completion of this study will add to the body of research and literature on the topic of college completion. The research design and methodology of this study will provide the unique view of how low and moderate-income students perceive the elements of college preparation. The study is significant for researchers in that its findings may be used to identify potential impacts that schools may have on college completion rates if they understand the specific experiences that students perceive to be impactful.

Overview of Methodology

The study will use Q methodology to quantify the subjective pre-college experiences, opportunities, and relationships of successful college upperclassmen and recent graduates with low and moderate socioeconomic backgrounds. Students will engage in a sorting activity to provide a visual representation of their perspectives on college completion. Q methodology then provides clusters of distinct viewpoints that are otherwise difficult to identify.

To begin, a collection of statements will be generated from education literature, research, and focus interviews with students. The list of statements identifying elements that are indicative of college completion is collectively called the concourse. The concourse will be refined to generate a representative sample of statements known as the Q sample or Q set.

The study participants, called the P sample or P set, will be composed of current college upperclassmen and recent college graduates from low and moderate-income backgrounds. Participants will use a forced distribution to conduct a card sort of the Q sample statements in response to a single generative question according to their perceived importance. In this study, the generative question is "What middle and high school experiences most significantly contributed to your college completion?"

A statistical factor analysis will be performed to identify significant perspectives and the characteristics of each perspective. Additional follow-up interviews will be conducted to gain further insights into participant responses as part of the InQuiry process (Militello & Janson, 2016).

The InQuiry approach is useful because students have their own perceptions about college completion based on their experiences. Each of these perceptions is valid and must be accepted as truths. However, it is necessary to quantify these truths to gain understanding. A desired impact is to broaden the student perspective of college completion to include elements of which educators previously were unaware, or did not value highly.

Definition of Terms

For the purposes of this study, the following definitions are provided:

College readiness - Condition of having the necessary academic skills and social capital to be successful in college.

College completion - Persisting in college from enrollment through graduation.

College access - Having the qualifications and support needed to apply, gain acceptance, and enroll in college.

Persistence - Maintaining enrollment in college by earning sufficient credits to keep academic standing.

P sample - Active participants in the study who performed the card sort activity

Q sample - The list of statements that were sorted by the P sample.

Organization of the Study

Chapter 1 provided the background and context of the study, the purpose and significance of the study, the research questions to be examined, and an overview of the research methodology.

Chapter 2 provides a review of research and literature centered on college readiness, access, and completion. This review highlights the risk factors and challenges faced by low-income students as well as important components of successful programs and statistically significant actions that schools can take.

Chapter 3 provides a detailed description of the methodology and research design used to answer the research questions. This study seeks to gain an understanding of the perspectives of students and the underlying reasons that shape their perceptions.

Summary

Despite improved high school graduation rates, low and moderate-income students are completing college at rates much lower than their wealthier classmates. The low rate of college completion has implications for the students, their communities, and our society. This chapter has introduced the study and research questions designed to investigate the elements of college readiness that low and moderate-income college students consider the most important for college success. This study takes an action research approach to investigate this issue within the context of rural middle and high schools.

We know that low college graduation rates among low and moderate-income students are an issue because we understand the consequences of limited opportunities for our students and the implications for our society. As college graduates, administrators and teachers do not typically consider the subjective ontologies of students based on their (different) experiences.

School leaders have much to gain through using the student viewpoint to improve professional practice. Only by understanding the perspective of students can we fully address the problem.

The literature review presented in Chapter 2 will examine themes that emerge in order to understand the elements of what is occurring. Overall trends, statistics, and implications, factors causing the problem, and conceptual models will be identified. Possible solutions including relationships, family involvement, academic preparedness, financial matters, and intervention programs will also be examined.

One cannot underestimate the 8% problem (rate of college graduation among low SES students), which extends to moderate-income students when the number of graduates is compared to the number of students entering college. To reiterate, the intent of this study is to diagnose, through the voices of successful collegiate students indicators of experiences, opportunities, and relationships in high school that will address the 8% problem. "Although the achievement gap is not created by poor school quality, conceivably it could be erased by extraordinarily effective schools" (Rothstein, 2004, p. 5).

CHAPTER 2: REVIEW OF LITERATURE

Introduction

The purpose of this chapter is to review literature associated with college access, readiness, and completion in reference to low and moderate-income students. Understanding the factors that prepare a student for success in post-secondary education and the significance of a student's high school experiences mark the start of the literature review. This study is intended to gain an understanding of elements of college readiness that low and moderate-income college graduates perceive to have most significantly impacted their academic success. Therefore it is important to identify the elements of college readiness and examine conceptual models that are designed to frame the overall college completion process. The literature review will be composed of the following sections:

1. Trends, Statistics, and Implications
2. Factors Causing the Problem
    - Relationships
    - Family Involvement
    - Academic Preparedness
    - Financial Matters
    - Policy
    - Motivation
    - Summary
3. Conceptual Models

Trends, Statistics, and Implications

Multiple, large-scale longitudinal studies have collected data on students as they progress through middle and high school and through college. Most notable are the National Education Longitudinal Studies (NELS) conducted from 1982 to 1993 and 1988 to 2000. Data collected includes high school transcripts from graduation year 1992, college records collected in 2000, and interview data from parents, teachers, and school administrators collected in 1988, 1990, 1992, 1994, and 2000 (Adelman, 2007).

Adelman (1999, 2006) conducted two thorough analyses of the longitudinal data sets to look for patterns in degree attainment and recommend improvements to policy and practice. His analyses found that "the academic intensity of the student's high school curriculum still counts more than anything else in pre-collegiate history in providing momentum toward completing a bachelor's degree" (Adelman, 2006, p. xviii). Academic intensity was defined in terms of number of Carnegie units earned in particular subjects. Ninety-five percent of students who reached the highest level of intensity earned bachelor's degrees. A literature review conducted by Kuh et al. (2007) found that "87% of students who complete four years of math, science, and English in high school stay on track to graduate from college, compared with 62% of those who do not" (Kuh et al., 2007, p. 34). The extent to which high schools can increase academic intensity hinges on the reading level of their incoming students.

Academic intensity is further impaired by math limitations. High schools attended by students from lower socioeconomic backgrounds were much less likely to offer advanced courses such as math above Algebra 2. Math is a particularly important content area both in high school and college as 71% of college completers earned college mathematics credits within the first two years of college compared to only 38% of those who did not earn a degree.

In addition to increasing the level of high school academic intensity, Adelman (2006) offered four recommendations that may be successful in closing racial and socioeconomic achievement gaps. He found increasing academic intensity, first-year generation of 20 or more credits, reducing the number of course withdrawals and no-credit repeats, utilization of summer terms to earn extra credits, and immediate entry into college following high school each increased the odds of graduating. Specifically, Adelman (2006) found "for students from the lowest socioeconomic quintile, moving into the top 40% of the academic curriculum intensity index and entering college directly after graduation would improve degree completion rates by 23 percentage points" (p. xxvi).

Ou and Reynolds (2012) conducted a regression analysis on data from more than 1,300 elementary aged low-income minority students obtained from the Chicago Longitudinal Study to model determinants for college attendance and bachelor's degree completion. These researchers found parent and student expectations, academic performance, parent involvement in school, truancy, and classroom adjustment were significantly associated with both college attendance and degree completion. Classroom adjustment, defined as a non-cognitive ability that "emphasizes on the competence of interactions between individuals and other people in the environment" (Ou & Reynolds, 2012, p. 490) was also a significant factor.

The implications are that interaction competencies could be taught to students. Jack (2012) addresses this topic in a New York Times opinion article by describing the experiences of poor students who had received scholarships to attend elite prep high schools. He found low-income students who receive scholarships to attend elite prep schools go on to complete college at rates that are similar to their wealthy high school classmates. Some of the skills that they learn in high school are building positive relationships with teachers, viewing teachers as support

mechanisms, comfort with authority figures, knowing how to ask teachers for help, and academic advisory counseling.

Engle and Tinto (2008) found low-income students are four times as likely to quit college after their first year. College completion rates are seven times higher among low income students who started at 4-year institutions compared to community colleges. Some of the most persistent factors that disrupt higher education for low-income students are outside obligations (work and family) and lack of access to academic social capital such as studying in groups.

Strayhorn (2014) examined student survey data from the 2002 Education Longitudinal Study, a nationally representative sample that tracked 15,000 students from 2002 as high school sophomores, again in 2004 as seniors, and 2006 two years after expected graduation. Quantitative analysis found that time spent studying was second only to socio-economic status regarding influence on college readiness and was consistent across racial categories. Time spent studying is indicative of positive academic work ethic and behaviors and "to prepare for college, students must learn early on how to schedule time for studying, how to study effectively, and strategies for studying large amounts of information in a relatively limited period of time" (Strayhorn, 2014, p. 989). Of the approximately 20 factors that were studied, time spent studying was seven times more significant than participating in a college prep program.

Strayhorn (2014) also identified the following statistically significant measures of college readiness: talking with teachers about academic matters, meeting with advisors, getting college information from a sibling, and frequent discussions with parents about college. Students who reported these activities were also more likely to earn higher grades and enroll in more advanced math classes. Participation in college outreach programs was found to be beneficial to all

students but had the “greatest impact on racial/ethnic minorities especially Latinos” (Strayhorn, 2014, p. 990).

College Completion Factors

Nine risk factors of college persistence and graduation were identified in the 2005 Community College Survey of Student Engagement:

1. Academically underprepared for college level work
2. Delayed entry into college
3. Part-time student status
4. Being a single parent
5. Financially independent
6. Caring for children at home
7. Working more than 30 hours per week
8. Being a first generation college student

Welton and Williams (2015) conducted a case study at a high-minority, high-poverty high school attempting to develop a college-going culture. The researchers interviewed ten staff and faculty members and fifteen students to examine themes of college preparation and potential conflicts with state mandated high-stakes accountability measures. The school faced issues of teacher turnover, deficit thinking, and limited opportunities to schedule advanced courses due to the necessity of exam-prep intervention courses. Additional challenges such as uneven buy-in from staff due to lack of clear expectations from school leaders were encountered that threatened to create “a culture of programmatic supports, not system-wide college readiness” (Welton & Williams, 2015, p. 198).

The college matriculation rate increased over the two-year study period from 20% to 33% of graduating seniors. Specific efforts included initiation of an AVID program, creation of a college counseling center, presence of a university-based outreach program, and partnerships with community businesses to provide funding for college visits.

Deficit thinking, unrealistically high expectations for immediate results, and pressures to meet state accountability standards are all obstacles to development of an authentic college-going culture. The authors argue the term "high minority, high poverty" in itself leads to deficit thinking and larger inequities in the sociopolitical context should be considered. The concept could be reframed by researching "how these schools are highly minoritized by the sociopolitical contexts and systems in which they are situated" (Welton & Williams, 2015, p. 202).

Cabrera and LaNasa (2001) examined the 1998 NELS data with an emphasis on students "(a) meeting minimal college qualifications, (b) graduating from high school, and (c) applying to a 4-year college or university" (Cabrera & LaNasa, 2001, p. 141). This review of data from more than three million students revealed that "SES gaps are reduced, if not eliminated, once a number of influential school-based and family originated factors are taken into account" (Cabrera & LaNasa, 2001, p. 141). Specifically, the study found that increasing the rates at which students acquire college qualifications offers the most potential for success. "Programs must ensure that sixth, seventh, and eighth graders – and especially their parents – are aware of curriculum needed to succeed in college" (Cabrera & LaNasa, 2001, p. 142). Academic qualifications are particularly important considering that only 10% of students who take remedial courses in college will earn a degree (Jones, 2015).

Foundational academic skills such as study habits, literacy, and an appreciation for learning support later acquisition of college qualifications. Henderson and Berla (1994) found

that school-home partnerships can provide information and skills that encourage lowest-SES parents to become more involved in the school activities of their children.

Schools must take an active role in educating not only low SES students about the college-going process but also their parents. Only "23% of lowest-SES parents have been exposed to higher education whereas 99.3% of upper-SES parents have some formal college education" (Cabrera & LaNasa, 2001, p. 142). Parental involvement and expectations will increase if a connection is made between a college degree and economic and social benefits. Information on financial matters is important but general information may be enough to motivate parents to save money for college and provide basic details on the financial aid process (Hossler, Schmit, & Vesper, 1999).

The importance of family involvement has been detailed to the highest-level policy makers. In her 2015 testimony to Congress, Perna emphasized the importance of increasing family awareness by the 9th grade in terms of both the financial cost/benefit of college and the requisite coursework for college preparation.

Relationships

Using NELS:88 data, Zelkowski (2011) organized students as degree earning and non-degree earning and performed statistical analysis on many academic and environmental factors to model the impact of a given variable on degree completion. Among the most positively correlated factors were (1) all students expected to do homework and (2) students placing a high priority on learning. Some of the factors that most negatively impacted college degree earners were (1) schools with district implemented discipline policies, (2) teachers who struggled to motivate students and, (3) teachers with negative attitudes towards students.

Relationships can help bridge the information gap so prevalent among low-income students. Perna (2015) testified to Congress that we must help students navigate pathways, engage and assist them in completing steps, and surround them with supportive adults and peers. Jones (2015) found that advising programs to help students with major and course selection have proven to increase completion rates for low-income and minority students.

Student motivation, viewed through the perspective of relationships to other students may also be important. Schweinle and Helming (2011) studied 276 college students' experiences of success and failure in challenging activities. Not surprisingly, grades and extrinsic rewards were the primary motivators for more than half of the respondents. The study found that "efficacy was threatened and students were less engaged" (Schweinle & Helming, 2011, p. 541) when difficulty was defined in comparison to others vs. inherent difficulty. Low-income students may be vulnerable to stereotype threats and an internal motivational framework may be more important for them. A stereotype threat occurs when an individual becomes fearful of confirming a negative stereotype about a group that they are a part of (Steele & Aronson, 1995).

Family Involvement

Perna and Titus (2005) used data from the 1992 and 1994 NELS follow-up interviews involving more than 9,000 students to examine parent involvement within the framework of a social capital model and explored racial and ethnic differences. Attending and graduating from college is a process that requires economic, human, and social capital. Economic capital may be in the form of income, the perceived importance of the net cost of higher education (tuition, living expenses, etc. minus grants, scholarships, aid, and loans), and the perceived value of a degree. Human capital may be measured in terms of academic achievement, ability, and

preparation. Social capital is developed by interactions between parents and students, parents and high schools, and parents with other parents of college-bound students.

The study found a positive correlation between parent-initiated school contact regarding academic matters and enrollment in post-secondary education and a negative correlation with behavioral related contacts. The number of times a student's family moved while in high school, an event that disrupts access to social capital networks, was associated with a decreased likelihood of college enrollment.

> Compared with students of other racial/ethnic groups, African-Americans realize a smaller college enrollment premium for each unit of parent-student discussions about education related issues but a larger college enrollment premium for each unit of parent initiated contact with the school about academic issues (Perna & Titus, 2005, p. 508).

Schools could utilize this data to open lines of communication to facilitate academic-related discussions between teachers, administrators and African-American parents. Study analyses found that African-American families have the highest average level of parent-student discussions about education that "illustrates the need to move beyond a cultural deficit approach" (Perna & Titus, 2005, p. 509).

Perna and Titus (2005) also found strong correlations between college enrollment and the volume of social capital available at school. This social capital was measured in terms of average family income at the school, average parental education levels, and average level of parental educational expectations. Minority students are more likely to attend school with lower levels of social capital. "Thirty seven percent of African-Americans and 49% of Hispanics attend schools in the lowest quartile of parental education, compared with 17% of Whites and 16% of Asian Americans.

A 2008 qualitative study by Rowan-Kenyon, Bell, and Perna examined variations by socioeconomic class on contextual influences of parental involvement in college-going activities.

The researchers interviewed 596 participants from a total of 15 high schools across five states. Participants included parents, teachers, counselors, and focus groups of 9th and 11th grade students. The study was organized in a case study (Perna & Titus, 2005, p. 570) format and interview questions included "How do parents promote or impede college opportunity?" and "What can students, parents, counselors, and teachers do to increase the chances that students in this school will attend college?"

Three themes arose when the interviews were coded: "parents shape college opportunity for their children, but involvement varies based on socioeconomic class; parental involvement is shaped by, and also shapes, the school context for college opportunity; and parental involvement is also shaped by the higher education context and the social, economic, and policy context" (Perna & Titus, 2005, p. 570). Parents who were college graduates offered more specific, focused, and direct expectations and experiences to their children. Higher socioeconomic parents have greater access to resources such as information about the college-going process, time for discussions about college, visits to campuses, and money. Families with lower socioeconomic status were more likely to indicate a reliance on the school to provide these resources. Schools with lower socioeconomic families reported lower parent participation in traditional, at-school events for parents. "Participants attribute low involvement to the overburdened schedules of parents and the reliance of school on traditional ways of involving parents" (Perna & Titus, 2005, p. 576). However, some schools indicated they had success by offering these events at local churches and making information more readily available by posting it online. Researchers found that in states with name-brand, merit-based scholarship programs, parent awareness of these programs was greater than that for need-based programs even among low socioeconomic families.

Reddick et al. (2011) interviewed 21 low-income, minority students to gain understanding of the forms of capital they were able to access on their pathway to post-secondary education and identify the academic and social challenges faced by these students. Students consistently reported on the importance of "supportive relationships from peers, school officials, and family" (Reddick et al., 2011, p. 602). Self-motivating attributes were also important to overcome obstacles such as negative stereotypes that threatened self-efficacy. In some instances students were able to access social capital provided by high expectations from a single teacher in an environment that was not supportive. Specifically, Reddick et al. (2011) noted, "Each student identified a few school faculty members who made the greatest impact on his or her transition to college" (p. 612).

High school counselors, role models, high school based college outreach programs, and college based outreach programs were identified as accessible forms of capital. Parent and community support were seen as variable forms of capital. Self-motivation was labeled an essential form of capital as, "despite negative influences at home and in the community, these students envisioned education transforming their lives" (Reddick et al., 2011, p. 611).

Academic Preparedness

Using NELS:88 data, Zelkowski (2011) organized students as degree earning and non-degree earning and performed statistical analysis on many academic and environmental factors to model the impact of a given variable on degree completion. The most positively correlated factors were (1) time spent on out of school math homework in 12th grade and (2) continuous enrollment in math throughout high school. Time spent in class on math homework in 12th grade was among the factors that most negatively impacted college degree earners. These findings

indicate a need to prepare students to independently manage their time to complete academic tasks.

Adelman (2007) took a close examination of the U.S. Department of Education's National Longitudinal Study (NELS) 88-2000 and found that of 90% of college students who returned for their second year of college, one-third did so with fewer than 20 credits, or had withdrawn from/repeated three or more courses. These students were termed low-momentum and only 27% of them continued on to earn a credential. According to NELS data, 46% of low-momentum students could not read at the simple inference level in 12th grade and 48% did not complete Algebra 2.

Adelman argues that we need to consider "participation" more than access or attendance and defines participation as earning 10 or more credits per semester. From the NELS data he found 97% of college students from the top 60% of their high school classes who entered college directly following graduation earned at least 10 credits with very little difference between high and low-income students (99% vs. 94%). The clear implication is that the bottom 40% of high school graduates are academically underprepared, particularly as measured by reading at a simple inference level and highest math completed of less than Algebra 2. Additionally, students from socioeconomic quintiles other than the highest are less likely to attend high schools that offer calculus (Kuh et al., 2007).

Financial Matters

Yu (2014) conducted a literature review examining low-income students' borrowing patterns and degree attainment. The study found that low-income students were more likely to enroll in community colleges, borrow less money, and work more hours in an attempt to lower the costs of college attendance. The effect of these trends may contribute to lower rates of degree

attainment as students who start at 4-year universities and work fewer hours are more likely to earn degrees.

According to Yu (2014), financial factors account for 50% of the variation in completion rates. There has been a recent shift in policy towards student loans and away from grants. This trend implies the policy shift is based on a belief that "benefits of higher education will be primarily reaped by individuals rather than society" (Yu, 2014, p. 51). Students who are able to pay for college with grants only (i.e., no loans) are 50% more likely to graduate. More specifically, the shift towards loans indicates an "expectation that students – not states or institutions – would bear most of the burden of college costs" (Elliott, 2014, p. 28).

According to 1995 statistics from the General Accounting Office, persistence rates for African American and Hispanic students increased by approximately 7 percent per $1,000 of additional grant funds received (Kuh et al., 2006, p. 25). Loans are associated with higher persistence rates only for white students. Additionally, "black youth are more likely to have private loans, which carry high and variable interest rates, have high fees, and offer less protection for borrowers than federal loans" (Houle & Warner, 2017, p. 92). There is also evidence that student debt affects black and white students differently. Johnson, Van Ostern, and White (2012) found that among college dropouts, 69% of black students indicate student debt as the primary factor for leaving school, compared to 43% for white students.

Policy

Most current financial policy does not provide incentives for universities to raise completion rates. From a business perspective, post-secondary institutions receive revenue from tuition and fees, research grants, and in-kind donations. Tuition is assessed to students based on the number of credits they take. The tuition transaction works for higher-income students who

can afford the payments in exchange for the promise of job prospects and increased future earnings. These students are able to select those that offer the best return for their investment (Johnson, 2016). Johnson (2016) stated, "Cash for credits does not however, provide a sustainable foundation for other things that public higher education needs to do: focus on low-income students, offer courses in high-cost technical and scientific disciplines, invest in advising and long-term academic planning" (p. 1).

Some colleges engage in unethical practices by admitting "students who qualify for loans and government-backed financial aid but not providing these students with the services and programs they need to achieve success (Sanacore & Palumbo, 2016, p. 24). Furthermore, these practices are more common at less prestigious institutions that do not have large endowments to close the budget gaps necessary to provide ample in-house financial aid. Low-income students attending more selective and expensive universities are likely to pay less than they would have at many less selective schools (Hoxby & Avery, 2012).

Efforts to ameliorate the financial burden faced by students include the Kalamazoo Promise; a four-year scholarship that is offered to all graduates of Kalamazoo Public Schools who completed all four years of high school in the district. The scholarships are based on the number of years a student has been in the district and pay one hundred percent of college tuition and fees for students who spent their entire k-12 career in the district. Other successful strategies include requiring all seniors to apply to multiple colleges while also completing FAFSA financial aid forms (Militello, Schweid, & Carey, 2011).

