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Student perceptions of the impact of precollege programs

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STUDENT PERCEPTIONS OF THE IMPACT OF PRECOLLEGE PROGRAMS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in
The Department of Educational Theory, Policy, and Practice

by
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ABSTRACT

Precollege-to-college outreach is abundant, with programs established on college campuses throughout the nation. Precollege outreach programs are a viable option in the effort to overcome disadvantage and disparity. These programs provide students with knowledge pertinent to academic success and successful transitions between educational systems. These programs also have the capability to provide opportunities to impact postsecondary recruitment, retention, and graduation rates, as well as impact students’ ability to successfully navigate an increasingly competitive workforce (Carlon, 2001; Gay, 1992; Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998). Worth noting is the notion that these programs may best serve students who are considered underserved, and who encounter a multitude of barriers that inhibit their pursuit of a college education. Despite the large numbers of these programs, there are gaps in the literature on precollege outreach programs, particularly on program design, and the potential of these mechanisms to affect students’ postsecondary aspirations and perceptions.

The researcher used case study methodology to explore and describe the perceptions of students who participated in two university precollege engineering programs. The findings of this study suggest that well defined and organized outreach efforts, with clear objectives and agendas, are perceived by participants as valuable and beneficial to their academic persistence and successful socialization into postsecondary environments. The findings also suggest that, precollege programming may better serve students who are considered underserved, rather than students who have a precedent for exhibiting academically successful behaviors.

Finally, this research enhances the conversation on precollege programming and government supported outreach policy and intervention. Likewise, the research contributes to the
scholarly discussion of postsecondary outreach, student socialization, and workforce preparation, and may inform efforts to bridge secondary to post secondary education.
INTRODUCTION

Statement of the Problem

Persisting gaps in college access, enrollment, and degree attainment are not topics that are novel, nor have they been resolved. Despite the investment of billions of government and private dollars, an imbalance remains between those individuals who are equipped with the academic, economic, and social means necessary for college success and those individuals who are not. Diminishing the gaps and increasing college success of American students is a complex charge in general, but the matter becomes especially intricate when covering the post-grade level success of underserved student bodies (Becker, Krodell, & Tucker, 2009; Gladieux & Swail, 1998; Fischer, 2007; Swail & Perna, 2002). Federal and state government agencies, along with educational institutions, have a precedent of appreciating and investing in postsecondary success. While policies mandating outreach and support imply commitment to increase student access and enrollment, such measures have not proven to be enough to bring about increases alone, and continued and more refined efforts are necessary (Domina, 2007; Fischer, 2007; Hamrick & Stage, 2003).

At the June 21st close of the 2010 regular session of the Louisiana legislature, House Bill No. 1171, the Louisiana Granting Resources and Autonomy for Diplomas Act, was enacted which established legislative bases for Louisiana colleges and universities to gain and ultimately exercise greater autonomy. The passing of this act is an example of government involvement in education, and typifies the importance of the role of state government in Louisiana education. A quintessential purpose of the Louisiana Granting Resources and Autonomy for Diplomas Act, or GRAD Act is as follows:

To support the state’s public postsecondary institutions in remaining competitive and increasing their overall effectiveness and efficiency by providing that the institutions achieve specific, measurable performance objectives aimed at improving college completion and at meeting the state’s current and future workforce and economic
development needs and by granting the institutions limited operational autonomy and flexibility in exchange for achieving such objectives. (GRAD Act, 2010).

Essentially, the GRAD Act allows state postsecondary institutions the option of increasing tuition up to 10% annually. To be eligible, a postsecondary institution must secure certain performance benchmarks; greater graduation rates being the most prominent among them. On the matter of student success, stated in the act is the stipulation that postsecondary institutions must implement policies that will bring about “graduation rates and graduation productivity goals that are consistent with institutional peers” (GRAD Act, 2010).

Inclusive in GRAD Act obligations is the commitment to support high schools in the preparation of secondary students. Situated uniquely among secondary students are students reared in under-resourced settings. These students are considered underserved and face unique educational and systemic obstacles that inhibit their ability to participate in certain opportunities. These obstacles, including limited educational expectations and planning, academic ability, access to information, availability of financial aid, and support, influence college enrollment behaviors (Swail & Perna, 2002, p.15). These inhibitors, or barriers, are factors behind persisting access and completion gaps between those who succeed in college and those who do not.

For the underserved, and, consequently, underrepresented student, factors that pose greater threat include family and background characteristics such as limited expectations, parental degree attainment, low-economic status, and unsupportive social networks. Additional inhibitors include systemic under-resourcing and inadequate grade-level environments. Likewise, student factors such as low academic self-confidence and academic expectations, inappropriate knowledge about college environments, and a lack of connection to the college community also impede students’ postsecondary opportunities. (Fischer, 2007; Hamrick & Stage, 2003; Ludwig, Ladd, & Duncan, 2001; Perna & Titus, 2005; Timar, Ogawa, & Orillion, 2004; U.S. Department of Education, 2006).
As has been noted, bringing about greater college success for underserved students is a complex task, especially when considering the barriers inhibiting the success of these students. “Increasing college success for underrepresented students is a complex task, particularly in consideration of the many confounding factors that have an impact on the student’s potential to succeed” (Swail & Perna, 2002, p.15). Consequently, for this research, attention was on support provided to underserved and underrepresented high school students, and on the potential of precollege programs that are aligned with secondary support objectives of the GRAD Act legislation, on academic dispositions and performances of the underserved population.

Precedence has been set for federal and state government investments in early intervention, precollege programs, most notably the federal TRIO programs, and state level initiatives, such as the large-scale precollege outreach in California during the 1990s, serve as recognized examples (Swail & Perna, 2002). On a local scale, the GRAD Act represents Louisiana’s commitment to student post-secondary access, success, and outreach. “Despite the focus and resources devoted to early intervention programs by both the public and private sectors, only minimal data and information are available to describe these programs” (Swail & Perna, 2002, p.16). If shrewd development, funding, and implementation decisions are to be made, there is a great deal more institution and program administrators should know about precollege programs such as “how many there are, where they are, what they do, whom they serve, and what impact they have on the educational opportunity and success of the students they serve” (Swail & Perna, 2002, p.17).

While not addressing all of the above mentioned questions, the research at hand will expand the conversation and supplement the literature on precollege outreach by exploring the forms in which it exists, whom it serves, and the impact of precollege programming. Ultimately,
the research will supply university and program stakeholders with information that will allow for more informed and prudent policy and program development and implementation.

On the subject of the GRAD Act, implicit in this legislation is the sentiment that credentialing beyond a high school diploma is of importance. This attitude is not particularly surprising, as multiple factors attribute to the amplified need for a postsecondary degree, namely heightened economic demands and employment expectations, and the need for the nation’s burgeoning population to be adequately skilled and capable of navigating a more competitive labor market (Hamrick & Stage, 2003; Krist & Venezia, 2006; Schneider, 2003). Patricia McDonough (2005), in a report commissioned by the National Association for College Admission Counseling, insists that “college access is an important educational and economic policy issue, a lynchpin in P-16 reforms, an imperative for advocates for improving affordability, and essential to policymakers wishing to reduce barriers to college admission” (p. 2).

Students’ postsecondary success is a matter of concern for many sectors of society; from grade level systems, to postsecondary systems, to the business sector, and, as evidenced by legislation such as the GRAD Act, is also a concern for state and federal governments (Swail & Perna, 2002). Swail & Perna (2002) assure that “policymakers have begun to look at non—traditional mechanisms to improve the education of our students; one mechanism among them being precollege programs” (p.16). Precollege programs, designed to positively impact student’s academic performance and persistence, serve as a type of safety net or support structure to address educational inadequacies suffered by students (Swail & Perna, 2002). These mechanisms, then, represent an especially promising tool for underserved students (Domina, 2009).

What is unique about this research is the exploration of precollege outreach that is aligned with newly-minted legislation, and the potential of these programs to address barriers
inhibiting underserved students; barriers that compromise students aspirations, persistence, and workforce viability. Likewise, this study provides accounts of extended engagement precollege programs that are active at the university, and—based on student perceptions—the impact of these programs, and how they compare to each other.

Understanding the importance of academic success and persistence to workforce readiness, and the relationship among those factors, it is also logical to realize that any level of postsecondary participation is undergirded by some amount of grade-level success. In actuality, quality grade-level education is a critical and basic component in the effort to prepare the populace with the necessary competencies to create and sustain a skilled workforce (Krist & Venezia, 2006; U.S. Department of Education, 2005). State legislators reflect this opinion in the GRAD Act, as part of the legislation entails a six-year agreement in which participating postsecondary institutions must develop partnerships with high schools. To reiterate, the goal of this stipulation is to better prepare grade-level students for the rigors of colleges (GRAD Act, 2010).

However, if subscribing to the notion of the importance of a college education, it becomes troubling when considering student groups traditionally overlooked in the areas of educational access and quality, and who encounter challenges in regard to academic performance and participation at the postsecondary level (Haveman & Smeeding 2006). Based on that reality, underserved students are the population on which this study was designed to focus. Inherent in the term is that underserved students have been denied certain experiences and privileges which, in turn, places them at a distinct educational and societal disadvantage. Students from underserved backgrounds, deriving from academic, family, and community attributes, are ultimately hindered by the lack of exposure and access to information, experiences, expectations,
and opportunities associated with postsecondary education (Hamrick & Stage, 2003; Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998).

The proportion of students graduating from high school underprepared is significant (Krist & Venezia, 2006). Simply stated, many high schools students are not receiving the education they need. The Louisiana Department of Education (2008) established standards to measure the performance of schools within the state. Specifically, schools are given a School Performance Score, (SPS), based upon performance indicators, and the SPS represents the effectiveness of a school. The SPS is determined by student information including attendance, persistence, standardized test performance, and graduation, as well as faculty and staff information, such as certification status (2008). Using baseline data, individualized performance expectations are set for districts and the schools within. School performance is measured each school year to determine if schools are meeting the performance expectations set for them (LDOE, 2008; 2011a).

To focus, in 2010, 22 of the 78 schools in East Baton Rouge Parish, Louisiana’s largest public school district, reached or exceeded the performance expectations set for them by the Louisiana Department of Education (LDOE, 2010a). However, 35 schools in the district exhibited minimal growth, ultimately failing to meet their growth target and another 11 schools showed no school performance growth at all (2010a). Most alarmingly, though, is that 10 of the district’s schools were found to be in decline (2010a). The assumption set forth by the LDOE is that schools that meet or exceed their SPS are schools that are properly educating and preparing students for academic success. The belief is that adequately performing schools produce students who perform at grade-level, who will eventually participate in postsecondary education, and who will ultimately be workforce ready (LDOE, 2010b). By failing to meet performance expectations, the LDOE is establishing the premise that districts and the schools in them are
failing to properly educate students and prepare them for life after they depart the grade-level classroom.

In 2010, EBR, the focus district of the study, earned a performance score of 82 on a scale of 60 (or below) to 140 (LDOE, 2008). In 2011, some gains were made with the district earning a score of 86.2 on a scale of 65 (or below) to 200, which equates to a 4.2 point change from 2010 to 2011 (LDOE, 2011a). The State Department of Education implemented a performance-labeling model in which districts and the schools within are assigned letter grades (LDOE, 2011a). The letter-grade system is an understandable depiction of school performance, and has evaluation parameters from A to F. Ultimately, the focus district earned a D letter-grade rating in 2011. Compared to other districts in the state, the focus district ranked 48 among 70 total districts (2011a).

Data from the 2010–2011 school year also shows that the number of schools in the focus district dropped from 78 schools to 75. Of the 75 schools, 15 met the 2011 growth target set for them by the LDOE (LDOE, 2011a). Thirteen of the remaining 60 schools achieved growth, but not enough growth to meet the 2011 growth target (2011a). Forty-one of the 75 schools in the focus district earned a D letter-grade rating, and 12 earned an F letter grade (2011a). It is noted that of the 41 schools with D grades, six earned D+ ratings and were found to have met their 2011 targets despite their low letter-grade status (2011a). Also noted is that of the 12 schools with F letter-grades, four of the schools were classified as alternative education schools, which, unlike traditional schools, are facilities designated to provide unique educational, behavioral, and transitional services to students with specialized circumstances (LDOE 2011a; 2011b). Ultimately, of the 47 schools that failed to meet their growth targets, 7 of them actually were found to have undergone some measure of decline in performance, with negative point changes earned between 2010-2011 (2011a).
Based on the percentage of schools meeting their 2011 growth targets, the Louisiana Department of Education did not include the focus district in the state’s list of districts with A or B ratings; nor was the district included in the 2011 list of the top ten most improved districts, as determined by 2010 to 2011 performances. Also disappointing is the fact that the focus district did not make the list of districts to have met their 2011 growth target set by the State Department of Education (LDOE, 2011a).

Admittedly, Louisiana schools, including those in the focus district, are achieving progress (LDOE, 2010a; 2011a). From 2009 to 2010, the East Baton Rouge Parish School System, (EBR), the state’s largest school district, raised the school performance rating 2.2%, from an SPS of 79.8 to an SPS of 82.0, which moved the district closer to the statewide target of a SPS score of 100, and in 2011 the SPS grew to 86.2 and a 2010-2011 increase of 5.1% (2011a). Nonetheless, based on paltry growth, it is evident that students’ educational needs are not being met, and that there is a great deal of room to better serve East Baton Rouge Parish students.

Students who are underserved at the grade-level are not relieved of this burden when pursuing future postsecondary goals. Rather, students who graduate from low-performing schools are subject to low-quality educational experiences which, then, hamper their ability to acquire the knowledge and skills necessary to transition and succeed in college (Attewell, Lavin, Domina, & Levey, 2006; Marcus, 2000; U.S. Department of Education, 2006; Tierney & June, 2001; Trombley, 1998). That being the case, expectations of the academic success of these students, and their year-to-year postsecondary participation, persistence, and eventual graduation without support and intervention, is unrealistic.

Despite the gains made in recent years, such as the 5.1% SPS growth from 2010 to 2011 in EBR, as reported by the LDOE, “…nearly one out of every three of our students are performing below grade level” (LDOE, 2010b; 2011a). According to the LDOE (2010) more
than 400 schools in the state are performing unsatisfactorily, providing poor quality education to students who, not surprisingly then, perform below grade level. As reported, in 2011, more than 800 schools “earned a score below 100, meaning that at least 25 percent of their students are not proficient for their grade level” (LDOE, 2010b p.2; LDOE, 2011a). This means that students at these schools are unable to meet grade-level expectations, and will also fail to meet postsecondary expectations.

In 2007, in an effort to reduce the achievement gap, particularly the disparity between black and white students, the State Superintendent of Education established a new vision for the Louisiana Department of Education “to create a world-class education system for every student in Louisiana (LDOE, 2010b).” With that objective in mind, in 2010, the LDOE and the Board of Elementary and Secondary Education (BESE) adopted nine Critical Goals:

1. Students enter Kindergarten ready to learn.
2. Students are literate by third grade.
3. Students will enter fourth grade on time.
4. Students perform at or above grade level in English Language Arts by eighth grade.
5. Students perform at or above grade level in math by eighth grade.
6. Students will graduate on time.
7. Students will enroll in post-secondary education or graduate workforce-ready.
8. Students will successfully complete at least one year of post-secondary education.
9. Achieve all eight Critical Goals, regardless of race or class.

The task of achieving the aforementioned goals was assigned to three Critical Goals offices within the LDOE: the STEM office, the Literacy Office, and the College and Career Readiness Office. Through these goal offices, the LDOE, led by the State Superintendent, has
committed “to supporting local districts and schools…to meet the needs of [the] students” (LDOE, 2010b, p. 1).

As touched upon earlier, the East Baton Rouge Parish school district, which is the district of focus for this research, is one in particular need of support. The district, from this point referred to as the focus district, includes the largest percentage of low-performing schools. Specifically, out of 75 schools, the focus district has 53 that performed at the D level or below, and 12 of these are identified as academically unsuccessful by the LDOE (2011a).

The very existence of the GRAD Act establishes that state legislators recognize the under-preparedness of certain students and understand, to some extent, the consequences of such a shortfall. Likewise, the voluntary and sweeping commitment of the state’s postsecondary institutions to the terms of the legislation also suggests that there is indeed a need to support grade-level education agencies in the effort to better prepare students for life after high school. While the brunt of the responsibility of GRAD Act agreements appears to be rooted in postsecondary policy and practices that take place at the postsecondary level, any prospect of progress relies on grade-level success. Colleges and universities cannot expect to supply their students with the knowledge and skills necessary for postsecondary and workforce success, and ultimately to graduate greater numbers of students, without students first receiving quality educational opportunities from education systems while receiving their grade-level education (Becker, Krodel, & Tucker, 2009; Fischer, 2007; Krist & Venezia, 2006; Papanglis, 2004).

Workforce demands are greater; however, United States secondary-level performance has been in decline. The Organization for Economic Cooperation and Development (2007) present statistics (2007) from which it is evident that the nation’s graduation rate has slipped from a first place world ranking to a 13th place world rank. Positioning responsibility for the decline, Krist and Venezia (2006) posit that success in postsecondary education is contingent upon student
success in high school (2006). Krist and Venezia (2006) also state that the postsecondary sector is responsible for collaborating with the grade-level sector and facilitating high school success and the proper preparation of students for the rigors of life beyond high school.

The Louisiana Board of Regents asserts that, through the GRAD Act and the goals and corresponding measures intrinsic in the legislation, education agencies will ultimately experience significant gains (Board of Regents, 2010). The governor of the state reinforces the value of the GRAD Act with his belief that “the GRAD Act is a critical part of improving our higher education institutions’ competitiveness, effectiveness, and efficiency – and more importantly – the new law will help provide students with an education that prepares them for the 21st century workforce” (Board of Regents, 2010, para. 4). Essentially, as stated by Board of Regents Vice Chairman Bob Levy “the GRAD Act is one of the most significant higher education reform efforts our state has implemented” (2010, para. 3). With the GRAD Act catalyzing the onset of a new postsecondary era, pursuing research on the relationship of secondary education and postsecondary education in Louisiana is justified. The legislative mandates of the GRAD Act create space for inquiry into the impact of such legislation on grade-level-to-postsecondary collaboration. Likewise, with increased economic pressure for institutions to limit spending, while at the same time there are societal and workforce pressures for individuals to attain a postsecondary education, it is important that researchers continue to direct attention to the needs of disenfranchised and underserved groups and the potential impact of academic outreach to address the educational disadvantage experienced by underserved students (Becker, Krodel, & Tucker, 2009; Brock, 2011; Caldwell & Siwatu, 2003; Domina, 2009; Fischer, 2007; Kezar, 2000; Tierney & Jun, 2001).
Purpose of the Study

The intent of this research was multifaceted. To broadly explain, a case study methodology was employed to explore and describe support mechanisms utilized by Louisiana’s largest public postsecondary institution, namely precollege-to-college outreach programs, and to investigate student perceptions about the programs in an attempt to learn more about their potential to impact underserved students’ perceptions about postsecondary participation. The proximity of the organizations established a practical relationship between the two educational systems. This relationship between the systems was further validated by the fact that the large, four-year, public research institution has been assigned to service the focus district as part of the agreed upon GRAD Act terms.

The researcher was aware of the intent of some institutions, including the one to be studied, to exercise more selective admissions. Such aims may be viewed as counter pressures which call for the focus of institutional resources on high-performing academic students; students who have been exposed to greater educational access and opportunity. With that in mind, it may be argued that institutional goals diminish the need for outreach to academically underserved populations. The researcher points out, however, that, while providing outreach to a population has the potential to serve as exposure to the university, outreach does not inherently represent recruitment or admission.

Also, government financial and programmatic support for initiatives, (such as the creation and funding of the TRIO programs), that are designed to specifically target student groups who face unique academic and financial obstacles, may serve to challenge opposition to resistance to selective-admission institutions providing outreach to underserved students. Ultimately, the researcher presents the notion that the institution studied has an obligation to serve all segments of students. This notion is founded on the fact that the institution is a public
university, one in which state funds represent 38.9% of its budget (Louisiana State University, 2011). Additionally, the institution has agreed to GRAD Act commitments to serve East Baton Rouge Parish high schools. Likewise, the institution researched purported to uphold aims to solve challenging economic and social issues (Louisiana State University, 2010), which the researcher argued encompassed academic achievement gaps and the insufficient preparation of citizens for postsecondary and workforce readiness.

The factors specified that support postsecondary outreach set precedence for the university studied to fulfill obligations to serve and establish access to more than the more privileged segment of the population. Hamrick and Stage (2003) note that the consequence of neglecting low-income and minority students is significant. As it stands, a high school diploma is a prerequisite for most employment (Schneider, 2003). Moreover, to secure a well-paying job, education or training beyond high school is required (Schneider, 2003; U.S. Department of Labor, 2006; Wise, 2008). Considering these factors, a rational argument existed for the university to invest in and provide underserved student outreach.

To briefly explain, the institution at which the study was conducted was described by the Carnegie Foundation (2011) as a large, four-year, public postsecondary institution, and was classified by the commission as a Research University. Carnegie classification is a “framework for recognizing and describing institutional diversity in United States higher education (Carnegie Foundation, 2011). Carnegie classifications were first developed in 1970, and were most recently updated in 2010. The Carnegie Foundation says the following about the classification framework:

The framework has been widely used in the study of higher education, both as a way to represent and control for institutional differences, and also in the design of research
studies to ensure adequate representation of sampled institutions, students, or faculty (2011, para. 1).

The institution’s research status was signified as RU/VH, which is a basic Carnegie classification status of “very high research activity” (2011). The RU institution studied was also identified as a doctorate-granting institution. Alexander McCormick and Chun-Mei Zhao (2005) explain that doctoral-granting institutions place heavy emphasis on the generation of research.

This study investigated precollege services rendered at the large, RU institution, and deciphered if two university precollege outreach initiatives, which satisfied GRAD Act precollege-outreach objectives, were perceived by program participants to have impacted their dispositions and perceptions about academic performances and ability to transition from secondary to postsecondary schooling. Specifically, the precollege outreach studied included only university programs that met the following criteria:

1) The program was housed or sponsored by the university,
2) The program was aligned with the GRAD Act objective of providing high school outreach and, subsequently, targeted high school students,
3) The program was sponsored by a college or department aligned with the LDOE goal offices,
4) The program targeted students identified as academically or economically underserved,
5) The program included students attending public schools in East Baton Rouge Parish,
6) The program length was one week or longer, qualifying as extended engagement, and
7) The program featured multiple encounters, including routine events and activities throughout the program cycle in which participants and university affiliated personnel interacted.
Initially, three programs from those that meet the criteria were selected for in depth investigation. Due to changes in program leadership and other research commitments, one program ultimately declined to participate in the research, leaving two programs in the study. Knowledge of precollege programs is largely based on the more established and prominent TRIO programs, such as GEAR UP and Upward Bound (Swail & Perna, 2002). For that reason, the researcher chose to forgo further investigation of those initiatives. Rather, an effort to fill the gaps and precollege literature, and the potential of these support mechanisms, the researcher explored less showcased and more locally driven programs. Research in the area proposed revealed if the initiatives practiced by the university were or were not successful as they relate to student dispositions about participation in higher education and academic performance, and students’ aspirations and projected persistence. The programs were the cases in this multiple-cases case study. Because students’ beliefs and attitudes were essential to the study, the students participating in the cases studied were the embedded units of analysis.

Rationale

Considering the impact of fiscal contractions incurred by state postsecondary institutions during the 2009 - 2010 and 2010 - 2011 fiscal years, raising tuition is an attractive prospect as college administrators and stakeholders scramble to offset the potentially devastating consequences of a loss approaching $290 million state government dollars. Through House Bill 1171, Louisiana legislators present a tantalizing prospect to state postsecondary leaders. Not only are administrators promised license to raise tuition, they are also guaranteed greater authority as their institution progresses through the act. At the same time, however, institution leaders commit to meeting performance standards determined and measured by Louisiana legislators. According to Governor Bobby Jindal, who signed the act into law on June 30, 2010, “the LA GRAD Act provides a very strong incentive for our colleges and universities to increase
retention and graduate rates, more closely align academic programs with workforce needs, and to excel in research that will move Louisiana’s economy forward” (Board of Regents, 2010, para. 2).

However, for students to be able to meet workforce needs and secure economic progress, more will be required than a high-school diploma, as “jobs now [require] postsecondary degrees” and, perhaps more pressingly, “being able to support a family and maintain a reasonable lifestyle with only a high school degree seems unlikely” (Schneider, 2003, p. 56). Statistics attest to the popularity of this assertion, as 70 - 88 percent of the nation’s secondary students have postsecondary aspirations. Likewise, high rates of college enrollment affirm that there is a shared belief that a college degree is key to economic and social success (Krist & Venezia, 2006; U.S. Department of Education NCES, 2006).

If endowing truth in the notion of the importance of a college education, the disturbing trend of poor performance and attrition at the postsecondary level is quite troubling (Haveman & Smeeding, 2006). “Demands for an educated workforce coupled with low-minority retention and graduation rates contribute to growing economic disparities between the college educated and non-college educated and between minority and non-minority” (Hamrick & Stage, 2003). Precollege outreach programs are a viable option in the effort to overcome disparity. In addition to providing students with pertinent knowledge for academic success and to bridge the transition between academic levels, precollege outreach programs provide opportunities to positively impact student recruitment, retention, and graduation rates (Carlon, 2001; Gay, 1992; Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998). That being the case, inquiry into the connection between secondary and postsecondary education, particularly in the form of precollege programming, is warranted. Likewise, with a new era of Louisiana higher education, in which postsecondary-secondary outreach is compulsory for institutions with GRAD Act...
agreements, research is needed that addresses the outreach programming implemented, specifically the design and ultimate effectiveness of the university’s outreach efforts on student performance.

**Research Questions**

With the goals of the postsecondary outreach and the Louisiana GRAD Act in mind, multiple questions were necessary to determine if the university’s outreach programming affected students’ aspirations and their perceptions about their performances. Namely, the research conducted explored how the precollege outreach programs selected impacted students’ postsecondary aspirations, and their perceptions about their academic performance and preparation to meet postsecondary expectations, as well as how the participants perceived the programs to have altered their levels- of postsecondary preparedness, and their level of transition knowledge. From the information collected, patterns were identified and summations made about the similarities, differences, and effectiveness of these programs. Such knowledge may ultimately be used to inform university policy and practice. Three questions drive the study:

1) How do program participants perceive university precollege outreach efforts, specifically precollege programs, to have impacted their postsecondary perceptions?

2) What are participants’ perceptions of the value of the precollege programs?

3) How do two different GRAD Act-aligned precollege outreach programs targeting underserved students compare?

Ultimately, these questions exposed the impact of two of the RU/VH institution’s extended engagement precollege outreach practices on students’ perceptions and their projected persistence toward a postsecondary degree. This study provided an opportunity for exploration into a specific set of postsecondary and secondary collaborative efforts, participants’ perceptions of the impact of the efforts on their perceptions, as well as into outreach practices with the
potential to facilitate successful student transitions from high school to college. In execution, this study showcases unique GRAD Act-aligned outreach on targeted students’ perceptions about their academic preparation, as well as their projected persistence and performance outcomes during the early phase of the university’s implementation of GRAD Act high school agreement terms. Additionally, this study provided information regarding possible differences in program effectiveness based on program comparisons.

**Framework**

College impact models are unique in the manner in which change is assessed. While developmental theories focus on the end result, college impact theories focus on the source, or the change agent, if you will (Carter & McClellan, 2000; Pascarella, Terenzini, & Wolfe, 1986). In a review of theories related to student affairs, Carter and McClellan (2000) highlight Pascarella’s 1985 theory on college impact, and explain how his work offers the following framework:

A model that includes the background and pre-collegiate characteristics of the students, the structural and organizational features of the institution, the frequency and quality of interaction between the student and campus socializing agendas, and the quality of effort of the student. (2000, p. 241)

On the matter of impact, or causal, models, Ernest Pascarella, Patrick Terenzini, and Lee Wolfe (1986) describe precollege experiences as ones “that might function to positively influence anticipatory socialization” (1986, p. 169). That being the case, impact models include the hypothesis that students who participate in an intervention, such as an orientation program, will be impacted by the experiences; for example, they might become better socially integrated into their postsecondary institution (Pascarella, Terenzini, & Wolfe, 1986).

Impact models require consideration of internal and external forces that factor into the reasons behind student success or attrition (Pascarella, 1985, as cited in Carter & McClellan, 2000). Because the research proposed here will touch upon outreach partnerships and the
resulting programs, (which potentially qualify as pre-collegiate, organizational, and socializing features), students’ academic and social contexts and educational performances (which qualify as pre-collegiate and quality of effort features), and on how postsecondary outreach mechanisms affect student persistence, (which would potentially be structural and organizational and socializing features of the institution), it is fitting to situate the examination of university outreach initiatives within college impact theory.

**Significance of the Study**

A review of the literature on higher education outreach for underserved students uncovered several studies pertinent to this study. However, as Brock (2011), Caldwell and Siwatu (2003), Domina (2009), and Rodriguez, Jones, Pang, and Park (2004) note, there are still gaps in the literature, leaving much left to learn about the effectiveness of higher education outreach. This study contributes to research on outreach programming targeting underserved students, on underserved student dispositions regarding postsecondary education, as well as the pre-postsecondary educational experiences of underserved students. Finally, as the state’s postsecondary institutions forge into new, or newly charged, outreach endeavors, this study touched upon how university’s outreach policies and programs aligned with GRAD Act outreach stipulations might inform the effort to bridge the secondary and postsecondary gap, particularly in regard to graduates of grade-level domains found to be academically unacceptable.

**Definition of Terms**

**Carnegie Classification**

The Carnegie classifications are a framework for describing postsecondary institutions (Carnegie Foundation, 2011). The classification framework is researched based, and dates back to 1973 (2011). The framework is a widely accepted way “to represent and control for institutional differences” (Carnegie Foundation, 2011, para. 1). The classifications are arranged
in a “six parallel” structure, within which postsecondary institutions are categorized. The Carnegie Foundation six classifications are listed below:

1) Basic classification
2) Undergraduate Instructional Program classification
3) Graduate Instructional Program classification
4) Enrollment Profile classification
5) Undergraduate Profile classification
6) Size and Setting classification

The Carnegie Commission explains that these classifications provide “lenses through which to view U.S. colleges and universities” (Carnegie Foundation, 2011). To more explicitly describe the RU institution studied, it is defined by Carnegie as a large, four-year institution that has a balanced arts and sciences undergraduate instructional program. It has a high undergraduate enrollment profile, and it has a “full-time, four-year, more selective” undergraduate profile (Carnegie Foundation, 2011).

**Underserved and Underrepresented**

Underserved students are by definition, disadvantaged. These students may be described as being “under-resourced,” which means they are “students without the advantage of fully available financial, personal, and support system resources necessary to well-being” (Becker, Krodel, & Tucker, 2009, p.1). As stated earlier, underserved students have been denied certain opportunities, which places them at a distinct educational and societal disadvantage.

Underserved students are subject to academic, family, and community attributes with the potential to hinder student gains due to a lack of information, or access to experiences and opportunities (Hamrick & Stage, 2003; Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998).
At-Risk

For this study, at-risk students may be described as students who are low-achieving, and who are at risk of failing high school (Croninger & Lee, 2001; Slicker & Palmer, 1993). Failure at the secondary level makes the possibility of a student’s ability to persist to the postsecondary level improbable. At-risk students exhibit poor academic performance, consisting of multiple course failures, poor standardized test performance, as well as the likelihood of having been retained in one or more grade (Slicker & Palmer, 1993). Slicker and Palmer (1993), include in the classification that at-risk students are unlikely to graduate from high school on time due to insufficient course credits. Drawing from the literature, Robert Croninger and Valerie Lee (2001) fittingly expand the definition to include students “who are members of socially disadvantaged groups, [and] who experience school-related or academic difficulties prior to entering high school” (p. 550).

SPS

SPS, or School Performance Scores, are numerical scores given to Louisiana schools. The SPS is meant to give an indication of the effectiveness of a school, as well as the quality of education fostered by a school (LDOE, 2008). Five-year trend data of school characteristics including student attendance and dropout statistics, graduation data, and teacher and administration information are factors in SPS scores (LDOE, 2008a, 2008b). To earn an F letter-grade rating and be considered academically unacceptable, or AUS, a school has to have been unable to earn a SPS of 60. By 2014, the LDOE has set a goal of a SPS of 120 for all Louisiana schools. Ultimately, a school’s SPS determines the school’s performance label. As noted earlier, in 2011 the State Department of Education adopted a performance-labeling model in which districts and the schools within are assigned letter grades (LDOE, 2011a). This model was
implemented to provide a more understandable depiction of school performance. The letter-grade system, with evaluation parameters from A to F, replaced a star-rating system. To provide reference, the previous star rating, as well as the letter-grade ratings, are included below. Table 1 includes Star Rating information, and Table 2 includes the Letter-grade ratings.

<table>
<thead>
<tr>
<th>Performance Label</th>
<th>School Performance Score (SPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Unacceptable</td>
<td>Below 60.0 (Through 2010)</td>
</tr>
<tr>
<td></td>
<td>Below 65.0 (in 2011)</td>
</tr>
<tr>
<td>Academic Watch</td>
<td>60.0 – 74.9 (in 2010)</td>
</tr>
<tr>
<td></td>
<td>65.0 – 74.9 (in 2011)</td>
</tr>
<tr>
<td>One Star</td>
<td>60.0 – 79.9</td>
</tr>
<tr>
<td>Two Stars</td>
<td>80.0 – 99.9</td>
</tr>
<tr>
<td>Three Stars</td>
<td>100.0 – 119.9</td>
</tr>
<tr>
<td>Four Stars</td>
<td>120.0 – 139.9</td>
</tr>
<tr>
<td>Five Stars</td>
<td>140.0 and above</td>
</tr>
</tbody>
</table>

Because the term still applies, schools with SPS scores between 60 and 64.9, with a rating of F will be referred to as academically unacceptable in this research. Upon being designated academically unacceptable, a school is placed on a progressive scale in which “each consecutive year that a school is labeled AUS, it moves to a higher level, ranging from AUS 1 to AUS 6+. Schools proceeding to higher AUS levels face additional and more stringent consequences” (LDOE, 2008, p. 3). Ultimately, “schools unable to attain a SPS of 60 in four consecutive years
Table 2. Letter-grade Rating (2011)

<table>
<thead>
<tr>
<th>Performance Label</th>
<th>School Performance Score (SPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F or Academically Unacceptable</td>
<td>Below 60.0 - Below 65.0 (in 2011)</td>
</tr>
<tr>
<td></td>
<td>*(Below 75.0 in 2012)</td>
</tr>
<tr>
<td>D (Academic Watch)</td>
<td>65.0 – 89.9</td>
</tr>
<tr>
<td>C</td>
<td>90.0 – 104.9</td>
</tr>
<tr>
<td>B</td>
<td>105.0 - 119.9</td>
</tr>
<tr>
<td>A</td>
<td>120.0 – 200</td>
</tr>
</tbody>
</table>

are eligible for state takeover (LDOE, 2008b). In 2011, schools and district performance labels were revised to include a plus or minus component (LDOE, 2011a).

A plus sign (+) signifies a school has improved enough to meet their 2011 assigned Growth Target. A minus (-) sign indicates a school’s 2011 Growth Performance Score has declines by at least one-tenth of a point from its 2010 Baseline Performance Scores. If a school does not receive a plus (+) or minus (-) sign, it signifies the school has either shown no growth or in some cases, improved its Baseline Score, but not enough to meet its 2011 Growth Performance Goal. (LDOE, 2011a, para. 13)

Presently, there are 115 schools that have been labeled with an F letter-grade due to earning SPS scores below 65. The LDOE reports that 2010 - 2011 figures represent a 17% drop from the 139 schools considered AUS in 2010 for the 2009 to 2010 school year (LDOE, 2011a).

**Precollege Outreach**

To clarify, academic outreach programs are support programs that help to expand assessment of certain disenfranchised groups to postsecondary opportunities (Kezar, 2000). In the context of this study, programs of interest were those in which the intent was to facilitate student transitions from grade-level education to postsecondary education by providing students with the skills necessary for success in a college setting. For the larger scope of this research, outreach interventions encompassed efforts by the university to work collaboratively with the secondary
sector, (which spans the seventh to 12th grades, as well as the precollege period that immediately follows high school graduation), to affect student achievement and student transition at the postsecondary level. Qualifying outreach included extended engagement, precollege programs designed to bridge the space between high school and college, and to orient students to postsecondary experiences. Specifically, the research was designed to explore and describe programs that serve as academic support mechanisms that target underserved, disadvantaged student populations.

Inquiry into the types of initiatives described above was timely and relevant. Increasing economic demands and workforce expectations have brought about a greater need for postsecondary-level education (Schneider, 2003; U.S. Department of Labor, 2006). Corporate, political, academic, and public sentiment manifested in the GRAD Act which established contractual obligation by which postsecondary institutions must commit to recruiting, enrolling, and ultimately graduating greater numbers of students. The intention of these efforts is to bring about the production of a high-functioning citizenry, and to supply human capital to the national workforce (Papanglis, 2004). As noted, however, with greater demand for postsecondary graduates and a competent workforce is an increased need for proper educational opportunities, access, and support structures that facilitate underserved student participation in postsecondary education. Precollege outreach programs provide such opportunities, and may have the potential to cultivate and impact underserved student postsecondary aspirations and participation. The programs included in this research included the Recruiting into Engineering High Ability Multicultural Students (REHAMS Camp) program, and the Marathon Exploration Camp for Inspiring Tomorrow's Engineers (XCITE) program.

REHAMS was established at the university in 1977 (LSU College of Engineering, 2011). The program is described as a formal effort of the College of Engineering to recruit and retain
minority students. REHAMS is a one-week residential program in which students are exposed to the general engineering curriculum through engineering-related activities delivered by university faculty and industry professionals. Likewise, participants have the opportunity to experience college-life first-hand (J. Lewis, personal communication, October 16, 2011). The College of Engineering (2011) presents the following as goals of the program:

- Interact with LSU engineering student leaders, faculty, and industry personnel
- Gain insight into what college life is like as a LSU engineering student and experience living on-campus
- Participate in hands-on activities, lectures, and industry tours while learning about the different fields of engineering
- Sharpen communication skills
- Learn about admissions and financial aid and what you can do to prepare for college

In addition to learning about students’ experiences in their respective programs, the programs identified above were compared based upon investigation into the following dimensions: a) program goals, b) length of program and frequency of encounters, c) types of program activities, d) cohort size, and e) practitioner profiles and interactions, (specifically who interacts with the participants; faculty, staff, industry professionals, or undergraduates). The value of researching these programs was in the insight to be gained about the value of university precollege outreach efforts—ones that go beyond cursory recruitment encounters—to impact the postsecondary dispositions, aspirations, and, ultimately, the workforce viability of a student population that has been underserved.

Then there is XCITE. This program was established at the university in 2008. The goal of the program is to expose promising female high school students to the field of engineering (J. Lewis, personal communication, October 16, 2011; LSU College of Engineering, 2011). Like
REHAMS, XCITE is a one-week residential program in which students get a glimpse of college life. Female students who take part in the program are introduced to the field of engineering, and the college experience. Participants experience seminars and demonstrations that “allow students the opportunity to gain first-hand [engineering] experiences (J. Lewis, personal communication, October 16, 2011). Goals for the program are as follows:

- Increase the female presence in the engineering discipline
- Increase female student interest in science, technology, engineering and math related fields
- Positively serve and impact the community
- Provide positive role models for female secondary students (LSU College of Engineer, 2011).
LITERATURE REVIEW

Criteria of newly implemented GRAD Act agreements between state postsecondary institutions and the Louisiana Board of Regents establish justification for research on postsecondary-to-secondary support. The focus of this research is on precollege outreach programs. Specifically the intent is to study the impact of the state’s flagship institution’s precollege programs on underserved high school students attending high schools that are in the same geographic area, and that are in the service region assigned to the institution in the GRAD Act. Before embarking on the research, a review of the literature was required. The literature covered included a discussion of the evolution of the purpose of American higher education, and, then, a discussion of government presence in the development of higher education. From there, the discussion will go on to include recent and current issues that impact grade-level and postsecondary education, including campus diversity, college preparation, underserved student access and barriers, workforce readiness, and postsecondary precollege outreach.

Development of the Academy

The review begins with a look at how purpose has evolved as the academy has developed. With the intent of researching the impact of postsecondary outreach, specifically precollege programs that serve underserved students, it is wise to include a discussion of the development of American higher education, and the evolution of the character, purpose, and goals of the academy in America. A discussion such as this provides an understanding of why the nation’s postsecondary institutions are compelled to serve the communities in which they reside and, specifically, the student populations that are educated within, including students otherwise underserved and denied access. Reviewing the formation of the academy’s purpose, and its attempts to make an impact, is relevant when attempting to better understand the purpose
of precollege outreach, and the impact this outreach may have on a student population in need of academic support.

In his book *Scholarship Reconsidered: Priorities of the Professoriate*, Boyer (1997) asks, “how can each of the nation’s colleges and universities define, with clarity, its own special purposes” (p.2)? For the RU institution in this study, the vision of the institution “is to be a leading research-extensive university, challenging…students to achieve the highest levels of intellectual and personal development” (LSU, 2010, para. 1). Ultimately, the goal of the institution is to generate, protect, and promote knowledge and the arts (2010).

Delving into the grand purpose of American higher education, Boyer posits, “one can see that…American higher education has moved through three distinct, yet overlapping phases” (1997, p.3). Boyer (1997) explains that there were three phases in American higher education, specifically: a) the colonial college phase, b) the service phase, and c) the research phase. According to Boyer (1997), “the education and social issues now confronting the academy have changed profoundly since the first college was planted [in America] more than 350 years ago” (p.3). These social and educational changes have impacted the role of high education.

In the first phases of development, American higher education was greatly influenced by the British academy, and the focus was on preparing students for civic and religious leadership through character building (Boyer, 1997; Brubacher & Rudy, 2008). Boyer claims that at the inception of the American academy, during the 1600s, “the colonial college was expected to educate and morally uplift the coming generation” (p. 4). Brubacher and Rudy (2008) mimic this notion, stating, “the Christian tradition was the foundation stone of the whole intellectual structure which was brought to the New World” (p.6). They go on to say that the desire of the colonial college was to produce “a literate, college-trained clergy” (p. 6). At the same time, “it [was] equally important, however, to keep in mind that the early colleges were not set up solely
to train ministers” (2008, p. 6). Rather, “from the very beginning it was intended that [the
colleges] educate professional men in fields other than the ministry and public officials of
various kinds” (p. 6).

The next phase of the academy, during the 1800s, came about as the country evolved, and
the focus of higher education went from character building to the building of a nation” (Boyer,
1997). To clarify, the focus of higher education shifted to service and practicality (Boyer, 1997).
Boyer (1997) highlights Harvard president Edward Everett’s position that the goal of his
institution was to invest in economic prosperity. The Morrill Act of 1862 enhanced the
practicality of higher education, as it granted federal land to states and the land was then to be
sold for profit (Boyer, 1997). The proceeds from the sale of the land were used to fund liberal
arts education and agricultural and mechanical training. As Boyer (1997) states, “American
higher education, once devoted primarily to the intellectual and moral development of students,
added service as a mission, and both private and public universities took up the challenge.
Institutions became producers of “serviceable” individuals with a desire to serve (Boyer, 1997,
p.5).

The legacy of the Morril Act, the land grant mission, and the effort to train students to be
serviceable and to disseminate practical knowledge lead to a belief in applied research. Land
grant colleges “fostered the emancipation of American higher education from a purely classical
and formalistic tradition” (Brubacher & Rudy, 2008, p. 64). From a mission of service came the
idea that higher education should be useful. Students were to be trained to serve and reshape
society, and apply knowledge pragmatically (Boyer, 1997; Brubacher & Rudy, 2008). Applied
research led to basic research, and a reliance on scientific observation and experimentation
(Boyer, 1997; Brubacher & Rudy, 2008). This mindset made way for the introduction of the
German approach and a value on research in scholarship (Boyer, 1997).
By the late 1800s, “research and graduate education increasingly formed the model for the modern university” (Boyer, 1997, p.9). Science took precedence over authority and service (1997). The emerging university was “a new kind of university, one based on the conviction that knowledge was most attainable through research and experimentation” (Boyer, 1997, p. 9). According to Boyer (1997), “by the late nineteenth century, the advancement of knowledge through research had taken firm root in America” (1997, p. 9). Ultimately, by the 1940s, world events and circumstances, namely the Great Depression and World Wars I and II, brought about a rooted and conceptual reliance on science, as it was viewed as the only source through which the nation could recapture prosperity (1997). In the 1940s, America’s academies realized an academic revolution from which scientific research emerged as premiere (1997). The RU university in this study reflects this in its vision of “be[ing] a leading research-extensive university” (LSU, 2010, para. 1).

The preceding synopsis of the development of higher education and the evolving purpose of the academy is relevant to the study of underserved student outreach, the reasons behind the provision of such outreach, and the potential impact of precollege outreach. It is important to note that included in the vision and purpose of the institution researched is the desire that students at the university “achieve the highest levels of intellectual and personal development” (LSU, 2010, para. 1). Additionally, the university purports a commitment to solving economic and social challenges (LSU, 2010). This commitment reasonably encompasses the challenges faced by underserved students in the university’s GRAD Act designated region, and the schools located within that region. As has been noted, the consequence of neglecting low-income and minority students affects the students and their earning and living potential (NCES, 2011). That being the case, steps must be in place to ensure the proper support and fulfillment of this goal for all students, including those that are underserved and at-risk for failure. This study explored the
potential of precollege outreach programs to address university commitments to support the preparation of underserved students.

**Governmental Presence in Education**

From purpose, the discussion shifts to the role of government in education. This is necessary as government bodies have, and continue to play a significant role in the development and realization of educational philosophies and policies. Government has shaped the development of higher education, and it continues to influence the direction of academia through policy and funding (Boyer, 1997; Brubacher & Rudy, 2008; Swail, Redd, & Perna, 2003; Thelin, 2004). As Brubacher & Rudy (2008) assert, “one of the most interesting aspects of the rise of the American university, both public and private, has been the relation of the federal government to their development” (p. 219).

The literature on government presence and subsequent policy is pertinent to the study of precollege outreach and underserved students, as government agencies have a precedence of supporting educational initiatives meant to impact students. Examples of government legislation that has spawned student-oriented initiatives include the GI Bill of 1944, the anti-poverty and civil rights laws of the 1960s and 1970s, (including Title VI in 1964 and Section 504 of the Rehabilitation Act of 1973), the Elementary and Secondary Education Act of 1965, and the Higher Education Act, of 1965 (U.S. Department of Education, 2011). These acts, and the subsequent initiatives, are designed to affect students, grade-level and postsecondary systems, communities, and the national economy (Boyer, 1997; Brubacher & Rudy, 2008; Swail, Redd, & Perna, 2003; Thelin, 2004; U.S. Department of Education, 2003; 2011).

With the groundwork having long been laid for a federal presence in education, in 2001, President George W. Bush spearheaded the continuation of the practice with the *No Child Left Behind* plan through which he urged Congress to consider ways to address the educational
achievement gap between minority students and nonminority students in the nation’s schools (U.S. Department of Education, 2003). Later that same year, the plan became an act in which reform invaded American education (2003). Although the presidency has changed, the impact of this act resonates. *No Child Left Behind* has been touted as “the most sweeping reform of the Elementary and Secondary Education Act (ESEA) since it was enacted in 1965,” and it is said to have “help[ed] improve the academic achievement of all American students” (U.S. Department of Education, 2003, para. 2).

**Highlights of Governmental Role in Higher Education**

For the record, legislative forays into education are numerous, and are often the result of the opinion that systemic, economic, and social factors—with the potential in some cases of promoting and in others hindering the educational gains of sectors of the population—require governing. The No Child Left Behind Plan and the Louisiana Grad Act are just two examples of legislative conventions that were developed to address social issues that have indeed impacted the ways in which education is practiced (Board of Regents, 2010; Fusarelli, 2004). Considering that grade-level and postsecondary institutions adjust philosophies and processes to accommodate legislative mandates, it is prudent to include a review of the literature on the relationship between government and education in this study on the impact of GRAD Act-aligned, and often government-sponsored, precollege outreach on area underserved high school students.

Focusing specifically on the academy, government has played a role in forming higher education from as early as 1796, and the dedication of land for the construction of schools, the Morrill Act of 1862 may be viewed as the symbol of government’s bold move into higher education (Brubacher & Rudy, 2008; Thelin, 2004). This act “is conventionally described as an influential piece of federal legislation that fostered access to useful public higher education”
(Thelin, 2004, p. 75). Basically, the Morrill Act was designed to encourage the growth of higher education institutions. According to Thelin (2004), the act was unique in that the grant established a partnership between the federal government and state governments in which federal incentives resulted in state obligations to “advance instructional programs” (p. 76). Ultimately, the Morrill Act “came to be heralded as an innovation in federal support for higher education as well as a model of federal and state cooperation” (p. 76).

**Postsecondary Expansion and Government Interest**

For another example of government presence in higher education, one may look to the period following World War II. During the postwar era, American higher education became a vehicle through which partakers were not only allowed access to higher education, but were also offered the opportunity to specialize their studies, as well as pursue graduate-level degrees (Thelin, 2004). According to Thelin (2004), during the “Golden Age” of higher education, which spanned from 1945 to 1970, postsecondary education expanded to encompass the uniquely American conventions of the research university and the junior or community college (p. 260). Likewise, there was an emergence of for-profit vocational and trade schools (2004). During this era, higher education also experienced significant growth in both the construction of physical buildings, as well as in student enrollment. After the war, “by 1949-50, total student enrollments had ballooned to almost 2.7 million—an increase of about 80 percent (Thelin, 2004, p. 261).” Enrollment numbers continued to rise with enrollment jumping to 7.9 million by 1970 (2004).