Motivation

Brophy (2005) characterizes a performance goal oriented student as concerned primarily with performance compared to that of peers. Mastery goals are focused on gaining knowledge,

skills, and information necessary to complete current and future tasks. Students develop performance goals as a result of speaking with other students. Goal theory researchers generally agree that mastery goals are more productive than performance goals. There may be differences in how students from different socioeconomic classes are motivated to succeed in college.

Schweinle and Helming (2011) surveyed 265 college students at a small midwestern campus to classify the motivations behind their academic success. A desire to earn a good grade or other extrinsic reward was the primary motivating factor for more than half of the respondents. Mastery learning and a working goal of wanting to complete all assignments had nearly equal weighting and accounted for most of the remaining students. Very few students reported being motivated by social or performance goals. Almost all students reported one primary motivation for success.

Petty (2014) conducted a literature review with a focus on intrinsic and extrinsic motivation of first-generation college students using Maslow's Hierarchy of Needs (physiological, safety, social, esteem, and self-actualization) as a framework. As noted by Engle and Tinto (2008) there is significant overlap among first-generation and low-income students because their parents, without a college degree are unable to access the highest-paying professions.

In this review, Petty credits Hodges-Payne (2006) for asserting, "one of the strongest motivators for first-generation students was the influence of themselves and their need for achievement" thereby underscoring the importance of internal individual motivating factors. Successful students fulfilled social needs with a feeling of belonging, had positive self-esteem, could self-actualize, and were able to overcome their fear of failure. Students could influence themselves with a need for achievement as a motivator to study.

Hicks (2008) surveyed college students with the premise that the first year of college is the most difficult and stressful. Students who have a sense of belonging with the university fare best. The most common challenge is the social adjustments associated with making new friends and getting along with roommates. These findings point to the importance of social needs (third on Maslow's hierarchy).

Additionally, Hicks (2003) surveyed 197 pre-college students (included both first and non first-generation students) to examine their perceptions and expectations about college before and after attending a six-week summer program following high school graduation. He found that, "beyond academic and economic constraints, first-generation college students may be less well prepared psychologically for college" (Hicks, 2003, p. 6). The first-generation students tend to lack an understanding of the rigors of college and have a career rather than an academic orientation. First-generation students are also more likely to look to professors to tell them if they are having difficulty in a course and expect them to teach study skills required for success.

Conceptual Models

Conceptual models of college readiness, enrollment, and completion are typically framed in economic or sociological perspectives (or a combination of the two). Economic models are based on students making informed, rational decisions using cost-benefit analysis to make decisions. Sociological models account for contextual factors such as access to social and cultural capital (Harvill, Maynard, Nguyen, Robertson-Kraft, Tognatta, & Fester, 2011).

Perna and Thomas (2006) developed a "conceptual model for understanding student success and identifying ways to reduce gaps in success across income, class, and racial/ethnic groups" (Perna & Thomas, 2006, p. 1). The researchers conducted a thorough literature review as part of their effort and found six central conclusions (Perna & Thomas, 2006, p. 7):

1. Student success is a longitudinal process.
2. Multiple theoretical approaches inform understanding of student success.
3. Student success is shaped by multiple levels of context.
4. The relative contribution of different disciplinary and area perspectives to student success varies.
5. Multiple methodological approaches contribute to knowledge of student success.
6. Student success processes vary across groups.

The study presents a layered, four context model to describe post-secondary student success. The layers are (i) internal, (ii) family, (iii) school, and (iv) social, economic, and policy. Furthermore, the authors examined each context from four disciplinary vantage points to gain a holistic view of the college-going process: education, psychology, sociology, and economics. Viewed through this lens, "college attendance is a sociopsychological phenomenon rather than an individual achievement" (Ou, 2012, p. 476).

Alleman and Holly (2014) interviewed 79 adults across six rural school districts to examine the role of communities in the post-secondary preparation of low-income students in rural areas. Participants included school personnel, business leaders, local government officials, and community leaders. Several themes emerged from this study that are relevant to my rural, low-income context. Residents and community groups were found to be very involved in many aspects of student preparation and their efforts could be classified into three elements: program support, program directing, and program initiation/administration. The impacts of community efforts were evaluated using a matrix with the elements on one axis and the essential college preparatory tasks of college aspiration, high school graduation, college qualification, and

application. It is significant that this study views the surrounding community and its people as a resource from an asset model viewpoint.

The concept of capital in various forms has been used to describe resources that students can access to receive guidance and support in order to make informed decisions about higher education. Cultural capital is the collection of knowledge, experiences, and resources that are passed on generationally. Social capital is accessed through interactions with peers, mentors, counselors, and school personnel. Low socioeconomic students are typically viewed at a deficit with regards to traditional models of capital (Reddick, Welton, Alsandor, Denyszyn, & Platt, 2011), but Yosso (2002) conceptualized two additional forms of capital, namely community and aspirational (Yosso, 2005) that may be particularly important for low socioeconomic students.

Adelman (2007) found patterns among college persistors who had positive attitude, knowledge of finances, responsibility for learning, and high grades. Freshman year grades are extremely important and students must be able to read on a simple inference level to be successful in college.

Perna (2002) conducted a detailed analysis of 1,110 precollege outreach programs (851 were specifically designed for low-income students) using data collected in a College Board survey. The survey focused on collecting information of program goals and activities. The study referenced the reported goals and activities with a literature review identifying five critical and six ideal intervention strategies to assess the overall efficacy of the outreach programs.

The five critical elements are: goal of college attendance, offering college tours or fairs, goal of rigorous high school course taking, parental involvement, and starting students in the program by 8th grade. Of the programs targeting low-income students, 24% were identified as

containing all of the critical elements. Promoting rigorous course taking and beginning by 8th grade were the most frequently missing components.

The ideal elements are: goal of college awareness and exposure, goal of improving academic skills, increasing parent college awareness, parent involvement in FAFSA application, SAT / ACT test preparation, and assistance with applying for scholarships. Six percent of the programs geared towards low-income students met all of the critical and ideal criteria. Parent FAFSA participation and help with scholarship applications were the ideal components most commonly missing.

Militello, Schweid, and Carey (2011) conducted a case study of highly effective high schools. These researchers found some of the most impactful strategies were; program management, external partnerships, leadership, college focused intervention, achievement culture, and parental outreach.

Cates and Schaefle (2011) examined the impact of a six-year GEAR-UP program conducted at four western school districts involving 187 participants. More than 70% of the students in the participating districts received free or reduced-priced meals at school. The study found that hours of academic advising in the outreach program led to completion of more college track high school courses. Advising hours, summer program hours, educational field trips, and college visits had a statistically significant impact on whether students took the PSAT exam.

The students were surveyed as to which program elements they found most influential. According to students, college campus visits, listening to speakers from colleges at their schools, and college information booklets were the most impactful. The researchers conducted a bivariate correlation and found the importance of speakers from a college in 10th grade and grade-level booklets about college were more important to students with higher expectations for college

attendance. The results of this study point to the value of "specific information about the college process" and "illustrate the critical role that social and cultural capital plays in the college readiness process" (Cates & Schaefle, 2011, p. 331). These task-specific experiences are examples of capital that put targeted information in the hands and minds of students.

Hoxby and Turner (2013) implemented a successful intervention program providing key information to targeted students via mass mailings. Low-income students do not apply to more selective schools (where graduation rates are higher) largely because of a lack of information and barriers such as application fees (which can be waived but requires knowledge of process). Middle and high-income students apply to colleges in three categories with regard to likelihood of admission: safety, match, and reach. Low-income students are more likely to apply to local colleges with lower tuition rates. There is a need to inform students of the net cost of college, i.e. tuition minus financial aid.

Summary

The process of aspiring, applying, gaining acceptance, and graduating from college is a complex, lengthy, and challenging task. Low-income students may not have the same access to social capital as do their more affluent peers in this information-intensive process but researchers have identified some of the elements that are common among successful students. A conceptual framework to classify factors as individual, family, school, and community is a useful tool for organization.

Researchers have conducted empirical studies utilizing NELS data that have identified time spent studying, continuous enrollment in high school math, and high school academic intensity as the factors most highly correlated with degree attainment. There is evidence that grants and scholarships are much more effective than loans for low-income students contrasting

with current policy shifts towards more student loans. However, the ways in which students perceive the importance of these elements is still unknown. A table of references utilized for the literature review and notes from each source may be found in Appendix A.

The research questions that frame this study are repeated here:

1. What are the pre-college experiences, opportunities, and relationships that low-income students need to be successful in college?
2. How do successful low-income college students perceive the relative importance of the components identified in question 1?
3. Why did the participants perceive the experiences in a particular manner? What factors and/or knowledge influenced their decisions?

These research questions are purposely designed to understand the elements necessary for success in college for low-income students, discern the student perspective, and gain insights as to why students perceive their experiences in those ways. The review of literature in this chapter has identified and examined some of the elements.

The methodology of the study will be detailed in Chapter 3. Refinement of the elements will continue and the process of understanding student perspectives will be examined.

CHAPTER 3: METHODOLOGY

Introduction

This study sought to understand the pre-college experiences that low-income college graduates perceive to most significantly impact their college attendance and completion. Table 1 presents a graphic organizer of how the research questions fit into the data collection process.

Perceptions are elusive, idiosyncratic, and difficult to quantify but we need to measure them to better understand first-hand perspectives. InQuiry is a mixed methods approach and is ideally suited to this study. InQuiry is a research technique that combines Q methodology to collect quantitative data on participants' subjectivity with focus group interviews to gather qualitative data. The quantitative data tells us what the participants' perspectives are while the qualitative data provides insights on these perspectives.

An overview of Q methodology will be presented in this chapter and the overall research process will be detailed. A table of the Q statements to be used in this study is included in the research description.

Overview of InQuiry

Q methodology as a research method was developed by William Stephenson in 1935 as a means to quantify subjectivity. Subjectivity, and more specifically *subjective communicability* is fundamental to Q methodology and "refers to the communication of a personal point of view" (McKeown & Thomas, 2013, p. 2). The researcher can apply quantitative measures to understand subjective attitudes and opinions that the participants communicate.

To gain understanding of opinions and viewpoints, participants will rank order a series of opinion statements about a specific topic into a normal distribution (- to +) grid. Responses are

Table 1

Research Questions and Data Collection

Research Question	Data Collection	Timeline
What are the pre-college experiences, opportunities, and relationships that low income students need to be successful in college?	Extant literature review Q Statement development, including pilot study	2015 – present
How do successful low-income college students perceive the relative importance of the components identified in question 1?	Q sort Post sort questionnaire	January – February 2017
Why did the participants perceive the experiences in a particular manner? What factors and/or knowledge influenced their decisions?	Focus group interviews with sample from each factor.	February – March 2017

clustered through factor analysis and participants are grouped with others who share statistically similar perspectives.

A Q methodology study has several phases: (1) developing the concourse, (2) selecting a sample of statements from the concourse to create the Q sample, (3) selecting participants to comprise the P sample, (4) facilitating the participants through the forced distribution card sorts known as the Q sort, and (5) performing the factor analysis and interpreting the findings.

Militello, Janson, and Tonissen (2016) have developed a process, known as InQuiry, for an additional step whereby the participants are interviewed to gain further insights into the rationale behind their decisions. The interview process allows for reflection on the part of both the researcher and the participant and provides an opportunity for participant meaning making. Application of a reflective process following the Q sort guides participants to uncover patterns and meaning in their own experiences that they had not previously considered.

To better prepare low and moderate-income students for success in post-secondary education, it is important for k-12 educators and administrators to understand the perspectives of those students who have been successful. Given a more complete understanding, k-12 educational experiences could be purposefully designed to give students a better chance at not just attending but actually graduating from college.

Development of Q Sample

To apply Q methodology, the "researcher must develop a set of statements related to a particular object of inquiry or subject matter" (Militello, Janson, & Tonissen, 2016, p. 93). The set of statements is referred to as the concourse and is generated from an extensive literature review, interviews, and pilot studies.

Once the concourse has been developed, these initial statements are edited, combined, and refined to create a final list of statements, known as the Q sample, which is focused on the research questions. “The primary purpose of the concourse is to create a large set of statements that broadly represents different opinions of the group to be studied” (Militello et al., 2016, p. 93).

Fifteen educational leaders including principal, district leaders, and professors provided input on statements. The professionals were asked to review the statements with the following questions in mind and to give feedback to improve the statements:

1. Are the statements worded clearly and are they understandable? If not, what changes would you suggest?
2. Are there any statements that are similar in nature and should be combined?
3. Are there any statements that you would remove from the list?
4. Are there any additional statements you would add to the list?

After review, several edits were made to the statements based on recommendations from the educational leaders. Each edit made in response to feedback received is detailed below.

- Statement 4 originally read as “My success in college was helped by participation in college tours on a college campus organized by my school”. One leader commented that the source of the tour was not important. He argued if this was an important experience to a participant who had toured a college campus other than with their school, it needed to be captured by this study. The statement was edited to read, “My success in college was helped by participation in college tours on a college campus”.
- Statement 17 originally read, “My success in college was helped by teachers and administrators having high expectations for me and offering positive support.” For

simplicity, the statement was edited to read, “My success in college was helped by teachers and administrators having high expectations for me.”

- Statement 23 originally read as “My success in college was helped by talking with teachers about schoolwork”. One reviewer suggested that nearly all students speak with teachers about schoolwork but what is important is that students show interest in their own academic progress. The statement was edited to read, “My success in college was helped by talking with teachers about my academic progress”.
- Statement 25 originally read, “My success in college was helped by talking with my siblings about college”. Multiple reviewers commented that some students might not have siblings. The statement was edited to read as “My success in college was helped by talking with my siblings or a close relative about college.”
- Statement 32 originally read, “My success in college was helped by availability of information about college at my high school.” Two reviewers asked about the difference between information being available and information that was presented to students. The statement was edited to read as “My success in college was helped by information that was presented to me about college in high school.”
- Statements 41 and 42, “My success in college was helped by having a career goal that required a college degree” and “My success in college was helped by spending time away from home where I learned to be independent” were added based on the recommendation and personal experiences of one of the educational leaders.

The Q sample statements are presented in Table 2 including the source and category of each statement. Statements were categorized according to the conceptual framework discussed in Chapter 2.

Table 2

Elements of College Readiness Q-Sample Statements

No.	Statement	Source	Category
1	My success in college was helped by learning study skills to be able to complete homework and assignments on time.	Perna & Swail Strayhorn, 2014 Zelkowski, 2011 Welton & Williams, 2015 Survey participant #2.	Internal
2	My success in college was helped by getting help with the financial aid process.	Perna & Swail Tierney, Bailey, Constantine, Finkelstein, & Hurd, 2009 Hoxby & Turner, 2013 Survey participant #'s 2 and #9.	Internal Family
3	My success in college was helped by participating in a college tour on a college campus.	Perna, 2002 Cates & Schaefle, 2011 Petty, 2014 Survey participant #'s 2, 4, 7, and 10.	School
4	My success in college was helped by participating in college fairs.	Perna, 2002 Survey participant #10.	School
5	My success in college was helped by having discussions about college with an adult at my school by 8th grade.	Perna, 2002 Survey participant #1.	School
6	My success in college was helped by having discussions with parent(s) about the college selection and application process.	Perna, 2002 Strayhorn, 2014 Rowan-Kenyon ,Bell, & Perna, 2008 Survey participant #'s 2, 7 and 9.	Family
7	My success in college was helped by expectations from my parents that I would go to college.	Perna, 2002 Strayhorn ,2014 Rowan-Kenyon ,Bell, & Perna, 2008	Family

Table 2 (continued)

No.	Statement	Source	Category
8	My success in college was helped by high school coursework that was challenging which prepared me for college level work.	Perna, 2002 Adelman, 2006	School
9	My success in college was helped by receiving scholarships, grants, or financial aid to attend college.	Perna, 2002 Yu, 2014	Economic
10	My success in college was helped by earning good grades in high school that motivated me to do the same in college.	Adelman, 2007 Schweinle & Helming, 2011	Internal
11	My success in college was helped by developing a positive attitude about school.	Adelman, 2007 Leonhardt, 2015	Internal School
12	My success in college was helped by receiving college advising from a guidance counselor.	Cates & Schaefle, 2011 Survey participant #5	School
13	My success in college was helped by learning how to advocate for myself.	Thomas, 2013 Schweinle & Helming, 2011 Survey participant #6.	Internal
14	My success in college was helped by feeling connected to my high school.	Thomas, 2013 Hicks & Heastie, 2008 Petty, 2014	School
15	My success in college was helped by conversations with my friends about academic success and college aspirations.	Thomas, 2013 Perna & Titus, 2005 Schweinle & Helming, 2011 Leonhardt, 2015 Survey participant #5	Community

Table 2 (continued)

No.	Statement	Source	Category
16	My success in college was helped by teachers and principals having high expectations for me.	Thomas, 2013 Zelkowski, 2011 Tierney, Bailey, Constantine, Finkelstein, & Hurd, 2009 Welton & Williams, 2015 Survey participant #10	School
17	My success in college was helped because my family believed in and supported me.	Thomas, 2013 Perna & Titus, 2005 Hicks, 2003 Survey participant #8	Family
18	My success in college was helped by committing to a personal goal of college completion.	Thomas, 2013 Alleman & Holley, 2014	Internal
19	My success in college was helped by attending a high school where all students had the same opportunities.	Thomas, 2013 Survey participant #6.	School
20	My success in college was helped by earning college credits in high school through dual enrollment, distance learning, or other program.	Bragg, Kim, & Barnett, 2006 Adelman, 2006 Welton & Williams, 2015	School
21	My success in college was helped by talking with teachers about my academic progress.	Strayhorn, 2014 Jack, 2015 Survey participant #5	Internal School
22	My success in college was helped by learning to ask teachers for help.	Strayhorn, 2014 Jack, 2015 Survey participant #6	Internal School
23	My success in college was helped by talking with my siblings or close relative about college.	Strayhorn, 2014	Family

Table 2 (continued)

No.	Statement	Source	Category
24	My success in college was helped by having a personal source of motivation and inspiration.	Petty, 2014	Internal
25	My success in college was helped by being in high school classrooms that were focused on learning.	Zelkowski, 2011 Thomas, 2013	School
26	My success in college was helped by my parents talking with teachers and administrators about academic matters at school.	Rowan-Kenyon, Bell, & Perna, 2008 Perna & Titus, 2005 Survey participant #2.	Family
27	My success in college was helped by knowing my parents saved money for my college education.	Rowan-Kenyon, Bell, & Perna, 2008 Survey participant #4	Family
28	My success in college was helped by taking advanced math classes beyond Algebra II.	Adelman, 2006	School
29	My success in college was helped by involvement in extra-curricular activities.	Hicks & Heastie, 2008	School
30	My success in college was helped by information about college that was presented to me at school.	Alleman & Holley, 2014 Welton & Williams, 2015 Survey participant #11	School
31	My success in college was helped by being motivated by a love of learning.	Schweinle & Helming, 2011 Perna & Thomas, 2006 Survey participant #3	Internal

Table 2 (continued)

No.	Statement	Source	Category
32	My success in college was helped by listening to college students speak about their experiences.	Survey participant #'s 4, 5 7, 9, and 11	School
33	My success in college was helped by developing academic self-confidence.	Hicks, 2003 Survey participant #3	Internal
34	My success in college was helped by assistance with completing applications and essays.	Tierney, Bailey, Constantine, Finkelstein, & Hurd, 2009	School Community Family
35	My success in college was helped by a specific teacher who encouraged me to go to college.	Reddick et al, 2011 Survey participant #'s 4, 5, and 10	School
36	My success in college was helped by a mentoring relationship with someone in my community.	Survey participant #'s 4 and 8	Community
37	My success in college was helped by someone who looked like me that believed in and supported me.	Survey participant #'s 5, 7, 8, and 9	School Community Family
38	My success in college was helped by having encouraging conversations with a college student who looked like me.	Survey participant #'s 5, 7, and 9	School Community Family
39	My success in college was helped by overcoming a challenge or obstacle that gave me the confidence to know I could succeed.	Survey participant #'s 3, 5, and 6	Internal

Table 2 (continued)

No.	Statement	Source	Category
40	My success in college was helped by learning to study with my peers.	Hicks, 2003	Internal School
41	My success in college was helped by having a career goal that required a college degree.	Survey participant #13	Internal
42	My success in college was helped by spending time away from home where I learned to be independent.	Survey participant #13.	Internal Family

The P Sample

The P sample refers to the participants who will be sorting the statements. For this study, 31 participants who were recent college graduates or current undergraduate upper-classmen in good academic standing from low and moderate-income backgrounds completed the study.

My context is a small, rural district in northeastern North Carolina. Understanding the perspectives of former students will be very useful to current school and district leaders in their decisions about which experiences are important to provide for all students. The availability of high-paying unskilled jobs is nearly nonexistent thus current students will need to complete some education beyond high school to find employment.

Q methodology is a suitable research design for this study because it can illuminate the existence of particular perspectives of those within the P sample.

Generalizations of findings from Q methodological studies are possible but results indicate multiple participant viewpoints from a particular study rather than definitive conclusions that may apply in broader contexts.

The Q Sort

Q methodology is a research method developed in 1935 by Dr. William Stephenson to quantify subjectivity. Participants are required to sort the statements of the Q sample in rank order in response to a condition of sort. The card sort protocol is presented in Appendix B. Participants were informed that participation is voluntary and were given a consent form (see Appendix D). Each participant was given a pre-coded unique identifier. The master list of participant identifiers will be destroyed at the conclusion of the study.

For this study, the condition of sort was “What pre-college experiences were the most influential towards your success in college?” Statements from the Q sample shown in Table 2

were printed on business-sized cards. Participants received a complete set of cards and individually sorted them into the grid shown in Figure 3 with a forced-choice distribution. This distribution ranges from a positive pole, where the participants placed statements with which they most strongly agree, through zero to a negative pole where these participants placed statements with which they most strongly disagree.