According to Thelin (2004), the significant growth of American higher education may be greatly attributed to state and federal interest and involvement in higher education, and the corresponding formation of public policy for American institutions. Thelin (2004) asserts that the effectiveness of higher education was in large measure a sign of recognition by government
agencies and the American public that higher education had been effective” which, in turn, established the viability of “cooperation between government and higher education” (p. 261).

On November 8, 1965, the Higher Education Act, another prominent piece in the legacy of the government-higher education relationship, was passed under the administration of President Lyndon B. Johnson. The act was in response to Johnson’s acknowledgment of the disadvantage of the lower and middle-income segment of the population. In a presentation on the matter, President Johnson communicated the need for greater higher education access and opportunity for the less privileged. In addition to need, “President Johnson articulated the need for…program assistance for small and less developed colleges…and utilization of college and university resources to help deal with national problems like poverty and community development” (Council for Opportunity in Education, 2003).

The Higher Education Act, or HEA, is intended to positively impact college students and postsecondary institutions by increasing resources to both entities (Council for Opportunity in Education, 2003). The Council for Opportunity (2003) details that, through financial assistance to students, HEA legislation allows students educational opportunities beyond high school. One mode through which this is accomplished is with the granting of financial assistance and the creation of programs, including outreach initiatives such as the TRIO programs (2003). The Higher Education Act and subsequent TRIO programs explicitly illustrate governmental position in higher education. They also illustrate the governmental commitment to bolster student access and preparation so that students have the knowledge and skills necessary to take part and succeed in postsecondary endeavors.

Stipulated in the HEA is the criteria that the federal government “carry out a program of making grants and contracts designed to identify qualified individuals from disadvantaged backgrounds, to prepare them for a program of postsecondary education, [and] to provide
support services for such students who are pursuing programs of postsecondary education” (U.S. Department of Education, 1998, p.1). This specification is the charge from which manifested the TRIO programs (1998). TRIO programs qualify as government recommended postsecondary outreach—and outreach particularly relevant to this study—as the objective of TRIO is to increase student access and retention in postsecondary education, with special attention to students from disadvantaged backgrounds (1998).

**Diversity and the Academy**

A discussion of the legislative presence, and the plight of underserved and disadvantaged students, in higher education is not complete without the mention of Civil Rights and the subsequent affirmative action practices.

Educators in U.S. higher education have long argued that affirmative action policies are justified because they ensure the creation of the racially and ethnically diverse student bodies essential to providing the best possible educational environment for students, white and minority alike. (Gurin, Dey, Hurtado, & Gurin, 2002, p. 2)

As researchers have presented (Fischer, 2007; Hamrick & Stage, 2003; Ludwid, Ladd, & Duncan, 2001), disadvantaged students are more likely to be classified as a racial minority.

Although national events and societal issues that have been influential in the development of the academy are abundant, one matter that has proven to be particularly monumental in higher education is that of advantage and disadvantage, and race and diversity. When engaging in conversations on race in higher education, one finds a place to consider the history of minorities in academia, to discuss the idea of diversity, and, of course, to discuss the subject of affirmative action and access.
Push for Diversity

Drawing from Alexander Astin’s discussion on the topic, diversity may be understood as multiculturalism or cultural awareness, and entails a broad representation of segments of the populations (1997). Further helping audiences process the term, Astin (1997) speaks of institutional efforts to diversify and increase the presence of traditionally marginalized groups, including woman and racial and ethnic minorities, to campuses’ student, faculty, and administrative bodies. Efforts to diversify extend beyond human presences, with institutions committing to expand curricular and extra-curricular practices (1997).

Inclusion of literature on the topic of diversity is relevant, as underserved students are often minority students (Fischer, 2007; Hamrick and Stage, 2006). Additionally, the research conducted was on precollege outreach efforts that serve underserved students. This study included exploration of the barriers that limit the academic opportunities and postsecondary access of these students. The literature below addresses issues of campus climate and the benefits of diversity, as well as the impact of campus climate on identity construction. Literature on policy that promotes diversity is also included, which establishes judicial justification and support for diverse educational systems. Likewise, it establishes justification for outreach programming that encourages the postsecondary participation of traditionally underrepresented groups.

The idea of campus diversity goes hand in hand with the campus climate or the dispositions that define the institution (Hurtado, Milem, Clayton-Pedersen, & Walter 1999; Rankin & Reason, 2005). Hurtado, Milem, Clayton-Pedersen, and Walter (1999) state that “campus climate is not only a function of what one has personally experienced, but also is influenced by perceptions of how members of the academy are regarded on campus” (Hurtado, Milem, Clayton-Pedersen, & Walter, 1999, p. 52). Diversity improves the campus climate of an
institution, and all students experience positive gains from taking part in appreciable, diverse experiences (Hurtado, 2007, p. 188; Hurtado, Milem, Clayton-Pedersen, & Allen, 1999; Laird, Enberg, & Hurtado, 2005). According to Gurin, Dey, Hurtado, and Gurin (2002), diversity is a critical piece in the construction of one’s identity, as well as to their cognitive development. It “enrich[es] the educational experience by affording students the opportunity to learn from experiences, beliefs, and perspectives different from their own” (Anderson, 1996, p. 12). That being the case, it is no surprise that scholars have argued that “those in higher education need to embrace diversity and make teaching and learning environments both welcoming and educationally useful for all participants (Ropers-Huilman & Taliaferro, 2003, p. 151).

Gurin, Dey, Hurtado, and Gurin (2002) remind that in 1978, U.S. Supreme Court Justice Lewis Powell championed the concept of diversity. In the case, Regents of the University of California v. Bakke, Justice Lewis Powell argued “that the atmosphere of ‘speculation, experiment and creation’—so essential to the quality of higher education—is widely believed to be promoted by a diverse student body” (2002, p. 2). Justice Powell went on to argue that the future of our nation depended upon diversity and the exposure of the citizenry to the ideas and norms of other peoples and their cultures (2002). Here is an instance where political, racial, and societal roads intersect at the grounds of higher education. Justice Powell’s assertion makes sense when one takes into consideration that students are exiting educational institutions and entering a world and, subsequently global market, brimming with diversity (Hurtado, 2007). However, common sense is not enough. To prove the importance of diversity and, in turn, support Justice Powell’s assertion, a social, political, and educational demand was directed toward the academy. As Hurtado (2007) states, higher education is charged with the responsibility of not only validating the claim that diversity is beneficial to college’s and to college students, but is also responsible for preparing those undergraduate students with the skill
and knowledge necessary to function successfully in a diverse democracy. Such preparation for a
diverse and economically demanding society hold great potential for underserved students, and it
is an opportunity that should be afforded to them.

The charges for diversity culminated in the affirmative action cases litigated on behalf of
University of Michigan students (Hurtado, 2007; Peterson, 2009). These cases created an
atmosphere of urgency in which research was needed on the subject of college impact,
admissions policies, and race with a focus on discrimination (Hurtado, 2007). In response to the
urgency and in acceptance of this challenge, academicians have probed the subject area of
diversity, or what may now be termed ‘the educational benefits of diversity’ (Hurtado, 2007, p. 185).
In the end, the research produced by the academy served as evidence of the need for racial
and cultural diversity in education (2007).

Despite powerful support, the notion of diversity has its opponents (Gurin, Dey, Hurtado,
& Gurin, 2002). Gurin, Dey, Hurtado, and Gurin (2002) provide an example of opposition with
Hopwood v. University of Texas in which “the Fifth Circuit Court of Appeals denied that
diversity has any impact on educational experiences” (2002, p. 2). This ruling attempted to
establish that diversifying a college campus was an asinine effort, akin to selecting a student
body based upon body size or blood type (2002). However, it is important to note that neither
body size nor blood type are physical features for which constitutional attention are required
(Wisely, Bolden, Goldberg, and Denis as cited in Gurin, Dey, Hurtado, & Gurin, 2002).

Another threat to diversity is lack of buy in or investment. While the nation’s colleges
and universities have made efforts to institute diversity on their campuses, in some cases these
diversity initiatives are not “central to their key mission in practice” (Hurtado, 2007, p. 189),
rather they are on pushed to the fringes, not made a priority, and, consequently, left vulnerable to
elimination (2007). To combat this, it is important that higher education and the research emitted
from it flourish, as “the advancement of theory can play a key role in bringing diversity from the margin to the center” (p. 189).

Presenting the issue of diversity is relevant in a study of underserved student matters. Racial and ethnic minority student bodies are at a disadvantage, and are less likely to secure postsecondary access, and, if they are able to enter college, they are less likely to achieve the levels of academic success as those realized by their more privileged white and Asian peers (Fischer, 2007). The assumption presented in this research is that students who classify as underserved are those who would benefit from precollege outreach services tailored to their unique, non-traditional experiences. The literature on diversity and inclusion, along with legislative urging byway of a GRAD Act stipulation for precollege support, provide a springboard for outreach specifically targeting underserved student bodies traditionally neglected by the long-established ways of thinking and doing.

**Persisting Government Presence**

The study investigated the impact of university precollege outreach on underserved students aspirations and perceptions. That considered, an overview of the literature on the topic of the influence of government presence in education and government interest in student persistence is warranted. As has been established, a relationship exists between government and education, and has resulted in policy such as the Higher Education Act of 1965 and the No Child Left Behind Plan of 2001. Initiatives such as these have influenced the development of American grade-level and higher education, as well as the purpose and practice of these systems (Boyer, 1997; Brubacher & Rudy, 2008; Swail, Redd, & Perna, 2003; Thelin, 2004; U.S. Department of Education 2003; 2011).

As noted by Thelin (2004) and others (Brubacher & Rudy, 2008; Domina, 2007), there is a legacy of government presence in postsecondary education; one that exceeds what is covered
Government and federal agencies have provided support, commitment, and financial grant endowments, which allow for campus growth, foster access, and subsidize research for institutions. While this has historically been the case, Brubacher & Rudy (2008) point out that a government presence remains and note that, on a national scale, “although the United States Constitution nowhere gives the national government specific power to exercise authority over education in the various states, federal influence has been nevertheless steadily increasing” (p. 219). From the early years of the Republic, government has influenced higher education (Brubacher & Rudy, 2008; Thelin, 2004). However, according to Brubacher & Rudy (2008) government interests in the academy are most notable in the twentieth century, particularly since World War II.

In discussing this topic, it is mindful to mention that government aid and interest often require participating colleges to commit to certain tasks and agreements (Olivas, 2004). This is certainly the case with the GRAD Act and consequent agreements made by postsecondary institutions in exchange for liberties. For the purposes of this research and policies studied within, the Grad Act establishes a current and state specific example of government involvement in higher education policy and practice. The act signifies a Louisiana effort to both satisfy economic demands and improve postsecondary performance as well as address students’ academic needs and attainment byway of stipulated postsecondary obligations to support and bridge the gap between the grade-level classroom and the college campus.

**General Issues in Education**

Noted earlier in this review is the claim that federal education policy has played an elemental part in, and ultimately improved, education for American students. Discussion of the literature on the relationship between government agencies and education, and federal and state policies that specifically target low-income and minority students extends into a discussion of
general issues affecting education. Examples of instances in which legislation has affected grade-level and postsecondary education have been identified. However, to remind readers, grade-level legislation, such as No Child Left Behind, has directly impacted how elementary and secondary education agencies instruct and assess students in efforts to reduce the achievement gap among student groups (U.S. Department of Education, 2003). The Higher Education Act (HEA) serves as an example of postsecondary legislation with resonating effects (Council for Opportunity in Education, 2003; U.S. Department of Education, 2011). HEA Policy and funding have impacted student rights, particularly for students with needs and limited opportunities for access (Council for Opportunity in Education, 2003; U.S. Department of Education, 2011). In that vein, in a study on the impact of precollege outreach initiatives on underserved students, an overview of factors influencing education, such as education legislation, student academic performance and preparation, academic barriers, and postsecondary collaboration and outreach is essential.

**Expanding Postsecondary Participation**

Assuming the legitimacy of the claim that federal policies have positively impacted the predicament of the nation’s student body, it is not surprising to find that the US Department of Education National Center for Education Statistics, or NCES (2006), reports that “between 2002-03 and 2015-16, the number of high school graduates is projected to increase nationally by [six] percent” (p. 11). From that point, while purporting No Child Left Behind success, former U.S. Department of Education Secretary Margaret Spellings contended that educational systems could expect increasing numbers of high school graduates to participate in postsecondary endeavors (U.S. Department of Education, 2005).

In line with these projections, Van de Water and Rainwater (2001) citing a report published by the Educational Testing Service in 2000, estimate that college enrollment will jump 19 percent in the time between 1995 and 2015. Presently, it is the case that a majority of students
who graduate from high school enroll in some form of postsecondary education (Van de Water & Rainwater, 2001). More encouragingly, recent reports from the NCES (2006) support Spellings’ prediction, and expound by estimating that enrollment increases in degree-granting institutions are expected between 2004 and 2015. To further support, NCES (2006) research has already shown a 25% increase between 1990 and 2004 in postsecondary enrollment. Based upon such factors, Spellings asserted that it is crucial that higher education institutions adequately prepare for the influx of students new to college campuses (US Department of Education, 2005).

**College Preparation**

While postsecondary institutions should anticipate greater enrollment, critics, researchers, and other observers of education have voiced opinions that newly admitted students are entering colleges and universities not equipped with the skills and knowledge necessary to transition into and succeed at the postsecondary level (Becker, Krodel, & Tucker, 2009; Tierney & Jun, 2001). Reviewing literature on academic readiness is relevant to the study of underserved student outreach due to the relationship between the impact of academic interventions, such as precollege programming, and postsecondary preparation. In addition to access, underserved students must deal with the challenge of under-preparation due to inadequate educational services received during the grade-level years. Becker, Krodel, and Tucker (2009) affirm, “once enrolled, the under-resourced low-income student is…more likely to be under-prepared academically” (p.18). To refine the point, Fischer (2007) posits that, as the underserved student population grows, so does the need to understand how to facilitate their successful transition from high school to college.

It is the case that not all Americans are privy to the same opportunities (McIntosh, 1990). Those who are systemically and educationally underserved face unique challenges (Fischer, 2007). Students from low socioeconomic backgrounds contend with a multitude of challenges to
their academic persistence and success (Hamrick & Stage, 2003; Ludwig, Ladd, & Duncan, 2001). Among the hindrances are disproportionate rates of academic underperformance, a lack of economic and educational resources, and family backgrounds with limited experiences with higher education (Ludwig, Ladd, & Duncan, 2001; Schneider, 2003). Expressing something quite similar, Fischer (2007) affirms that it is not uncommon for underserved students to come from low-socioeconomic backgrounds and to have a greater likelihood then their more privileged White or Asian counterparts to come from single-parent households. They also have greater propensity of being first-generation college students, and are more likely to shoulder the financial burden of college than their more privileged piers (Fischer, 2007). These factors coalesce to create a situation in which many disadvantaged students are presented with fewer occasions to be exposed or have access to postsecondary educational opportunities (Hamrick & Stage, 2003; Ludwig, Ladd, & Duncan, 2001).

In terms of first-generation status, Fischer (2007) found that “only 9% of Whites and 16% of Asians students in the sample were the first generation. On the other hand, about 30% of Black and Hispanic students came from families in which neither parent had a college degree (p.134). Hamrick and Stage (2003) also assert that low-income and first-generation students face greater academic and background obstacles to attending college than more advantaged students do. In a study concerning underserved students, the challenges they face, and the potential of precollege programs to address those challenges, it is worth noting that a weighty segment of minority youth is classified as low-income (Fischer, 2007; Hamrick and Stage, 2003; U.S. Census Bureau, 2010). This position rests on the fact that low-income minority students are the individuals most likely to receive inadequate educational access, attainment, and opportunity (Fischer, 2007; Hamrick and Stage, 2003; U.S. Census Bureau, 2010).
The U.S. Census Bureau (2010), via the *American Community Survey Briefs*, presents 2010 data that shows “more than one in five children in the United States (15,75 million) [live] in poverty” (United States Census Bureau, 2010, p. 2). The Census Bureau also found that “White and Asian children had poverty rates below the U.S. Average,” while other race groups had higher rates, with Black children at a 38.2 percent poverty rate and Hispanic children having a 32.3 percent poverty rate (United States Census Bureau, 2010, p. 1). In a similar vein, Fischer (2007) found that a far greater number of Asian and White students hail “from households making more than $75,000 a year, while only about 40% of Blacks and Hispanics [come] from families making that amount of money (Fischer, 2007).

The U.S. Census also reports that the poverty rate for White children is 17 percent, or 8.4 million. Due to the larger size of the White community, White children make up the majority of children living in poverty in the United States, at a rate of approximately 54 percent. When considering population size and percentage, Black children represent 14.4 percent of all children in the United States, yet these “children [have] the highest poverty rate among the race groups…representing 25.6 percent of the population of children in poverty” (U.S. Census Bureau, 2010, p. 3). Shifting to the Hispanic minority presence, one out of five children in the United States identifies as Hispanic. However, the U.S. Census reports that “Hispanic children [make] up one of every three children who [live] in poverty” (2010, p. 3).

As Fischer (2007) and Hamrick and Stage (2003) point out, low-income status brings with it greater challenges that affect academic performance and persistence. From the Census data on poverty in the United States, Fischer (2007) and Hamrick and Stage (2003) are justified in positing that minority students are more likely to suffer challenges related to educational disadvantage (Fischer, 2007; Hamrick & Stage, 2003). Also worth noting is that students living in poverty complete fewer years of school and are more likely to experience unemployment than
their more affluent counterparts (U.S. Census Bureau, 2010). That being said, highlighting literature on student preparation and the obstacles faced by underserved students, and on precollege outreach, is relevant in a study on the impact of precollege outreach targeting underserved student populations.

**Barriers**

As mentioned, students who are underserved, and who come from low socioeconomic backgrounds, contend with a multitude of hindrances that limit the feasibility of their postsecondary persistence (Ludwig, Ladd, & Duncan, 2001; NCES, 2006; Schneider, 2003). Despite the challenges they face, underserved students, particularly minority ones, share and sometimes exceed the aspirations of their White counterparts (Allen, 1992). Unfortunately, however, underserved students are not in a position to realize these aspirations, while majority students are better able to (Allen, 1992; Fischer, 2007). Underserved students are often at-risk of poor high school preparation and academic failure at the secondary level which, then, greatly hinders their ability to pursue postsecondary endeavors (Allen, 1992; Croninger & Lee, 2001; Fischer, 2007; Ludwig, Ladd, & Duncan, 2001; Schneider, 2003; Slicker & Palmer, 1993). The obstacles often faced by underserved students—emerging early in their grade-level years—are numerous and, according to Leppel (2002) and Timar, Ogawa, and Orillion (2004), include family, cultural, environmental, and psychological variables that interact and have the potential to cause underserved students to opt out of higher education all together.

Pointedly, the literature provides readers with evidence of the influence of family and background. From previous research, it is apparent that the context in which students live has the potential to affect their academic persistence (Hamrick & Stage, 2003; Perna & Titus, 2005). Hamrick and Stage (2003) present research that shows parental characteristics such as expectations, income, and degree attainment directly affect students’ aspirations to persist to the
Likewise, social networks, such as encounters with educational mentors “represented complementary environments where focuses on grades [and] school participation…affected students’ predisposition to college (Hamrick & Stage, 2003, p.161). Similarly, Perna and Titus (2005) posit that when underserved minority students have familial support and involvement, as well as access to social networks and educational resources that support persistence, they are more likely to enroll in an institution of higher education (Ludwig, Ladd, & Duncan, 2001; U.S. Department of Education, 2006; Perna & Titus, 2005; Schneider, 2003; Timar et al. 2004). Unfortunately, however, inadequate school environments, systemic under-resourcing, and economical disadvantages pose challenges for underserved students. Reviewing the literature on these obstructive aspects is beneficial when studying precollege and academic outreach initiatives employed by the university and how outreach can aid the effort to support underserved student populations.

On the matter of school environments, students attending low-performing schools are often subjected to educational settings with few resources (Hamrick & Stage, 2003). It is not uncommon for these schools to be understaffed and employ individuals who are under skilled (2003). Also, because underserved students are likely to be enrolled in coursework not suitable for college admission, their eligibility to participate in postsecondary education is jeopardized (Mazzeo, 2002). Underserved students may also suffer the burden of the low expectations of teachers and counselors, the very educational gatekeepers responsible for facilitating their transition into college. This translates into poor academic preparation and college readiness (Caldwell & Siwatu, 2003; Schneider, 2003).

As touched upon, many students are leaving their high schools underserved and, then, entering the postsecondary environment unequipped to achieve success (Attewell, Lavin, Domina, & Levey, 2006; Marcus, 2000; Trombley, 1998). It may be the case that for those
students underprepared and underserved, at-risk factors exist that affect their academic performance, as well as their disposition about, and investment in, pursuing a postsecondary degree. Kezar (2000), in her research on first-generation students and bridge programs, lists six major barriers to success:

1) lack of self-confidence; 2) inappropriate expectations or knowledge about college environment; 3) lack of connection to the college community or external community; 4) lack of early validation; 5) family members who do not understand the goals of college; and 6) not involving faculty in summer bridge programs and the transition process. (p. 2)

In the same vein, with a focus on the secondary student, Nagda, Gregerman, Jonides, von Hippel, & Lerner (1998) suggest that factors that affect student enrollment and success in higher education can be separated into two categories. According to Nagda, Gregerman, Jonides, von Hippel, & Lerner (1998), “the first [category] assumes that students…[are] underprepared for college (p. 55). As for the second category, the theory here “assumes that various structural factors inherent in educational institutions fail to support particular students” (1998, p. 55).

The theory of the first category pertains to the deficiencies suffered by the individual student, including the influence and impact of family and community attributes and norms and student learning exceptionalities (Nagda et al., 1998). To restate, low-income and first-generation students face unique obstacles to college attendance (Hamrick & Stage, 2003; Nagda et al., 1998). A student’s desire to pursue and participate in postsecondary education is influenced by multiple factors in the contexts in which they live. Individual student deficiencies, family circumstances, community expectations, and school environments all play a part in a student’s choices about educational pursuits (Kezar, 2002). Likewise, family characteristics such as the grade or degree-level completed by parents and other family members, parental employment, family expectations, and family attitudes towards collegiate pursuits are features
that factor into a student’s considerations about attending a postsecondary institution (Kezar, 2002).

Returning to Nagda et al.’s categories of factors that affect student success, “the[ir] second theory assumes that various structural factors inherent in educational institutions fail to support particular students” (1998, p. 55). These factors include negative perceptions held by administrators and faculty, as well as educational disenfranchisement and ineffectiveness at both K-12 and postsecondary educational institutions (Suarez-Balcazar, Orellana-Damacela, Portillo, Rowen, & Andrews, 2003). In addition to negatively affecting students’ self-perceptions and expectations, these factors also fail to adequately support underserved student populations in their postsecondary experiences (Hamrick & Stage, 2003).

As a result of family and environment attributes and expectations, as well as the state of their K-12 education, disadvantaged students’ educational possibilities are ultimately hindered by the lack of exposure they have to information about the opportunities, experiences, and expectations of a postsecondary education (Hamrick & Stage, 2003; & Nagda et al., 1998). Therefore, although most adolescents aspire to earn a college degree (Hamrick & Stage 2003; Perna & Titus 2005; Schneider 2003; Van de Water & Rainwater, 2001), with the reality of the abovementioned challenges, it becomes probable that these aspirations will not come to fruition for many underserved students (Schneider, 2003).

Rather, instead of pursuing college aspirations, impediments are compelling many underserved students to enter the workforce rather than persist to college (Schneider, 2003). According to Schneider (2003), it appears that, although the majority of high school graduates enter college, the profile of those who fail to enroll are disproportionately minority students. These students are, instead, electing to enter the workforce fulltime. Unfortunately, the jobs they are securing are most often low-skill, low-wage, unstable, and transient with little room for
advancement (2003). This occurs in light of the fact that “few people will argue with the premise that attending college can have a profound effect on one’s life...[as] few choices have more far-reaching implications than the decision about college” (Astin, 1993, p. 1). Dohm and Wyatt (2002) contend that “having a college degree is one of the best ways to gain and maintain a competitive edge” (Dohm & Wyatt, 2002, p. 3). Dohm and Wyatt (2002) of the Bureau of Labor Statistics inform readers that “more individuals are earning their [college] degrees. And as a career-planning tool, those degrees have some quantifiable benefits, the most measurable of which are earnings” (p. 4).

Among the benefits of earning a bachelor’s degree or higher are more career options, greater ability to secure employment, and greater earning potential (Dohm & Wyatt, 2002). Individuals aged 25 to 64 who hold Bachelor’s degrees were found to earn a median weekly wage of $834 dollars. On the other hand, individuals in the same age group who had attained no higher than a high school diploma were found to earn a median of $507 a week (Dohm & Wyatt, 2002). Dohm and Wyatt (2002) go on to report that the difference in income increases for individuals with advanced degrees beyond a Bachelor’s degree.

Specifically, Dohm and Wyatt (2002) report that, in 2000, the median weekly earnings of workers aged 25 to 64 with Master’s degrees were found to be $983 dollars a week, and individuals with Professional or Doctoral degrees were found to earn a median weekly wage between $1,174 and $1,214 dollars. These wages are notably greater than the $507 median earned by workers whose highest level of educational achievement was a high school diploma (Dohm & Wyatt, 2002). To be fair, not all degree holders earn higher salaries than their non-degreed peers. According to Dohm and Wyatt (2002), 17 percent of individuals with bachelor’s degrees earn less than workers who have earned no higher than a high school diploma. Mostly,
however, data show that those who earn college degrees earn more than workers who did not earn credentialing beyond a high school diploma (Dohm & Wyatt, 2002).

Another factor that is proving to hinder college success is remediation. As of 2000, the U.S. Department of Education National Center for Educational Statistics (2006), reports that 29 percent of entering freshman lacked the competencies necessary to succeed in postsecondary studies; thereby requiring at least some participation in remedial coursework. Van de Water and Rainwater (2004) report that “remedial coursework in college is high” (p. 6), and what we glean from the statistics is unsettling: research shows that “the reported time spent in remediation suggest[s] an increase in the average length of time overall that students spent in remedial education courses” (U.S. Department of Education NCES, 2003, para. 5).

In their review of literature on remedial education, Attewell, Lavin, Domina, and Levey (2006) found that most colleges and universities are providing remedial courses to address the academic deficiencies of some of their students. Remediation for some critics is tantamount to under-preparation, and is proof that many students are not academically competent to manage postsecondary coursework (Attewell et al., 2006; Marcus, 2000; Trombley, 1998). Attewell, Lavin, Domina, and Levey (2006) add that “conventional wisdom suggests that colleges instituted remedial courses to cope with the consequences of poorly functioning high schools” (p. 898). Adelman’s (1998), in connection with the National Center for Public Policy and Higher Education, research findings prove that participation in remedial coursework correlates with a decreased likelihood of graduation. Adelman (1998) found that, by age 30, 55% of the students who took one remedial course were likely to earn an Associate’s or Bachelor’s degree. In the same vein, 45 percent of students who took two remedial courses earned an Associate’s or Bachelor’s degree, and 44% of students who took three or four remedial courses were likely to earn a degree. With the impact of remedial coursework climbing, Adelman (1998) also found
that 35% of students who took five or more courses, or who took three or more remedial courses including remedial reading, ultimately earned an Associate’s or Bachelor’s degree. It is not remediation that leads to non-completion, however. Low-performing grade-level academic environments and poor preparation are the factors behind poor academic performance and postsecondary remediation and attrition (Adelman, 1998; Fischer, 2007; Tierney & Jun, 2001).

Tierney and Jun (2001) write that “a public clamor continues to be heard that the [secondary] schools need to turn out students who are better prepared for college-level work” (p. 205). According to Adelman (1998), secondary education is to blame. An assumption to be made here is that students’ academic performance and persistence would improve if the education they received in their high school years improved (Tierney & Jun, 2001). Fischer (2007) provides affirmation with her claim that college success, particularly early on, is significantly influenced by students’ precollege preparation. Assertions may be made, then, that the consequence of students’ grade-level under-preparation, despite admission and participation in postsecondary educational experiences, weakens the likelihood of college graduation for some students (Attewell, Lavin, Domina, & Levey, 2006). While the K-12 sector shoulders a great deal of the responsibility for proper educational attainment and the adequate preparation of students for life beyond high school, there is room for postsecondary intervention.

Students’ grade-level education provides the foundation for postsecondary pursuits. Particularly in the case of underserved students, inadequate grade-level school inhibits students’ ability to enroll, participate, and persist in postsecondary educational opportunities (Adelman, 1998; Fischer, 2007; Tierney & Jun, 2001). The precollege outreach offered by the university is an example of postsecondary agencies collaborating and bolstering the grade-level effort to prepare students for life after high school. The programming offered by the RU institution in this study is intended to assist students academically and support the preparation of students’ for
college-level work. This study will explore the impact of the university’s precollege outreach efforts to address underserved students preparation for the rigors of postsecondary life.

**Academic Preparation, and College and Workforce Readiness**

The realization that there is a need for a more highly educated workforce is not new (Callan, Finney, Kirst, Usdan, & Venezia, 2006). According to Callan, Finney, Kirst, Usdan, and Venezia (2006), educators and policymakers have been aware of the nation’s growing workforce needs, as well as the nation’s increasing workforce deficit since the 1980s. Callan et al. (2006) contend that there is a consensus among educational, political, and business stakeholders that the youth of the nation are underachieving. With that in mind, policy is being developed to bolster student achievement (2006). The GRAD Act, with its call for postsecondary-to-secondary outreach and for higher rates of workforce-ready college graduates, is an example of Louisiana’s investment in this effort.

Despite a shared interest in workforce preparation, Callan et al. (2006) claim that the United States faces student preparation and, consequently, workforce problems. Daly (1994) relays that the business world has voiced concerns about the United States having lost its competitive edge. Callan et al. (2006), echo Daly (1994) with the statement that “the United States was once the world leader in offering college opportunity to its residents, [however] several countries have now overtaken the U.S. in this area” (p. 3). Callan et al. (2006) project that “unless the educational achievement of the young population improves, the competitiveness of the U.S. workforce is predicted to decline over the next decades” (p. 3). If educational systems do not respond, the outlook is unfavorable. By 2020, the U.S. workforce will be insufficient, with a projected shortfall of 14 million adequately skilled workers (2006).

All things considered, inadequate student achievement may be seen as a matter of national equity, with the United States in a position in which its competitive edge has been
impacted and, ultimately, the United States being outperformed by other countries (Callan et al., 2006; U.S. Department of Labor, 2006).

At a time when the knowledge-based, global economy requires more Americans with education and training beyond high school, the nation confronts the prospect of a sustained drop in the average educational levels of the U.S. workforce. This challenge places the United States at a crossroads: we can improve college readiness and completion rates and thereby prepare the workforce for the economic and civic challenges of the next generation, or we can allow gaps in educational achievement to undermine our competitive edge and our communities’ economic prosperity. (Callan et al., 2006, p. 1)

With that in mind, efforts have been in the secondary grades to improve student readiness for the postsecondary level (Callan et al., 2006). Spurring this approach is the philosophy that the capabilities necessary for college success are comparable to the skills and knowledge required for middle-income employment (Callan et al., 2006). Providing examples of skills seen in college goers that are attractive to the workforce, Pascarella (2005) found that students mature during college, and become more knowledgeable and career focused. Astin (2005) adds that “there is…evidence to suggest that college seniors have a more accurate perspective about labor market realities and a higher level of overall workplace readiness than do their counterparts with less exposure to postsecondary education” (p. 534).

The preceding literature makes a case for the notion that education and training beyond a high school diploma is critical, particularly when considering that the need for college success and, ultimately, a college degree is increasing. The reality is that a greater segment of the job sector is requiring prospective workers to have education that extends beyond the twelfth grade (Callan et al., 2006; Schneider, 2003). While that may be the case, “completion rates for associate’s and bachelor’s degree programs have stalled over the past decade, and wide gaps remain in college completion by ethnic and income group” (2006, p. 3). Callan et al. (2006) go further and present additional setbacks by noting that “persistent gaps in educational achievement by ethnic group could decrease the portion of the workforce with college-level
skills…with a consequent decline in per capita personal income in the United States” (p. 1).

As mentioned, stakeholders have long been aware and weary of the nation’s workforce deficit (Callan et al., 2006). Thusly, educators and policymakers have responded to the impending workforce shortage by promoting a message of postsecondary education in hopes of encouraging students to pursue a college degree (Callan et al., 2006). The message has been effective, as high schools students have higher academic aspirations, and, subsequently, greater numbers of students are attending college (Callan et al.; Kirst & Venezia, 2006; U.S. Department of Education NCES, 2006). For the record, “almost 90% of high school students of all racial and ethnic groups aspire to attend college” (Callan et al., 2006, p. 3). Callan et al. report that, “almost 60% of high school graduates enroll in college right after high school, and many additional students enroll in college within a few years of high school graduation” (p. 3).

Despite enrollment gains, however, there are still leaks in the secondary and postsecondary pipeline, and the issues of student under-preparedness still persist, with the nation’s educational systems producing “low and inequitable high school graduation and college completion rates” (Callan et al., 2006, p. 4). Callan et al. submit that 68% of the country’s ninth graders graduate from high school within four years. From there, only 18% of the ninth graders ultimately graduate within the traditional program time, meaning that they enter college immediately following their four-years of high school, and, then, complete an associate’s or bachelor’s degree program within six years. (Callan et al.).

Callan et al. (2006) also present evidence of the difference economic privilege brings. According to Callan et al.,

for those high school graduates from the wealthiest quartile (25%) of the overall population, about two of every three enroll in a four-year college or university. In contrast, only about one in five from the lowest socioeconomic quartile enrolls in a four-year institution. (2006, p. 4)

The statistics above provide evidence of leaks in the educational pipeline between high school
and college, and also prove that there are disparities between students based on their socioeconomic standings. Pascarella (2005) helps audience better understand the significance of the attainment of a degree by relaying that “a bachelor’s degree provides a net occupational status advantage over a high school diploma of about…33 percentile points” (p. 535). Pascarella (2005) also found that the greater the postsecondary educational attainment is for an individual, the greater the workforce participation. Additionally, Pascarella discovered that graduates who earn a bachelor’s degree are estimated to draw an “average net annual earnings premium…(versus a high school diploma) [of] about 37 percent for men and about 39 percent for women” (2005, p. 536)

Realizing the economic gain of a college degree, as well as the national competitive advantage of producing a workforce-ready populace, Callan et al. (2006) insist that improving the educational attainment and workforce readiness of the nation’s students is not a matter that can be addressed by reforming K-12 systems or postsecondary systems independently. Callan et al. also posit that “some of the most robust challenges in raising student achievement can be found at the juncture—or more accurately the disjuncture—between our K–12 systems and our colleges and universities” (2006, p. 1). The disjunction between systems hinders the ability for these systems to communicate and collaborate with each other in the effort to improve student outcomes (, Callan et al.). The end result is an educational design in which high schools develop standards and assess student mastery of knowledge and skills sets that are not aligned with what is required for college success (Callan et al.). The position has already been presented that properly preparing students for college readiness is indeed a grade-level responsibility. A case can also be made, however, that there is indeed space for postsecondary systems to assist in the task.
Krist and Venezia (2006) report that “approximately one-half of the nation’s entering postsecondary students…are not ready for college-level work” (p. 2); and this is unacceptable. Krist and Venezia insist that “high school students must graduate with the knowledge and skills needed to succeed in some form of postsecondary education. [However,] the challenge of providing this level of education can not be accomplished by K-12 education alone” (2006, p. 1). According to Krist and Venezia (2006), neither the K-12 sector nor the postsecondary sectors are solely responsible for student success at the postsecondary level. Rather, “both systems have created academic preparation problems for prospective students, [thusly] both systems should work together to improve [student] college readiness” (2006, p. 1).

In their effort to assist the Commission on the Future of Higher Education, Krist and Venezia (2006) acknowledged and admonished educational sectors for the disconnect between K-12 and postsecondary institutions. Their claim is that the lack of communication, alignment, and collaboration between the groups “perpetuates the divide between systems” and creates a situation in which “many high schools will be unable to provide the appropriate academic opportunities for their students” (Krist & Venezia, p. 1).

To facilitate successful student transitions, higher education must participate in preparing high-school students for postsecondary caliber work. Presently, however, “few K-12 educators…receive accurate information about what students need to know and do to succeed in college-level coursework” because higher education fails to communicate to grade-level systems what students should be able to manage at the postsecondary level (Krist & Venezia, 2006, p. 2). Instead of fluent sharing of standards and objectives, the fractured state of educational systems propagates vague messages about postsecondary standards. Krist and Venezia (2006) inform
observers that “the coursework between high school and college is not connected; consequently students graduate from high school under one set of standards and, [then], are required to meet a whole new set of standards in college” (2006, p. 3).

In response to this situation, Krist and Venezia (2006) issue a challenge to academia through their position that “it is up to higher education to provide clear signals about what students need to know and do to be ready for college-level coursework” (p. 1). Likewise, “educational leaders [should] develop student achievement targets that will require K-12 and postsecondary systems to [work] jointly” (p. 7). Essentially, Krist and Venezia (2006) insist that higher education and secondary education should be required to collaborate in establishing, and facilitating the attainment of, student-achievement objectives. The Louisiana Board of Regents and state legislators have proven that they agree with this notion with the passing of the GRAD Act. The legislation includes stipulation that requires postsecondary institutions to provide outreach to high schools in the effort to support students increased access, enrollment, and successful transitions to college. By agreeing to the terms of the act, postsecondary institutions, including the RU institution studied in this research, are demonstrating their commitment to the effort to provide precollege outreach, and impact the postsecondary preparation, perceptions, and persistence of local students.

Outreach

To reiterate earlier points, participation at the postsecondary level brings with it the promise of greater economic, social, and health related gains (Dohm & Wyatt, 2002; Perna, 2005). Considering the many advantages enjoyed by those with college degrees, one may assume that access to higher education is a privilege that perpetuates more privilege (Perna & Titus, 2005). That being the case, attentions turn to aspects of higher education that have the potential to intervene on behalf of underserved students’ interests. It is reassuring to see that there is
research that proposes the implementation of precollege programs to help students succeed in college, as well as help initiate “change [in] the educational system” (Reid, Hetsko, Keiser, Bradley-Cook, & Kim, 1992, p. 4).

Precollege outreach mechanisms are an example of academic intervention and K-12 and postsecondary collaboration. Scholarship concerning grade-level and postsecondary collaboration is integral to this research, as a priority of the study is programming in which a postsecondary system works in tandem with grade-level and community agencies to prepare students for life after high school. As noted above, the programming offered by the RU institution in this study is intended to assist students academically and support the preparation of students’ for college-level work (Louisiana GRAD Act, 2010), and the purpose of this research is to explore the impact of the university’s precollege outreach efforts on underserved students postsecondary aspirations, preparation and performance.

Precollege outreach mechanisms are often used as academic interventions, and they are quite popular as evidenced by the large number of them in place throughout the United States (Timar, Ogawa, & Orillion, 2004). According to Santa Rita and Bacote (1996), outreach programs that function as transition programs for at-risk, underprivileged students are becoming an established part of the postsecondary landscape (1996). Academic outreach efforts are quite often grade-level-to-postsecondary partnerships that address the disadvantages of underserved students. Swail and Perna (2002), who are supported by Timar et al. (2004), assert that outreach programs act as “safety nets” for underserved and underprepared students, providing academic and social support not found in their K-12 settings. Intervention programs such as Upward Bound and the Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) “are designed to motivate students…while paving a way for their transition from high school into…postsecondary endeavors” (Caldwell & Siwatu, 2003, p. 32). According to sources
such as Swail and Perna (2002) and Timar et al. (2004) these programs are capable of achieving a number of things including improving students’ academic performance, building students’ self-esteem, and fostering students’ awareness about postsecondary matters through exposure to elements of postsecondary education. Clark (1997) presents other benefits with his position that postsecondary and K-12 partnerships are valuable in that they aid in “providing an exemplary education for some segment of [students],” as well as establish fertile ground for “conduct[ing] inquiry that advances knowledge of schooling” (p.3).

In essence, contact with postsecondary education through college and university outreach is important in that it helps to build connections between secondary experiences and the experiences of the academy (Van de Water & Rainwater, 2004). Said another way, educational bridges from students’ precollege era to higher education, made possible through outreach efforts, foster opportunities through which partnership opportunities and educational experiences become attainable that would otherwise not be. Fischer (2007) reminds that academic experiences and connections to postsecondary academic life help to more firmly plant students in college. Fischer (2007) points out that students who are underprepared for college will need enrichment and instructional support to better ensure staying on course with the better prepared students.

Precollege outreach programs are vehicles through which students are introduced to essential academic support and to the postsecondary world in general. According to Fischer (2007), students who have the knowledge and ability to seek and secure the support they need are students who stand a better likelihood of achieving academic success. However, students who lack the knowledge to know when to seek help, and how to go about acquiring that help, are less likely to meet their academic aspirations (Fischer, 2007). It is imperative, then, that
underserved students receive direction and pertinent information through interventions such as precollege outreach programs.

**Outreach Programs**

There is really no lone definition of what an outreach program is. However, from the literature on academic programs that bridge the gap between high school and higher education, an idea of the functions of an outreach program emerge. To focus more acutely, precollege programs may be described as interventions designed to develop students’ academic ability and facilitate their successful transition from high school to college (Dabney, 2002; Santa Rita & Bacote, 1996). Precollege programs are academic and social support structures developed to help prepare students with the knowledge and skills necessary for various levels of educational success (Dabney, 2002; Santa Rita & Bacote, 1996; Swail & Perna, 2002).

To provide broad context, programs commonly include workshops and academic instruction, and students are provided opportunities to take part in role modeling, mentoring, and tutoring services (Swail & Perna, 2002). Time and length of precollege programs vary, with approximately 67 percent of the programs providing year-round services, 18 percent operating during the school year, and 15 percent operating during the summer (Swail & Perna, 2002, p. 27). It is important to note, here, that year-round programs are more likely to be federally funded ones (Swail & Perna, 2002). Program duration ranges from a few days to several years, and about 53 percent of the programs surveyed in Watson Swail and Laura Perna’s research provided services during and after school hours (2002). Swail and Perna (2002) also report that more than 60 percent of the programs delivered weekend services to students.

From a survey of national outreach programs, Swail and Perna (2002) found that the number one goal of most precollege programs is to encourage college enrollment rates. Embodied in that effort are the objectives of promoting participants’ college exposure,
awareness, and subsequently their college attendance (Swail & Perna). Ultimately, 90 percent of programs surveyed reported that college exposure and enrollment were key goals of their outreach (Swail & Perna, 2002).

At the same time, precollege, or bridge, programs are developed and implemented with academics in mind, as another frequently reported goal of precollege programs is to improve students’ academic performances (Swail & Perna, 2002). As it appears, most programs include features to promote students’ academic development and support students in developing the skills, (such as critical thinking, reading and writing), necessary to succeed at the college level (2002). On the matter of academic concentrations, Swail and Perna (2002) noted that 37 percent of precollege programs were STEM focused, with science topping the list. That said, precollege programs are also reported to prioritize social development. Swail and Perna state that “services that may help students acquire noncognitive skills that are important to the successful integration of students into campus life are also relatively common” (2002, p. 24)

However, depending on the program, in addition to academic success, the focus of impact may also be of a social nature. When this is the case, there is emphasis on helping students adjust and adapted to postsecondary situations and successfully transition into college life (Gay, 1992; Gordon, 1994; & Santa Rita & Bacote, 1996). Well suited for this study is the definition of precollege outreach programs as academic support interventions developed to help prepare high school students with the knowledge and skills, both academic and social, necessary for various levels of grade-level and postsecondary educational success (Santa Rita & Bacote, 1996).

Based on the literature, precollege programs are primarily meant to bridge the transition from one educational level to the next. In addition to providing students with pertinent knowledge for academic success and to bridge the transition between academic levels, precollege bridge programs also provide students with opportunities to build social skills and peer and
faculty relationships with the intent of increasing student enrollment, retention, and graduation rates, (Carlon, 2001; Dabney, 2002; Gay, 1992; Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998; & Szelenyi, 2001).

To date, these programs are prolific (Domina, 2009; Fischer, 2007). According to Santa Rita & Bacote (1996), precollege programs that target high-risk, low-income, and minority students are becoming an established feature at higher education institutions. The programs are also widely accepted by advocates of education as proven by the fact that they stem from an array of funding sources; from government bodies, to education agencies, to private non-profit organizations (Domina, 2009; Swail & Perna, 2002). Despite the varied backgrounds, all precollege outreach programs operate on the tenant that encouraging students to aspire to higher education can ultimately motivate students to make advantageous educational decisions and, from there, “improve their chances of enrolling and graduating from college” (Domina, 2009, p. 127).

To provide encouragement and helpful academic tools entails familiarizing students with any number of services, from information about the enrolling and financial aid processes, to familiarizing students with the geography of the college campus (Louie, 2008). Services may also include tutoring and direction regarding what skills are necessary for postsecondary success, such as class attendance and participation, out-of-class study, reading, writing, and note taking (Swail & Perna, 2002). While academics are a primary concern, intervention can also be of a social nature, in which case there is a focus on helping students adjust and adapt to postsecondary situations (Gay, 1992; Gordon, 1994; Santa Rita & Bacote, 1996; Swail & Perna, 2002).

To state again, precollege programs commonly supply students with pertinent knowledge for academic success, and with the social skills essential for their transition between education
sectors. A principle objective of precollege programs is to increase student enrollment, retention, and graduation rates (Carlon, 2001; Gay, 1992; Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998, & Szelenyi, 2001; Swail & Perna, 2002). This effort is noble considering existing policies and programming are lacking when it comes to addressing underserved student obstacles as evidenced by the persisting postsecondary enrollment gaps between underserved students and their more privileged counterparts (Perna et al., 2008). Well-defined and implemented precollege outreach programs represent a tool to positively affect this matter, and have the potential to offer students a number of benefits (Domina, 2009; Louie, 2007; Perna et al., 2008). Some are intangible, such as building student confidence and enhancing problem solving skills. Others, however, are more concrete such as tutoring and earning college credits (Louie, 2007; Swail and Perna, 2002).

Precollege outreach programs present a promising academic support mechanism for underserved student populations (Domina, 2009; Louie, 2008; Perna, Rowan-Kenyon, Bell, Thomas, & Li, 2008). Precollege programs that bridge the divide between high school and college foster a sense of belonging and student engagement (Louie, 2007). Louie (2007) found that belonging and engagement are critical pieces in students’ preparation for, and successful transition to, postsecondary education. In hand with Louie’s (2007) finding, Domina (2009) revealed in his research on precollege outreach that outreach programs are proving to have greater impact on high school students who are academically at-risk students, who stem from low-economic backgrounds, and who—prior to participation in their programs—have low educational expectations, than on other student groups (Domina, 2009).

To provide context, in their research of five of the most populous and diverse states in the nation, Perna, Rowan-Kenyon, Bell, Thomas, and Li (2008) report that approximately 55 percent of precollege programs report a target group of students underserved in some capacity.
Specifically, of the 55 percent of programs that target the underserved, about 42 percent target low-income, low-achieving students (Perna et al., 2008). Swail and Perna (2002) make similar claims, reporting that program targeting of economically underserved students is indeed more common than the targeting of students who suffer educational disadvantage, with 62 percent of programs targeting low-income students and between 36 and 38 percent of programs targeting low-academic ability students. That said, the fact of the matter remains that precollege programs generally target students who are academically and economically disadvantaged, whether those students are academically underserved, economically underserved, or both (Domina, 2009; Perna et al., 2008; Swail & Perna, 2002). These target foci may be considered beneficial when considering that underserved students who participate in precollege outreach are more likely to take more rigorous high school coursework, including Advance Placement courses (Domina, 2009). Likewise, outreach programs “had measurable positive effects on students who entered into the program with relatively low educational aspirations” (Domina, 2009, p. 142).

Participation in precollege programming positions students to “find the necessary support to gain agency and thus, to promote engagement and achievement” (Louie, 2007, p. 2227). As Domina (2009) notes, such findings are promising due to the fact that students who utilize outreach services offered to them are more likely to pursue greater educational opportunities because they actually envision themselves participating in postsecondary endeavors. Most importantly, though, is evidence that the students who participate in precollege outreach programs have an approximately six percent higher college enrollment rate than similarly matched control students (2009).

Admittedly, research on precollege outreach thus far provides evidence of only modest gains in student enrollment (Domina, 2009). However, the potential is there to expound on outreach approaches and the services offered by these programs to produce more significant
results and produce greater academic performance gains. Perna et al. (2008), posit that college outreach programs lack philosophical coherence, intentional policy development, clarity, and distinctiveness. The lack of clarity, coherence, and structured policy and programming impedes outreach effectiveness. Defining clear program goals, objectives, target population(s), and program identity will contribute to the effort of policymakers and practitioners to bring about more aligned, relevant, and effective outreach programming (Perna et al., 2008). Inclusive in this point is the notion that, ultimately, precollege “outreach programs could improve their effectiveness by more carefully targeting students with low aspirations” (Domina, 2009, p. 142).

Domina (2009) posits that “future researchers should consider the possibility that outreach programs may be more effective when they focus their attention on students with low educational expectations (p. 144). With a notion that easily couples with the one just noted, Louie (2007), asserts that integrative, K-16 perspectives, created through grade-level and postsecondary partnerships in research, policy development, and practice, are necessary as they will allow systems to properly address existing academic shortcomings suffered by less-privileged students. “Additionally, there is the need for researchers themselves to adopt a K-16 perspective, rather than staying within the boundaries of the K-12 literature or alternatively, higher education” (Louie, 2007, p. 2241). Louie asserts that this research dichotomy produces a knowledge base that is lacking and inadequate (2007). Sentiments such as this support the efforts spurring the present research.