Quantitative data collected from the Q sorts was analyzed using the PQMethod statistical software program. The software program was used to perform a by-person factor analysis to create a correlation matrix showing how each sort relates statistically with the other completed sorts. The factor analysis determined groups of participants with similar perspectives, referred to as factors or "families" for the post-sort interviews. Q methodology is a by-person factor analysis where response patterns are examined across participants rather than across variables (Militello et al., 2016).

Potential value of emergent factors was considered by examining eigenvalues after rotation through the Varimax method (Watts & Stenner, 2013). Z scores for individual statements were compared to determine the statements that participants valued most highly. Factor arrays were used to create model sorts for each factor that represented the perspective of that factor (Watts & Stenner, 2012).

Follow-Up Interviews

Qualitative data was collected during facilitated post-sort interviews with selected participants. Participants with the highest statistical correlations with each family were selected for follow-up interviews. The post-sort interview protocol is presented in Appendix C. Participants were informed that participation is voluntary and were given a consent form (see Appendix E).

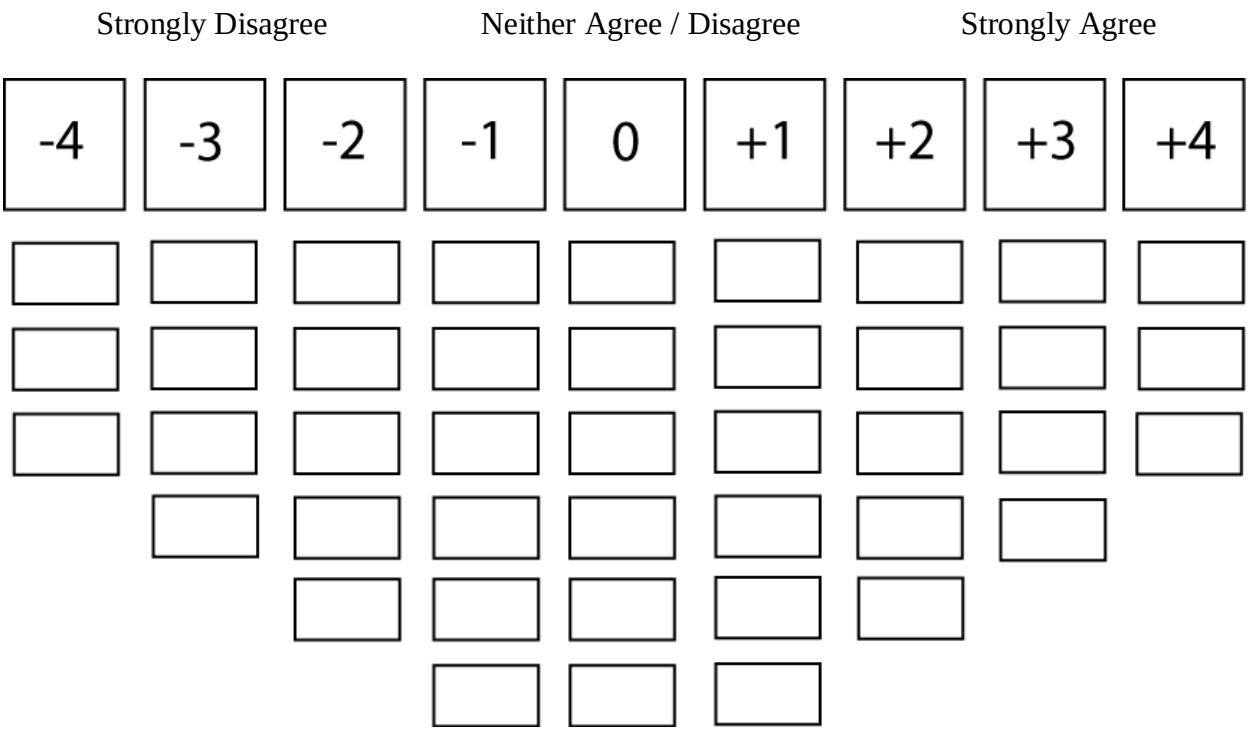

Figure 3. Q Sort distribution grid.

Participants were grouped with others who have statistically similar viewpoints to discuss their perspectives. Notes collected during the interviews were analyzed to document themes and common perspectives. Participants were shown a model sort that is statistically representative of their family and asked to answer the following questions as part of the focus group interviews. (1) Who is in your group? Describe any similarities and/or differences, (2) Which statements best represent your shared perspective, (3) What has had the greatest impact on how you sorted your cards the way you did? and (4) What name would you assign that represents the perspective illustrated by this model sort?

The purpose of the follow-up interviews was to gain understanding about the underlying "why" behind the participants' perspectives by engaging in conversation to uncover facts and opinions. (Yin, 1994) Understanding the stories behind participant motivations and experiences was an important part of this project. Qualitative interviewing begins with the assumption that the perspectives of others is meaningful, knowable, and able to be made explicit" (Patton, 1990, p. 278).

Data Analysis

Qualitative data collected in the post-sort focus group interviews were combined with the quantitative factor analysis to more thoroughly understand participant viewpoints. The focus group interviews were utilized to gain a better understanding of underlying participant beliefs and perspectives about the elements of college completion. Qualitative data collected during the post-sort interviews was examined for themes and patterns and analyzed with a general content analysis (Lincoln & Guba, 1985).

The focus group interviews provided insights to answer research question three. Why did the participants perceive the experiences in a particular manner? What factors and/or knowledge influenced their decisions?

Notes from the interviews were collected as personal communications with the participants. Student comments were combined with quantitative data collected by the Q sort to provide a deeper understanding of participant perspectives. Phenomena, conditions, contexts, and consequences in the data were identified (Creswell, 1998) and analyzed to reveal features and relationships (Wolcott, 1994). Individual and shared experiences and perspectives were identified through the data analysis process. Interpretations of participants' perspectives were based on both qualitative and quantitative data.

Subjectivity Statement

A researcher's personal experiences can potentially influence the interpretations and meaning derived from data collected in a research study. The purpose of this subjectivity statement is to provide the reader with some background information on the experiences and viewpoints of the researcher.

I entered the teaching profession via lateral entry after a brief career as a consulting engineer. My first experiences working with students were as an athletic coach. The satisfaction that came with helping young people learn new skills and achieve beyond what they previously thought they were capable of inspired me to become an educator in 2001.

I began teaching at a small, predominantly white, upper-class private school in the suburbs of Boston. I have since transitioned to a public district in rural northeastern North Carolina where the majority of the students are African-American and the median annual family income is approximately $30,000. Despite my status as a white educator and the inherent

obstacles faced by my students, I built positive relationships with students and employed my coaching skills to help them achieve academic success.

In 2013, I earned my Master's Degree in School Administration from North Carolina State University and became an assistant principal. While a graduate student, I met Travis Pinckney and brought his model for student success, *College RED*, to my students and school. Travis uses his personal story of going from growing up in inner-city Jacksonville, Florida to earning his degree and starting his own company to motivate and inspire students. It was through Travis that I began to understand how we, as educators, were getting our students through high school but not at preparing our students to be successful in post-secondary education.

In my current role as a district administrator, a primary focus of my work is providing guidance to our principals about effective and meaningful experiences for our students. My goal in conducting this study is to gain an authentic understanding of the elements of college readiness that are important to students in my district. I will then communicate those perspectives to the district and school leaders with whom I work such that student educational outcomes may be improved in my district.

Summary

In this chapter an overview of the InQuiry process and Q methodology was presented. The suitability of the research design was discussed and the procedures of the research were described. The InQuiry research process includes development of the Q and P samples, conducting the Q sort and the post-sort interviews and data analysis. The findings of the study will be presented in Chapter 4.

CHAPTER 4: FINDINGS

Introduction

The purpose of this InQuiry study was to identify and examine the elements of pre-college experiences that persisting college students and graduates perceive to have had the most impact on their college success. The study was also designed to examine why the students believed the selected elements were essential to their success.

School leaders desire to provide students with meaningful experiences that will result in success in college following high school graduation. It is valuable to investigate student perception about what prepared them for college compared to the elements of college readiness found in the literature. The study was designed to answer the research questions directly from current college students.

Quantitative and qualitative data were collected to capture student beliefs and perspectives about their pre-college experiences that impacted their success in college. Quantitative data were analyzed using PQMethod software (Schmolck & Atkinson, 2014). The software was used to compute variance, identify factors, and determine relationships between and among the participants using data from 31 Q sorts. Written responses from the post-sort questionnaire and focus group interviews provided qualitative data to deepen understandings of the numerical results. The subjective opinions from the participants were used to name and describe each factor.

Correlation Matrix

Principle component analysis was used to find associations (a correlation matrix) among the different Q-sorts (McKeown & Thomas, 2013). The analysis of a correlation matrix

quantifies the relationship between any two sorts (Watts & Stenner, 2012). Establishing relationships between each sort is a necessary step towards the generation of a factor matrix.

The matrix for the current study measures 31x31, based on the number of participants. A truncated version of the correlation matrix is presented in Table 3. Correlation coefficients range from -1.0 to +1.0. A correlation of +1.0 indicates an identical match with all cards placed in the same column. A correlation of -1.0 indicates an opposite match between participants with all cards place in the opposite column as the reference sort.

For example, Participant 31 had relatively high correlation matrix sort values with Participant 3 of 0.52 indicating some similarity with each other. Participants 3 and 31 are both represented by Factor Three. Conversely, Participant 1 and Participant 30 had a correlation matrix sort value of -.15, reflecting minimal similarity between their sorts. Participants 1 and 30 are not represented within the same factor.

Factor Analysis

When highly corresponded Q-Sorts are clustered together, a similarity emerges that is named a factor. Q Methodology examines sorts holistically between participants rather than making a comparison of how individual statements were sorted by the participants (Watts & Stenner, 2012). The factors were named based on the statistical characteristics of highly ranked statements and common themes that emerged from post-sort survey questions and focus group interviews.

The PQMethod analysis first produced a solution with eight unrotated factors. Participants having similar viewpoints were clustered together. The Eigenvalues of all eight factors were examined to help determine where a noticeable change existed between the factors. A Scree Plot of the Eigenvalues is displayed in Figure 4. The first factor had an Eigen Value of

Table 3

Correlation Matrix between Sorts (Truncated)

Sorts	1	2	3	…	29	30	31
1	1.0	.28	.20	…	.31	-.15	.24
2	.28	1.0	.33	…	.47	.19	.51
3	.20	.33	1.0	…	.45	.21	.52
…	…	…	…	…	…	…	…
29	.31	.47	.45	…	1.0	.39	.32
30	-.15	.19	.21	…	.39	1.0	-.01
31	.24	.51	.52	…	.32	-.01	1.0

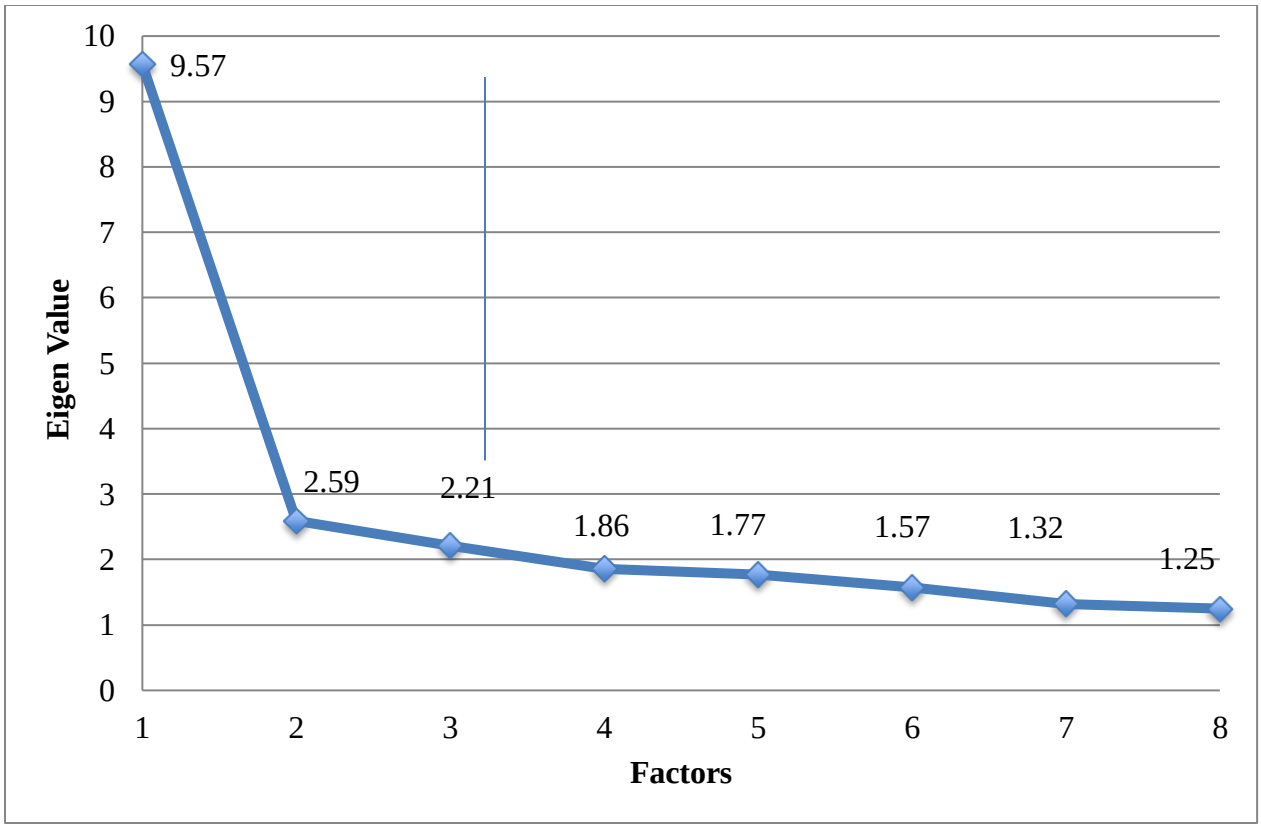

Figure 4. Scree plot of Eigen Values.

9.57; the second 2.59; the third 2.21; the fourth 1.86, the fifth 1.77, the sixth 1.57, the 1.32, and the eighth had a value of 1.25. The Eigen Values were analyzed for factor strength and a distinct "elbow" formed after factor one. Q methodology studies with a single factor do not provide robust results, and in these results, a single factor solution did not represent a large enough variance to exclude rotating other factors. Additionally, the purpose of Q methodology is to extract multiple distinct viewpoints from the participants.

A three-factor solution accounted for 46% of variance among the sorts and included 28 of the 31 participants at $p<.05$ significance. Under the three factor solution, the factors all had correlation values of 0.4 or greater indicating relative similarity between factors. Additionally, there were nine consensus statements identified between the three factors, meaning nearly one-fourth of the statements had very similar placements across all factors.

Increasing to four factors raised the percentage of accounted variance to 53% with 23 of the 31 participants included on one of the factors. The correlation between factors decreased as a distinct factor emerged having correlation values of 0.28 and 0.34 with the other factors. Four consensus statements were identified with a four-factor solution.

A five-factor solution further increased the explained variance level of 58% and included 20 of the 31 participants. The correlation between factors decreased somewhat and four consensus statements remained.

A four-factor solution was selected because it offered the best balance between high values for included variance, inclusion of more participants, lower values for correlation among factors, and represented a point of diminishing returns with respect to consensus statements. All factors had some participants with confounding loads, participants who met the 0.05 confidence threshold for multiple factors. For the final factor solution, those participants were placed into

the factor with which they had the highest correlation. By flagging those with confounding loads, all participants were placed into a factor and therefore their viewpoints were represented. Table 4 presents the key variables used to select the number of factors.

The complete table of correlation values among factors for the four-factor solution is shown in Table 5. Lower values for the correlation among factors indicate more distinct factors. As shown in the table, Factor Three and Factor Four are the most statistically similar factors (correlation of .5182) while Factor One and Factor Two are the most statistically distinct (correlation of 0.2793).

Factor Loadings

These initial factors were rotated with the Varimax method. This method of factor rotation seeks a mathematically-superior solution that maximizes the amount of variance explained by the extracted factors (Watts & Stenner, 2005, 2012). The rotated factors represent 53% of the variance with Factor One representing 12%, Factor Two representing 13%, Factor Three representing 14% and Factor Four representing 14%.

A correlation score was calculated for each participant. The correlation score is a measure of association between the Q sort of each participant and the model factor array that statistically represents a factor. Table 6 details how each participant (P-sample) loaded on the factors.

The correlation score required to indicate significant loading on a particular factor is proportional to the value of $1 / \sqrt{n}$ where n is the number of statements in the study. The .05 significance level is calculated by $1/\sqrt{42} * 1.96 = 0.302$ for this study. The 0.01 significance level is calculated by $1/\sqrt{42} * 2.58 = 0.398$ for this study. All participants in this study loaded significantly on a factor at the $p < .05$ level. Additionally, all participants except number 25 also met the criteria to load significantly on a factor at the $p < .01$ level.

Table 4

Information Used to Determine the Factor Rotation

Factor Rotation Solution	Eigen Values	Explained Variance	Number of Participants	Correlation Among Factors	
3 Factors	9.57	46%	28 out of 31	.49	
	2.59			.49	
	2.21			.40	
4 Factors	9.57	53%	23 out of 31	.28	.34
	2.59			.46	.45
	2.21			.50	.52
	1.86				
5 Factors	9.57	58%	20 out of 31	.07	.15
	2.59			.43	.12
	2.21			.37	.46
	1.86			.40	.36
	1.77			.19	.45

Table 5

Correlations among Factor Scores

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1.000	0.2793	0.4605	0.5033
Factor 2	0.2793	1.000	0.3406	0.4504
Factor 3	0.4605	0.3406	1.000	0.5182
Factor 4	0.5033	0.4504	0.5182	1.000

Table 6

Factor Matrix Using Participants' Q-Sorts (Loadings)

Participant	Factor One	Factor Two	Factor Three	Factor Four
1	0.4637*	-0.0494	0.3090	0.0639
2	0.3532	0.1354	0.6643*	0.0134
3	0.5470*	0.1506	0.3027	0.3089
4	0.4572	0.4215	0.1531	0.4807*
5	0.1952	0.2254	0.5984*	0.1793
6	-0.0756	0.3012	0.4618*	0.2971
7	0.0840	0.0156	0.5148*	0.1884
8	-0.0562	0.1832	0.7023*	0.1541
9	0.2832	0.0071	0.0859	0.5618*
10	0.1908	0.4495x	0.1857	0.3898
11	-0.1758	0.2944	0.2438	0.6084*
12	0.2825	0.4178	0.0627	0.4460*
13	0.1668	0.7569*	0.0005	0.0938
14	0.2760	0.4953	0.2926	0.5102*
15	0.4762	0.5801*	0.3421	0.1527
16	0.7908*	0.0627	-0.0023	0.0469
17	0.6371*	-0.0328	0.0585	0.1506
18	0.3550	0.1046	-0.1607	0.6299*
19	0.0031	0.0431	0.1864	0.6735*
20	0.1137	0.0181	0.7052*	0.0761

Table 6 (continued)

Participant	Factor One	Factor Two	Factor Three	Factor Four
21	-0.1064	0.7641*	-0.0372	0.1067
22	0.2180	0.5497*	0.5106	0.1177
23	0.3977	0.4813	-0.0279	0.5243*
24	-0.1462	0.2388	0.3780	0.5418*
25	0.3760**	0.1760	0.2785	0.0191
26	0.1543	-0.1420	0.3337	0.6206*
27	0.3106	0.1706	0.3947	0.6161*
28	0.4085*	-0.0151	0.1094	0.3658
29	0.4527*	0.3652	0.4333	0.0970
30	-0.1530	0.7586*	0.1929	-0.0695
31	0.2958	-0.2136	0.6639*	0.2499
% expl.Var.	12	13	14	14

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

On Factor One, there were seven participants that loaded significantly. On Factor Two, six participants loaded at a level of statistical significance. On Factor Three, seven participants loaded significantly. The remaining eleven participants loaded significantly on Factor Four.

Q Methodology is built around the production of item configurations or sorts. The four-factors that emerged from the data analysis consolidate the 42 statements and 31 participants into four perspectives. Each factor has a model array, a statistically representative sort of the participants with that shared perspective. Table 7 presents the placement of each statement across all factors on the continuum of most preferred (+4) to least preferred (-4) in the model factor array.

Humphrey's Rule was applied as an additional test on the strength and statistical validity of the factors. This test compares the two highest loadings on a factor to twice the standard error. Humphrey's Rule states that a factor is significant if the cross product of the two highest loadings is greater than twice the standard error ($1/\sqrt{\text{number of statements}}$). As shown in Table 8, all of the factors in this study satisfied Humphrey's Rule thereby reinforcing the selection of a four-factor solution.

Factor One: Self Determination High School

A total of seven participants loaded significantly on Factor One. This accounts for 23% of the participants and 12% of the variance. Table 9 provides the sub-group characteristics of the participants who loaded significantly on Factor One. Two of the participants reported they were from the lowest income quartile and one is from the highest quartile. All seven members of Factor One took Algebra I in eighth grade. Two of the students are from families in which neither of their parents graduated from college.