In this study, three precollege programs of the state’s flagship postsecondary institution will be explored to determine the impact of these programs on the aspirations and perceptions about academic performances and abilities of the students enrolled in them. The preceding review of the literature encompassed a discussion of the evolution of the purpose of American higher education, the role of government and the relationship between government and
educational systems, as well as current issues that impact grade-level and postsecondary education, such as campus diversity, college preparation, underserved student access and barriers, workforce readiness, and postsecondary precollege outreach.

An aim of this study is to investigate programming in which postsecondary systems invest in the development and implementation of outreach to prepare students for life after high school. As has been established, the RU institution has committed to support the preparation of students’ for college-level work (Louisiana GRAD Act, 2010), and the purpose of this research is to explore that effort. Specifically, this study will investigate specific university extended engagement precollege outreach programs, and the programs impact on underserved students postsecondary aspirations, preparation and performance.
RESEARCH METHODOLOGY

The original intent of this study was to explore the impact of two precollege engineering programs on undeserved students. Due to the unforeseen decision by program coordinators to include significant numbers of students who cannot be classified as underserved, the researcher augmented the purpose of the study to the exploration of the impact of the programs on all first-time program participants. The following chapter includes description of the research design and rationale, research framework, case selection and participant sampling procedures, instrumentation, and data collection and analysis.

Research Design

The researcher determined that research goals would most appropriately be met by employing quantitative and qualitative methods in a mixed-methods approach. Creswell and Plano (2011) discuss a particular mixed method approach in which the research starts with the quantitative phase, followed by the qualitative phase. For this study, quantitative data provided descriptive statistics that helped to illustrate sample characteristics. With that understanding, the researcher determined that the study would be conducted as a nonexperimental, descriptive, multiple-case embedded case study, and surmised that the research would provide a better understanding of the phenomena of precollege programming (Creswell & Plano, 2011; Yin, 2008). Case study research allows audiences to understand phenomena within a real-life context, and may be described as “all encompassing,” incorporating logic of design, data collection approaches, and analysis approaches (Yin, 2008, p.18). For this research, the case study was an exploration of two, discrete programs through the examination of multiple sources of data (2008).

The programs studied were the discrete cases. Also studied were the student participants, who were the embedded units within the cases studied. In this research, quantitative measures
proceeded qualitative measures so that qualitative results could be used to support the preliminary quantitative findings (Creswell & Plano, 2011). The quantitative phase of this study entailed the administration of an online student survey to program participants. The survey was designed as a retrospective pretest, and was administered at the conclusion of the REHAMS and XCITE programs. The qualitative phase followed the quantitative phase, and consisted of focus group interviews with program participants.

Framework

Ernest Pascarella’s College Impact Theory includes the hypothesis that precollege experiences have the potential to affect student socialization (Pascarella, Terenzini, & Wolfe, 1986). Within Pascarella’s model, student postsecondary success is shaped by the following internal and external forces: student background and pre-collegiate characteristics, structural and organizational features, interactions between the student and campus socializing agendas, and quality of student effort (Pascarella, Terenzini, & Wolfe, 1986).

To explore the impact of the precollege programs at the RU university, the study was situated within College Impact Theory. Ultimately, multiple elements were explored, specifically students’ pre-collegiate characteristics and attitudes about their academic performance, college preparation, and postsecondary participation, as well as the impact of the distinct programs on students’ attitudes and behaviors.

Research Questions

As identified earlier, three questions drove the study. Based on insight from a review of the literature institutional structural features, the questions were refined, and sub-questions emerged:

RQ1) How do program participants perceive two precollege engineering programs, REHAMS and XCITE, to have impacted their postsecondary perceptions?
a. How do the participants perceive the programs to have impacted their attitudes about postsecondary participation; especially participants who have attended high schools in the focus district?

b. How do the participants perceive the programs to have impacted their perceptions about their pre-program and post-program academic performances?

c. How do the participants perceive the programs to have impacted their perceptions of postsecondary preparedness?
   i. How do the participants feel the programs have informed their knowledge about postsecondary enrollment, financing, and academic responsibilities?

RQ2) What are the student perceptions about the value of the programs?

RQ3) How do these programs compare?
   a. What type of influence on participant perceptions do the discrete programs have as measured by student perceptions of postsecondary participation, student performance, and student transition knowledge?
      i. How do the programs correspond?
      ii. How do the programs differ?

Exploration of these questions was done through a student survey and focus group interviews. With these methods, the researcher measured students’ perceptions about how the respective programs impacted their attitudes about their academic performances, and postsecondary aspirations and preparation, as well as gathered first-person accounts of ways in which they perceived the programs to have affected them. Finally, comparisons of the programs were based upon investigation into the following dimensions: 1) program design and characteristics, 2) program goals, and 3) participants’ perceived outcomes.
Sampling

Sampling for the study involved two phases. In the first phase, cases were selected. The second phase involved the selection of participants. A sample of students was selected for quantitative data collection, and from that sample a smaller sample of students was selected for qualitative data collection.

Precollege Case Selection

This case study involved the exploration of multiple cases, or “bounded systems,” bound by time and place (Creswell, 1998). In this instance, the cases were week-long precollege programs, in the university’s College of Engineering. Additionally, the campus environment was a structural feature, as well as the context in which the phenomena occurred. To be considered for the study, the programs had to operate with the aim of supporting underserved and underrepresented student development, and had to meet the following criteria:

1) The program was sponsored by a college or department aligned with the LDOE goal offices,

2) The program was aligned with the GRAD Act objective of providing high school outreach,

3) The program targeted students identified as underserved,

4) The program included students who have attended public schools in East Baton Rouge

5) The program length was one week or longer, qualifying as extended engagement, and

6) The program featured multiple encounters, including routine events and activities throughout the program cycle in which participants and university affiliated personnel interact.
Investigation of the university’s colleges and departments determined the number of applicable outreach efforts. Certain university units are delineated based on subject concentration area, such as English, math, and science. Other units are not subject-area specific, and were considered general-area units, such as Arts & Sciences, College of Education, and University College. The STEM-relevant academic units included the following: the College of Agriculture, the College of Engineering, the College of Science, the Department of Computer Science, and the Department of Mathematics.

Because of the inclusion of an array of academic areas, the College of Arts and Sciences was also surveyed, specifically the Department of English based on a relationship of that academic unit to the efforts of the Literacy Critical Goal Office. The broad collection of academic points of study warranted the inclusion of the College of Education in the survey of university offices. Finally, the University College was surveyed, as this unit is responsible for students new to the institution and the overall postsecondary experience. As presented on University College’s “About the College” page, “since its establishment…University College has served as a portal of entry for most incoming freshmen enrolling at [LSU] (University College, 2011).” The University College investment in new-student success corresponds with the College and Career Readiness office goal of grade-level student persistence and successful transition to postsecondary efforts.

To be eligible for the study, the program purpose had to encompass supporting underserved high-school students in their secondary coursework, as well as to encourage students’ persistence beyond the 12th grade, with college graduation being the end goal. Programs that met the criteria were contacted. Ultimately, three programs were identified, two of which were in the College of Engineering, and the third in the College of Science. From there, program coordinators were contacted, and preliminary information was gathered for each of the
programs. Due to leadership transitions and program obligations, the program in the College of Science declined further involvement in the study, which reduced the study to two engineering programs: Recruitment into Engineering of High Ability Minority Students, or REHAMS and eXploration Camp Inspiring Tomorrow's Engineers, or XCITE.

**Institutional Review Board**

After the researcher was granted approval by the graduate committee, the researcher requested approval for the study from the Louisiana State University Institutional Review Board. Approval was imperative, particularly because of the fact that participants were younger than 18 years old. The university Institutional Review Board granted approval (LSU IRB #3245), and the researcher was given license to proceed with the study.

As part of the stipulation of conducting the study, the researcher provided thorough explanations of the intent, procedures, and voluntary nature of the study to students and their parents. Likewise, students and their parents were assured of the anonymity of all participants in the study. Because participants were minors, the researcher secured signed permission forms from parents or guardians, as well as signed consent forms from the participants. Additionally, participants were informed of their ability to withdraw from the study at any time during the study.

**Population**

**Quantitative Sampling Procedures**

Students who were granted parental permission were drawn from the total population of students enrolled in the cases. From there, only students who agreed to participate in the study were permitted to take part in the student survey. To minimize threats to the study, students who participated in multiple precollege programs were not included in the study. Of the 33 REHAMS
and 18 EXITE students permitted to participate, 22 were ultimately included in the REHAMS sample, and 15 were included in the XCITE sample.

The original focus of the study was on students who attended public schools in the focus district, and who present some risk of not persisting to postsecondary education. However, due to adjusted program admissions criteria, student participation, and subsequent sample demographics, it was necessary for the researcher to broaden the sample to include responses of participants enrolled in public and parochial schools within and outside of the focus district, and who would not be considered underserved. Nonetheless, findings were used to draw conclusions about program impact that may apply to underserved students.

**Qualitative Sampling Procedures**

In addition to quantitative measures, to determine students’ perceptions about the impact of the programs on their educational performance and aspirations, qualitative research methods were also employed. For manageability, the number of participants for this phase of the study was seven REHAMS participants and five XCITE participants. The samples were drawn using purposeful, convenience sampling, and participants met the following criteria: 1) interviewees must have been among the program participants surveyed in the quantitative phase of the study; 2) participants must have attend high school in the focus district; and 3) interviewees must have been active in the program, meaning they exhibited sustained involvement through regular attendance at, and participation in, program activities.

**Data Collection**

According to Yin (2008), “embedded case studies rely on more holistic data collection for studying the main case but then call upon surveys or other more quantitative techniques to collect data about the embedded unit(s) of analysis” (p.63). Therefore, to address the research questions, the study encompassed a survey within a case study (Yin, 2008). Data was also
collected through focus group interviews based on the position that “mixed method research allows investigators to address more complicated research questions and collect a richer and stronger array of evidence than can be accomplished by any single method alone” (Yin, 2008, p. 63).

**Quantitative Data Collection**

Because sound survey instruments are effective tools through which population attitudes may be determined, a survey was used to better understand the target population’s opinions about postsecondary education, as well as their opinions about the impact of their outreach program (Johnson & Christensen, 2004). Survey research is a form of nonexperimental research in which information is gathered by way of questionnaires or interviews. When using a survey, the researcher’s goal is to understand the characteristics of a population (2004). Additionally, the information gained through the survey data provided information that may be used to direct program improvement (2004).

A student survey developed by the researcher was administered electronically to the REHAMS sample and the XCITE sample. REHAMS and XCITE are week-long programs held in June and July, respectively. Because of time and participant access limitations, the survey was administered only once, at the conclusion of each of the discrete cases. The survey was administered to all participants who were granted permission from a parent or guardian, and who gave their consent to participate in the study. Program coordinators for REHAMS and for XCITE included the student survey among the closing activities of the program in an effort to positively impact the response rate. Thusly, the individual samples completed the survey simultaneously in a computer lab setting; REHAMS participants in June, and XCITE participants in July. Students who reported participation in other precollege programming were not included in the study. Ultimately, of 35 REHAMS participants, 22 of their surveys were used in the study,
and of the 18 XCITE participants, 15 surveys were used. After the survey was administered, raw data was retrieved from the online host and analyzed by the researcher using the Statistical Package for Social Sciences (SPSS) software.

Instrumentation

The instrument used was developed by the researcher, and was designed and implemented as a retrospective pretest. Retrospective pretests “provide rich data with a modest investment of time” (Davis, 2003, para. 11). Likewise, this category of instrument is well suited to address the threat of response-shift bias, which is present when self-report measures are employed (Howard, 1980; Pratt, McGuigan, & Katzev, 2000). Survey content was based on established surveys. Specifically, the researcher reviewed the College Student Inventory, the Perceptions, Expectations, Emotions, and Knowledge About College instrument, and the GEAR UP Student Survey. The survey administered may be viewed in Appendix A.

College Student Inventory

The College Student Inventory, or CSI, is a college-student survey instrument developed by the higher education consulting firm, Noel-Levitz. The inventory is part of a series of instruments referred to as the Retention Management System, (RMS), which was developed for the purpose of improving student retention (Campbell, 2004). In addition to assessing student retention, the RMS is tailored to also collect data on students’ college expectation, outcomes, and serve as a tool for program evaluation (Campbell, 2004; Noel-Levitz, 2011).

From the CSI, postsecondary institutions are able to identify the aptitude and obstacles of incoming college freshmen for the purpose of intervention development and improvement (Noel-Levitz, 2011). Campbell (2004) supports this claim with the assertion that the CSI “is a simple…method to identify at-risk first-year students for individual intervention and to inform macro-level policy change” (p. 4). Campbell (2004) goes on to say that the inventory is a
“convenient, easily interpreted…instrument for identification of individual students…at risk for attrition” (p. 4).

The credibility of the CSI appealed to the researcher. Campbell (2004) reports that there is evidence to support the content, construct, and criterion validity of the inventory. Campbell’s assessment of the inventory is based on a review of a 2001 validity study of the inventory, as well as the inventory form and corresponding inventory technical guide, and inventory manual. Referencing these resources, Campbell (2004) points out that the inventory designers executed content-based item selection and “employed a defensiveness scale to exclude items that tend to elicit favorable responses” (p.3).

Additionally, in the area of construct validity, the inventory produced high interscale correlations, and follow-up evidence showed that, of the students assessed, those who ultimately dropped out of school were students with higher risk scores on the inventory. Campbell (2004) goes on to report that “the 1987 study also demonstrated that first-semester GPA correlated significantly with Study Habits, Academic Confidence, and Attitude Toward Educators” (p. 3). The validity and reliability of the instrument, as well as its relevance to the research are justifications by which it was determined that the RMS instruments were an appropriate source from which to draw direction for the research instrument.

*Perceptions, Expectation, Emotions, and Knowledge About College*

The Perceptions, Expectation, Emotions, and Knowledge About College, or PEEK, Instrument was also referenced. The PEEK is used to estimate students’ expectations about college. The instrument covers three domains: academic, personal, and social. Survey outcomes indicate a student’s grasp on reality based on their expectations. According to the developers of the PEEK, “many academically able and gifted students drop out of college during their first year because of personal, social, or academic expectations that are not fulfilled or that are inaccurate”
Therefore, the instrument was designed to measure “the degree to which a student’s expectations accurately reflect the college environment” (2011, para. 1). From the assessment, administrators have the opportunity to target their intervention efforts at students with unrealistic college expectations (Gillespie, 2010).

In their respective reviews of the instrument, Gillespie (2010) and Vazak (2010) report that the PEEK development process was comprised of the polling of 3,000 college faculty and students. Student results are described by z-scores, and the scores are compared to the scores of other completers at the same institution (Vazak, 2010). Therefore, national norms are not considered (2010). Gillespie (2010) asserts that the strengths of the instrument include the potential for efficient administration and scoring, and the use of PEEK outcomes for informed student advising and support. Among its weakness, Gillespie (2010) points out the irrelevance of measuring faculty expectations when the purpose of the instrument is to measure student expectations. Gillespie (2010) also draws attention to the fact that the authors of the instrument “do not provide normative data to be used in test interpretation,” which only allows in-house comparisons. “Although such comparisons can be useful, the issue of cohort effects can [threaten] validity” (Gillespie, p. 3, 2010). Likewise, the self-report, Likert-type scaled instrument items “do not lend themselves to standard error of measure calculations,” and the reliance on in-group comparisons does not allow for reliability estimates for different groups (Vazak, 2010, p. 4). Despite weaknesses, the PEEK instrument is designed to measure students’ beliefs about what college entails. Therefore, it was deemed relevant and was referenced by the researcher in the development of the research survey.

**GEAR UP Student Survey**

The goal of the GEAR UP Survey is to measure the impact of participation in the GEAR UP program on student outcomes. Evaluators of the GEAR UP survey developed a College
Orientation Index, based on the longer-running and nationally representative National Education Longitudinal Study of 1988, or NELS:88 (Standing, Judkins, Keller, & Westat, 2008). Ultimately, the orientation index developed “preserved the magnitude and direction captured in the GEAR UP College Orientation Index (Standing, Judkins, Keller, & Westat, 2008, p. D-1).

According to evaluators, the orientation index developed indicates that the GEAR UP survey is a good predictor of college attendance for low-income students (Standing, Judkins, Keller, & Westat). Ultimately, the GEAR UP survey evaluators “[are] confident that the GEAR UP College Orientation Index [survey] is a valid predictor of future college-going behavior” (Standing, Judkins, Keller, & Westat, 2008, p. D-12). However, the evaluators did note that certain components of the survey were weighted arbitrarily due to a lack of data (Standing, Judkins, Keller, & Westat). This means, then, that certain “components of the index may have higher predicative powers than others and would, therefore, require weighting more heavily to optimize the predictive power of the index” (Standing, Judkins, Keller, & Westat, 2008, p. D-12). Based on instrument relevance and minimal threats, the researcher was influenced by the GEAR UP survey.

Pilot study

A pilot study of the research instrument was done. The pilot study involved administration of the instrument to participants of a well-established pre-college program in the same geographic region. Based on the pilot study, the researcher made adjustments to questions that elicited unintended or unclear responses. Likewise, demographic questions were added regarding household income, number of people in household, and government assistance.
Precollege Program Student Survey

Student characteristics.

The survey instrument was designed for the collection of demographic and student background, academic, and outreach related information. Survey questions 1 - 5 pertained to demographic information; specifically age, grade-level, program identification, and GPA provided demographic information. Student reports of high school academic background performance were gathered with questions 6 - 9, and 12. Questions 10 - 13 addressed family background and adult involvement in educational and career matters. Additionally, item 13 touched upon student perceptions of their academic awareness, and their self-reports regarding academic performance and access to resources.

Program impact and participant engagement.

Survey data addressed the question of how perceived the programs to have impacted their attitudes about postsecondary matters, and participants’ projections about their involvement in postsecondary education. Likewise, the questionnaire supplied information about participants’ perceptions about the effectiveness of the respective programs in propagating broad, positive attitudes about postsecondary matters, namely regarding student participation, time and energy investments, and potential rewards. The assumption was that the intervention would positively impact students’ postsecondary aspirations and perceptions.

Program engagement information was gathered with questions 14 - 39. Specifically, pre-engagement questions were followed by post-engagement questions, which allowed for pre and post-engagement comparisons. These questions were also used to gather academic performance and program engagement information. Questions 14 - 21 focused on perceptions of academic performance before and after engagement. From there, questions 23 - 25 focused on attendance and extracurricular activities.
The survey was also designed for the collection of participant information, including information about students’ perceptions of the impact of the outreach. Questions 26 - 33 were about educational, career, and financial aid oriented activities and planning before and after engagement in the programs. Items 36 - 40 addressed college expenses and financial aid. From there, question 41 was about student perceptions of academic awareness, and academic performance and access to resources. Items 34 - 37 concerned college attendance aspirations. Data collected from these survey items was compared to students’ focus group reports, and the researcher gained insight into students’ perceptions regarding the impact of precollege programming on their performance and aspirations.

Survey data provided information about participants’ perceptions, performances, and aspirations. The data gathered was used to explore participants’ assessments of the value of the precollege programs, and to estimate program effectiveness based on students’ reports of pre- and post-program perceptions and aspirations. Summaries drawn from survey data were used in addition to qualitative data to draw conclusions.

Case comparisons.

Finally, the survey instrument was used to identify case attributes, and similarities and differences between the two cases. Survey questions pertinent to research question three included items 1 - 5, which deal with age, grade-level, and GPA. Program engagement information was gathered with pre and post-engagement questions 14 - 39 from which comparisons was made. Items 36 - 40 addressed college expenses and financial, and question 41 dealt with academic performance and access to resources. From these items, the researcher gained insight into students’ perceptions regarding the impact of precollege programming on their educational performance and aspirations, which was then used to draw case comparisons.
Qualitative Data Collection

Two focus group interviews were conducted at the conclusion of the programs. Twelve participants, seven REHAMS and five XCITE, were selected through convenience sampling. A focus group was conducted for each case identified in the study: one for REHAMS, and one for XCITE. The interviews were guided, yet informal, and participants were permitted to provide open responses. Likewise, questions and topics were adjusted to accommodate emergent and relevant themes. Guiding questions are presented in Table 3:

Table 3: Focus Group Protocol:

1. Would you please describe your precollege program?
   a. Please describe the length of your program
   b. Please describe program activities
   c. Please describe program staff
   d. Please describe the size of your program, (i.e. number of participants)

2. Would you please describe your precollege program?
   a. Please describe the length of your program
   b. Please describe program activities
   c. Please describe program staff
   d. Please describe the size of your program, (i.e. number of participants)

3. Did you gain/learn anything due to your engagement in the program?
   a. What did you do/learn while engaged in the program?

4. Did you gain/learn anything due to your engagement in the program?
   a. What did you do/learn while engaged in the program?

5. Did you gain/learn anything due to your engagement in the program?
   a. What did you do/learn while engaged in the program?

6. How would you describe your feelings about going to college before participating in the program?
   a. Do your feelings about going to college now differ from your initial feelings?

7. What features of the program did you find beneficial?

8. What features of the program do you feel were not beneficial?

9. How have you changed as a result of participating in the program?
   a. In what ways has the program impacted your thoughts about college?
   b. Do you think your perspective has changed naturally or were there some things about the program that helped them to change?

Recorders were used to ensure that interview information was captured. Likewise, field notes were taken during the focus groups. The interviews were transcribed and coded for themes, and ATLAS computer software was used to facilitate data analysis.
Threats and Limitations

Quantitative Design

To minimize threats to reliability, the survey instrument was arranged in subscales: Demographic, Student Background, Pre-engagement Perceptions, Post-engagement Perceptions. The subscales were determined based upon analysis of the individual instrument items. External raters reviewed the questionnaire and categorized items accordingly, and items and subsequent subscales were instituted. These reliability measures in the instrument development process established inter-rater reliability. Additionally, a pilot study was conducted to reduce threats to reliability. Data collected from the pilot study allowed the researcher to determine if the instrument gathered appropriate information, and to revise the questionnaire accordingly.

Additionally, to further ensure sound data collection and internal consistency, same-construct questionnaire items were divided within the instrument. The pre-intervention items on the survey were compared to post-engagement items on the survey. This process allowed the research to determine the students’ perceived impact of the intervention on their postsecondary beliefs.

As noted, the questionnaire design included four subscales. The analysis of the questionnaire data entailed the assignment of codes to the subscales. The researcher interpreted student responses to come to conclusions about the students’ attitudes and experiences prior to engagement in their respective outreach programs, and their attitudes and expectations following engagement in the programs. External researchers also coded subscale responses to establish inter-coder reliability, which limited threats to the study. Data coding was done with ATLAS.ti software.

Threats to the study included potential weaknesses to construct validity, specifically the threat of interaction of interventions and the history effect. Likewise, the one-group test design
threatened internal validity, as it lacked a comparison group and was vulnerable to the effect of extraneous variables that may have been present. Students in the sample may have participated in another academic program. Participating in another program had the potential to affect students’ academic performances and attitudes about postsecondary education, and, in turn, may have confounded the effect of the treatment. To address these threats, the questionnaire included a question that asked if the student had participated in any other academic outreach program that promoted students’ pursuance of postsecondary education, such as a summer bridge program sponsored by a community, church, or other postsecondary organization. Students who had, or who were co-currently participating in other outreach programming were not included in the study. Likewise, the research instrument was designed in a manner to assess students’ perceptions of the impact of the interventions specific to the research.

Population factors also threatened the validity of the study. The accessible population posed a threat to external validity in that only students who completed the questionnaire were considered for the sample. Likewise students who participated in the study did so voluntarily. Such students may have been naturally inclined to invest in the program and take advantage of what the program had to offer. Nonetheless, it was believed that the sample studied was representative of the larger population, in which case, transferability exists and naturalistic generalizations can be made.

A threat also existed with outcome validity. Although students may have indicated an increased interest in attaining a college education at the end of their first year in the program, it is probable that students’ attitudes may alter again before the first postsecondary semester following their engagement in the outreach programs.
Qualitative Design

The qualitative design presented some threats to reliability due to the weakness associated with informal interviews (Johnson & Christensen, 2004). Lessening threats to the credibility and confirmability of the qualitative design required that the researcher accurately portray participant accounts and meanings. Accuracy of these aspects was obtained through member checks and participant feedback, thorough field notes, and audio recording. A thorough review of the literature also supported confirmability. Executing the steps above established descriptive and interpretive validity. Finally, although the sample may not be proportional, it is believed that the sample studied is representative of the larger population, and generalizations can be made.
RESEARCH FINDINGS

The purpose of this study was to explore the impact of two precollege engineering programs on students’ postsecondary perceptions. This study was executed with a mixed-method approach, as a nonexperimental, explanatory, multiple-case embedded case study, (Creswell & Plano, 2011; Yin, 2008). Specifically, an online student survey proceeded focus group interviews for participants in the REHAMS and XCITE programs. This chapter presents the results of the study, including demographic information and outcomes of inquiry into the research questions. The discussion of the findings will be organized by the research questions and a priori themes, with quantitative findings followed by qualitative findings. From the findings, conclusions were made regarding students’ perceptions about the impact of the programs on their academic aspirations, college preparation, and performance.

Quantitative Data Analysis

Survey data addressed the question of how the programs impacted students’ attitudes about postsecondary matters, and participants’ projections about their involvement in postsecondary education. Likewise, the questionnaire supplied information about participants’ perceptions of the effectiveness of the respective programs in propagating broad, positive attitudes about postsecondary matters, namely regarding student participation, time and energy investments, and potential rewards.

Data was collected within four categories: demographic, student background, pre-engagement postsecondary perceptions, and post-engagement postsecondary perceptions. Analysis entailed the comparison of pre-intervention items to post-intervention items. This process, in which attitudes, experiences, and expectations before the intervention were compared to attitudes, experiences, and expectations after the intervention, allowed the researcher to investigate student perceptions about the impact of the interventions.
Missing data is common when doing research with human subjects (Pallant, 2010). To ensure complete data, the instrument was designed to restrict progression when participants attempted to move to the next item without answering the previous item. Nonetheless, an inspection of the data was done for missing information before conducting the necessary statistical tests. Data was analyzed once the researcher verified that data was not missing.

**Qualitative Data Analysis**

In addition to the student survey, focus group interviews were conducted with program participants. Because of the interest in the potential effects of programming on students in East Baton Rouge (EBR) parish, only participants in EBR schools were included in the focus group. Focus group interviews were approximately 30 to 45 minutes in length. REHAMS participants were interviewed in June 2012 for approximately 45 minutes, and XCITE participants were interviewed in July 2012 for approximately 30 minutes, following completion of the respective programs.

The focus group interview for the REHAMS program involved seven, African American 11\textsuperscript{th} and 12\textsuperscript{th} graders; four in 11\textsuperscript{th} grade, and three in 12\textsuperscript{th} grade. The focus group consisted of both male and female participants; four male, and three female. Of the seven participants, one 12\textsuperscript{th} grade female participant, and one 11\textsuperscript{th} grade male participant indicated that this was their second year participating in the REHAMS program. The remaining five participants indicated this was their first year of engagement in the program. The XCTIE focus group interview involved five, female 10\textsuperscript{th} grade students. Three of the participants were African American, and two were Caucasian. Each participant indicated that this was their first year participating in XCITE.

The focus group interviews were recorded, transcribed, and, then, imported into ATLAS.ti (2012) qualitative data analysis software as independent hermeneutic units. Likewise,
field notes were taken during the focus groups. Data collected through qualitative survey items 49 and 50 were also imported into the software. The survey responses and transcriptions were analyzed, and codes were assigned to meaningful segments. Segmenting was executed within a hierarchic of categories, and initial steps entailed coding for meaning within a priori themes identified in Pascarella’s College Impact Theory: student background, structural and organizational features, socializing interactions, and student effort (Pascarella, Terenzini, & Wolfe, 1986). In certain instances, the transcribed units were assigned to the subcategories performance, perception, preparation, and available resource, which were reflected in the student survey. Transcribed segments were also classified within emergent subcategories: family influence, program structure, interaction quantity, and interaction quality and socializing agenda.

Focus group interviews were informal and open, and guided by a list of questions predetermined by the researcher. The questions used are discussed above, in the research methods section of the study. Using guiding questions allowed participants to discuss their program experiences, while ensuring that concepts essential to answering the research questions were addressed. The transcribed interviews were analyzed for meaning pertaining to the following central categories: student background, institutional structure and organization, socializing interactions, and student effort. Classification of meaningful segments of the interviews into the aforementioned categories allowed the researcher to expound on the results of the student survey.
Quantitative Findings

Profile of REHAMS Program Participants

The student survey was administered to participants at the conclusion of the program in the summer of 2012. The 2012 REHAMS cohort consisted of 33 students. Each of the participants in REHAMS who were allowed to participate in the study completed the survey. However, of the 33 student surveys completed, 11 were not included in the analysis due to the completer’s involvement in other precollege programming, and the subsequent threat of interaction effect. The REHAMS sample, then, consisted of 22 participants. Table 4 shows the demographics of the sample.

The sample ages ranged from 15 to 17 years, with a mean of 16.09, and standard deviation of .61. Participant grades spanned 10th, 11th, and 12th grades, with an 11th grade mode. Seventeen participants attended schools in nine Louisiana parishes. The remaining five
respondents attended schools in other states. Six, or 27.3%, of the participants attend schools in East Baton Rouge parish, which made it the mode. Figure 2 shows the parish variable statistics.

| Table 4: REHAMS Descriptive Statistics |
|-----------------------------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                             | Statistic | Minimum | Maximum | Mean  | Std. Deviation | Skewness | Kurtosis |
| Age                         | 22      | 15.00    | 17.00   | 16.0909 | .61016        | .034 | .491 | .02 | .953 |
| Grade                       | 22      | 10.00    | 12.00   | 11.2273 | .61193        | .142 | .491 | .28 | .953 |
| Valid N (listwise)          | 22      |          |         |        |               |       |       |     |      |

Participant responses indicate that students in REHAMS exhibited behaviors associated with academic success prior to involvement in the program. One hundred percent of the sample expected to attend college. Seventeen participants, or 77% percent of the sample, stated that they had taken the ACT prior to REHAMS. Likewise, the sample reported cumulative high school grade point averages of 3.0 or above. Figure 3 shows the sample’s cumulative GPA.

Figure 2. REHAMS Parish Statistics
Household income ranged from one report of less than $10,000 to two reports of $150,000. The income variable had two modes, $50,000 to $59,000 and $100,000 to $124,000. Also noted was the People Per Household variable, which ranged from two in the household to six in the home, with a mode of four people in the household. Three participants reported living in homes that include two or more people, with incomes of $30,000 or less. Five participants reported receiving government assistance, specifically, four reports of Free and Reduced Lunch, and one report of someone in the household receiving Medicare/Medicaid. Figure 4 and Table 5 show the demographics of the sample.

Profile of XCITE Program Participants

Eighteen students participated in the 2012 cohort of the XCITE program. Participant ages ranged from 14 to 16 years, with a mean of 14.72, a standard deviation of .57, and a mode of 15 years. Participant grades spanned 9th, 10th, and 11th grades, with 10th being the mode. Three of the total population participated in other precollege programs. Because participating in other precollege programming posed a risk of an interaction effect, the three students were removed from the sample, which resulted in a sample of 15 XCITE participants.
Figure 4. REHAMS Household Income Statistics

The sample was composed of 14, 15, and 16 year old students, with a mean of 14.67 years, and a standard deviation of .62. Reflecting the total population, participants were from grades 9, 10, and 11, with a mode of 10th, of which nine of the participants classified. Table 4 shows descriptive statistics for the XCITE sample.

Table 6. XCITE Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N Statistic</th>
<th>Minimum Statistic</th>
<th>Maximum Statistic</th>
<th>Mean Statistic</th>
<th>Std. Deviation Statistic</th>
<th>Skewness Statistic</th>
<th>Kurtosis Statistic</th>
<th>Std. Error</th>
<th>Std. Error</th>
<th>Std. Error</th>
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<td>16.00</td>
<td>14.6667</td>
<td>.61721</td>
<td>.312</td>
<td>.580</td>
<td>- .404</td>
<td>1.121</td>
<td></td>
<td></td>
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<tr>
<td>Grade</td>
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<td>11.00</td>
<td>9.7333</td>
<td>.59362</td>
<td>.091</td>
<td>.580</td>
<td>- .171</td>
<td>1.121</td>
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<tr>
<td>Parish</td>
<td>15</td>
<td>3</td>
<td>65</td>
<td>28.80</td>
<td>19.247</td>
<td>.638</td>
<td>.580</td>
<td>- .509</td>
<td>1.121</td>
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<td>Current GPA</td>
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<td>5.00</td>
<td>4.4667</td>
<td>.51640</td>
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<td>.580</td>
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<td>Valid N</td>
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<td></td>
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<td></td>
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</table>

Sixteen participants attended schools in six Louisiana parishes. Figure 5 shows parish data. One member of the sample attends a school outside of Louisiana. East Baton Rouge parish was the variable mode, with four instances noted, which equals 26.7% of the sample. Figure 5 shows parish statistics:
Participant responses indicate that students in XCITE exhibited behaviors associated with academic success prior to involvement in the program. One hundred percent of the sample expected to attend college. Nine of the fifteen participants, or sixty percent of the sample, stated that they had taken the ACT prior to REHAMS. Likewise, the sample reported cumulative high school grade point averages of 3.0 or above. Figure 6 shows sample GPAs:

![Figure 6. XCITE Cumulative GPA](image)

Participants reported household income brackets ranging from $20,000 to $29,000 to more than $150,000. The mean household income was $70,000 to $79,000, and the mode was
$40,000 to $49,000. Two participants reported receiving government assistance in the form of Free and Reduced Lunch. The number of people in the household ranged from two people in the home to five in the household. Five participants reported having five people in their household, making that amount the variable mode. Figure 7 shows the household incomes of the sample:

Figure 7. XCITE Household Income Statistics

### Perceived Program Effect

**Detailing Impact: Subscales**

**Performance**

Survey items gathered information to provide descriptive data on students’ perceptions about their academic performance. This data gave insight into students’ views about their academic behaviors and their investment in educational activities. The questions pertaining to students’ perceptions of their pre- and post-program academic performance are identified in Table 8.

**REHAMS**

Multiple instances of perception change were revealed when the survey data was analyzed. For example, according to student reports, a notable change in the sample’s

<table>
<thead>
<tr>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Std. Error</th>
<th>Kurtosis</th>
<th>Standard Error</th>
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<td>15</td>
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<td>-.11</td>
<td>.58</td>
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</table>

Table 7: XCITE People Per Household
Table 8. Performance Questions

<table>
<thead>
<tr>
<th>Pre-program Performance questions:</th>
<th>Post-program Performance questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before participating in [the precollege program], about how often did you spend in a typical 7-day week doing each of the following?</td>
<td>Since participating in [the precollege program], about how often did you spend in a typical 7-day week doing each of the following?</td>
</tr>
<tr>
<td>• Reading and writing</td>
<td>• Reading and writing</td>
</tr>
<tr>
<td>• Studying/Doing homework</td>
<td>• Studying/Doing homework</td>
</tr>
<tr>
<td>• Working</td>
<td>• Working</td>
</tr>
<tr>
<td>• Extra-academic preparations (tutoring, college prep)</td>
<td>• Extra-academic preparations (tutoring, college prep)</td>
</tr>
<tr>
<td>• Extra-curricular activities, (clubs, hobbies, sports)</td>
<td>• Extra-curricular activities, (clubs, hobbies, sports)</td>
</tr>
<tr>
<td>Before participating in [the program], when working on a challenging assignment, how confident were you that you would succeed?</td>
<td>Since participating in [the program], when working on a challenging assignment, how confident were you that you would succeed?</td>
</tr>
<tr>
<td>Before participating in [the program], about how often did you talk with a counselor, teacher, or other staff member about college or career plans?</td>
<td>Since participating in [the program], about how often do you expect to talk with a counselor, teacher, or other staff member about college or career plans?</td>
</tr>
</tbody>
</table>

perceptions of the time they spend reading and writing was the shift from 30% of the participants reporting sometimes reading and writing before REHAMS, to 15% of the sample expecting to only read and write some of the time in their future schooling. From the data, it was evident that the 15% who no longer perceived only reading and writing some of the time, reported post-program perceptions of reading and writing often, with the percentages changing from 27% of the sample reporting “often” before REHAMS, and, then, 42% of the sample reporting “often” after REHAMS.

Participants also provided data which revealed changes in students’ perceptions about the time they spend studying and doing homework. Participants’ perceptions for this variable revealed positive changes with the reduction of 9% of the sample reporting rarely engaging in
study and homework before REHAMS, to 0% of the sample reporting rarely engaging in this activity. Based on the descriptive data, the students’ perceptions moved up the scale with more of the sample reporting studying and doing homework. The participants also reported gains in the changes associated with their perceptions of time spent doing extra-academic preparation before and after the program. Before the program, only 18% of the sample reported doing extra preparation. After REHAMS, however, 42% of the sample reported expectations of engaging in extra preparation often. Table 9 and Table 10 show this data.

From Figure 8, it was evident that REHAMS participants did not exhibit much change in their perceptions about their confidence levels before REHAMS and after REHAMS. However, REHAMS participants did reveal a sizable change in their perceptions about college and career planning. According to the sample, only 18% of them sought advice from a counselor, teacher, or staff member before taking part in REHAMS. Approximately 37% of the sample, however, expected to seek college and career counseling after having participated in the program.

<table>
<thead>
<tr>
<th>Pre-Program Variable</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading/Writing</td>
<td>0%</td>
<td>12%</td>
<td>30%</td>
<td>27%</td>
<td>30%</td>
</tr>
<tr>
<td>Studying/Homework</td>
<td>0%</td>
<td>9%</td>
<td>27%</td>
<td>40%</td>
<td>24%</td>
</tr>
<tr>
<td>Working</td>
<td>42%</td>
<td>12%</td>
<td>18%</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>Extra-academic Preparation</td>
<td>15%</td>
<td>21%</td>
<td>36%</td>
<td>18%</td>
<td>9%</td>
</tr>
<tr>
<td>Extra-curricular Activities</td>
<td>0%</td>
<td>0%</td>
<td>15%</td>
<td>21%</td>
<td>63%</td>
</tr>
</tbody>
</table>
Table 10. Post-REHAMS Performance Frequency

<table>
<thead>
<tr>
<th>Pre-Program Variable</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading/Writing</td>
<td>0%</td>
<td>12%</td>
<td>15%</td>
<td>42%</td>
<td>30%</td>
</tr>
<tr>
<td>Studying/Homework</td>
<td>0%</td>
<td>0%</td>
<td>18%</td>
<td>40%</td>
<td>42%</td>
</tr>
<tr>
<td>Working</td>
<td>12%</td>
<td>21%</td>
<td>18%</td>
<td>30%</td>
<td>18%</td>
</tr>
<tr>
<td>Extra-academic Preparation</td>
<td>6%</td>
<td>3%</td>
<td>30%</td>
<td>42%</td>
<td>18%</td>
</tr>
<tr>
<td>Extra-curricular Activities</td>
<td>0%</td>
<td>0%</td>
<td>15%</td>
<td>21%</td>
<td>63%</td>
</tr>
</tbody>
</table>

XCITE

XCITE participants also reported shifts in their perceptions about their academic performance. The sample's perceptions moved up the scale in a positive fashion, with participant data revealing gains in the percentage of students who perceived a change in their beliefs about the amount of time they did, and will, spend reading and writing. Approximately 56% of the sample expected to read and write very often after they participated in XCITE, which was an increase from the 33% of the sample that reported reading and writing very often before XCITE. XCITE participants also reported a change in perception when it came to the time allotted for extra-academic preparations. Approximately 17% of the sample reported doing extra-academic preparations often before participating in XCITE. The percentage increased to 29% of the sample affirming that, after their time in XCITE, they now perceived that they would do extra preparation often. Table 11 and Table 12 show this data.
Data represented in Figure 9 indicated that XCITE participants expressed a greater amount of change in their perceptions about their confidence levels before the program and after the program than did REHAMS participants. Twenty-two percent of the XCITE participants reported feeling very confident when facing a challenging assignment prior to their involvement in XCITE. After XCITE, 44% of the sample reported feeling very confident when faced with a

<table>
<thead>
<tr>
<th>Pre-Program Variable</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading/Writing</td>
<td>0%</td>
<td>11%</td>
<td>22%</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td>Studying/Homework</td>
<td>0%</td>
<td>0%</td>
<td>22%</td>
<td>28%</td>
<td>50%</td>
</tr>
<tr>
<td>Working</td>
<td>11%</td>
<td>28%</td>
<td>22%</td>
<td>22%</td>
<td>17%</td>
</tr>
<tr>
<td>Extra-academic Preparation</td>
<td>17%</td>
<td>33%</td>
<td>28%</td>
<td>17%</td>
<td>6%</td>
</tr>
<tr>
<td>Extra-curricular Activities</td>
<td>6%</td>
<td>6%</td>
<td>17%</td>
<td>22%</td>
<td>50%</td>
</tr>
</tbody>
</table>


Table 12. Post-XCITE Performance Frequency

<table>
<thead>
<tr>
<th>Pre-Program Variable</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading/Writing</td>
<td>0%</td>
<td>6%</td>
<td>17%</td>
<td>22%</td>
<td>56%</td>
</tr>
<tr>
<td>Studying/Homework</td>
<td>0%</td>
<td>6%</td>
<td>6%</td>
<td>28%</td>
<td>61%</td>
</tr>
<tr>
<td>Working</td>
<td>11%</td>
<td>11%</td>
<td>17%</td>
<td>39%</td>
<td>22%</td>
</tr>
<tr>
<td>Extra-academic Preparation</td>
<td>11%</td>
<td>6%</td>
<td>22%</td>
<td>29%</td>
<td>22%</td>
</tr>
<tr>
<td>Extra-curricular Activities</td>
<td>6%</td>
<td>0%</td>
<td>17%</td>
<td>39%</td>
<td>39%</td>
</tr>
</tbody>
</table>

challenging assignment. Moving to college and career planning data, the most notable numbers were the percentages of participants who reported rarely seeking support (27% before XCITE, and approximately 6% after XCITE), representing a positive change.

Figure 9. XCITE Confidence Perceptions

Perceptions

Survey items gathered information to provide descriptive data on students’ perceptions about postsecondary education. This data gave insight into students’ views about postsecondary
education and the college experience. The questions pertaining to students’ perceptions of their pre- and post-program postsecondary perceptions are identified in Table 13.

<table>
<thead>
<tr>
<th>Pre-program Perception questions:</th>
<th>Post-program Perception questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before participating in [the program], how important were reading and writing to you?</td>
<td>Since participating in [the program], how important are reading and writing to you?</td>
</tr>
<tr>
<td>Before participating in [the program], how important were math and science to you?</td>
<td>Since, participating in [the program], how important were math and science to you?</td>
</tr>
<tr>
<td>Before participating in [the program], how difficult did you expect it would be to get help with college schoolwork?</td>
<td>Since participating in [the program], how difficult do you expect it will be to get help with college schoolwork?</td>
</tr>
<tr>
<td>Before participating in [the program], did you expect to attend college?</td>
<td>Since participating in [the program], do you expect to attend college?</td>
</tr>
<tr>
<td>Before participating in [the program], what was the highest academic degree you expected to obtain?</td>
<td>Since participating in [the program], what is the highest academic degree you expected to obtain?</td>
</tr>
</tbody>
</table>

**REHAMS**

The survey data revealed that students’ perceptions about the importance of reading and writing indicated that, after participating in the REHAMS program, there were positive gains. Approximately 58% of the REHAMS sample reported perceiving reading and writing as important before they participated in the program. That number rose to approximately 70% of the sample when asked how they felt about those areas after participating in REHAMS. Likewise, participants’ reported a change in perceptions about the importance of math and science after participating in REHAMS, with 88% of the students reporting that they felt those subjects were important prior to REHAMS, and then, 97% reporting that they felt the subjects were important after REHAMS.
The question on students’ college aspirations elicited the same response for the perceptions of the sample’s perceptions of their pre-program aims and their post-program aims. One hundred percent of the respondents indicated that they aspired to attend college before they entered REHAMS, and the participants stated that their degree goals were the same after REHAMS. While aspirations for degree attainment did not change, there was some change in participants’ reports of the type of degree they would obtain. REHAMS participants claimed that, prior to REHAMS, the majority of them, (36%), expected to earn a Bachelor’s degree. Participants’ responses about post-program objectives reveal that the sample’s aims shifted up the scale, with 48% of them desiring a Master’s degree, and only 27% of them aspiring to earn a Bachelor’s degree. Also noted, is that the number of participants who claimed to have been unsure about the type of degree they wanted to earn changed. Participants claimed that, prior to REHAMS, 9% of them were unsure about what degree they would earn. However, after being in REHAMS, only 3% of the sample was unsure about the level of degree they desired.

**XCITE**

The XCITE survey data on students’ perceptions about the importance of reading and writing revealed little change. Sixty-one percent of the XCITE sample felt that reading and writing were important prior to the program, and 61% of the sample reported perceiving those subjects as important following the program. For math and science, 72% of the sample claimed that they felt that those subjects were very important before participating in XCITE. That claim was followed by, 78% of the sample reporting that, after participating XCITE, they considered math and science to be very important.

Responses to the question on students’ college aspirations did not reveal any changes in students’ beliefs about their pre-program perceptions and their post-program perceptions. One hundred percent of the respondents indicated that they aspired to attend college before, as well as
after, they participated in XCITE. Inquiry into the level of degree the participants desired revealed a limited amount of change in the data. Eleven percent of the sample claimed that, prior to XCITE, they were not sure what degree they wanted to earn, and, then, after the program, 61% and 11% responded that they aspired to earn Master’s degree and Doctoral degrees, respectively. After XCITE, none of the participants reported being unsure about the degree they desired, and 78% of the sample reported wanting to earn a Master’s degree, which represents increased aspirations. The percentage of participants claiming to aspire to a doctoral degree after their time in XCITE remained the same, (11%).

**Preparation**

Survey items also allowed for descriptive data on students’ perceptions about their academic preparation, and gave insight into students’ beliefs about their level of academic preparation before and after participation in the programs. The questions pertaining to students’ pre- and post-program academic preparation are identified in Table 14.

<table>
<thead>
<tr>
<th>Pre-program Preparations questions:</th>
<th>Post-program Preparation questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before participating in [the program], about how many hours did you expect to spend in a typical 7-day week preparing for class while in college?</td>
<td>Since participating in [the program], about how many hours do you expect to spend in a typical 7-day week preparing for class while in college?</td>
</tr>
<tr>
<td>Before participating in [the program], how prepared did you feel for college-level schoolwork?</td>
<td>Since participating in [the program], how prepared do you feel for college-level schoolwork?</td>
</tr>
<tr>
<td>Before participating in [the program], how difficult did you expect it would be to pay college expenses</td>
<td>Since participating in [the program], how difficult did you expect it would be to pay college expenses</td>
</tr>
</tbody>
</table>
REHAMS

The REHAMS sample data indicated that there was change in students’ perceptions of how much academic-preparation time they expected to expend per week while in college before they took part in REHAMS and after engaging in REHAMS. Twelve percent of the sample claimed that, before REHAMS, they did not expect to have to prepare for class, but, after REHAMS, only 3% anticipated not needing to prepare for class. The percentage of claims by participants who expected to expend 1 - 5 hours on class preparation went from 27% before REHAMS, to 12% of the sample after REHAMS. Also after REHAMS, 30% of the sample expected to dedicate 6 - 10 hours to class preparation, which was nine percent less than the samples pre-program claims. The biggest changes were found with students who held expectations of 11 – 15 hours of class preparation. Only 3% of the sample claimed to have believed that, prior to REHAMS, only 11 – 15 hours of preparation was necessary. After REHAMS, 40% of the sample expected to complete 11 – 15 hours of preparation. These findings are represented in Figure 10.

Figure 10. REHAMS Hours of Preparation Expectations

![Bar chart showing changes in preparation expectations before and after REHAMS.](chart.png)

0% 5% 10% 15% 20% 25% 30% 35% 40%
0 Hrs 1 - 5 Hrs 6 - 10 Hrs 11 - 15 Hrs 16+ Hrs

Pre-REHAMS Preparation Expectations

Post-REHAMS Preparation Expectations
There was also change noted in the participants’ perceived levels of college preparation before and, then, after participating in REHAMS. Figure 11 includes descriptive data generated for the question, “how prepared did you feel for college-level schoolwork?” Ultimately, based on participants’ reports of their perceptions on the matter, the percentage of students who felt not at all prepared for college-level work decreased from a pre-program measure of 12% to 9% percent of the sample following engagement in the program. The portion of the sample who reported perceiving themselves as being very prepared following the program was 12%, which was an increase from reports by the sample that only 3% of them felt very prepared before engaging in REHAMS.

![Figure 11. REHAMS College Preparation Perceptions](image)

When asked to rank their feelings of preparedness for securing college financing, participant data indicated that participants’ perceived themselves to have greater confidence about how they would cover their college tuition expenses following participation in REHAMS. Data outcomes indicated that participants believed that, after going through REHAMS, they did
not view the process of securing college funds as an extremely difficult one. Based on student reports, initially 15% of the sample believed that they would find financing college extremely difficult. Only 3% of the sample reported, however, that they would find the process of financing college to be difficult after their time in REHAMS. Figure 12 shows descriptive statistics for this data.

Measurement of participants’ perceptions about the difficulty the sample perceived they would encounter in securing academic assistance before and after the program revealed notable change. For instance, 12% of the participants claimed that, before REHAMS, they believed receiving help with schoolwork would not be difficult at all. Immediately following that assertion, 48% of the sample reported that, after REHAMS, they believed getting assistance with college-level work would not be difficult at all. Figure 13 shows a representation of the data.