Table 7

Statements and Factor Placements

Card	Statement	Factor 1	Factor 2	Factor 3	Factor 4
1	Learning study skills to be able to complete homework and assignments on time.	2	0	3	1
2	Help with the financial aid process.	3	0	-1	-3
3	Participating in a college tour on a college campus.	-2	0	-2	-2
4	Participating in college fairs.	-1	-4	-2	-4
5	Discussions about college with an adult at my school by 8th grade.	-1	-2	-4	-4
6	Discussions with parent(s) about the college selection and application process.	-3	-2	-2	-1
7	Expectations from my parents that I would go to college.	3	4	2	3
8	High school coursework that was challenging which prepared me for college level work.	-1	-3	0	0
9	Receiving scholarships, grants, or financial aid to attend college.	4	4	-3	2
10	Earning good grades in high school that motivated me to do the same in college.	2	2	2	2
11	Developing a positive attitude about school.	0	2	1	0
12	Receiving college advising from a guidance counselor.	1	0	-3	-1
13	Learning how to advocate for myself.	4	1	4	2

Table 7 (continued)

Card	Statement	Factor 1	Factor 2	Factor 3	Factor 4
14	Feeling connected to my high school.	-4	-1	-4	0
15	Conversations with my friends about academic success and college aspirations.	1	2	-1	-1
16	Teachers and principals having high expectations for me.	-3	-1	0	3
17	My family believed in and supported me.	1	4	4	4
18	Committing to a personal goal of college completion.	2	-2	1	3
19	Attending a high school where all students had the same opportunities.	-2	-1	-2	0
20	Earning college credits in high school through dual enrollment, distance learning, or other program.	0	2	-1	1
21	Talking with teachers about my academic progress.	-1	0	2	-1
22	Learning to ask teachers for help.	-3	-2	1	1
23	Talking with my siblings or close relative about college.	-3	2	1	-1
24	Having a personal source of motivation and inspiration.	4	1	4	3
25	High school classrooms that were focused on learning.	0	1	0	1
26	Parents talking with teachers and administrators about academic matters at school.	-2	-1	-1	-2

Table 7 (continued)

Card	Statement	Factor 1	Factor 2	Factor 3	Factor 4
27	Knowing my parents saved money for my college education.	-4	1	0	-2
28	Taking advanced math classes beyond Algebra II.	2	-4	-3	2
29	Involvement in extra-curricular activities.	1	3	0	1
30	Information about college that was presented to me at school.	0	-2	-4	-2
31	Being motivated by a love of learning.	0	3	1	1
32	Listening to college students speak about their experiences.	-2	-3	1	-3
33	Developing academic self-confidence.	1	1	3	4
34	Assistance with completing applications and essays.	-1	-1	-1	0
35	Specific teacher who encouraged me to go to college.	-4	3	-2	-3
36	Mentoring relationship with someone in my community.	-1	-4	-3	0
37	Someone who looked like me that believed in and supported me.	-2	0	2	-3
38	Encouraging conversations with a college student who looked like me.	0	-3	0	-4
39	Overcoming a challenge or obstacle that gave me the confidence to know I could succeed.	3	3	2	2
40	Learning to study with my peers.	3	-3	-1	-1

Table 7 (continued)

Card	Statement	Factor 1	Factor 2	Factor 3	Factor 4
41	Having a career goal that required a college degree.	2	1	3	4
42	Spending time away from home where I learned to be independent.	1	-1	3	-2

Table 8

Humphrey's Rule

Solution	Factor 1	Factor 2	Factor 3	Factor 4
Cross Product of Two Highest Loadings	0.503	0.580	0.495	0.424
Standard Error	0.154	0.154	0.154	0.154
Standard Error x 2	0.308	.308	0.308	.308
Difference	0.195	0.272	0.187	0.116

Table 9

Participants Loading Significantly on Factor One

Participant	Loading	Income Level*	Ethnicity	Gender	Parents college grads?	Grade taking Algebra I
1	0.464	1	Afr-American	F	neither	8
3	0.547	1	Afr-American	F	one	8
16	0.791	3	Hispanic	M	one	8
17	0.637	2	Hispanic	M	neither	8
25	0.376	3	Afr-American	M	both	8
28	0.409	3	White	M	both	8
29	0.453	4	White	F	both	8

Note. * expressed by quartile with 1 referring to the lowest quartile (annual family income less than $35,000) and 4 meaning the highest quartile (above $110,000 per year).

There are three African-American, two white, and two Hispanic students in Factor One. Four participants in Factor One are male and three are female. The highest loading participant (P16) reported a family income in the second highest quartile while the next three highest loading participants are from the two lowest income quartiles.

Z-scores were calculated for each Q sort statement within each factor group. The z-score is a measure of the magnitude and direction of deviation from the distribution mean. The ranking of each statement and its associated z-score is presented in Table 10. The statement with the highest agreement in Factor One was Statement 24, "Having a personal source of motivation and inspiration." This statement is the highest rank order when compared to the other statements with a z-score of 1.796 and is placed in the +4 column in the model factor array.

The statements are presented in descending rank order. Statement 35, "Having a specific teacher who encouraged me to go to college" is the lowest ranked statement with a z-score of -2.128 and is placed in the -4 column in the model factor array. The model factor array for Factor One is shown in Figure 5, indicating the pre-college experiences that these seven participants considered to be the most impactful towards their college success. The model sort can be considered the overall viewpoint that represents the factor (Watts & Stenner, 2012) and is the foundation for data analysis and naming the factors.

Table 11 presents the highest- and lowest-ranking statements. Statements located on the boundaries of the distribution grid are most indicative of the group perspective. These extremes are important markers and representative of students and their perceptions about their pre-college experiences that did and did not impact their success in college.

Participants loading on Factor One sorted statements 24, 9, 13, 7, 39, 40, and 2 on the +4 and +3 side of the distribution grid. The highest scoring statements in Factor One, contained

Table 10

Factor One Normalized Factor Scores

Card	Statement	Z-Score	Grid Placement
24	Having a personal source of motivation and inspiration.	1.796	+4
9	Receiving scholarships, grants, or financial aid to attend college.	1.469	+4
13	Learning how to advocate for myself.	1.213	+4
7	Expectations from my parents that I would go to college.	1.207	+3
39	Overcoming a challenge or obstacle that gave me the confidence to know I could succeed.	1.184	+3
40	Learning to study with my peers.	1.149	+3
2	Help with the financial aid process.	1.143	+3
10	Earning good grades in high school that motivated me to do the same in college.	1.098	+2
41	Having a career goal that required a college degree.	1.007	+2
28	Taking advanced math classes beyond Algebra II.	0.960	+2
18	Committing to a personal goal of college completion.	0.918	+2
1	Learning study skills to be able to complete homework and assignments on time.	0.907	+2
42	Spending time away from home where I learned to be independent.	0.833	+1
29	Involvement in extra-curricular activities.	0.788	+1
33	Developing academic self-confidence.	0.757	+1

Table 10 (continued)

Card	Statement	Z-Score	Grid Placement
17	My family believed in and supported me.	0.673	+1
15	Conversations with my friends about academic success and college aspirations.	0.578	+1
12	Receiving college advising from a guidance counselor	0.304	+1
11	Developing a positive attitude about school.	0.286	0
30	Information about college that was presented to me at school.	-0.060	0
31	Being motivated by a love of learning.	-0.125	0
20	Earning college credits in high school through dual enrollment, distance learning, or other program.	-0.269	0
25	High school classrooms that were focused on learning.	-0.285	0
38	Encouraging conversations with a college student who looked like me.	-0.337	0
34	Assistance with completing applications and essays.	-0.350	-1
8	High school coursework that was challenging which prepared me for college level work.	-0.363	-1
36	Mentoring relationship with someone in my community.	-0.394	-1
21	Talking with teachers about my academic progress.	-0.519	-1
4	Participating in college fairs.	-0.531	-1
5	Discussions about college with an adult at my school by 8th grade.	-0.595	-1

Table 10 (continued)

Card	Statement	Z-Score	Grid Placement
26	Parents talking with teachers and administrators about academic matters at school.	-0.675	-2
37	Someone who looked like me that believed in and supported me.	-0.732	-2
3	Participating in a college tour on a college campus.	-0.883	-2
32	Listening to college students speak about their experiences.	-0.998	-2
19	Attending a high school where all students had the same opportunities	-1.089	-2
6	Discussions with parent(s) about the college selection and application process	-1.142	-3
22	Learning to ask teachers for help.	-1.199	-3
23	Talking with my siblings or close relative about college.	-1.267	-3
16	Teachers and principals having high expectations for me.	-1.349	-3
14	Feeling connected to my high school.	-1.455	-4
27	Knowing my parents saved money for my college education.	-1.606	-4
35	Having a specific teacher who encouraged me to go to college.	-2.128	-4

Least Prefer				No Preference			Most Prefer	
-4	**-3**	**-2**	**-1**	**0**	**+1**	**+2**	**+3**	**+4**
14	6	3	4	11	12	1	2	9
27	16	19	5	20	15	10	7	13
35	22	26	8	25	17	18	39	24
	23	32	21	30	29	28	40	
		37	34	34	33	41		
			36	36	42			

Figure 5. Factor one model sort.

Table 11

Factor One High-Positive and High-Negative Statements

Score	Card	Statement
+4	9	Receiving scholarships, grants, or financial aid to attend college.
+4	13	Learning how to advocate for myself.
+4	24	Having a personal source of motivation and inspiration.
+3	2	Help with the financial aid process.
+3	7	Expectations from my parents that I would go to college.
+3	39	Overcoming a challenge or obstacle that gave me the confidence to know I could succeed.
+3	40	Learning to study with my peers.
-3	6	Discussions with parent(s) about the college selection and application process.
-3	16	Teachers and principals having high expectations for me.
-3	22	Learning to ask teachers for help.
-3	23	Talking with my siblings or close relative about college.
-4	14	Feeling connected to my high school.
-4	27	Knowing my parents saved money for my college education.
-4	35	Having a specific teacher who encouraged me to go to college.

language such as: “having a personal source of motivation,” “receiving scholarships,” “learning to study with peers,” “help with the financial aid process,” and “taking advanced math classes.” Common themes among these statements were purpose-driven goal setting and actions that enabled them to meet the financial and academic challenges of college.

During the focus group interview with Factor One, Participant 3 stated, “My source of motivation was watching my mom taking college classes when she was an adult. I knew I wanted to finish my degree at a younger age” (personal communication, December 21, 2016). Participant 1 added, “Having a career goal and knowing what I wanted to do was so important and has kept me on track. I have a goal in mind and a strong work ethic” (personal communication, January 6, 2017). Similarly, Participant 29 noted, “High school students should complete internships. I did and it allowed me to see if I would really like my major as an occupation” (personal communication, December 20, 2016). Being focused on a specific goal is clearly significant to these participants.

The importance of internal motivation is another consistent theme with Factor One. In the post-sort survey, Participant 17 noted, “The only person who can make it through college is yourself it starts with inner strength” (personal communication, December 15, 2016). The source of motivation was deeply personal as evidenced by Participant 1’s statement, “My mom is a single parent and she was in school trying to make a better life. Scholarships were important because I knew she didn’t have any money saved for me” (personal communication, January 6, 2017). Student understanding of their parent’s educational experiences served as a motivating factor.

Recognition of the need for financial aid is typical of Factor One as these participants were able to identify and secure the resources that they needed to be successful in college. For

example, Participant 17 stated, “Financial aid is extremely important I was expected to pay for everything myself” (personal communication, December 15, 2016). However, accessing resources was not limited to financial concerns as several participants noted the importance of establishing a peer support network. Participant 16 stated, “I was motivated by extra-curricular activities and studying with friends” (personal communication, December 15, 2016) and Participant 17 said, “I would advise students to study, study, and study with friends” (personal communication, December 15, 2016).

Participants who loaded significantly on Factor One used the connections with their peers to improve academic proficiency. Several participants indicated academic deficiencies; Participant 1 stressed, “High schools should provide more advanced classes” and Participant 3 noted, “I wish I had taken even more rigorous classes in high school” (personal communication, January 6, 2017).

Collectively, the participants in Factor One expressed the importance of self-determination and personal goal setting to achieve goals. While expectations from parents about attending college were important (Statement 7, +3 column), belief and support from family (Statement 17, +1 column) was not as significant, implying that the students had to set their own goals. As shown in Table 7, Statement 17 was placed in the +4 column in the model sort for all factors except Factor One.

Participants in Factor One relied much more on getting help with the financial aid process (Statement 2, +3 column) and learning to study with peers (Statement 40, +3 column) compared to participants in other factors. This pathway to securing these critical financial and academic resources was unique to participants in Factor One (see Table 8).

The importance of self-determination cannot be overstated as nearly all of the high negative statements for Factor One relate to adults and the institution of school. Participants in Factor One did not feel connected to their high schools (Statement 14, -4 column), have a specific teacher who encouraged them (Statement 35, -4 column), have teachers and principals with high expectations (Statement 16, -3 column), learn to ask teachers for help (Statement 22, -3 column), or talk with their parents about college (Statement 6, -3 column).

Factor Two: Utopia High School

A total of six participants loaded significantly on Factor Two. This accounts for 19% of the participants and 13% of the variance. Table 12 provides the sub-group characteristics of the participants who loaded significantly on Factor Two. Four of these participants are female, three are African-American, two are white and one is Asian. Interestingly, none of the participants in Factor Two are white males nor did any report being from the lowest income quartile. One participant responded that they were from the highest income quartile. All of the members of Factor Two took Algebra I in eighth grade and three of these participants come from families where neither of their parents graduated from college.

The ranking of each statement and its associated z-score for Factor Two is presented in Table 13. The statement with the highest agreement in Factor Two was Statement 7, "Expectations from my parents that I would go to college." This statement is the highest rank order when compared to the other statements with a z-score of 2.148 and is placed in the +4 column in the model factor array.

The statements are presented in descending rank order. Statement 4, "Participating in college fairs" is the lowest ranked statement with a z-score of -1.800 and is placed in the -4 column in the model factor array. The model factor array for Factor Two is shown in Figure 6,

Table 12

Participants Loading Significantly on Factor Two

Participant	Loading	Income Level	Ethnicity	Gender	Parents college grads?	Grade taking Algebra I
10	0.450	2	White	F	neither	8
13	0.757	2	White	F	neither	8
15	0.580	4	Afr-American	F	both	8
21	0.764	2	Afr-American	M	neither	8
22	0.550	3	Afr-American	M	both	8
30	0.759	2	Asian	F	one	8

Table 13

Factor Two Normalized Factor Scores

Card	Statement	Z-Score	Grid Placement
7	Expectations from my parents that I would go to college.	2.148	+4
9	Receiving scholarships, grants, or financial aid to attend college.	1.758	+4
17	My family believed in and supported me.	1.465	+4
29	Involvement in extra-curricular activities.	1.313	+3
31	Being motivated by a love of learning.	1.233	+3
35	Having a specific teacher who encouraged me to go to college.	1.225	+3
39	Overcoming a challenge or obstacle that gave me the confidence to know I could succeed.	1.139	+3
11	Developing a positive attitude about school.	1.076	+2
23	Talking with my siblings or close relative about college.	1.025	+2
20	Earning college credits in high school through dual enrollment, distance learning, or other program.	0.864	+2
15	Conversations with my friends about academic success and college aspirations.	0.720	+2
10	Earning good grades in high school that motivated me to do the same in college.	0.636	+2
41	Having a career goal that required a college degree.	0.553	+1
24	Having a personal source of motivation and inspiration.	0.527	+1
33	Developing academic self-confidence.	0.444	+1
27	Knowing my parents saved money for my college education.	0.309	+1
25	High school classrooms that were focused on learning.	0.278	+1

Table 13 (continued)

Card	Statement	Z-Score	Grid Placement
13	Learning how to advocate for myself.	0.274	+1
3	Participating in a college tour on a college campus.	0.189	0
37	Someone who looked like me that believed in and supported me.	-0.068	0
12	Receiving college advising from a guidance counselor.	-0.074	0
1	Learning study skills to be able to complete homework and assignments on time.	-0.075	0
2	Help with the financial aid process.	-0.119	0
21	Talking with teachers about my academic progress.	-0.247	0
16	Teachers and principals having high expectations for me.	-0.264	-1
14	Feeling connected to my high school.	-0.271	-1
26	Parents talking with teachers and administrators about academic matters at school.	-0.341	-1
42	Spending time away from home where I learned to be independent.	-0.351	-1
19	Attending a high school where all students had the same opportunities.	-0.509	-1
34	Assistance with completing applications and essays.	-0.546	-1
30	Information about college that was presented to me at school.	-0.670	-2
18	Committing to a personal goal of college completion.	-0.680	-2
22	Learning to ask teachers for help.	-0.720	-2
5	Discussions about college with an adult at my school by 8th grade.	-0.845	-2

Table 13 (continued)

Card	Statement	Z-Score	Grid Placement
6	Discussions with parent(s) about the college selection and application process.	-0.878	-2
40	Learning to study with my peers.	-1.032	-3
32	Listening to college students speak about their experiences.	-1.312	-3
38	Encouraging conversations with a college student who looked like me.	-1.469	-3
8	High school coursework that was challenging which prepared me for college level work.	-1.520	-3
28	Taking advanced math classes beyond Algebra II.	-1.680	-4
36	Mentoring relationship with someone in my community.	-1.703	-4
4	Participating in college fairs.	-1.800	-4

Least Prefer				No Preference			Most Prefer	
-4	**-3**	**-2**	**-1**	**0**	**+1**	**+2**	**+3**	**+4**
4	8	5	14	1	13	10	29	7
28	32	6	16	2	24	11	31	9
36	38	18	19	3	25	15	35	17
	40	22	26	12	27	20	39	
		30	34	21	33	23		
			42	37	41			

Figure 6. Factor two model sort.

indicating the pre-college experiences that these six participants considered to be the most impactful towards their college success.

Table 14 presents the highest- and lowest-ranking statements. Participants loading on Factor Two sorted statements 7, 9, 17, 29, 31, 35, and 39 on the +4 and +3 side of the distribution grid. The highest scoring statements in Factor Two contained language such as: "expectations from my parents that I would go to college," "my family believed in and supported me," "receiving grants, scholarships, and financial aid," "involvement in extra-curricular activities," and "a specific teacher who motivated me to go to college". Common themes among these statements are a strong support system at home, with peers, and at school. Participants in Factor Two reported having a love of learning and a positive attitude about school. These students had support to develop their academic and leadership skills to earn scholarships and attend college.

During the focus group interview with Factor Two, the importance of family and peer support was very apparent. Participant 10 stated, "My group of friends got me thinking about college earlier than I otherwise would have" and, "self motivation came from family support and fear of failure that I would let people down, love of learning, and friends pushing me" (personal communication, December 21, 2016). Participant 21 added, "I wanted to make my parents proud because of the hard work and love they showed me over the years leading up to college" and "students need a good support group of friends and family to motivate you as well as themselves" (personal communication, January 6, 2017).

Specific teachers were a very important component of the development of a positive learning environment as these students learned to build relationships with adults at school.

Table 14

Factor Two High-Positive and High-Negative Statements

Score	Card	Statement
+4	7	Expectations from my parents that I would go to college.
+4	9	Receiving scholarships, grants, or financial aid to attend college.
+4	17	My family believed in and supported me.
+3	29	Involvement in extra-curricular activities.
+3	31	Being motivated by a love of learning.
+3	35	Specific teacher who encouraged me to go to college.
+3	39	Overcoming a challenge or obstacle that gave me the confidence to know I could succeed.
-3	8	High school coursework that was challenging which prepared me for college level work.
-3	32	Listening to college students speak about their experiences.
-3	38	Encouraging conversations with a college student who looked like me.
-3	40	Learning to study with my peers.
-4	4	Participating in college fairs.
-4	28	Taking advanced math classes beyond Algebra II.
-4	36	Mentoring relationship with someone in my community.

Participant 21 shared, "My 9th grade English teacher stands out. I didn't really like her at first but she showed me I could do more than I first thought I could. I didn't have her for another class but she helped me with my essays and applications" (personal communication, January 6, 2017). Participant 10 stated, "I built a lasting relationship with one of my English teachers. She was a tough teacher who sort of became a parent figure for me at school" (personal communication, January 6, 2017).

The relationships built within the learning environment were crucial to participants in Factor Two. As shown in Table 7, Factor Two was the only factor to place "being motivated by a love of learning" (Statement 31) at the highest end of the sort and they were the only group to have a positive placement for "having a specific teacher who motivated me" (Statement 35).

Additionally, participants in Factor Two found positive experiences in support through extra-curricular activities as noted by Participant 30 who reflected, "I focused on clubs and activities that appealed to my interests" (personal communication, December 21, 2016).

Factor Three: On My Own High School

A total of seven participants loaded significantly on Factor Three. This accounts for 23% of the participants and 14% of the variance. Table 15 provides the sub-group characteristics of the participants who loaded significantly on Factor Three. There are four African-American, two white, and one Asian student in Factor Three. Two of the members reported being from the lowest income quartile (the highest loading) and one from the highest income quartile. Five out of seven participants in Factor Three took Algebra I in eighth grade and three are from families where neither of their parents graduated from college (again, the highest loading participants).

The ranking of each statement and its associated z-score for Factor Three is presented in Table 16. The statement with the highest agreement in Factor Three was Statement 13, "Learning

Table 15

Participants Loading Significantly on Factor Three

Participant	Loading	Income Level	Ethnicity	Gender	Parents college grads?	Grade taking Algebra I
2	0.664	3	Afr-American	M	one	8
5	0.598	4	White	F	both	8
6	0.462	3	Asian	F	one	9
7	0.515	3	White	M	both	8
8	0.702	1	Afr-American	M	neither	9
20	0.705	1	Afr-American	M	neither	8
31	0.664	2	Afr-American	M	neither	8

Table 16

Factor Three Normalized Factor Scores

Card	Statement	Z-Score	Grid Placement
13	Learning how to advocate for myself.	2.065	+4
17	My family believed in and supported me.	1.718	+4
24	Having a personal source of motivation and inspiration.	1.684	+4
42	Spending time away from home where I learned to be independent.	1.625	+3
33	Developing academic self-confidence.	1.439	+3
41	Having a career goal that required a college degree.	1.228	+3
1	Learning study skills to be able to complete homework and assignments on time.	1.072	+3
7	Expectations from my parents that I would go to college.	0.966	+2
21	Talking with teachers about my academic progress.	0.868	+2
37	Someone who looked like me that believed in and supported me.	0.825	+2
10	Earning good grades in high school that motivated me to do the same in college.	0.817	+2
39	Overcoming a challenge or obstacle that gave me the confidence to know I could succeed.	0.616	+2
18	Committing to a personal goal of college completion.	0.559	+1
11	Developing a positive attitude about school.	0.422	+1
22	Learning to ask teachers for help.	0.401	+1
31	Being motivated by a love of learning.	0.329	+1
23	Talking with my siblings or close relative about college.	0.227	+1

Table 16 (continued)

Card	Statement	Z-Score	Grid Placement
32	Listening to college students speak about their experiences.	0.219	+1
16	Teachers and principals having high expectations for me.	0.043	0
8	High school coursework that was challenging which prepared me for college level work.	0.036	0
29	Involvement in extra-curricular activities.	0.024	0
25	High school classrooms that were focused on learning.	-0.054	0
27	Knowing my parents saved money for my college education.	-0.108	0
38	Encouraging conversations with a college student who looked like me.	-0.121	0
15	Conversations with my friends about academic success and college aspirations.	-0.325	-1
40	Learning to study with my peers.	-0.470	-1
2	Help with the financial aid process.	-0.579	-1
34	Assistance with completing applications and essays.	-0.648	-1
26	Parents talking with teachers and administrators about academic matters at school.	-0.679	-1
20	Earning college credits in high school through dual enrollment, distance learning, or other program.	-0.679	-1
6	Discussions with parent(s) about the college selection and application process.	-0.690	-2
4	Participating in college fairs.	-0.723	-2
35	Having a specific teacher who encouraged me to go to college.	-0.813	-2
3	Participating in a college tour on a college campus.	-0.960	-2

Table 16 (continued)

Card	Statement	Z-Score	Grid Placement
19	Attending a high school where all students had the same opportunities.	-0.961	-2
28	Taking advanced math classes beyond Algebra II.	-1.003	-3
9	Receiving scholarships, grants, or financial aid to attend college.	-1.004	-3
36	Mentoring relationship with someone in my community.	-1.040	-3
12	Receiving college advising from a guidance counselor.	-1.245	-3
30	Information about college that was presented to me at school.	-1.361	-4
5	Discussions about college with an adult at my school by 8th grade.	-1.450	-4
14	Feeling connected to my high school.	-2.272	-4

how to advocate for myself." This statement is the highest rank order when compared to the other statements with a z-score of 2.065 and is placed in the +4 column in the model factor array.