Figure 12. REHAMS Tuition Preparedness Perceptions

![Graph showing Tuition Preparedness Perceptions](image)
**XCITE**

Based on the XCITE sample data, there was change in students’ perceptions of how much academic preparation time they expected to expend while in college before they took part in XCITE, and, then, after engaging in XCITE. Thirty-nine percent of the sample claimed that, before REHAMS, they expected to have to prepare for class 1 – 5 hours per week. After XCITE, the percentage of participants who had this expectation dropped to 17%. Also after REHAMS, 33% of the sample expected to dedicate 11 - 15 hours to class preparation, which was 16% higher than the samples pre-program claims. Finally, 22% of the participants claimed to have expected to prepare 16 hours or more before XCITE, and, then, 33% of them made the same claim following their time in XCITE. These findings are represented in Figure 14.

When asked about their level of preparedness for college-level work, 28% of the XCITE sample reported feeling not at all prepared prior to participating in the program. Then, only 11%
of the sample maintained that they felt not at all prepared for college following their participation in the XCITE program. On the other end of the scale, 11% of the sample reported being very prepared for college before entering the XCITE program. Based on participant reports, that number grew after the program, and the data indicated that 22% of the sample reported feeling very prepared for college. The biggest change was with the percent of participants who reported feeling prepared. The pre-program measure of students who felt prepared was 22%. When asked to rank their post-program perceptions of the matter, 39% of the sample reported feeling prepared, which is a 17% difference. Figure 15 shows descriptive statistics for this data.
When asked to rank their feelings of preparedness for securing college financing, participant data indicated that the sample perceived themselves to have greater confidence about how they would cover their college tuition expenses following participation in XCITE. Data outcomes indicated that participants believed that, after going through XCITE, they did not view the process of securing college funds as an extremely difficult one. Based on student reports, initially, 17% of the sample believed that they would find financing college extremely difficult. Only 6% of the sample reported, however, that they would find the process of financing college to be difficult after their time in XCITE. Figure 16 shows descriptive statistics for this data.

Figure 16. XCITE Tuition Preparedness Perceptions

Perceptions about the difficulty the sample perceived they would encounter securing academic assistance before and after the program revealed change. According to participant reports, 17% of the participants claimed that, before XCITE, they believed receiving help with schoolwork would not be difficult at all. Immediately following participation in the program, 56% of the sample reported that they believed getting assistance with college-level work would not be difficult at all. Figure 17 shows a representation of that data.
Available Resources

The following set of questions was used to gather data on students’ awareness of resources and services available to them that support their postsecondary academic efforts. The objective is to determine if participants’ left their precollege program more informed than when they entered. Table 15 lists available resource questions:

<table>
<thead>
<tr>
<th>Pre-program Available Resource questions:</th>
<th>Post-program Available Resource questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before participating in [the program], how difficult did you expect it would be to get help with college schoolwork?</td>
<td>Since participating in [the program], how difficult do you expect it will be to get help with college schoolwork?</td>
</tr>
<tr>
<td>Before participating in [the program], how difficult did you expect it would be to pay college expenses?</td>
<td>Since participating in [the program], how difficult do you expect it will be to pay college expenses?</td>
</tr>
<tr>
<td>Before participating in [the program], how did you expect to pay for college?</td>
<td>Since participating in [the program], how do you expect to pay for college?</td>
</tr>
<tr>
<td>N/A</td>
<td>Did [the program] provide information about financial aid?</td>
</tr>
<tr>
<td>N/A</td>
<td>[The program] gave me the opportunity to discuss career goals with an expert in the field*</td>
</tr>
<tr>
<td>N/A</td>
<td>[The program] gave me the opportunity to speak to someone about my school problems*</td>
</tr>
</tbody>
</table>

*Scaled item: Strongly disagree, Disagree, Somewhat disagree, Somewhat agree, Agree, Strongly agree
Figures 18 is a representation of student responses to questioning about opportunities they were given to discuss their career goals with someone in the field. A majority of the participants in the REHAMS sample indicated that they had an opportunity to speak to an expert about their career goals. Specifically, 68% of the REHAMS sample either agreed or strongly agreed that they were given that opportunity. Similarly, 64% of the REHAMS sample agreed or strongly agreed that they were given an opportunity to discuss school problems during the program. Figures 19 is a representation of student responses to questioning about opportunities they were given to discuss school problems.

Figure 18: REHAMS Career Planning
Figure 19: REHAMS Advising Opportunity

Figures 20 is a representation of student responses to questioning about opportunities they were given to discuss their career goals with someone in the field. A majority of the
participants in the XCITE sample indicated that they had an opportunity to speak to an expert about their career goals. Specifically, 80% of the XCITE sample either agreed or strongly agreed that they were given that opportunity. Similarly, 73% of the XCITE sample agreed or strongly agreed that they were able to speak with someone about school problems. Figures 21 is a representations of XCITE student responses to questioning about opportunities they were given to discuss school problems.

Figure 20: XCITE Career Planning

Figure 21: XCITE Advising Opportunity

Figure 22 also shows change in participant perceptions’ perceptions; specifically, those regarding the coverage of their tuition expenses. Analysis confirmed that there was a difference between pre-program expectations, and post-program expectations for both samples. Before REHAMS, 9.1% of the sample were unsure of how they would pay for college. Four and a half percent of the sample expected to pay for college themselves, and another 4.5% expected family to pay their college expenses. Finally, 73.3% of the sample expected to use scholarship and grant
awards to cover tuition expenses. After REHAMS, 4.5% of the sample still expected family to pay for college, but 95.5% expected to use scholarships and grants to pay their tuition. Also revealed from the data was that 100% of the respondents reported that financial aid information was disseminated during the program.

In the case of XCITE, before the program, 6.75 expected to pay for college themselves. Twenty percent expected family to pay tuition fees, and 73.3% of the sample expected to use scholarship and grant awards to cover tuition expenses. After XCITE, 13.3% expected family to pay for college, and 86.7% expected to use scholarships and grants to pay tuition. Also noted is
that 100% of the XCITE sample reported that financial aid information was disseminated during the program. Figure 22 shows REHAMS Tuition Expectations.

**Perceptions of Program Value**

Two items were included in the survey through which the researcher asked respondents about their perception of program impact: 1) What impact has participating in a precollege program had on your beliefs about your academic performance, and 2) What impact has participation in a precollege program had on your college plans? Both items elicited qualitative responses. Discussion of the findings for these questions is included in the qualitative analysis section of this chapter.

**Case Comparisons**

Addressing this question permitted testing for differences between the two independent groups, REHAMS and XCITE. Because the sample does not meet the assumptions of normality, a non-parametric technique must be used (Pallant, 2010). The Mann-Whitney U Test is the non-parametric equivalent of the t-test for independent samples, and it was used to compare the two groups.

While the t-test compares the means of two groups, the Mann-Whitney U Test compares group medians. The REHAMS median score is 60.50, and the XCITE median score is 59. Table 16 shows the group statistics.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22</td>
<td>60.50</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>59.00</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>60.00</td>
</tr>
</tbody>
</table>

Table 16: Program Comparison Report
As shown in Table 18, the test revealed $U=135.50$, a $Z$ value of -.915, and a significance level of $p = .36$. Because the probability level is not less than or equal to .05, there is no statistically significant difference in the post-program perception scores of the two groups, REHAMS and XCITE. Table 17 and Table 18 show the Mann-Whitney Test results.

**Qualitative Findings**

Qualitative data was coded for meaning within a priori themes identified in Pascarella’s College Impact Theory: *student background, institutional structure and organization, socializing interactions, and student effort* (Pascarella, 1985 as cited in Carter & McClellan, 2000). Segmenting qualitative data into these themes enhances quantitative findings, as well as establishes connections between participants’ discussion of program features, and how those features facilitated socialization. In certain instances, the transcribed units were also assigned to the subcategories *performance, perception, preparation*, and *available resources*. The aforementioned subcategories are in line with categories identified in the quantitative procedures. Transcribed segments were also classified within emergent subcategories: *family influence, program structure, interaction quantity* and interaction *quality*, and *socializing agenda*.

| Table 17. REHAMS/XCITE Mann-Whitney U Test Ranks |
|------|------|--------|--------|
|     | Group | N    | Mean Rank | Sum of Ranks |
| Post Sum | 1 | 22 | 20.34 | 447.50 |
|        | 2 | 15 | 17.03 | 255.50 |
| Total | 37 |    |        |        |

**Student Background**

To better understand the student makeup of the program, participants were asked about matters pertaining to their pre-collegiate characteristics. Though not directly asked about their
grade-level experiences during the interviews, the guiding questions did elicit responses regarding the focus groups’ pre-collegiate behaviors.

<table>
<thead>
<tr>
<th>Table 18. REHAMS/XCITE Mann-Whitney U Test Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Post Sum</strong></td>
</tr>
<tr>
<td>Mann-Whitney U</td>
</tr>
<tr>
<td>Wilcoxon W</td>
</tr>
<tr>
<td>Z</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
</tr>
<tr>
<td>Exact Sig. [2*(1-tailed Sig.)]</td>
</tr>
</tbody>
</table>

**Family Influence**

Participant responses revealed evidence of family interest and influence in the students’ academic performances. Several students talked about parents requiring them to participate in the program, and about parents’ expectations that the student would pursue postsecondary endeavors. In particular, one REHAMS participant shared that he had always aspired to attend college, and that this goal was due in part to parental influence. The participant stated that, while his father is a business owner, “it’s not like office jobs; it’s like hard labor stuff.” The participant explained that “when I was 12 [my father] made me…work with all the other [employees] and he explained to me, ‘I am doing this [so you] see how this is. You don’t want to be doing this for the rest of your life.”

Another REHAMS participant spoke about how his parents were involved in his education, and in academic decision making. According to this participant, REHAMS exposed him to the autonomy associated with college. The student made the following comment:

Being at this campus shows how you have to be more independent, with doing things on your own, making your own decisions, because in high school you have
parents telling you when to do your homework, or when to go to bed, when to study, but in college you have to make those decisions. They tell you what to do at home.

There were other instances of *family background* during the REHAMS focus interview. For instance, when asked about the most inspirational feature of the program, a female REHAMS participant shared an interesting experience regarding family influence. The participant revealed that her aunt was the greatest influence to her. The participant stated “I think, well of course, I will say my aunt [was the biggest inspiration] since she is successful now and she has been in the business for 30 years; just seeing the people who worked their way up.” The participant went on to clarify that her aunt was an engineer at a large, nearby company, and was, coincidentally, a presenter featured among the weeks activities.

The XCITE focus group produced similar responses. For example, one participant divulged that her parents insisted that she practice presenting to audience as part of an exercise to “break [her] out of [her] shell.” That particular participant also talked about how present her parents are. She discussed how she felt that her parents hover, saying “My parents are right there; they’re crazy.” Because of their extreme level of involvement, the participant shared how, prior to her involvement in XCITE, she intended to enroll at an out-of-state institution. However, after her XCITE experience, and exposure a demanding, college-type schedule, her postsecondary considerations adjusted to include attending the RU institution in which XCITE is located.

Another participant disclosed that “[her] parents really stressed education.” The participant noted that taking part in the XCITE program was based upon her parents’ desire. In the participants’ own words,

I was forced to go to this camp. When my mom told me that I was like “What! …So I was like really mad about that, but then when I really got into the camp, I was like this is really fun. We are not doing math problems and stuff like that! I am coming back next year.
At a different point in the interview, the participant shared that her parents pushed her to “reach for the sky,” exceed their achievements, and make them proud. Specifically, the participant stated

My parents really stressed education a lot, and I am pretty sure a lot of parents do. [Parents] always want you to do better than what they have or what they did. I just want to reach to the sky, really just make my mom proud and stuff like that.

This sentiment was echoed by other participants. For instance, multiple XCITE students even implied that their parents’ desire for them to go to college left little room for any other consideration. One participant stated that her parents have been adamant that “[she] pretty much ha[s] to go.” Similarly, another XCITE participant claimed that her parents “have always been ‘you are going to college.’” The participant went on to explain that

Some people’s parents are like you have to get all A’s, but my parents are like if you try your best and study really hard and you get a B, than that’s what you get. So, they are cool with that, but as long as I try hard and they really want me to do well.

While her parents may prioritize effort, the participant did clarify that her “parents have always talked about [my] education and stuff, and they [always are pushing for good grades.” The participant even acknowledged that her father was responsible for introducing her to the XCITE program. Another participant stated that, while she has always wanted to attend college, her parents were not receptive to entertaining a non-postsecondary alternative; rather, college really the only option.

In fact, all of the focus group participants indicated they had college aspirations prior to engaging in REHAMS and XCITE. While the sentiment, “I always wanted to go to college,” was representative of the focus group students, the perception that the precollege program experience reinforced students’ postsecondary aspirations was also widely shared. As one respondent offered, “REHAMS made [her] want to seek a further education; like getting [her] Ph.D., or [her] MBA.”
**Pre-collegiate Performance**

A review of the responses provides insight into the participants’ perceptions of their pre-collegiate behaviors, and the type of students who participate in REHAMS and XCITE. While a few participants stated that they were required to participate in their program, statements suggested that most students willingly participated, with multiple participants asserting that they pursued participation after becoming informed about the programs. Responses such as these suggest characteristics inherent within the student that support academic success.

For example, a REHAMS focus group participant vocalized the sentiment seen in the survey sample responses when she said I always wanted to go to college, but REHAMS made me want to seek a further education, like getting my Ph.D. and my MBA.” On the survey, a REHAMS participant wrote about the impact of the program on their academic performance in the following way: “after attending this precollege program, I feel that my academic performance [before] was ok. I think that I have to work much harder now to get scholarships and high ACT scores because of competition.” A member of the REHAMS focus group talked about how his beliefs about the prioritization of earning a high secondary grade point average had been impacted by his participation in the program. The participant shared

I also learned from [tour of] the Motiva plant…a lot of the engineers were saying that our grades are important, [but] the GPA is not the most important thing, and that you [should] get a job, you [should] to try to get an internship, so you will have experience because that is one of the most important things to getting a job is the actual experience because it’s not going to help you; if you know the mechanics of how it works, but you don’t actually know how to do it. I just thought that was very interesting because it kind of reduces some of the pressure… Before that, I thought my GPA was everything and that you had to keep your grades up as high as you could, and that was like the only thing you should worry about. But you kind of realize you have to manage your GPA with work, whether it be like in an internship, or like where you go off and actually do industry work, or just a side job where you are getting money to pay for school and where you are living. You just have to manage everything, and you can’t just focus solely on one thing.

In the same vein, a group member discussed knew knowledge he derived from his REHAMS experiences. The participant alluded to his prioritizing of his high school GPA. The student said
Before I came here I didn’t know the importance of getting internships, but every speaker that came stressed that getting internships to help get a job after you graduate and the GPA thing, they said the GPA helps you get the internship, but if you can’t perform, it doesn’t really matter.

Another participant shared revelations he made regarding his pre-collegiate behaviors and how those actions would align with the insights he gleaned from his REHAMS experience. The participant spoke about having a new understanding about how his energies, specifically team sports and academic efforts, would be ordered. The student stated

For me, by playing sports and football and stuff like that, I learned how to manage my time, because they say engineering was one of the toughest fields that you could go into college. So for me I learned personally that even if I am playing sports, I have to still study as hard as I can to stay at my highest potential in the engineering program… So for me, time management with studying and playing football is a big, big thing.

Similarly, a group member expressed that taking part in the REHAMS experience taught him that being college student means being more independent. Said the participant, “being at this campus shows how you have to be more independent, with doing things on your own, making your own decisions.” The participant explained further, “in high school, you have parents telling you when to do your homework, or when to go to bed, when to study. But in college, you have to make those decisions.”

Other REHAMS participants spoke about revelations that came about from their REHAMS experience. For example, one participant spoke about how her experience at a small high school, and how that aspect of her background had lead her to pre-program plans to attend a small college. The student disclosed the following: “I go to a relatively small high school, so I always thought I would go to a small college, because that all I know. But [now], being up here, I am comfortable…I could go to a big university.” The participant attributed her new way of thinking to the program, and to the “new sense of pride that [she could] do…more,” that she gained from the experience.
During the interviews, an XCITE participant gave insight into her attitudes about academic performance:

Some of the higher requirements really surprised me in some of the programs. Other than that, I have high expectations for college. Me and [another participant] go to [a local high-performing high school] and you really have to study there, so, I am used to staying up late, studying like that and I am really trying to get higher. I am really trying to go up and beyond to get whatever I can get. I have a 3.7 right now, I am trying to get further and keep improving and stuff like that. Just keep it going, keep forward.

Another participant in the XCITE program indicated that she perceived herself to be intrinsically motivated and academically engaged, supporting this with the statement that she liked to do presentations, and talk in front of people. She claimed that she took it upon herself to hone that predilection by taking classes that require that exercise because she “had to break out of [her] shell.” Later in the interview, the same participant stated that participating in the XCITE program was her own choice. Additionally, the student revealed that prior to engaging in XCITE, she participated in another week-long precollege program, which signifies the students' self-motivation and self-interest in academic development. She also admitted that, of the two programs, she was most excited about REHAMS.

Another XCITE student discussed how she has always work hard in school and strived for good grades. The participant attributed her drive for academic success to her parents, and their positive influence and involvement in her education. A different XCITE participant divulged that she earned good grades in school in an attempt to secure acceptance into an out-of-state postsecondary institution. The student revealed, “I want to get away from my parents. The only way I can leave [my] house is if I get a high[er] education.” She admitted that her “parents are strict [about] education…[and] that’s the only way I am getting out.” Finally, a REHAMS participant also exhibited strong academic behaviors by highlighting his interest in student engagement and academic success by revealing that he is committed to team sports at his school, and is equally committed to doing well academically.
Postsecondary Perceptions

Focus group participants also discussed their pre-collegiate perceptions about postsecondary matters. For instance, a student stated that, prior to his involvement in REHAMS, he was under the impression that faculty offered very little academic support. He did not realize that students could seek academic assistance from professors outside of class. After his week in REHAMS, however, his perceptions about college encompassed the notion that “a college professor [will] help me…get information that I need.” Another REHAMS participant gained a different perspective about postsecondary faculty from his time in REHAMS that ultimately altered his pre-collegiate perceptions. The participants said,

Another think we learned was about the professors. Their job isn’t to teach you 100%... 70% of their job is research, and the other 30% is teaching you. So, you just use them as a source, but you really have to learn on your own, and only depend on yourself.

Concerning a different type of support, one REHAMS participant stated that his pre-collegiate knowledge about financial aid was very limited. Participating in the program, however, “certainly gave us information we didn’t know.” The participant went on to posit that, like him, there are other students who have not been supplied with valuable information, such as “all the internships and opportunities and [student-oriented] groups in college.”

Concerns about the rigorous nature of college-level work, particularly in the field of engineering, were common among participants. One participant disclosed that she believed successfully juggling the responsibilities of college life to be impossible. Taking part in REHAMS, however, motivated that student, and convinced her that it is possible to successfully balance college with other responsibilities, and that she “can do [engineering]; it is feasible!”

Also worth noting is that participant responses regarding pre-collegiate perceptions were more likely to focus on career and the workforce, and life beyond college, rather than on actual postsecondary subject matters. For instance, one REHAMS participant talked about his pre-
program perceptions which held that earning a high grade point average should be a college-bound student’s top priority. However, after the REHAMS experience, in which the participant was privy to the advice of professional engineers, the participant grew to appreciate first-hand, engineering experience. The student stated that he learned that “GPA is not the most important thing;” rather, when preparing oneself for the workforce, “the most important thing to [get] a job is the actual experience.” Based on REHAMS activities and experiences, the participant’s pre-college perceptions that focused primarily on his grade-level and, eventually, his college-level GPA, ultimately adjusted to include the valuing of first-hand and internship experience. The student went on to share that, prior to the program,

I though my GPA was everything, and that you had to keep you grade up as high as you could, and that was like the only thing you should worry about, but you kind of realize you have to manage your GPA with work, whether it be…an internship, or, like, where you go off and actually do industry work, or a side job where you are getting money to pay for school…You just have to manage everything, and you can’t just focus solely on one thing.

There were participants who indicated that the program had little effect on their postsecondary perceptions. For instance, a REHAMS participant wrote “participating in a precollege program has not changed my beliefs about my academic performance.” One XCITE survey completer wrote that the program “hasn't changed my beliefs. I still think I need to do well just as I did before coming here,” which was similar to another XCITE survey completer who simply stated her postsecondary aspirations were essentially the same.

**Institutional Structure and Organization**

Statements regarding program or institution structure, such as size, design, policies, procedures, purpose, or goals were coded as *institutional structure and organization*.

**Program Structure**

Descriptions of the program were coded as program structure. Segments in which participants spoke about program agenda, procedures, size, or expectations were classified in this
subcategory. REHAMS participants discussed the size, with one interviewee explaining that the 35 student cohort was “big, but it’s still small enough.” Another participant expounded, “it’s small enough for us to get to know everybody.” XCITE participants did not comment about the size of their program, which was smaller than REHAMS. XCITE consisted of 18 students.

Though XCITE participants did not discuss program size, there was discussion about the focus on females in engineering and the exclusion of male participants in the program. For one participant, the exclusion came as a surprise: The participant admitted, “I was excited about this camp. It was just when we first got [here], it was like, where are the [boys]? I didn’t know it was all girls. Nobody informed me [of] that.”

Students were housed in the residential halls during their engagement in the program. REHAMS and XCITE focus group members talked about this experience. A REHAMS participant perceived the living arrangement as beneficial to the socialization of participants. The participant claimed that living in the residential halls facilitated collaboration among students. According to the student, living on campus was “easy because we are all in the same dorms with each other…and it’s like you’re meeting new people; you’re rooming with somebody that you don’t know from different areas and different states, from people out of state.” Extending the topic, another focus group member felt that living on campus was beneficial for those participants who “don’t usually socialize.” The participant felt that “living or staying in the same room with someone that you don’t know kind of forces you to talk to them.” Another student added that living on campus required participants to “choose between…as social life and school.”

On the topic of residential housing, an XCITE group member even considered basing her future college plans on her XCITE dormitory experience. The participant made the statement, “I actually like the dorm we were staying in. It was very clean and I guess that’s just how the
honors colleges are though. So, it pushes me kind of, a little bit, to go to the honors dorm.”

Another XCITE participant stated that she liked the program’s housing arrangement, and expressed a belief that living in residential housing impacted the development of meaningful relationships among program participants, as well as between participants and program staff. The participant approved of the living arrangements because she “like[d] the college experience.”

Student counselors were employed to monitor participants, and these individuals were mentioned in both focus groups. REHAMS participants expressed positive feelings, positing that the counselors were good sources of information. One participant made the statement, “our counselors were able to give us advice on what college is, and how to handle the problems you come in contact with.” This statement was supported by a cohort member’s comment that “even our counselors were able to give us advice on what colleges and how to handle the problems you come in contact with, but it was a good experience.” Another REHAMS group member followed with “counselors here, they are not that far [in age] from [us], so they became a peer group.” In the same vein, another commenter posited the following:

I recommend if you are going to go to college, at least have a role model and a mentor, especially a mentor, somebody who you can go to and ask for advice, because that’s what the counselors are like to use, they are mentors.

XCITE participants also spoke positively about program counselors. One participant appreciated that the counselors were in the engineering program at the university because it allowed counselors to share their experiences with program participants. The following comment mirrors this sentiment: “I thought it was really cool that the counselors were in the engineering, they were students, and we could talk to them about their college experiences.” Yet another group member spoke well of the counselor feature of the program as she talked about how she became very comfortable with the counselors, and how she began to perceive them as her sisters.
Both groups of students discussed the intensity of the program schedules. The volume of interactive tours and activities, lectures, and presentations was high, according to REHAMS and XCITE focus groups. Both groups expressed that they were tired from the demanding schedule. REHAMS participants expressed fatigue. During a request to the group to describe the program, one group member unexpectedly interjected, “I’m going to be so tired tomorrow.” The participant communicated that the busy schedule was the reason for his exhaustion. The group members also claimed that there were no breaks, and one felt that the schedule was “so jam-packed full of stuff to do.” When asked about what features did not work in the program, a REHAMS participant responded, “what didn’t work? Trying to stay awake! Half the lectures, we were fighting off sleep, and some e of us lost; most of us lost.” Another comment made by a student about the demanding schedule gives a glimpse into what program participation entailed:

The schedule was really packed. You had lecture to lecture, tour to tour, like after these you went back into a lecture, then you did group activity. Presentations, we just started working on, we have to present today, so we have to practice, but we just finished them yesterday, so… you got to get your stuff done. Work hard, play later. The schedule was really packed.