The statements are presented in descending rank order. Statement 14, "Feeling connected to my high school" is the lowest ranked statement with a z-score of -2.272 and is placed in the -4 column in the model factor array. The model factor array for Factor Three is shown in Figure 7, indicating the pre-college experiences that these seven participants considered to be the most impactful towards their college success.

Table 17 presents the highest- and lowest-ranking statements. Participants loading on Factor Three sorted statements 13, 17, 24, 1, 33, 41, and 22 on the +4 and +3 side of the distribution grid. The highest scoring statements in Factor Three, contained language such as: "having a personal source of motivation," "learning how to advocate for myself," "my family believed in and supported me," "learning study skills to be able to complete homework and assignments on time," and "developing academic self-confidence". A common theme among these statements is the high level of self-reliance and independence demonstrated by the student. These participants did feel support from their parents but the student acquired the necessary skills to be successful in college independently.

During the focus group interview with Factor Three, Participant 20 stated, "I learned how to do things on my own, it taught me not to depend on other people" (personal communication, December 20, 2016). Participant 2 echoed, "I didn't receive a lot of assistance with my work, in college everything is done by yourself" and "my experiences being away from home taught me how to be responsible for myself" (personal communication, December 27, 2016).

Least Prefer | No Preference | Most Prefer

-4	**-3**	**-2**	**-1**	**0**	**+1**	**+2**	**+3**	**+4**
5	9	3	2	8	11	7	1	13
14	12	4	15	16	18	10	33	17
30	28	6	20	25	22	21	41	24
	36	19	26	27	23	37	42	
		35	34	29	31	39		
			40	38	32			

Figure 7. Factor three model sort.

Table 17

Factor Three High-Positive and High-Negative Statements

Score	Card	Statement
+4	13	Learning how to advocate for myself.
+4	17	My family believed in and supported me.
+4	24	Having a personal source of motivation and inspiration.
+3	1	Learning study skills to be able to complete homework and assignments on time.
+3	33	Developing academic self-confidence.
+3	41	Having a career goal that required a college degree.
+3	42	Spending time away from home where I learned to be independent.
-3	9	Receiving scholarships, grants, or financial aid to attend college.
-3	12	Receiving college advising from a guidance counselor.
-3	28	Taking advanced math classes beyond Algebra II.
-3	36	Mentoring relationship with someone in my community.
-4	5	Discussions about college with an adult at my school by 8th grade.
-4	14	Feeling connected to my high school.
-4	30	Information about college that was presented to me at school.

Independence is a recurring theme with Factor Three as stated by Participant 5, "Independent work is so important. You don't have your friends or your parents there to do it for you" (personal communication, December 27, 2016). Participant 6 added, "you need to be independent to be successful in college" (personal communication, December 23, 2016) and Participant 7 said, "advocating for myself was very important in helping me be independent" (personal communication, December 23, 2016).

Participants loading on Factor Three did feel support from others but it was in the form of moral support rather than applicable knowledge. Participant 20 acknowledged, "I never really talked to my parents about college" (personal communication, January 3, 2017) while Participant 31 expressed, "I knew my mom and grandfather wanted me to succeed I want to make them proud" (personal communication December 20, 2016). Five of the seven participants in Factor Three are students of color and Participant 21 added, "having someone who looked like me and support me lets me know that I can do it" (personal communication, December 20, 2016).

Participants in Factor Three are very self-reliant for academic success as Participant 21 explained, "I don't like studying with peers" (personal communication, December 20, 2016). Furthermore there is a component of self-determination with regards to academic skills as Participant 31 expressed, "my high school did not play a big part in me going to college" and "high schools need harder classes" (personal communication, January 3, 2017).

Factor Four: Great Expectations High School

A total of eleven participants loaded significantly on Factor Four. This accounts for 35% of the participants and 14% of the variance. Table 18 provides the sub-group characteristics of the participants who loaded significantly on Factor Four. There are nine white, one African-American, and one Hispanic student in Factor Four.

Table 18

Participants Loading Significantly on Factor Four

Participant	Loading	Income Level	Ethnicity	Gender	Parents college grads?	Grade taking Algebra I
4	0.481	3	White	F	both	8
9	0.562	2	Afr-American	F	one	8
11	0.608	4	White	F	both	8
12	0.446	3	White	M	both	8
14	0.510	3	Hispanic	M	one	8
18	0.630	3	White	M	both	7
19	0.674	4	White	M	one	8
23	0.524	2	White	M	neither	7
24	0.542	3	White	F	both	8
26	0.621	3	White	M	one	7
27	0.616	3	White	F	both	8

Significantly, five of the seven white males who participated in the study loaded on Factor Four (one each in Factors One and Three). None of the participants in Factor Four reported being from the lowest income quartile and two are from the highest. All eleven members took Algebra I by eighth grade with three taking this high school course in seventh grade. One member of Factor Four is from a family where neither parent graduated from college.

The ranking of each statement and its associated z-score is presented in Table 19. The statement with the highest agreement in Factor Four was Statement 17, "My family believed in and supported me." This statement is the highest rank order when compared to the other statements with a z-score of 1.968 and is placed in the +4 column in the model factor array.

The statements are presented in descending rank order. Statement 35, "participating in college fairs" is the lowest ranked statement with a z-score of -2.107 and is placed in the -4 column in the model factor array. The model factor array for Factor Four is shown in Figure 8, indicating the pre-college experiences that these eleven participants considered to be the most impactful towards their college success.

Table 20 presents the highest- and lowest-ranking statements. Participants loading on Factor Four sorted statements 17, 33, 41, 7, 16, 18, and 24 on the +4 and +3 side of the distribution grid. The highest scoring statements in Factor Four contained language such as: "my family believed in and supported me," "developing academic self-confidence," "having a career goal that required a college degree," "expectations from my parents that I would go to college," and "teachers and principals having high expectations for me". A common theme among these statements is high expectations from family and school and the resulting academic confidence that arose from those high expectations.

Table 19

Factor Four Normalized Factor Scores

Card	Statement	Z-Score	Grid Placement
17	My family believed in and supported me.	1.968	+4
33	Developing academic self-confidence.	1.796	+4
41	Having a career goal that required a college degree.	1.596	+4
24	Having a personal source of motivation and inspiration.	1.421	+3
18	Committing to a personal goal of college completion.	1.178	+3
16	Teachers and principals having high expectations for me.	1.023	+3
7	Expectations from my parents that I would go to college.	0.893	+3
9	Receiving scholarships, grants, or financial aid to attend college.	0.878	+2
13	Learning how to advocate for myself.	0.861	+2
39	Overcoming a challenge or obstacle that gave me the confidence to know I could succeed.	0.683	+2
10	Earning good grades in high school that motivated me to do the same in college.	0.672	+2
28	Taking advanced math classes beyond Algebra II.	0.647	+2
20	Earning college credits in high school through dual enrollment, distance learning, or other program.	0.615	+1
25	High school classrooms that were focused on learning.	0.596	+1
1	Learning study skills to be able to complete homework and assignments on time.	0.593	+1
29	Involvement in extra-curricular activities.	0.575	+1
22	Learning to ask teachers for help.	0.572	+1

Table 19 (continued)

Card	Statement	Z-Score	Grid Placement
31	Being motivated by a love of learning.	0.437	+1
11	Developing a positive attitude about school.	0.409	0
8	High school coursework that was challenging which prepared me for college level work.	0.330	0
19	Attending a high school where all students had the same opportunities.	0.091	0
36	Mentoring relationship with someone in my community.	-0.032	0
34	Assistance with completing applications and essays.	-0.096	0
14	Feeling connected to my high school.	-0.205	0
6	Discussions with parent(s) about the college selection and application process.	-0.285	-1
15	Conversations with my friends about academic success and college aspirations.	-0.368	-1
23	Talking with my siblings or close relative about college.	-0.502	-1
21	Talking with teachers about my academic progress.	-0.538	-1
12	Receiving college advising from a guidance counselor.	-0.640	-1
40	Learning to study with my peers.	-0.725	-1
42	Spending time away from home where I learned to be independent.	-0.784	-2
26	Parents talking with teachers and administrators about academic matters at school.	-0.880	-2
30	Information about college that was presented to me at school.	-0.907	-2
3	Participating in a college tour on a college campus.	-0.925	-2
27	Knowing my parents saved money for my college education.	-0.938	-2

Table 19 (continued)

Card	Statement	Z-Score	Grid Placement
2	Help with the financial aid process.	-1.003	-3
32	Listening to college students speak about their experiences.	-1.012	-3
35	Having a specific teacher who encouraged me to go to college.	-1.187	-3
37	Someone who looked like me that believed in and supported me.	-1.345	-3
38	Encouraging conversations with a college student who looked like me.	-1.586	-4
5	Discussions about college with an adult at my school by 8th grade.	-1.771	-4
4	Participating in college fairs.	-2.107	-4

Least Prefer				No Preference			Most Prefer	
-4	**-3**	**-2**	**-1**	**0**	**+1**	**+2**	**+3**	**+4**
4	2	3	6	8	1	9	7	17
5	32	26	12	11	20	10	16	33
38	35	27	15	14	22	13	18	41
	37	30	21	19	25	28	24	
		42	23	34	29	39		
			40	36	31			

Figure 8. Factor four model sort.

Table 20

Factor Four High-Positive and High-Negative Statements

Score	Card	Statement
+4	17	My family believed in and supported me.
+4	33	Developing academic self-confidence.
+4	41	Having a career goal that required a college degree.
+3	7	Expectations from my parents that I would go to college.
+3	16	Teachers and principals having high expectations for me.
+3	18	Committing to a personal goal of college completion.
+3	24	Having a personal source of motivation and inspiration.
-3	2	Help with the financial aid process.
-3	32	Listening to college students speak about their experiences.
-3	35	Specific teacher who encouraged me to go to college.
-3	37	Someone who looked like me that believed in and supported me.
-4	4	Participating in college fairs.
-4	5	Discussions about college with an adult at my school by 8th grade.
-4	38	Encouraging conversations with a college student who looked like me.

During the focus group interview with Factor Four, Participant 18 stated, "high expectations that others had for me boosted my confidence and encouraged me to seek out challenging activities." Participant 19 specifically recalled, "I remember teachers would leave notes to the substitute that I could help other students with their work. This made me feel smart" (personal communication, January 4, 2017). Similarly, Participant 26 shared "the belief in me from my teachers and my friends helped improve my self-worth" (personal communication, December 20, 2016).

These students lived up to the expectations that others set for them and thrived in a supportive and encouraging environment. Participant 19 noted, "my teachers always had high expectations for me which has motivated me to succeed" and "my high school prepared me to be extremely successful because I was surrounded by people who were motivated to succeed" (personal communication, December 15, 2016).

High expectations also helped develop confidence to the point where students knew they would be successful. Participant 14 asserted, "the main reason for my success was because I had the confidence that I could do well" (personal communication, December 15, 2016) while Participant 11 came to understand "all I have to do is believe in myself" (personal communication, December 21, 2016). Participant 23 reflected, "seeing hard work and academic success pay off through scholarships and other awards, it really helped me know my self-worth" (personal communication, December 20, 2016).

These students developed such an inner confidence that Participant 26 would advise current students to "don't get overwhelmed, it will work out at the end of the day" (personal communication December 20, 2016). Confidence and success are a reinforcing cycle that was

illustrated when Participant 9 added, “having confidence in myself helped me see my potential and therefore I was able to excel” (personal communication, December 21, 2016).

Consensus Statements

A consensus statement is a statement that was placed in a statistically similar location on the grid in each of the model factor arrays. The four-factor solution utilized by this study generated four consensus statements; two each on the positive and negative side of the continuum. The consensus statements are shown in Table 21.

Statement 39, “overcoming an obstacle that gave me the confidence to know I could succeed” was highly valued by all factors. The high value given to this experience underscores the importance of “knowing” you can succeed and developing an inner and personal source of motivation.

Participants in all factors also universally valued statement 10, “I earned good grades in high school and was determined to do the same in college”. The high placement of this statement was not surprising as it linked closely to academic preparedness, a factor identified in the literature review (Adelman, 2007; Zelkowski, 2011) as very significant.

Conversely, the participants did not accept statement 34, “help with the application process.” It is unclear as to whether participants did not receive any help with the application process or perhaps they did receive help but it did not significantly impact their success in college.

Interestingly, participants in all factors also rejected statement 26, “parents talking with teachers about academic matters”. This statement was supported by the literature (Perna & Titus 2005; Rowan-Kenyon, Bell, & Perna 2008) particularly relative to the frequency of parents making contact with teachers and principals regarding discipline issues. It is possible that

Table 21

Consensus Statements

Card	Statement	Grid Placement by Factor
39	Overcoming an obstacle that gave me the confidence to know I could succeed.	+3 +3 +2 +2
10	Earning good grades in high school motivated me to do the same in college.	+2 +2 +2 +2
34	Assistance with completing applications and essays.	-1 -1 -1 0
26	Parents talking with teachers and administrators about academic matters at school.	-2 -1 -1 -2

the participants in this study were not aware of or appreciated the value of discussions that their parents had with their teachers. Another explanation may be that these participants had relatively few discipline issues at school thus the academic conversations their parents had with teachers may have seemed rather ordinary and unimportant.

Summary

Chapter 4 presented an analysis of the data. Data were collected from 31 current college students and recent graduates, regarding their perspectives and perceptions about the elements of their pre-college experiences that have the most impact on their success in college. Additional data were collected to gain understanding into why the students in the study believed the identified elements are critical for success in college.

Overall, a combination of quantitative and qualitative data sources was used to gain understanding about student perceptions and beliefs concerning elements of success in college. First, Q-sorts were completed, and a factor analysis was used to compute the statistical data. Four distinct factors emerged, which were presented and discussed in detail in this chapter; these include *Self-Determination High School*, *Utopia High School*, *On My Own High School*, and *Great Expectations High School*. Each factor was named in the context of its own hypothetical high school to provide a symbolic metaphor that can emotionally and visually capture the distinct viewpoint of each factor.

Post-sort interviews were conducted with a sample of participants who loaded significantly on each of the four factors to further explore student views and opinions about elements of college success.

Chapter 5 examines the implications of the study's findings. It begins with a summary of the findings, and identifies connections to the literature. Chapter 5 also discusses implications of the study for policy, future research, and educational practice.

CHAPTER 5: DISCUSSION

Introduction

This chapter provides a summary of the findings and an analysis of how the results relate to the extant literature. Additionally, the findings are considered in the contexts of current and future policy, research, and practice that are relevant to improving rates of college completion among low and moderate-income students. Comparisons are made between the perceptions of successful college students and current policies, research, and practices. Specific suggestions made by the participants during post-sort interviews are considered.

Overall, the three research questions of this study have been answered by development of 42 statements that reflect essential elements of pre-college experiences for low and moderate-income students, use of quantitative and qualitative data to develop factor names, and direct quotes from the participants. A review of the research questions and how each was answered is presented in Table 22.

Summary of Emerging Factors

Factor One*:* Self-Determination High School

Students loading on Factor One had a strong sense of self-determination. These participants were career focused and pursued scholarships to pay for college with a mindset that they were investing in themselves. The students knew where they wanted to go and developed a plan to achieve their goals. Participants learned to rely on others (though not their families) by getting help with the financial aid process and learning to study with peers. Overcoming obstacles was highly valued by this group as they met challenges with a relentless determination and drew motivation from their experiences.

Table 22

Research Questions Revisited

Number	Question	Findings
One	What are the pre-college experiences, opportunities, and relationships that low and moderate-income students need to be successful in college?	42 statements (see Table 2)
Two	How do successful low and moderate-income college students perceive the relative importance of the components identified in Question One?	Factor names
Three	Why did the participants perceive the experiences in a particular manner? What factors and/or knowledge influenced their decisions?	Participant quotes

Factor Two: Utopia High School

Participants in Factor Two developed a love of learning due in large part to positive relationships with caring teachers and administrators who went out of their way to inspire their students. Meaningful experiences with extra-curricular activities also contributed to foster a positive attitude about school. In an ideal world, all students would feel this way about their educational experiences and everyone would be able to find that special teacher who really inspired us.

Factor Three: On My Own High School

Participants in Factor Three did not have meaningful relationships with adults at school and reported mostly negative pre-college school experiences. Teachers and principals did not have high expectations for them nor did they receive help with applications and financial aid forms. Consequently, despite financial need, these students did not rank scholarships as highly as the other three factors. These students were supported and encouraged by parents but had to figure out the specifics of college for themselves. Spending time away from home was highly valued as a means to learn independence. Factor Three had a high concentration of black males; four of the seven members of this factor were black males. There were a total of seven black males who participated in the study, one loaded on Factor One, two were represented in Factor Two, and zero were found in Factor Four.

Factor Four: Great Expectations High School

Factor Four was characterized by the high expectations that were placed on them by high school teachers and principals. These participants were told repeatedly about their talents and capabilities and encouraged to take leadership roles. For these students, a path to success was paved as their self-confidence grew with each accomplishment. Interestingly Factor Four had a

high concentration of white students as nine out of the eleven members of *Great Expectations* were white. Additionally, out of the seven white males who participated in this study, five loaded on Factor Four (one white male was represented in both Factor One and Factor Three.

Findings in the Context of the Literature

Some of the findings were consistent with the literature review. Conversely, the participants of this study rejected some of the elements of college success that have been identified as important by previous studies. Interestingly, some statements that were developed during the pilot phase were highly valued by these participants. This section examines the similarities and differences of the findings with the extant literature and explores potential new findings.

Similarities with Literature

A summary of the findings that were consistent with the literature is presented in Table 23. Not surprisingly, topics related to foundational elements of finances, academic preparation, motivation, and support systems were highly valued by participants across all factors. Specifically they were:

1. Earning financial aid and scholarships
2. Earning good grades
3. Learning to self-advocate
4. Having a personal source of motivation
5. Expectations from parents to attend college

Table 23

Statements from Literature Accepted by Participants

Statement	Literature Source(s)	Placement in the four model factor arrays	Participant comments
7 – Parent expectations to attend college	Perna 2002 Strayhorn 2014 Rowan-Kenyon, Bell, & Perna 2008	+3 +4 +2 +3	P21 "I wanted to make my parents proud because of the hard work and love they showed me over the years leading up to college."
9 – Receiving scholarships and financial aid	Perna 2002 Yu 2014	+4 +4 -3 +2	P17 "financial aid is extremely important, I was expected to pay for everything myself"
10 – Good grades	Adelman 2007 Leonhardt 2015	+2 +2 +2 +2	P3 "I did well in high school and told myself that I would continue making the same type of grades through college"
13 – Learning to self-advocate	Thomas 2013 Schweinle & Helming 2011	+4 +1 +4 +2	P7 "students need to learn how to ask teachers for help"
24 – Having a personal source of motivation	Petty 2014	+4 +1 +4 +3	P 21 "students should have a strong mindset so they don't get discouraged"

The glaring exception is the perspective of Factor Three about scholarships and financial aid. Despite a need (six of the seven participants in Factor Three reported income levels below the highest quartile) they did not place a high value on earning scholarships. During the focus group interviews, several participants indicated that they did not receive scholarships. Participant 20 (from the lowest income quartile) shared, "I had to pay out of pocket as I did not get any grants or scholarships" (personal communication, December 20, 2016). It is concerning that these students were not able to gain access to the system of earning scholarships. The typical sources of social capital, adults at school and parents did not apply to these students. Participant 31 stated, "my high school did not play a big part in me going to college" (personal communication, January 3, 2017) while Participant 20 noted, "I never really talked to my parents about college" (personal communication, January 3, 2017). Therefore Factor Three was named *On My Own High School* because these students were truly left on their own to navigate the complex and sizable financial hurdles required to attend and remain enrolled in college. This lack of financial capital places a burden on students that requires them to work additional hours and/or borrow more money to remain in college, which are risk factors for not-completing college.

Differences from Literature

Some of the findings were not consistent with the literature review. These are statements that were generated from the literature but rejected by participants. Statements supported by the literature but not by the participants of this study were:

1. College fairs
2. Discussions about college with an adult at school by eighth grade
3. Discussions with parents about college

4. Feeling connected to their high school
5. Attending a high school where all students had the same opportunities
6. Having a specific teacher who encouraged me (except Factor Two)

A summary of these differences is presented in Table 24. As is discussed in the Implications for Practice section, teachers and administrators can implement these elements at school at little or no cost. The exception in the list above may be "discussions with parents about college" as school officials are not able to control the content of student/parent discussions but parents certainly can be educated about the importance of having discussions about post-secondary education with their students. Additionally, it would be possible for schools to facilitate these discussions as part of parent teacher conferences or other special events focused on preparing students to be successful in college.

New Findings

The participants accepted some statements that originated from the pilot phase (not the literature review) of the study. Statements generated during the pilot study and accepted by the participants of this study were:

1. Overcoming challenges and obstacles
2. Establishing a career goal that required a college degree

A summary of these differences is presented in Table 25. The implications are that students can gain the maturity and confidence needed to succeed by understanding their past successes and applying those lessons to the new challenges they face at college. Students who had a specific career goal reported the resulting extra focus and determination were important elements of their success.

Table 24

Statements from Literature Rejected by Participants

Statement	Literature Source(s)	Placement in the four model factor arrays	Participant comments
4 – Participating in college fairs	Perna 2002	-1 -4 -2 -4	P23 "College fairs did not help me because they seemed very chaotic and not personable. Also many colleges had little helpful information"
5 – Discussions with an adult by 8th grade	Perna 2002	-1 -2 -4 -4	P26 "I hadn't even thought about college in eighth grade."
6 – Discussions with parents about college applications	Perna 2002 Strayhorn 2014 Rowan-Kenyon, Bell, & Perna 2008	-3 -2 -2 -1	P25 "I tend to refrain from discussing college at length if possible when I am around family."
14 – Feeling connected to my high school	Thomas 2013 Schweinle & Helming 2011	-4 -1 -4 0	P2 "I didn't feel connected to my high school. I wish we had more opportunities within my school in order to get ahead and achieve more."
19 – Attending a high school where all students had the same opportunities	Thomas 2013	-2 -1 -2 0	P5 "I don't believe all students had the same opportunities. Part of the reason I was so successful was because of the resources I had."

Table 24 (continued)

Statement	Literature Source(s)	Placement in the four model factor arrays	Participant comments
35 – Specific teacher who encouraged me to go to college	Reddick et al 2011	-4 +3 -2 -3	P16 "No teachers ever motivated or encouraged me."

Table 25

Statements Generated from Pilot Study Accepted by Participants

Statement	Literature Source(s)	Placement in the four model factor arrays	Participant comments
39 – Overcoming a challenge or obstacle	Survey participant #'s 3, 5, and 6	+3 +3 +2 +2	P21 "My dad died when I was in eighth grade, it was a very hard time for me but I learned to draw strength from that experience and make him proud of me."
41 – Having a career goal that required a college degree	Survey participant #13	+2 +1 +3 +4	P27 "For me, the most important part of my goal to go to college and succeed was that my ultimate career goal required several years of schooling and I wanted to do well to get into a program I love"

Emerging Themes

Significant similarities and differences exist among the four factor groups. Participants in all factors valued parent expectations of graduating from college, earning good grades in high school, and overcoming challenges to develop confidence as important to their success in college. Statements about participating in college fairs, discussions about college with an adult at school by 8th grade, and discussions with parents about the college selection and application process were placed on the negative side of the sort grid by all four factors.

Differences between the factors emerged when the sources of motivation, support, preparation, and access to capital were considered. A summary of key similarities and differences between and among the factors is presented in Table 26. Self-motivation was important to Factors One, Three, and Four. Key elements of support were different for each group. Scholarships were an important resource for all except Factor Three.

Factor One, *Self-Determination High School*; and Factor Three, *On My Own High School* each had characteristics of strong self-determination and independence. Both factors placed learning how to advocate for myself and having a personal source of motivation in the +4 column. However, participants on Factor One placed more value on help with the financial aid process, receiving advising from a guidance counselor, receiving scholarships, grants, or financial aid to pay for college, learning to study with peers, and taking advanced math classes. Additionally, Factor One was the only family that did not place Statement 17 "My family believed in and supported me" in the +4 column. These differences indicate that participants in Factor One, *Self-Determination High School*, had a more developed plan to attend college and sought help from adults and peers at school to achieve their goals.

Table 26

Comparison of Motivation, Supports, Preparation, and Access to Capital Across Factors

Factor	Motivation	Support	Preparation and Access to Capital
Self Determination HS	Self	Peers	Advanced math Help with financial aid Scholarships
Utopia HS	Love of learning	Specific teacher	Extra-curricular Scholarships
On My Own HS	Self	Family	Study Skills Self Academic self-confidence
Great Expectations HS	Self	High expectations	Scholarships Academic self-confidence

Participants in Factor Three, *On My Own High School*, placed a much higher value on support from someone who looked like them and spending time away from home compared to participants in other factors. Conversely, they were the only group not to place a high value on receiving scholarships, grants, and financial aid. These students did not feel connected to their high school, did not value college advising from a guidance counselor but relied on their own study skills, family support, and academic self-confidence to succeed.

Participants in Factor Four, *Great Expectations High School* had many similarities with Factors One and Three with all valuing a personal source of motivation and having a career goal that required a college degree. Factors Three and Four each placed developing academic confidence in the highest two columns. Factors One and Four both placed advanced math classes in the +2 column (this statement was highly negative for the other two factors) indicating a shared perspective around rigorous academic preparation. The high expectations from teachers and principals as a source of motivation was the distinguishing statement that was highly valued only by participants in Factor Four.

Factor Two, *Utopia High School* was most the statistically unique factor and the only group to highly value a relationship with a specific encouraging teacher. These participants also placed more value on extra-curricular activities and development of a love of learning. Relationships were the key for this group however, as they did not value structural elements such as taking advanced math classes or a rigorous academic curriculum.

The differences in high school experiences among factor, socioeconomic, and demographic groups cannot be overstated. The contrast is most evident when comparing *On My Own High School* (Factor Three) and *Great Expectations High School* (Factor Four). The contrasting language used by students in Factor Three (mostly lower income black males) and

Factor Four (mostly moderate and higher income white males) indicates that differences in educational experiences along racial and socioeconomic lines still persist.

Participant 6 (Factor Three) shared, "teachers should get to know their students personally and give them the time of day" (personal communication, December 23, 2016) inferring that she did not feel like all of her teachers cared about her. Participant 31 (also Factor Three) similarly said, "teachers need to stay on all of their students and don't let anybody be less successful than others" (personal communication, December 20, 2016) indicating that teachers at his high school did not have high expectations for everyone.

The differences in sentiments between Factors Three and Four persisted when the participants were asked about how they felt about their high school experiences overall. Those from On My Own High School had comments such as Participant 8 who said, "I don't believe all students had the same opportunity to learn" and "I personally did not have many college preparations" (personal communication, December 21, 2016). Participant 31 stated, "my high school did not play a big part in me going to college" (personal communication, December 20, 2016) while Participant 29 added, "my high school prepared me to take the SAT and study tips, but other than that my school did not prepare me for college" (personal communication December 20, 2016). Similarly, Participant 2 said, "I really didn't feel connected to my high school and I wish we had more opportunity within my school in order to get ahead and achieve more" (personal communication, December 27, 2016). Participants 2, 8, 29, and 31 are all African-American males who loaded on Factor Three.

Comments from participants in Factor Four, *Great Expectations High School* were markedly different. Participant 19 (white male) stated, "my high school prepared me to be extremely successful because I was surrounded by people motivated to succeed" (personal

communication, December 15, 2016) and Participant 18 (white male) felt, "my high school gave me all the tools for success" (personal communication, December 15, 2016). Significantly, how students perceive their classmates is more important than their demographics as Participant 9 (African-American female) echoed, "my high school prepared me to be extremely successful because I was surrounded by people motivated to succeed" (personal communication, December 21, 2016).

Implications

There are implications for policy, research, and educational practice based on the findings of this study. This section presents suggestions for policy changes as related to student success in college. Next, suggestions for further research on student success in college are explored. Finally, the section devotes attention to the implications for practitioners, including district and school-based leaders.

Policy

A well designed and coherent district policy on the process of selecting students for eighth grade Algebra I should be established considering that 29 out of the 31 participants in this study had this indicator of academic preparedness. The pathway into this course is often based on teacher recommendations, classroom grades, standardized test scores, and parent requests. Input from teachers can be highly subjective. Granting parent requests for eighth grade placement in Algebra I is a concern because this practice unfairly benefits those parents who understand the long-term implications for their students.

There also may be opportunities for the district to offer enhanced academic opportunities for students. Participant 11 expressed a desire for "more opportunities for earning college credit while in high school" (personal communication, December 21, 2016) while Participant 24

acknowledged, “dual enrollment helped me prepare for studying in college, it gave me a taste of what college was really like” (personal communication, December 20, 2016). Similarly, Participant 23 saw a need for more “academic clubs and competitions that were run by motivated teachers who got students excited to learn” (personal communication, December 20, 2016).

The students are well aware of the impact of limited academic opportunities. Participant 23 shared “my high school had good teachers but most of the curriculum was not at college level nor did it prepare me for what college courses were like” (personal communication, December 20, 2016).

Participant 14 reflected, “I learned a lot from high school but it was too easy and I never learned how to study” (personal communication December 15, 2016). Participant 10 added, “high schools should provide more advanced classes” (personal communication, December 21, 2016) and Participant 2 shared, “at college when I talk with people from other states, they were so far ahead in high school that college is a cake walk” (personal communication, December 27, 2016).

Research

Findings from this study identify several areas for potential future research that may allow educators to better understand college completion rates among low and moderate-income students. While participants in all factors cited the importance of parent support and expectations; active parent involvement with the college planning process was not highly valued (and may not have occurred at all). Statements ranked low by all factor groups ranged from talking with teachers about academic matters, discussing college with students, and helping with the selection and application process. It may be worthwhile to conduct further research regarding the parent perspective. Of particular interest may be the sources of information that parents are

receiving and able to access. Are parents informed about how to help their students select, apply, and persist in college? School administrators typically seek to educate parents but based on the results of this study, those efforts are not highly effective.

Additionally, this study focused on participants who were primarily from one district that attend(ed) many different universities. The findings are most meaningful to the context of this one district and may or may not be applicable to students from other areas. An alternative method to conduct a similar study would be to conduct a study at the colleges and universities with students from many areas. Larger sample sizes may be possible with this approach and it would be interesting to see if similar perspectives and/or data patterns emerged between and among different colleges.

The participants of the study could also be adjusted to include students from affluent backgrounds. An interesting comparison could then be made between the perspectives of students from low and high-income backgrounds. Would any of the four factors identified in this study emerge from wealthier participants?

This study considered only those students who have been successful in college. However, potentially insightful perspectives could be gained by studying students who started but did not complete college. Do the perspectives of non-completers match with the risk factors identified in the literature?

As 29 of these 31 participants were enrolled in Algebra I by eighth grade, the data collected in this study is limited to those who were academically above average in middle school. It would be wise to conduct further research that is more inclusive to students who did not take Algebra I by eighth grade.

Questions that may be addressed by further research include:

1. What is the parent perspective?
2. What are the perspectives of college students who did not take Algebra I in eighth grade?
3. How do the perspectives of students at different colleges correlate?
4. What are the perspectives of high-income students?
5. What are the perspectives of students who started but did not complete college?

Practice

The distinct perspectives that emerged from the four factors offer meaningful insights that may be used to positively impact outcomes for low and moderate-income high school students. As it will be impossible to identify which of the four perspectives a current high school student will most closely identify with, some simple, low-cost efforts can and should be made to ensure that all students are impacted by the most meaningful experiences of each factor.

The elements shown in Table 24 that were identified in the literature as meaningful to improving college completion rates among low and moderate-income students but rejected by the participants in this study should be addressed. It is possible that the participants in this study largely rejected these elements because they did not experience them or they were not implemented properly. Students should attend college fairs much earlier, between 8th and 10th grades, to help them begin thinking about post-secondary education and learn about potential fields of study. Eighth grade teachers and counselors need to have organized and systematic ways to engage students about college plans. This could include research projects about specific colleges, high school courses required for admission, or identification of potential funding sources.

It is also important to present information and offer guidance to parents about how the college process works and what conversations to have with their students. School leaders must be careful not to come across as the only holders of information but utilize the wisdom and knowledge of community members. A panel discussion with a diverse group of parents of older students (currently in college) could be an authentic and non-threatening way to engage parents who may not have any first-hand experience with higher education.

Specifically, students should be guided through a sequential and well-planned process of long-term goal setting, the College RED initiative developed by Travis Pinckney is an example of an effective intervention. In-depth career exploration that highlights educational requirements and an analysis of the net cost of a college degree is needed. Students can and will change their plans but the process of developing a plan will start them on a path to success. Participant 29 stated, "I would recommend high school students complete internships, this allows students to see if they will really like their major as an occupation" (personal communication, December 20, 2016).

District leaders should make sure that all students a have meaningful relationship with at least one adult at school. Participant 13 expressed this clearly by saying "teachers should look out for the kids who don't always fit in" (personal communication, December 15, 2016). Teachers and principals need to communicate high expectations for all students, especially with regards to future achievement and not judge students based on past challenges and missteps. Participant 20 candidly shared, "teachers had high expectations for some kids but not all. I don't think they had high expectations for me" (personal communication, January 3, 2017). Particular attention must be given to minority students who may be facing stereotype threats about continuing their education.

Specific information regarding scholarship and financial applications needs to be directly taught to all students early in the college selection process. A goal must be set that all students who apply to college complete the Free Application for Federal Student Aid (FAFSA). Information about scholarships and financial aid should be ubiquitous in all areas and events frequented by parents. Students and families should be provided scholarship applications in 9th grade to develop an understanding of what funders are looking for. Students should then identify activities, leadership positions, and community service opportunities that fit their interests and have a place on the scholarship applications. Again, it is imperative that this information is directly taught to low-income and minority students as this is the type of social capital that higher-income and white students have access to.

Finally, the level of course rigor needs to be increased to better prepare students for the academic challenges of college. Similarly, students should be encouraged and guided to look at selective colleges with higher graduation rates that may be outside of their local region. All of the participants in this study attended in-state colleges. The net cost of attendance may be less at a more selective school with a large endowment to fund in-house financial aid and these schools can provide the necessary supports to ensure that students graduate.

Summary

This study was designed to identify the elements of pre-college experiences that low and moderate-income students perceive to be the most effective for preparing them for success in college. In addition, the study sought to gain an in-depth understanding of why students view these elements as so important. Chapter 5 provided a summary of the study's findings and presented a discussion of the findings as related to the literature. This chapter also presented

implications for policy, future research, and educational practice that may improve outcomes for current and future high school students.

The InQuiry research method was used to capture students' perceptions about their pre-college experiences. Both quantitative data and qualitative data were used to gain an understanding of the subjective opinions of the participants.

From the data analysis, a name was assigned to each of the four factors. The factor names are framed in the context of a high school to provide robust meaning making of the participants' experiences. The four factors are; *Self-Determination High School* (Factor One), *Utopia High School* (Factor Two), *On My Own High School* (Factor Three), and *Great Expectations High School* (Factor Four).

The findings in this study were consistent with many elements of college preparation identified in the literature. There was wide agreement about the importance of earning good grades in high school, having support from family and friends, overcoming an obstacle that developed confidence to meet challenges, learning to self-advocate, and earning scholarships.

Some participants felt that their high school experiences prepared them for college success but many did not share this perspective. Clearly, there are opportunities for school leaders to improve post-secondary educational outcomes for our students.

Post Script

Conducting this research project has impacted not only how I view education but has given me insights that will shape my current and future work as a public school administrator. Including students in the educational process that is so central to their futures is a cornerstone of my philosophy as an educational leader. The degree to which students are ignored is a striking disconnect that has resonated with me. In this study, when I asked Participant 31 (a black male)

if he would be willing to participate in a post-sort interview, his response was "Of course, I have good ideas and someone should listen – but nobody has really ever asked me about what I think." (personal communication, December 20, 2016) The research process in this study has given me the opportunity to think deeply about the student perspective. I am more committed than ever to regularly ask students to share their perspectives so that we can better understand students. We should include students in the design of the systems that are there to benefit them.

Through the process of completing this project my professional learning became intertwined with my personal life. These experiences have informed and influenced my practice as a school leader in profound ways. I am a step-parent to three college-age boys and an international exchange student that my family hosted for four years of high school. Over the past several years, guiding students through the college experience has been an every day occurrence in my home. There were many moments when the juxtaposition of my personal and professional lives was impossible to ignore.

I spend my days working with predominantly African-American low and moderate-income students. Most of these students have parents who were not college educated. After work I return home to my middle and upper class, mostly white neighborhood to spend my evenings and weekends editing application essays, completing scholarship applications, making plans to visit a variety of colleges, and facilitating discussions about intended fields of study. Last summer, my wife and I took two of our boys on a road trip to Philadelphia, New York, and Boston to visit colleges they may be interested in attending.

I know most of my students did not have that level of support at home. Coming to terms with the notion that schools have a responsibility to fill the knowledge gap for our students motivated me to complete this research. The relationships I have built with students are very

meaningful and their success is personal to me. Most of the participants in this study were former students or played on teams that I coached. During the planning stages of collecting data, I found that many of my former students did not attend or were no longer enrolled in college, despite having the ability to be successful in higher education. I am hopeful that in the future I can conduct a similar study, and have a higher percentage of my former students be eligible to participate.

As I have transitioned my role as a teacher to a school administrator I had a typical desire to broaden my impact. I could ensure that more students succeeded by shaping a whole school into a positive learning environment in the same way that I had done in my classroom. This project has shaped my perspective in yet another way. I now seek to impact students beyond the relatively short amount of time that they will spend in my school and/or district. It is no longer sufficient to simply ensure that students are successful in specific courses, which in aggregate will culminate in a high school degree. The striking fact is that, based on the responses of the students themselves, there are simple and low-cost tasks that teachers and school leaders can do that will greatly increase the long-term chances of success of our students. However, this work will not be easy and will require a shift in mindset among the adults.

Factor Three, *On My Own High School* was the perspective that I thought about the most. I struggled with the title and questioned if I was succumbing to deficit thinking. When students go off to college being left to figure things out for themselves, we as educators did not do our jobs. I knew these students had experienced success as college students but I felt that they remained at-risk.

Some of these concerns were realized when I recently learned that Participants 20 and 31 are no longer enrolled in college. These students were the two highest loading participants in

Factor Three, are both African-American males, come from the two lowest income quartiles, and neither have parents who graduated from college. Each has intentions of returning to complete their education but are currently working to simultaneously pay student loans and save for future education expenses. These students did not receive scholarships to pay for at least a portion of their expenses and that has caused a setback. I believe with the proper guidance, each of these students could have earned scholarships and/or grants, as they were minority students, from low-income backgrounds, and academically qualified.

For me, Participants 20 and 31 are more than a statistic. As part of my research, I could read about unethical practices where colleges would accept low-income students without offering financial aid and scholarships, knowing they would take out loans and have a low probability of graduating. The university could then use that loan money to complete massive infrastructure projects on campus such as upgraded dormitories (more like condominiums) and modern student centers in an effort to compete with other schools for future students. The collective student loan debt in this country is not money that has vanished, but is sitting in the coffers of our institutions of higher learning.

I know Participants 20 and 31; I also know their families. The learning experiences from this dissertation, my relationships with these two students, and their current status have made the phenomenon of low college completion rates among low-income students very personal to me. They are both very intelligent and hard-working individuals with good support systems at home. I have no doubt that they will be successful in whatever career they eventually choose. While I believe they will probably return to college, their progression to financially independent young adults who are contributing members of society will be delayed and disrupted by the student-loan debt they have already accumulated. I am more committed than ever to do everything in my

power to fully prepare my current students to not just attend but complete college without interruption.

I am currently working closely with a group of college-minded high school students in my district. My recent efforts have been centered on building their resumes with activities such as community service and academic enrichment activities that will be attractive to scholarship and grant funders.

The lessons from this study will help me be a better educator. Ultimately, and more importantly, my experience from conducting this study will result in improved outcomes for my students.

REFERENCES

Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college.* Washington, DC: U.S. Department of Education.

Adelman, C. (2007). Do we really have a college access Problem?. *Change, 39*(4), 48-51.

Alleman, N. F., & Holly, L. N. (2014). The role of rural communities in the postsecondary preparation of low-income students. *Journal of Education for Students Placed at Risk, 19*(3/4), 148-168.

Bailey, M., & Dynarski, S. (2011). Inequality in postsecondary attainment. In Greg Duncan and Richard Murnane, eds., *Whiter opportunity: Rising inequality, schools, and children's life chances*, pp. 117-132. New York: Russell Sage Foundation.

Bidwell, A. (2013, July 8). Report: Economy will face shortage of 5 million workers in 2020. *U.S. News and World Report*. Retrieved from http://www.usnews.com/news/articles/2013/07/08

Brohpy, J. (2005). Goal theorists should move on from performance goals. *Educational Psychologist 40(3),* 167-176.

Cabrera, A., & LaNasa, S. (2001). On the path to college: Three critical tasks facing America's disadvantaged. *Research in Higher Education, 42*(2), 119-149.

Cahalan, M., & Perna, L. (2015). *Indicators of higher education equity in the United States,* Pell Institute for the Study of Opportunity in Higher Education. Retrieved from http://www.pellinstitute.org

Carnevale, A., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018.* The Georgetown University Center on Education and the Workforce.

Cates, J. T., & Schaefle, S. E. (2011). The relationship between a college preparation program and at-risk students' college readiness. *Journal of Latinos & Education, 10*(4), 320-334.

Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.

Daly, M. C., & Bengali, L. (2014). Is it still worth going to college? *Federal Reserve Bank of San Francisco Economic Letter.* Retrieved from http://www.frbsf.org/economic-research/publications

DiMaria, F. (2006). Keeping our engaged, at-risk kids in college. *Education Digest*, *72*(2), 52-57.

Elliott, W. (2014). Student loans: Are we getting our money's worth?. *Change: The Magazine of Higher Learning*, *46*(4), 26-33.

Engle, J., & Tinto, V. (2008). *Moving beyond access: College success for low-income, first-generation students.* Retrieved from http://www.pellinstitute.org/publications

Harvill, E., Maynard, R., Nguyen, H., Robertson-Kraft, C., Tognatta, N., & Fester, R. (2011). *Protocol*: *Effects of college access programs on college readiness and enrollment.* The Campbell Collaboration, Retrieved from http://www.campbellcollaboration.org

Henderson, A., & Berla, N. (1994). *A new generation of evidence: The family is critical on student achievement.* Washington, DC: National Committee for Citizens in Education.

Hicks, T. (2008). High school to college transition: A profile of the stressors, physical and psychological health issues that affect the first-year on-campus college student. *Journal of Cultural Diversity*, *15*(3), 143-147.

Hicks, T. (2003). First generation and non-first generation pre-college students' expectations and perceptions about attending college. *Journal of College Orientation and Transition, 11*(1), 5-17.

Houle, J. N., & Warner, C. (2017). Into the red and back to the nest? student debt, college completion, and returning to the parental home among young adults. *Sociology of Education*, *90*(1), 89-108.

Hossler, D., Schmit, J., & Vesper, N. (1999). *Going to college: How social, economic, and educational factors influence the decisions students make*. Baltimore: Johns Hopkins University Press.

Hoxby, C. M., & Avery, C. (2012). *The missing "one-offs": The hidden supply of high-achieving, low-income students*. National Bureau of Economic Research Working Paper 18586. Retrieved from http://www.nber.org/papers/w18586

Hoxby, C. M., & Turner, S. (2013). Expanding college opportunities. *Education Next*, *13*(4), 66-73.

Jack, A. (2015, September 12). What the privileged poor can teach us. *New York Times*. Retrieved from https://www.nytimes.com

Johnson, A., Van Ostern, T., & White, A. (2012). *The student debt crisis*. Washington, DC, Center for American Progress.

Johnson, N. (2016). *Aligning student and institution incentives in higher education finance*. Indianapolis, IN, Lumina Foundation.

Jones, S. (2015). The game changers: strategies to boost college completion and close attainment gaps. *Change: The Magazine of Higher Learning*, *47*(2), 24-29.

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2007). The foundation for student success: Student background characteristics, precollege experiences, and enrollment patterns. *ASHE Higher Education Report*, *32*(5), 21-42.

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006, July). *What matters to student success: A review of the literature*. In Commissioned report for the national symposium on postsecondary student success: Spearheading a dialog on student success.

Labaree, D. (1997). Are students "consumers"? The rise of public education as a private good. *Education Week*, *17*(3), 48, 38.

Layton, L. (2014, April 28). National graduation rates at historic high, but disparities still exist. Retrieved from https://www.washingtonpost.com

Leonhardt, D. (2015, April 24). College for the masses. *New York Times*. Retrieved from https://www.nytimes.com

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

McKeown, B., & Thomas, D. (2013). *Q methodology* (2nd ed.). Newbury Park: Sage Publications.

Militello, M., Janson, C., & Tonissen, D. (2016). InQuiry: A participatory approach for understanding stakeholder perceptions. *Foundation Review*. 8(1), 88-107.

Militello, M., Schweid, J., & Carey, J. (2011). ¡Sí se puede en colaboración! Increasing college placement rates of low-income students. *Teachers College Record*, *113*(7), 1,435-1,476.

Mortenson, T. (2010). Family income and educational attainment 1970 to 2009. *Post Secondary Education Opportunity*, *19*(11).

Ou, S., & Reynolds, A. J. (2014). Early determinants of postsecondary education participation and degree attainment: Findings from an inner-city minority cohort. *Education & Urban Society*, *46*(4), 474-504.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Newbury Park, CA: Sage.

Perna, L. W. (2015) *Improving college access and completion for low-income and first-generation students: the role of college access and success programs*. Testimony to subcommittee on higher education and workforce training committee on education and the workforce, U.S. House of Representatives. April 30, 2015.

Perna, L. W. (2002). Precollege outreach programs: Characteristics of programs serving historically underrepresented groups of students. *Journal of College Student Development*, *43*(1), 64.

Perna, L. W., & Swail, W. (2002). Pre-college outreach and early intervention. *Thought and Action*, *27*, 99-110.

Perna, L. W., & Thomas, S. (2006). *A framework for reducing the college success gap and promoting success for all.* National postsecondary education cooperative.

Perna, L. W., & Titus, M. (2005). The relationship between parental involvement as social capital and college enrollment: An examination of racial/ethnic group differences. *Journal of Higher Education*, *76*(5), 485-518.

Petty, T. (2014). Motivating first-generation students to academic success and college completion. *College Student Journal*, *48*(2), 257-264.

Reddick, R. J., Welton, A. D., Alsandor, D. J., Denyszyn, J. L., & Platt, C. S. (2011). Stories of success: High minority, high poverty public school graduate narratives on accessing higher education. *Journal of Advanced Academics*, *22*(4), 594-618.

Rothstein, R. (2004). *Class and schools: Using social, economic, and educational reform to close the black-white achievement gap*. New York, NY: Teachers College, Columbia University.

Rowan-Kenyon, H., Bell, A., & Perna, L. (2008). Contextual influences on parental involvement in college going: Variations by socioeconomic class. *Journal of Higher Education, 79*(5), 564-586.

Sanacore, J., & Palumbo, A. (2016). Graduating from college: The impossible dream for most first-generation students. *International Journal of Progressive Education, 12*(2), 23-33.

Schmolck, P., & Atkinson, J. (2014). *PQMethod* (2.35). Retrieved from www.qmethod.org

Schweinle, A., & Helming, L. (2011). Success and motivation among college students. *Social Psychology of Education, 14*(4), 529-546. doi:10.1007/s11218-011-9157-z

Steele, C., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African-Americans. *Journal of Personality and Social Psychology, 69*(5), 797-811.

Strayhorn, T. L. (2014). Modeling the determinants of college readiness for historically underrepresented students at 4-year colleges and universities: A national investigation. *American Behavioral Scientist, 58*(8), 972-993.

Tierney, W. G., Bailey, T., Constantine, J., Finkelstein, N., & Hurd, N. F. (2009). *Helping students navigate the path to college: What high schools can do: A practice guide*. Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications/practiceguides

Tierney, W. G., & Sablan, J. R. (2014). Examining college readiness. *American Behavioral Scientist, 58*(8), 943-946.

Tyack, D. B., & Cuban, L. (1995). *Tinkering toward utopia: A century of public school reform*. Cambridge, MA: Harvard University Press.

Watts, S., & Stenner, P. (2012). *Doing Q methodological research: Theory, method and interpretation*. London, Thousand Oaks CA, New Delhi, Singapore: Sage Publications.

Welton, A., & Williams, M. (2015). Accountability strain, college readiness drain: Sociopolitical tensions involved in maintaining a college-going culture in a high "minority", high poverty, Texas high school. *High School Journal, 98*(2), 181-204.

Wolcott, H. F. (1994). *Transforming qualitative data: Description, analysis, and interpretation*. Thousand Oaks, CA: Sage.

Yin, R. K. (1994). *Case study research: Design and methods* (2nd ed.). Thousand Oaks, CA: Sage.

Yu, H. (2014). At issue: The relationship between student loans and low-income students' baccalaureate attainment: A literature review. *Community College Enterprise, 20*(1), 50-59.

Yosso, T. J. (2002). Toward a critical race curriculum. *Equity &Excellence in Education, 35*(2), 93-107.

Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race, Ethnicity and Education, 8*(1), 69-91.

Zelkowski, J. (2011). Defining the intensity of high school mathematics: Distinguishing the difference between college-ready and college-eligible students. *American Secondary Education, 39*(2), 27-54.

Zelkowski, J. (2010). Secondary mathematics: Four credits, block schedules, continuous enrollment? What maximizes college readiness?. *Mathematics Educator*, *20*(1), 8-21.

APPENDIX A: REFERENCE NOTES

Source	Notes
Adelman, C. (2006) *The toolbox revisited: paths to degree completion from high school through college*. Washington, D.C.: U.S. Department of Education.	Academic intensity in high school is most significant predictor of college degree. Student responsibility is the intersection of choice and opportunity. Earning college credits while in high school is significant. Other important factors are immediate enrollment, 20+ credits earned freshman year, maintaining full-time status.
Adelman, C. (2007). Do we really have a college access problem? *Change*, 39(4), 48-51.	We have relatively high levels of access but now need to shift focus to persistence rates which will lead to greater degree completion. Attributes among college persistors are positive attitude, knowledge of finances, responsibility for learning, and high grades. Freshman year grades are extremely important and students must be able to read on a simple inference level to be successful in college.
Alleman, N. F., & Holly, L. N. (2014). The role of rural communities in the postsecondary preparation of low-income students. *Journal Of Education For Students Placed At Risk, 19*(3/4), 148-168.	Communities can provide numerous resources that may fill in gaps that public schools are unable to fill. These include traditional tactics such as SAT test prep but also includes other important sources of support such as direct encouragement from a mentor and opportunities to engage in meaningful internships and community service projects.
Bailey, M. and Dynarski, S. (2011_. "Inequality in Postsecondary Attainment." In Greg Duncan and Richard Murnane, eds., *Whither Opportunity: Rising Inequality, Schools, and Children's Life Chances*, pp. 117-132. New York: Russell Sage Foundation.	Factors affecting college persistence may be categorized as financial, academic, and social. Persistence rates among the bottom half of the socio-economic scale have dropped among men but increased among women. Girls from single-parent households (more likely to be led by females) perform better than boys. Currently, 32% of women and 22% of men will earn post-secondary degrees but only 11% of black males will do so. Most teachers are white females and there are implications for low-income black males who are less likely to have same race or same gender role models. There may be significance for black male students who DID have same race, same gender college role models.
Bidwell, A. (2013, July 8). Report: Economy will face shortage of 5 million workers in 2020. *U.S. News and World Report*. Retrieved from http://www.usnews.com.	News article detailing the need for additional educated workers in the U.S. economy.

Brohpy, J. (2005). Goal theorists should move on from performance goals. *Educational Psychologist 40(3),* 167-176.	A performance goal oriented student is concerned primarily with his performance compared to that of peers. Mastery goals are focused on gaining knowledge, skills, and information necessary to complete current and future tasks. Students tend to develop performance goals as a result of speaking with other students. Goal theory researchers generally agree that mastery goals are more productive than performance goals. There are implications that low-income students drop out of college because they feel academically inferior to their peers as a result of setting performance goals.
Cabrera, A., & LaNasa, S. (2001) On the path to college: three critical tasks facing America's disadvantaged. *Research in Higher Education*. 42(2), 119-149.	This study conducted a statistical regression analysis using NELS data across socioeconomic classes. Study found that SES gaps are reduced or eliminated when school-based and family factors are accounted for. Academic preparedness was the most significant factor. Middle schoolers and their parents must be aware of the curriculum needed to succeed in college. Parents need to see value (economic and social) of college degree and communicate this to students.
Carnevale, A., Smith, N., Strohl, J. (2010). *Help wanted: projections of jobs and education requirements through 2018*. The Georgetown University Center on Education and the Workforce.	Economic study making projections on the number of college educated workers that will be required in the U.S. economy.
Cates, J. T., & Schaefle, S. E. (2011). The relationship between a college preparation program and at-risk students' college readiness. *Journal Of Latinos & Education, 10*(4), 320-334.	Key program elements are advising, campus visits, and general information. These task-specific experiences are examples of capital that put targeted information in the hands and minds of students.
Daly, M. C., & Bengali, L. (2014). *Is it still worth going to college?* Federal Reserve Bank of San Francisco Economic Letter. Retrieved from http://www.frbsf.org	Establishes the marginal value of a college degree over a high school diploma at approximately $800,000.
DiMaria, F. (2006). Keeping our engaged, at-risk kids in college. *Education Digest*, *72*(2), 52-57.	Risk factors for not completing college are working more than 30 hours per week, attending college part-time, not enrolling directly after HS, being academically underprepared, and having lower educational aspirations. Several of these factors are financially related but could be overcome if more

	familiar with the grant/scholarship/ loan process. Implications are that high schools need to better inform students about how to meet financial obstacles.
Engle, J., & Tinto, V. (2008). *Moving beyond access: college success for low-income, first-generation students*. Retrieved from:http://www.pellinstitute.org.	Low-income students are four times as likely to quit college after their first year. College completion rates are seven times higher among low-income students who started at 4-year institutions vs community colleges. Some of the most persistent factors that disrupt higher education are outside obligations (work and family) and lack of engagement in academic social capital such as studying in groups.
Harvill, E., Maynard, R., Nguyen, H., Robertson-Kraft, C., Tognatta, N., and Fester, R. (2011). Protocol: *Effects of college access programs on college readiness and enrollment: A meta-analysis.* The Campbell Collaboration, Retrieved from: http://www.campbellcollaboration.org.	This study frames college completion problem as a combination of academic, financial and social capital issues. Low-income students are less likely to be academically prepared for higher education, have limited access to their own funding sources, and have less knowledge about the benefits of higher education and how to access the financial aid system. Counseling, academic enrichment, parent involvement, personal enrichment, mentoring, and scholarships are necessary elements of intervention programs.
Henderson, A., and Berla, N. (1994). *A new generation of evidence: the family is critical on student achievement*. Washington, DC: National Committee for Citizens in Education.	A compilation and synopsis of several dozen research studies. Examined ways in which SES impacts student performance, indications that school/family partnerships can improve outcomes for low-SES students.
Hicks, T. (2008). High school to college transition: a profile of the stressors, physical and psychological health issues that affect the first-year on-campus college student. *Journal of Cultural Diversity 15(3)*, 143-147.	The first year of college is the most difficult and stressful. Students who have a sense of belonging with the university fare best. One common challenge is the social adjustment associated with making new friends and getting along with roommates. Implications may be that students who are involved in extra-curricular activities may be better able to form connections to their school at the university level.
Hicks, T. (2003). First generation and non-first generation pre-college students' expectations and perceptions about attending college. *Journal of College Orientation and Transition, 11(1)*, 5-17.	Many 1st generation students lack a general understanding what it will take to be successful in college, thinking that professors will tell them if they are not performing well in class and that professors will teach requisite study skills along with the curriculum. Students who learn effective study habits and how to take responsibility for their

	learning in HS should be expected to perform better in college.
Hossler, D., Schmit, J., and Vesper, N. (1999) *Going to college: how social, economic, and educational factors influence the decisions students make.* Baltimore: Johns Hopkins University Press.	Organizes college-going process into phases of predisposition, search, and choice. Examines the context in which information is available and decisions are made.
Hoxby, C., and Turner, S. (2013). Expanding college opportunities. *Education Next*, 13(4), 66-73.	A successful intervention program providing key information to targeted students via mass mailings. Low-income students do not apply to more selective schools (where graduation rates are higher) largely because of a lack of information and barriers such as application fees (which can be waived but requires knowledge of process). Middle and high-income students apply to colleges in three categories with regard to likelihood of admission; safety, match, and reach – low-income students are more likely to apply to local colleges with lower tuition rates. There is a need to inform students of the net cost of college, i.e. tuition minus financial aid.
Jack, A. (2015, September 12). *What the privileged poor can teach us.* New York Times. Retrieved from https://www.nytimes.com	Low-income students who receive scholarships to attend elite prep schools go on to complete college at rates that are similar to their wealthy high school classmates. Some of the skills that they learn in high school are building positive relationships with teachers, viewing teachers as support mechanisms, comfort with authority figures, knowing how to ask teachers for help, and academic advisory counseling. Implications are for the negative effects of schools that focus on discipline more than academic performance.
Jones, S. (2015). The game changers: strategies to boost college completion and close attainment gaps. *Change, 47*(2), 24-29.	The overall college completion rate is 50% and currently 30 million Americans have some college experience but have not earned a degree. Only 10% of students who take remedial courses upon entering college will graduate. Full-time students taking at least 15 credits per semester are much more likely to earn degrees. Advising programs to help students with major and course selection have proven to increase completion rates for low-income and minority students.
Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2007). The foundation for	Rigorous academic preparation, high aspirations, and family support are critical elements. A $1,000 increase in grants was associated with 7% increase

student success: student background characteristics, precollege experiences, and enrollment patterns. *ASHE Higher Education Report, 32*(5), 21-42.	in retention (GAO 1995). Time spent studying, financial aid, family and peer support, educational aspirations and family support, HS academic intensity (academic prep and motivation to learn), expectations for college and enrollment choices and patterns. Risk factors; academically underprepared, delayed enrollment, part-time status, single parent, financially independent, caring for children at home, working more than 30 hours per week, 1st generation.
Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006, July). *What matters to student success: a review of the literature*. In Commissioned report for the national symposium on postsecondary student success: Spearheading a dialog on student success.	Thorough literature review, largely from perspective of higher education.
Labaree, D. (1997). Are students "consumers"? *Education Week*, 17(3), 48,38.	Explores the purpose of education. Preparing citizens for democracy and creating workers for the economy have historically been the aims of public education and both serve the common good. The recent rise of social mobility as a goal of education has effectively turned education into a commodity, which allows access only to those who have knowledge and/or money, and serves to keep existing social hierarchies in place. No longer serves the public good.
Layton, L. (2014, April 28). *National graduation rates at historic high, but disparities still exist.* Washington Post. Retrieved from https://www.washingtonpost.com	Washington Post newspaper article regarding announcement of record high school graduation rates.
Leonhardt, D. (2015, April 24). *College for the masses*. New York Times. Retrieved from https://www.nytimes.com.	Identifies the power of having a significant mentor who overcame similar obstacles, development of a love of learning, and positive peer influences as key experiences for one specific low-income successful student.
McKeown, B., & Thomas, D. (2013). *Q methodology*. (2nd ed.) Newbury Park: Sage Publications.	Provides historical, foundational, and theoretical bases for Q methodology as a research technique.
Militello, M., Schweid, J., & Carey, J. (2011). ¡Sí se puede en colaboración! Increasing college	Based on case studies of highly effective high schools. Some of the most impactful strategies were found to be; program management, external

placement rates of low-income students. *Teachers College Record, 113*(7), 1435-1476.	partnerships, leadership, college focused intervention, achievement culture, and parental outreach.
Militello, M., Janson, C., & Tonissen, D. (2016). InQuiry: A participatory approach for understanding stakeholder perceptions. *Foundation Review.* 8(1), 88-107.	The authors describe a research process that collects qualitative to accompany the quantitative data generated in a Q methodological study. The process allows participants to further explain and understand their experiences and allows for rich and authentic data collection.
Mortenson, T. (2010). Family income and educational attainment 1970 to 2009. *Post Secondary Education Opportunity*, 19(11).	Provides historical data and context of high school graduation, college matriculation, and college graduation rates over the past 40 years delineated by income quartile. The median income in my district is nearly equal to the threshold for the lowest national income quartile. The implications are that half of the students in my district are in the bottom income quartile, thus focusing on low-income students in most relevant to my context.
Ou, S., & Reynolds, A. J. (2014). Early Determinants of Postsecondary Education Participation and Degree Attainment: Findings From an Inner-City Minority Cohort. *Education & Urban Society*, *46*(4).	This long-term longitudinal study found that academic performance, social adjustment, parent involvement and expectations, student expectations, and truancy were predictors for degree completion. Classroom adjustment defined as a combination of ability to concentrate, follow directions, and take responsibility for actions was also a significant predictor. Implications are that students may have success if these skills are directly taught.
Perna, L. & Swail, W. (2002). Pre-college outreach and early intervention. *Thought and Action*, 27, 99-110.	This work is a literature review of early intervention efforts. The most effective programs were found to share the following attributes; clear focus, motivated students, connections with school schedules and curricula, differentiated instruction, and parent involvement.
Perna, L. W. (2002). Precollege outreach programs: Characteristics of programs serving historically underrepresented groups of students. *Journal of College Student Development, 43*(1), 64.	Identified five critical components of intervention programs; goal of college completion, college tours, goal of rigorous coursework, parent involvement, and starting by 8th grade. Financial hurdles have been given more attention than academic, social, and psychological needs. Only ¼ of programs serving underrepresented students have all five critical elements.
Perna, L., & Titus, M. (2005). The relationship between parental involvement as social capital and college enrollment: an examination of racial/ethnic	Cultural capital can take the form of; language skills, cultural knowledge, values about higher education, and class status. Parent contacts with school about academics and impact of friends' post-secondary plans are positive indicators of college

group differences. *Journal of Higher Education, 76(5) 485*-518.	enrollment. Parent contacts about behavior problems are a negative indicator. Parents need to know academic requirements for college readiness.
Perna, L., & Thomas, S. (2006) *A framework for reducing the college success gap and promoting success for all.* National postsecondary education cooperative.	A conceptual framework for college completion may be organized into individual, school, family, and community factors. One must consider the issues through multiple perspectives including education, psychology, sociology, and economics. Self-efficacy, optimism, and hope are positively correlated to academic performance.
Perna, L. (2015) *Improving college access and completion for low-income and first-generation students: the role of college access and success programs.* Testimony to subcommittee on higher education and workforce training committee on education and the workforce, US house of representatives. April 30, 2015.	Outreach programs help students navigate pathways, especially financial aid process. 5 recommendations from Tierney; Engage and assist in completing steps, family financial awareness, apply for financial aid, rigorous curriculum and make sure students know which courses are needed to be college-ready by 9th grade, surround students with supportive adults and peers.
Petty, T. (2014). Motivating first-generation students to academic success and college completion. *College Student Journal*, *48*(2), 257-264.	Successful students fulfilled social needs with a feeling of belonging, had positive self-esteem, could self-actualize, and were able to overcome their fear of failure. Students could influence themselves with a need for achievement as a motivator to study. Many 1st generation students' families do not understand the value of a college degree and many students worked more than they studied.
Reddick, R. J., Welton, A. D., Alsandor, D. J., Denyszyn, J. L., & Platt, C. S. (2011). Stories of success: high minority, high poverty public school graduate narratives on accessing higher education. *Journal Of Advanced Academics*, *22*(4), 594-618.	Successful students were able to access various forms of capital for support; social, cultural, and community. Significant factors were; peer and parental engagement, extra-curricular activities, participation in outreach programs, assistance with financial aid processes, mentors, peer networks, positive community resources, rigorous HS coursework, a positive academic self-concept, sense of school pride, self-motivated, teachers with high expectations, adaptation and integration with college environment, and adults who discussed college with them.
Rothstein, R. (2004). *Class and schools: using social, economic, and educational reform to close the black-white achievement gap.* New York, NY: Teachers College, Columbia University.	Examines the achievement gap through a social and racial lens and access to social capital. He argues that reforms need to be holistic in nature and address physical, emotional, and social needs.

Rowan-Kenyon, H, Bell, A, & Perna, L (2008). Contextual influences on parental involvement in college going: variations by socioeconomic class. *Journal of Higher Education ,79(5),* 564-586.	Parents from low SES backgrounds participate less in traditional school-based activities but it is the responsibility of school staff to produce improvement if the goal is to prepare students who can be successful in post-secondary education. Community outreach may be necessary, schools need to actively target parents through outreach via community events and organizations. Saving for college, having college discussions with children, and being involved with academic-related issues at school are positively associated with higher rates of college enrollment.
Schweinle, A., & Helming, L. (2011). Success and motivation among college students. *Social Psychology Of Education*, *14*(4), 529-546.	Students are motivated by a combination of extrinsic, intrinsic, working, social, and performance goals. Most students had one primary motivation for success. Support groups and interpersonal relationships were significant social motivators. Perceived ability as compared to others was identified as a significant trait. Motivating factors identified were; get the work done, earn a grade, enjoyment of learning, interpersonal relationships, complying with directions, avoiding trouble, and complying with expectations.
Strayhorn, T. L. (2014). Modeling the determinants of college readiness for historically underrepresented students at 4-year colleges and universities: A national investigation. *American Behavioral Scientist, 58*(8), 972-993.	This research found that time spent studying is a remarkably strong determinant of college readiness. Of the approximately 20 factors that were studied, time spent studying was second only to Socio Economic Status and seven times more significant than participating in a college prep program. Talking with teachers about academic matters, talking with parents about going to college, talking with siblings about going to college are also factors. Aspects of college readiness; content knowledge, cognitive strategies, academic behaviors, contextual knowledge.
Tierney, W. G., Bailey, T., Constantine, J., Finkelstein, N., & Hurd, N. F. (2009). *Helping students navigate the path to college: What high schools can do:* A practice guide (NCEE #2009-4066). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education	High schools need to prepare students for college level work. Students should understand the college-ready curriculum in 9th grade. Assessment practices in HS need to help students become aware of their degree of college readiness. Create a supportive college-going atmosphere by assisting with critical steps and engaging families in the process.

Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications/practiceguides.	
Tierney, W. G., & Sablan, J. R. (2014). Examining college readiness. *American Behavioral Scientist*, *58*(8), 943-946.	Introduction to journal issue investigating college readiness. Less than 60% of students at four-year institutions will complete their degree within six years. Engagement with other students and faculty impacts perseverance.
Watts, S., & Stenner, P. (2012). *Doing Q methodological research: theory, method and interpretation.* London, Thousand Oaks CA, New Delhi, Singapore: Sage Publications.	Practical information on how to conduct a Q study and discussion on the important questions that need to be considered in designing a study.
Welton, A., & Williams, M. (2015). Accountability strain, college readiness drain: sociopolitical tensions involved in maintaining a college-going culture in a high "minority", high poverty, texas high school. *High School Journal*, *98*(2), 181-204.	Characteristics of a college going culture include; the mindset among faculty that all students will be college-ready, implementation of a comprehensive counseling model, family engagement, college partnerships, student access to testing and curriculum, environment saturated with general information, trust with teachers, insistence on homework, and use of both formal and informal conversations as part of the advising process.
Yosso, T. J. (2002). Toward a critical race curriculum. *Equity &Excellence in Education*, *35*(2), 93-107.	Highlights the need to take a critical look at the curriculum and structures in place in schools and how they may contribute to racial inequality, even if they are disguised as “neutral” or “objective”.
Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race ethnicity and education*, *8*(1), 69-91.	A discussion about viewing communities of color with an asset rather than deficit model. Schools need to acknowledge community strengths that are representative of their students for the purposes of social and racial justice.
Yu, H. (2014). At issue: the relationship between student loans and low-income students' baccalaureate attainment: a literature review. *Community College Enterprise*, *20*(1), 50-59.	Financial factors account for 50% of the variation in completion rates. There has been a recent shift in policy towards student loans and away from grants, which reflects a shift away from the societal benefits of having more college graduates towards a more individualistic viewpoint. Students who are able to pay for college with grants only (i.e. no loans) are 50% more likely to graduate.
Zelkowski, J. (2011). Defining the intensity of high school mathematics: distinguishing the difference between college-ready and college-eligible	Mathematics homework done during 12th grade outside of school, continuous enrollment in math throughout high school, highly structured classroom environment, students emphasize learning over behavior management, teachers more supportive and

students. *American Secondary Education*, *39*(2), 27-54.	less negative, press for achievement: were significant indicators for college degree earners.

APPENDIX B: Q SORT PROTOCOL

East Carolina University

Title of Research Study: **Hearing from the 8%: Perceptions of Pre-College Experiences from Successful College Students from Low and Moderate Socio-Economic Backgrounds**

Principal Investigator: Lawrence Hodgkins, under the guidance of Dr. Matthew Militello

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Please provide a unique identifier that you will remember:_____

Condition for Sorting the Statements—keep this statement in mind as you sort the statements: *What pre-college experiences were the most influential towards your success in college*?

Q Sort Instructions:

1. Lay out the number cards from left to right with the negative (-) numbers on your left (see picture below):

2. Read through all **42** cards to become familiar with the statements.

3. As you read through the statements for a second time, organize them into three piles:

- On the right, place the cards that you feel are **most representative of what you believe are the elements that are the most influential towards your success in college.**
- On the left, place the cards that are least representative.
- In the middle, place the cards that you feel less certain about.

4. Beginning with the pile on the right, place the **three** cards that you **agree** with the most under the **+4** marker.

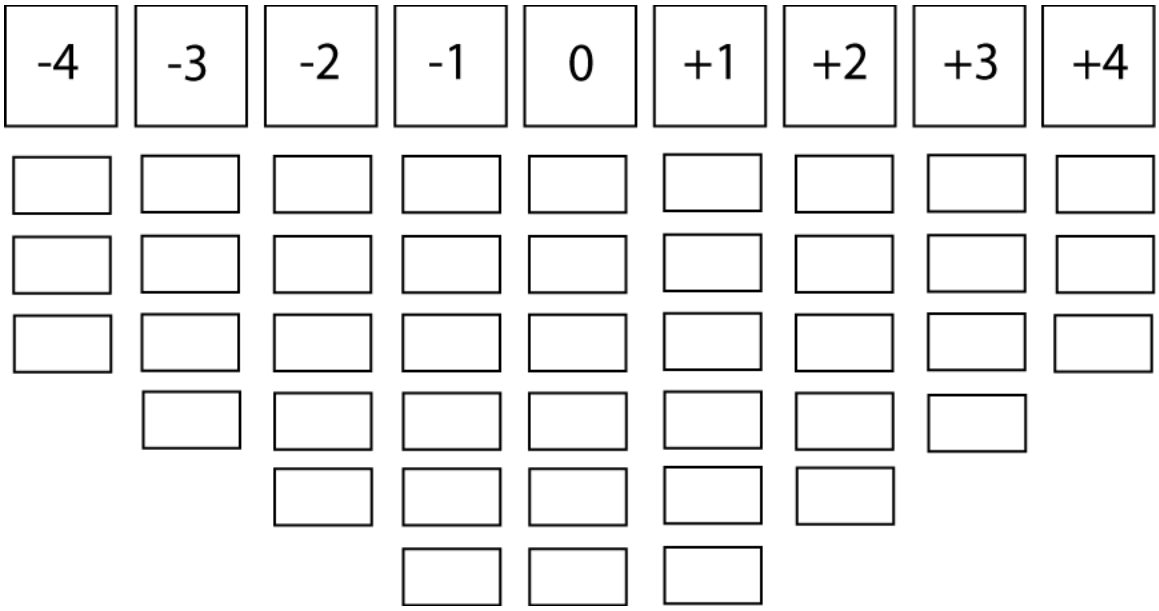
5. Now, turning to your left side, place the **three** cards that you **disagree** with the most under the **-4** marker.

6. Continue this process until all the cards are placed. You are free to change your mind during the sorting process and switch items around.

7. When completed, you should have the following number of cards under each row:

- You should have **3** cards under markers **+4** (most **agree**) and -4 (least **agree**).
- You should have **4** cards under markers **+3** (**agree**) and -3 (**disagree**).
- You should have **5** cards under markers **+2** (slightly **agree**) and -2 (slightly **disagree**).
- You should have **6** cards under markers **+1** (slightly **agree**), 0 (neutral) and -1 (slightly **disagree**).

8. Your sorted cards should match the diagram below. After sorting the cards, please record the number on the cards onto the diagram below in the order in which you placed them. **KEEP YOUR CARDS OUT**—you will need them to answer the follow-up questions.



Post Q Sort Interview Questions:

1) Please list a few of the cards in the +4 column and your reasons for placing it there.

Card #:_____

Card #:_____

2) Please list a few of the cards in the -4 column and your reasons for placing it there.

Card #:_____

Card #:_____

3) Were there specific statements that you had difficulty placing? *Choose one and please list the number of the statement and describe your dilemma.*

Card #:_____

5) Is there a statement that you would have like to add to the sort? If so, what would the card have said and where would you have placed it?

6) In order, what are the three most important pre-college experiences that high school students should have to increase their chances of success in college? Why are they important and how could high schools offer these experiences?

7) Would you be willing to participate in a post-sort focus group interview?

APPENDIX C: POST-SORT FOCUS GROUP PROTOCOL

East Carolina University

Title of Research Study: **Hearing from the 8%: Perceptions of High School Experiences from Recent College Graduates from Low and Moderate Socio-Economic Backgrounds**

Principal Investigator: Lawrence Hodgkins, under the guidance of Dr. Matthew Militello

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Please provide a unique identifier that you will remember:_____

Participants with significant loading on a particular factor will sit with other participants who loaded on the same factor. Loading on a common factor represents a statistically significant shared perspective. The purpose of this focus group interview is to gain additional insights about why participants have their perspectives.

After performing factor analysis on all of the responses, your responses are statistically similar to those shown in the model sort.

Condition for Sorting the Statements—as a reminder, keep this statement in mind as you participate in the focus group interview process: *What pre-college experiences were the most influential towards your success in college*?

1) Who is in your group? Describe any similarities and/or differences (e.g., demographics, job, etc.).

2) Which statements best represent your shared perspective?

3) What has had the greatest impact on how you sorted your cards the way you did? (Examples- past experience, courses, current knowledge, etc.). Please explain your answers.

4) What name would you assign that represents the perspective illustrated by this model sort? Explain why and the meaning associated with that name—use card statements to provide justification for your name.

APPENDIX D: CARD SORT CONSENT FORM

East Carolina University

Consent to Take Part in Research that has Potentially Greater than Minimal Risk
Information You Should Think About Before Agreeing to Take Part in This Research

Title of Research Study: **Hearing from the 8%: Perceptions of Pre-College Experiences from Successful College Students from Low and Moderate Socio-Economic Backgrounds**

Principal Investigator: Lawrence Hodgkins, under the guidance of Dr. Matthew Militello

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Researchers at East Carolina University (ECU) study issues related to society, health problems, environmental problems, behavior problems and the human condition. To do this, we need the help of volunteers who are willing to take part in research.

Why am I being invited to take part in this research?
The purpose of this study is to seek to understand what elements of k-12 experiences successful low-income college students and graduates perceive to have the most impact on being successful in college. As a current or recent student, you are being invited to take part in this research to seek your perceptions, viewpoints, and insights about how you were successful in college where others were not. You are being asked to take part in the study by participating in a Card Sort Exercise. Your participation in this study is voluntary. The decision to take part in the research is yours to make. You have the right to participate, to choose not to participate or to stop participating at any time without penalty. By conducting this research, we hope to obtain findings to the following research questions:

1. What are the pre-college experiences, opportunities, and relationships that students need to be successful in college?
2. How do successful college students perceive the relative importance of the components identified in question 1?
3. Why did the participants perceive the experiences in a particular manner? What factors and/or knowledge influenced their decisions?

If you volunteer to participate in this research, you will be one of about 40 people to do so.

Are there reasons I should not take part in this research?
You should not participate in this research study if you are less than 18 years old. There are no known risks to participating in the card sorting exercise.

What other choices do I have if I do not take part in this research?
You can choose not to participate.

Where is the research going to take place and how long will it last?
The research will be conducted at Riverside High School, Williamston, NC 27892. The total amount of time you will be asked to volunteer for this study is approximately one hour.

What will I be asked to do?
You will be asked to sort 43 cards. These cards have statements about mentoring support printed on them and your task will be to sort them according to your own beliefs and viewpoints. This process should take approximately one hour. After sorting the cards, you will be asked to complete a brief questionnaire about the statements and why you placed specific statements in certain areas on the distribution grid. In addition, you will be asked some general demographic data. Your card sort and your responses to the questionnaire will remain confidential.

What might I experience if I take part in the research?
We do not know of any risks (the chance of harm) associated with this research. Any risks that may occur with this research are no more than what you would experience in everyday life. We do not know if you will benefit from taking part in this study. There may not be any personal benefit to you but the information gained by doing this research may help others in the future.

Will I be paid for taking part in this research?
We will not be able to pay you for the time you volunteer while being in this study.

Will it cost me to take part in this research?
It will not cost you any money to be part of the research.

Who will know that I took part in this research and learn personal information about me?
ECU and the people and organizations listed below may know that you took part in this research and may see information about you that is normally kept private. With your permission, these people may use your private information to do this research:

- Any agency of the federal, state, or local government that regulates human research. This includes the Department of Health and Human Services (DHHS), the North Carolina Department of Health, and the Office for Human Research Protections.
- The University & Medical Center Institutional Review Board (UNCIRB) and its staff have responsibility for overseeing your welfare during this research and may need to see research records that identify you.

How will you keep the information you collect about me secure? How long will you keep it?
The information in the study will be kept confidential to the full extent allowed by law. Data will be stored securely on a computer and in a location of which only the researcher has access. No reference will be made in oral or written reports that could link you to the study.

What if I decide I do not want to continue in this research?
You can stop at any time after it has already started. There will be no consequences if you stop and you will not be criticized. You will not lose any benefits that you normally receive.

Who should I contact if I have questions?
The people conducting this study will be able to answer any questions concerning this research, now or in the future. You may contact the Principal Investigator at phone number 252-792-1575 (days, 8:00 am – 4:00 pm) or email lhodgkins@martin.k12.nc.us

If you have questions about your rights as someone taking part in research, you may call the Office of Research Integrity & Compliance (ORIC) at phone number 252-744-2941 (days, 8:00 am – 5:00 pm). If you would like to report a complaint or concern about this research study, you may call the Director of the ORIC at 252-744-1971.

I have decided I want to take part in this research. What should I do now?
The person obtaining informed consent will ask you to read the following and if you agree, you should sign this form:

- I have read (or had read to me) all of the above information.
- I am at least 18 years old.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that I can stop taking part in this study at any time.
- By signing this informed consent form, I am not giving up any of my rights.
- I have been given a copy of this consent document, and it is mine to keep.

Participant's Name (PRINT) **Signature** **Date**

Person Obtaining Informed Consent: I have conducted the initial informed consent process. I have orally reviewed the contents of the consent document with the person who has signed above and answered all of the person's questions about the research.

Person Obtaining Consent (PRINT) **Signature** **Date**

Background Questionnaire

CODE :_____

1) **Gender**: ____M ____F

2**) Ethnicity (Check One):**
_____ African American
_____ Caucasian
_____ Hispanic/Latino (a)
_____ Middle Eastern
_____ Native American
_____ Asian
_____ Other: _____

3**) College(s) attended**:_____

4**) Student Status**:
_____ Graduate
_____ Sophomore
_____ Junior
_____ Senior
_____ Other (Please Specify :_____)

5) **Indicate the range which best describes your yearly family income**:
_____ Below $35,000
_____ Between $35,000 and $65,000
_____ Between $65,000 and $110, 000
_____ Above $110,000
_____ Don't know

6) **Indicate others in your family who are college graduates (check all that apply):**
_____ One parent / step-parent
_____ More than one parent / step-parent
_____ Sibling
_____ Grandparent(s)
_____ I will be (am) the first

7) **How many hours per week do you work at a job during the school year.**
_____ I do not have a job during the school year
_____ less than 10
_____ between 10 and 30
_____ 30 or more

8) **Did you receive any grants, scholarships, or financial aid to help pay for college**?
_____ No
_____ Academic
_____ Athletic
_____ Other

APPENDIX E: FOCUS GROUP INTERVIEW CONSENT FORM

East Carolina University

Informed Consent to Participate in Research
Information to Consider Before Taking Part in Research That Has No More Than Minimal Risk

Title of Research Study: Hearing from the 8%: Perceptions of Pre-College Experiences from Successful College Students from Low and Moderate Socio-Economic Backgrounds

Principal Investigator: Lawrence Hodgkins, under the guidance of Dr. Matthew Militello

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Researchers at East Carolina University (ECU) study issues related tot society, health problems, environmental problems, behavior problems and the human condition. To do this, we need the help of volunteers who are willing to take part in research.

Why am I being invited to take part in this research?
The purpose of this study is to seek to understand what elements of k-12 experiences successful low-income college students and graduates perceive to have the most impact on being successful in college. As a current or recent student, you are being invited to take part in this research to seek your perceptions, viewpoints, and insights about how you were successful in college where others were not. You are being asked to take part in the study by participating in a Post-Sort Interview. Your participation in this study is voluntary. The decision to take part in the research is yours to make. You have the right to participate, to choose not to participate or to stop participating at any time without penalty. By conducting this research, we hope to obtain findings to the following research questions:

1. What are the pre-college experiences, opportunities, and relationships that students need to be successful in college?
2. How do successful college students perceive the relative importance of the components identified in question 1?
3. Why did the participants perceive the experiences in a particular manner? What factors and/or knowledge influenced their decisions?

If you volunteer to participate in this research, you will be one of about 40 people to do so.

Are there reasons I should not take part in this research?
You should not participate in this research study if you are less than 18 years old. There are no known risks to participating in the card sorting exercise.

What other choices do I have if I do not take part in this research?
You can choose not to participate.

Where is the research going to take place and how long will it last?
The research will be conducted at Riverside High School, Williamston, NC 27892. The total amount of time you will be asked to volunteer for this study is approximately one hour.

What will I be asked to do?
If you agree to participate in this stage of the study, you will be asked to participate in an interview as a follow-up activity to the previous card sorting exercise. Interview questions will focus on the findings of the Q-sort and will be used to seek a deeper understanding of your viewpoints and perceptions about the factors that emerged during the sort and its analysis. Reflection questions will be asked to gain understanding of the rank value you assigned certain factors in the rank order. The researcher will take notes during the interview to be used during data analysis.

What might I experience if I take part in the research?
We do not know of any risks (the chance of harm) associated with this research. Any risks that may occur with this research are no more than what you would experience in everyday life. We do not know if you will benefit from taking part in this study. There may not be any personal benefit to you but the information gained by doing this research may help others in the future.

Will I be paid for taking part in this research?
We will not be able to pay you for the time you volunteer while being in this study.

Will it cost me to take part in this research?
It will not cost you any money to be part of the research.

Who will know that I took part in this research and learn personal information about me?
ECU and the people and organizations listed below may know that you took part in this research and may see information about you that is normally kept private. With your permission, these people may use your private information to do this research:

- Any agency of the federal, state, or local government that regulates human research. This includes the Department of Health and Human Services (DHHS), the North Carolina Department of Health, and the Office for Human Research Protections.
- The University & Medical Center Institutional Review Board (UNCIRB) and its staff have responsibility for overseeing your welfare during this research and may need to see research records that identify you.

How will you keep the information you collect about me secure? How long will you keep it?
The information in the study will be kept confidential to the full extent allowed by law. Confidentiality will be maintained throughout the data collection and data analysis process. Information gathered from the interview will be maintained in a secure, locked location and will be destroyed upon successful completion of the study. No reference will be made in oral or written reports that could link you to the study.

What if I decide I do not want to continue in this research?
You can stop at any time after it has already started. There will be no consequences if you stop and you will not be criticized. You will not lose any benefits that you normally receive.

Who should I contact if I have questions?
The people conducting this study will be able to answer any questions concerning this research, now or in the future. You may contact the Principal Investigator at phone number 252-792-1575 (days, 8:00 am – 4:00 pm) or email lhodgkins@martin.k12.nc.us.

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I have decided I want to take part in this research. What should I do now?
The person obtaining informed consent will ask you to read the following and if you agree, you should sign this form:

- I have read (or had read to me) all of the above information.
- I am at least 18 years old.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that I can stop taking part in this study at any time.
- By signing this informed consent form, I am not giving up any of my rights.
- I have been given a copy of this consent document, and it is mine to keep.

Participant's Name (PRINT) **Signature** **Date**

Person Obtaining Informed Consent: I have conducted the initial informed consent process. I have orally reviewed the contents of the consent document with the person who has signed above and answered all of the person's questions about the research.

Person Obtaining Consent (PRINT) **Signature** **Date**

APPENDIX F: INSTITUTIONAL REVIEW BOARD APPROVAL

EAST CAROLINA UNIVERSITY
Υνιϖερσιτψ & Μεδιχαλ Χεντερ Ινστιτυτιοναλ Ρεϖιεω Βοαρδ Οφφιχε
4Ν−70 Βροδψ Μεδιχαλ Σχιενχεσ Βυιλδινγ • Μαιλ Στοπ 682
600 Μοψε Βουλεϖαρδ • Γρεενϖιλλε, ΝΧ 27834
Οφφιχε 252-744-2914 • Φαξ 252-744-2284 • ωωω.εχυ.εδυ/ιρβ

Notification of Exempt Certification

From: Social/Behavioral IRB
To: Lawrence Hodgkins
CC:
Matthew Militello
Date: 1/5/2017
Re: UMCIRB 16-002221
Student perceptions of pre-college experiences

I am pleased to inform you that your research submission has been certified as exempt on 1/4/2017. This study is eligible for Exempt Certification under category #1 & 2.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification request at least 30 days before the end of the five year period.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418