An XCITE participant said “we were sleepy and falling asleep and stuff. It was like we had to force ourselves to try and connect because we were being rushed and everything.” At a different point in the conversation, the same participant spoke again about the demands of the program. When discussing how she enjoyed the opportunities the participants had to socialize, the participant lamented about how being tired interfered with XCITE participants ability to “hang out.” Following her comments, another XCITE focus group member expressed a desire for down time during the week; specifically, the student stated, “I think we maybe should have two hours to ourselves or one hour to ourselves, like the beginning of the morning, I don’t know, some free time.
It is important to note that participants in REHAMS and in XCITE suggested that the programs be extended to more than a week to better accommodate the number of activities. When asked what did not work about the program, a REHAMS participant said “What didn’t work? Trying to stay awake! Half the lectures we were fighting off sleep and some of us lost.” An XCITE participant echoed the sentiment with “I think we should have more free time… because I was tired.” This statement was expanded by a group member who said, “I would rather the camp be an extra day and we get some free time and wake up later and stuff. I would rather that because I am exhausted.”

Another debatable program feature was a culminating presentation. REHAMS participants did not make significant comments about the exercise. XCITE focus group members did, however. Participants were required to do a five-minute presentation on a woman in the field of engineering. Two participants stated explicated that they did not see the value in the presentation. One participant, however, responded to her group members stating that she liked the presentation. One of the group members who opposed the presentation exercise and offered suggestions for improvement, stated the following:

We had to find a woman that really changed the history of th[e] discipline. It really wasn’t that fun. What I think we should do, what I think they should improve on, I think they should give us something we build on what discipline we are interested in doing, and by the end we should present what we built. I guess I like hands on things and the same for like the presentations. I think that the slides should probably be like a minimum of 15 slides or 10 slides and they give us a tour of what they do at LSU or something like that. And they should give us something to build. Like with civil [engineering], she did that, and that was really fun. That was really interesting.

Available Resources

For the researcher, available resources refers to products, experiences, or services offered through the program or institution to program participants. Participants spoke about becoming more knowledgeable about resources available, as well as building expectations about how the resources may be used to their advantage. For instance, on the subject of academic support, a
REHAMS participant commented, “Another thing we learned was about the professors. Their job isn’t to teach you 100%; don’t expect them to teach you. Seventy percent of the job is research and the other 30% is teaching you, so you just use them as a source.” The student then posited that establishing a relationship could produce other advantages for students beyond coursework support. The participant ventured that students should “have a good relationship with the professors because…if you are interested in the research [the professors] are doing sometimes they will let you come and do the research with them.” REHAMS participants also learned about other precollege outreach. One participant shared “We also learned about other pre-college programs. Like the ones you can do after you graduate from high school…that one was really helpful.

XCITE participants only mentioned academic support mechanisms after prompting from the researcher. XCITE participants were asked by the researcher if program presenters discussed campus tutoring resources. The participants responded in the affirmative, confirming that tutoring was in fact discussed with them. No other comments were made about program features through which students were provided information about available resources. In fact, one participant went so far as to comment “I don’t even really know all of [the university] because it’s so huge. I didn’t even know most of that stuff was there.” Because she intends to attend the university, the participant felt as if program coordinators neglected to provide sufficient information about what features and resources are present and available at the institution; rather, the program focus seemed to be on implementing a full and demanding program calendar.

The REHAMS focus group also talked about a career survey that is part of the REHAMS agenda:

The career survey we took was really helpful. I know that [there is] the class they have here, [where] you have to pay to take that survey, and we had the opportunity to do it for free, which was really helpful, because it broke down everything. “The participant expounded, “[the survey] tells you the top ten jobs that you would probably want to be
interested in, based on the answers you gave on the survey, and things you were not interested in…so, that was very helpful.

Echoing that position, another participant made the following statement about the instrument: “I figured out what kind of person I am in the workplace from that career survey. I learned a lot from REHAMS.” XCITE participants did not mention program staff administering assessment instruments or exercises meant to develop students’ self-awareness.

Shifting to another program exercise, multiple participants spoke about a ROPES challenge, which is part of the REHAMS program. According to one focus group member, “the ROPES challenge helped us with teamwork [which] you have to learn as an engineer anyway.” Extending the conversation, another participant admitted he found the challenge frustrating but rewarding. The participant described the challenge and the impact of this program feature:

The first few [activities] are warm up, like getting to know your teammates, like knocking paperclips, putting clips on other people’s hands and the captain stuff. And then we started working as a team, attending knots, making perfect squares with a rope, none of us let go. It was frustrating at first, I wanted to get mad and throw the instructor off the runway, but after that I got the simple accomplishment that I think we can all look forward going through something that just makes you feel good inside; like you have gotten something done and you got it done well, and it’s self-pride; self-confidence goes up.

Like the career survey, XCITE participants did not mention program coordinators arranging team-building exercises meant to develop participants’ self-awareness, collaboration, or project management skills.

In addition to the resources discussed above, participants also became aware of other forms of student assistance by way of program features, such as internships, scholarships, and financial aid. As one participant disclosed, “before I came [to REHAMS] I didn’t know the importance of getting internships, but every speaker that came stressed that getting internships to help get a job after you graduate.” An XCITE participant also ascribed new knowledge she gained about scholarships and other financial aid options to involvement in the program. The
student asserted that her week in the XCITE program resulted in familiarity with “what scholarships, or co-ops, or internships I want.”

**Preparation**

Interview segments documenting encounters in which participants were exposed to novel, postsecondary experiences were classified as preparation. Likewise, experiences that compelled participants to consider how to enter, persist, and graduate from college, establish academic and career goals, or how to achieve career goals were classified under preparation.

According to participants, program features, such as group lectures lead by program staff and specialist in the field, would ultimately facilitate their successful transition to college and, then, into a career in engineering. Said one REHAMS interviewee, “[REHAMS] really demonstrates the college life,” which was reinforced by another participant who felt the program allowed her to “see what [college] is like.” Likewise, another individual commented, “I learned a lot about college life because you always get people trying to tell you what [college] is like, but here, you get to really experience it.” The commenter went on to posit that the experience was like a real college experience

Because you get up early, and you do something kind of fun, and then you sit for maybe an hour, and listen to a boring speech…some days you get up eat breakfast, and then you go through a few hours of speeches of things that may or may not interest you; you just have to sit there and deal with it, and try to pay attention.

Another interviewee said,

Basically, you’re seeing how campus life would be; [how] college life would be; living on campus, going to class…and just learning what the different fields are in engineering, and going out to different facilities and seeing what the different engineers do everyday.
Also, seeing how some facilities work, how they separate the gasses and oils and all that good stuff.

A member of the group noted the lecture feature of the program saying, “lectures gave us information on what we had to do in college, what we were going to do in college, and some of the how it could be used in college.” Another member of the group gained new insight from the lectures and presentations. The participant said that, from his experience, he better understands the rigors of the engineering discipline. He said that the presenters “tell you before you go into the field that it is a lot of hard work, and it’s hard competition, but if you keep working…you can do it.”

The XCITE focus group made few references to program lectures; specifically, the feature was mentioned twice during the interview, by two of the participants. One participant declared she enjoyed the lecture experience, and the other participant expressed that she found the lecture experience more challenging. She stated, “I can’t sit through the lectures...I doodle when people are talking. I zone them out.”

As with lectures, participants identified tours as another beneficial program feature: “the tours too, [of] the engineering, [and] the chemical engineering plants, it gave us what we were doing after college, how our job would be, what we would have to wear, safety regards, and just seeing the motion.”

A REHAMS group member discussed how the REHAMS campus experience “show[ed] how you have to be more independent with doing thing on your own, making your own decisions.” The participant went explained that pre-collegiate experiences are typically determined by a student’s parents. From REHAMS, however, the participant was now aware that, at the college-level, students are required to make their own decisions, such as “when to do
your homework, when to go to bed, [or] when to study,” independent of their parents. A different REHAMS participant summed up her perceptions of the program as follows:

Two words that I have to say to describe REHAMS would be advice and expectations because putting everything together, that is all we got out of the program, was advice on what you should do to be successful and get through college, and expectations of what you should expect in college and expect in the workforce.

XCITE members also commented about the tour component of the program. A participant claimed that the tours were a beneficial supplement to the guest speakers from the different areas of engineering. The participant spoke about female guests who would share with participants their experiences in the field. These encounters sparked curiosity in the participant, and the tours gave the student an opportunity to explore further. She stated,

Different female engineers [came to] talk to us and tell us what their plan was in college, how they achieved it…I was curious about it and we went to different tours to explore [the] options…if you didn’t know what type of engineering you wanted to be in, this would help you find out.

Interestingly, one participant felt that, of the many tours included on the agenda, there was an additional one that was needed. She offered this suggestion:

Maybe take a tour of LSU; because I know some people are from different parts of Louisiana and they don’t really- I don’t even really know all of LSU because it’s so huge! I didn’t even know most of that stuff was there. So I really wanted to take a tour too because I will probably be coming here. I really want to take a tour of it and I didn’t get a chance to do that.

Exposure to authentic collegiate experiences was discussed in the REHAMS focus group, as well as in the XCITE focus group. Participants talked about having the opportunity to experience what it is like to be a part of postsecondary activities. A REHAMS participant spoke about exposure to recreational and academic settings on campus:

[The program] showed how much college has to offer you; just from being in the Union… for lunch…just seeing everybody interact with one another. Oh that’s the fun side of college, and then exploring the different types of engineering, of course, was educational.
An XCITE participant did comment on how her program experience, and exposure to the demands of postsecondary academics have made her reconsider testing out of freshman coursework during high school, as well as to rethink how she will design her college course schedule. According to the participant, the program “showed me that maybe I should take the early morning classes...a 7:30 class and a 9 o’clock class...so then I have time to take a break.” Based on her program experience, and the exposure associated with it, the participant believed that once she enters college “maybe making the sacrifice of waking up early is better because it will help me in the end.”

Preparation was also touched upon in the survey. In one instance, a REHAMS completer wrote, “I got to see what college is really like. My mentors talk to me about classes, grades etc.” Another REHAMS completer wrote about being exposed to the rigor of college-level academics. The completer stated, the “[program] taught me that what I thought was hard was nothing compared to college.” There were similar XCITE student survey responses, including this instance regarding successful transition behaviors: “[the program] taught me that I need to get into good study habits.”

Socializing Interactions

Segments in which participants spoke about encounters between individuals affiliated with coordinating the program were classified as socializing interactions. The interactions were further delineated to the following subcategories: quantity and quality, and socialization.

Quantity

The REHAMS and the XCITE focus groups emphasized the intensity of their program schedules. Through program scheduling does qualify as program structure, the volume of interactive experiences between participants and program staff, lectures, and guest speakers, as
well as students' engagement with program activities, fell within the realm of interaction

*quantity*, while value-based comments were labeled *quality*.

REHAMS participants perceived the program schedule as strenuous. One participant wished for breaks, and others spoke about feeling tired from the number of activities. Meanwhile another suggested lengthening the program to better accommodate the number of agenda items. Stated the participant, "I think we should have a long program, and not so jam packed full of stuff to do...Maybe two weeks, or three weeks, or four weeks. Just a little bit longer time with the same stuff, of course." XCITE participants also talked about feeling tired from the number of activities in which they participated. "we were tired in the morning. We were sleepy, and falling asleep and stuff. It was like we had to force ourselves to try and connect because we were being rushed." She expounded, "I think an extra day would really help. Just a whole Friday...everybody wants to chill out on Friday."

**Quality**

One participant said this about the impact of the interactions in the REHAMS program, "I think it was like a combination of everybody who spoke with us because it kind of gives encouraging feedback, and, like, kind of motivated me." When speaking about a facility tour, another participant shared that observing and interacting with individuals active in the field provided him an opportunity to witness engineers working, and enjoying their work despite the challenging nature of their field: "they were always smiling, even though they told us, getting to where they got [was] going to be hard, but—the way they were acting—it's going to be worth it."

An XCITE participant made the remark that "we learned a lot from different engineers, and what they do." A response regarding what was learned from encounters with engineering specialist provided an example of how participants' perceptions and interests were impacted by program interactions.
I thought mechanical [engineering] was for me. I don’t know, I just like the name. I didn’t judge it on profession… But I don’t like it, I hate it. It was more [men] and they were talking about this stuff. They made it seem like we knew exactly what they were talking about, and I was like, no, I don’t understand what you [are] saying. When the ladies came, there was an electrical engineer, it was a professor… and she broke everything down. She explained everything about it… things like electrical engineering.

The participant offered additional remarks on the matter:

And we had the chemical engineer, I don’t know his name … it was fun. I thought chemical engineers [sat] in the lab, and just mix all these chemicals up; [that] it was boring, because I get bored really easy. I have to move. I love hands on stuff. We had all these activities. It was fun. I kind of judged the profession on what I heard about it. So, when I find out from people who it was their major or their career, I was happy that it kind of explained what I wanted to do too.

**Socializing Agenda**

Ernest Pascarella, Patrick Terenzini, and Lee Wolfe (1986) describe precollege experiences as ones “that might function to positively influence anticipatory socialization” (1986, p. 169). Orville Brim (1966) defines socialization as “the process by which persons acquire the knowledge, skills, and dispositions that make them more or less effective members of their society” (p. 3). Focus group responses included multiple remarks regarding the programs socialization processes were classified as *socializing agenda*. Researcher questioning elicited responses that fell in this category. However, REHAMS participants referenced the matter to a greater degree than did XCITE participants.

The REHAMS focus group described the program as a college preparatory program. As one commenter responded, REHAMS allowed students to “[see] how campus life would be; [how] college life would be: living on campus, going to class every day.” The commenter also talked about the impact of living in a communal, dormitory setting, and how those conditions compelled students to build relationships, exercise time management, and become acclimated to the college campus environment. Another participant, who felt that the program “really demonstrate[d] the college life,” shared his appreciation of the diverse program culture, stated: “I like the diversity. It is people from all different backgrounds. That is one of the things I like most
about this program.” The participant went on to describe the program as intensive, with an aim of socially shaping students “making them a better person…in workgroups.”

Another example of the program’s socialization agenda is represented by one participant who talked about how the program counselors shared their college experiences with the program participants. “I thought it was really cool that the counselors were in engineering. They were students, and we could talk to them about their college experiences.” The participant expounded on the matter, and spoke about how counselors also shared information about college classes and residential experiences, so that participants could “learn from them.”

Student Effort

Focus group and survey responses pertaining to the level of effort required or invested in a program endeavor were categorized as student effort. Analysis of the transcripts for relevant segments revealed participants’ reports of effort expended during their respective week-long programs, as well as the effort participants anticipate expending when they enter college.

Responses in both REHAMS and XCITE noted the challenge of keeping up with the program schedule. Participants spoke often about feeling tired because of the number of activities and demanding days. In response to a group mate’s remark that REHAMS exposed students to the time-management demands of collegiate life, a participant announced, “I’m going to be so tired tomorrow.” In the same manner, an XCITE participant made the comment, “we were tired in the morning. We were sleepy, and falling asleep.” In another instance, A REHAMS participant talked about taking part in an energetic, team building program activity: “We went to the gyms and we were doing some activities at first. Everyone was screaming and yelling but towards the end we started collaborating, and letting everyone put in their input, and then we finally got it done.”
Projecting to future considerations, a REHAMS participant made the following comment: “I learned how to manage my time, because they say engineering was one of the toughest fields that you could go into college. So for me, I learned personally that even if I am playing sports, I have to still study as hard as I can to stay at my highest potential in the engineering program because that’s one of the toughest fields in college.”

Looking forward, an XCITE participant disclosed insight she gained from her program experience: “[XCITE] showed me that maybe I should take the early morning classes…like take a 7:30 class and a 9 o’clock class… so then I… I can study. Maybe… it will help me in the end.”

Also thinking ahead, another XCITE participant committed to applying knowledge she gained while being in the program. Specifically, the participant pledged to try study skills tips she learned from a presenter, which would, ultimately, require her to do something she had never tried before; something she claimed was “kind of foreign to me.”

Statements that attested to participants’ commitment to engage in the program, and apply new knowledge and skills were also placed in this category. Participants claimed to have acquired new levels of responsibility with statements like “I learned how to be more responsible with time management skills,” and “I learned how to manage my time.” A REHAMS survey completer wrote, “this experience makes me want to do better in school and try harder to excel, so that I can be [the] best for college and receive many scholarships and grants.”

During the interviews, a participant shared a unique experience that required her to behave out of character. When speaking about a group challenge activity, she stated, “I was worried about my personality. I am really bossy…[but] during that [experience] I had to fall back and let other people take charge for once.”

Comments were also made about returning the following summer to participate in the program again. An XCITE participant acknowledged the effort involved in taking part in the
summer program, and offered praise, saying, “XCITE was a good camp... It was one of the best camps I’ve been to. I’ve been to a lot of summer camps. [Those camps are] educational, but [they are] boring, I learn but I’m going to forget it when I get to school. I am not even going to care. But this camp; I want to come back next year.”
DISCUSSION

The purpose of this study was to explore the impact of two precollege engineering programs on students’ postsecondary perceptions. Specifically, the researcher delved into how program participants perceived the programs affected their thinking about their academic performances, postsecondary participation, and preparation for college-level efforts. The research was designed as a nonexperimental, explanatory, multiple-case embedded case study, and was executed with mixed methodology (Creswell & Plano, 2011; Yin, 2008). Quantitative measures were used to initiate data collection. An online student survey was administered to the REHAMS sample and, then, to the XCITE sample. Following the survey, focus group interviews were conducted with program participants to enhance quantitative findings (Creswell & Plano, 2011). In the following chapter, the quantitative and qualitative findings will be discussed in association with the literature on precollege programming. Additionally, considerations for ways in which the present study may inform the research on precollege programming, and how such outreach may impact student dispositions, as well as postsecondary outreach policies and programs is included.

Summary of Results

The researcher explored student beliefs and attitudes about their pre-collegiate characteristics and postsecondary expectations. Overall, students reported an increase in perceptions and behaviors associated with academic success (Fischer, 2007; Hamrick & Stage, 2003; Schneider, 2003). Below, an overview is provided of the findings related to College Impact Theory; namely student background, structural and organizational features, socializing interactions, and student effort.
Student Background

Student background is defined as students’ pre-collegiate characteristics (Pascarella, Terenzini, & Wolfe, 1986). In this study, student background information incorporated demographics, including age, grade, grade-level academic performance, and family and household characteristics. This component also includes students’ pre-collegiate perceptions about postsecondary matters.


A notable distinction between the programs was the participant make up. In particular, REHAMS included male and female students, while the XCITE population was exclusively female. Additionally, REHAMS participants were slightly more advanced than the XCITE participants when it came to age and grade. The average REHAMS participant was 16 years old, and in the 11th grade, while the average XCITE participant was between the ages of 14 and 15, and in the 10th grade. A majority of both program’s participants attended schools in East Baton Rouge Parish, which is the district of focus for this study, and suggests implications for future efforts in the district.

While some participants reported hailing from low-income households, a notable proportion of the students would not be considered underserved, particularly in the XCITE program. According to participant reports, the average household income for XCITE participants was $70,000 to $79,000. REHAMS household incomes had greater variation, and included more instances of student need, with five students purporting the receipt of government assistance within the home. The presence of the less advantages students in the program, and, subsequently, in the study, allows for transference of findings to participants’ underserved counterparts.

Participants in REHAMS and XCITE exhibited traits associated with high academic performance and academic success prior to involvement in the programs. Participants in both
programs reported earning high cumulative grade point averages of As and Bs, and all of the participants aspired to attend college. Participants in these programs also indicated that their parents prioritized academics, and held expectations of their students’ persistence to the college level.

Despite REHAMS and XCITE aims to target students facing unique challenges, students in the programs did not report having to deal with challenges typically associated with economic and academic disadvantage (Hamrick & Stage, 2003; Perna & Titus, 2005; Timar, Ogawa, & Orillion, 2004). Rather than a hindrance, participants familial, educational, and social contexts supported academic success. Program participants were not subject to low-expectations. Quite the contrary, these students performed well in their high school studies, and were expected to persist to college. In fact, the students’ participation in precollege programs reflects their own, and their parents’ commitment to invest in the students’ academic development.

Not surprisingly, then, participants’ involvement in the REHAMS program and in the XCITE program did not elicit new aspirations to attend college; rather, college participation was already assumed. Though college attendance was assumed, qualitative data did suggest that involvement in the program did alter participants’ degree level aspirations; however, the significance of the differences between pre-program degree aspirations and post-program degree aspirations could not be supported statistically. Limited change coincides with Domina’s (2009) findings of modest student gains associated with precollege programming. It is worth noting that these modest gains may be due to the inclusion of well-supported students into both programs. In any case, students did indicate that their perceptions about academic investments were impacted by program participation. Participants expressed notions of having to study harder and perform better in order to eventually achieve postsecondary academic success.
Institutional Structure and Organization

Structure and organization in this study was defined as features or aspects concerning the design or function of the program, as well as the institution in which the program is located. In this study, information in this area incorporates structural matters such as design, policies, procedures, or program goals. Based on participant comments, both programs were designed to expose students to college-level experiences, and, in effect, prepare the students for future college and career endeavors.

There are many manifestations of precollege programming. Unlike a majority of the nation’s precollege programs, REHAMS and XCITE are summer-only initiatives (Swail & Perna, 2002). Like other precollege programs, REHAMS and XCITE do share the number one goal of encouraging college enrollment, and do so through exposure to college experiences (Swail & Perna, 2002). The REHAMS and XCITE agendas consisted of high quality and quantity engineering-related events and activities. The concentration on a discipline is common among precollege programs. Likewise, the focus on a STEM discipline is characteristic of 37% of the nation’s precollege programs (Swail & Perna, 2002).

The REHAMS and XCITE schedules were a reoccurring topic during conversations with REHAMS and XCITE participants. Both groups of students expressed fatigue from the number of activities scheduled for them. Despite those feelings, however, the REHAMS and XCITE focus group students did feel that the interactions helped expose them to beneficial information, people, and experiences. REHAMS focus group members made special mention of features like the facility tours, and academic lectures. XCITE focus group members rarely mentioned these features, instead focusing more on the specialist presentations, which suggests that REHAMS participants may have benefited more from the lectures than did the XCITE participants.
Students also indicated that their perceptions about the level of study required for postsecondary success was significantly altered by their program experiences. Based on participant accounts, participation in the programs exposed the participants to opportunities to discuss high school and postsecondary issues with their counselors and other adults while in the program, as well as discuss career goals with field specialist. Additionally, participation in REHAMS and XCITE supplied students with greater knowledge about financial aid, scholarships, internships, and other student resources such as tutoring, student support services, and other precollege programs. The development of the programs to include features that familiarize students with critical transition information, such as financial aid processes, campus geography, and student support resources like tutoring, is an integral part of the precollege program function (Louie, 2007; Swail & Perna, 2002).

It is worth noting that REHAMS and XCITE participants were conflicted about how their respective programs impacted their feelings of preparedness. Following their program experience, XCITE students appeared to feel more prepared for college, while REHAMS participants findings suggest that their feelings of preparedness were not impacted by their program experiences. Students in both programs felt there was room for improvement, and were eager to offer suggestions; namely, they felt that the programs should be extended to better accommodate the demanding program schedule. Extending the programs beyond a week, perhaps designing them to provide services year-round or throughout the school year, would make REHAMS and XCITE reflect the national precollege programming trends of prolonged engagement (Swail & Perna, 2002).

While not discussed by REHAMS participants, gender was a significant part of the XCITE conversation. XCITE participants appeared to appreciate the attention paid to the concerns of women in the engineering field. The participants were surprised to learn of the
unique circumstances of women engineers. At the same time, they expressed greater insight into the contributions of women to the discipline, as well as expressed greater confidence in theirs and other women’s ability to succeed in such a challenging, and male-dominated field. Notably, the XCITE focus on female students is an example of how this program established, and then did in fact support, a student population not traditionally well served by the institution or industry.

Socializing Interactions

In this study, social interaction was defined as the frequency and quality of encounters between the student and program or institution socializing agendas. Interactions between students and program features did impact students’ academic and postsecondary perceptions. As noted, the number of interactions was a prominent topic of discussion during the focus group interviews. Participants in both REHAMS and XCITE were very vocal about the intensity of the program schedule, which speaks to the structural design and socializing forces of the programs (Pascarella, Terenzini, & Wolfe, 1986; Louie, 2007; Swail & Perna, 2002). Participants were engaged in program activities throughout the day, leaving little time for rest. While focus group members protested the number of activities, from the data, it is safe to conclude that the interactions brought about change in the participants, and affected students’ socialization to the college environment.

Taking part in REHAMS and XCITE exposed participants to opportunities not readily available to their non-program counterparts. Exposure and access to beneficial educational experiences is a quintessential feature of precollege programs (Louis, 2007). Students indicated that, while participating in the program, they had significantly greater opportunities to discuss their career goals with undergraduate student counselors, faculty, and field specialists who were familiar with the experience, and, then were qualified to share valuable insights. Likewise, participants were able to use these resources to actively plan ways in which they might
accomplish their own college and career goals. Through the interactions, participants were also exposed to the rigor of postsecondary coursework. This exposure was reflected in the ways in which students’ perceptions changed about time allocated for study and other academic tasks. REHAMS and XCITE participants left their respective programs with intentions of investing more time in their grade-level and future postsecondary studies.

Though REHAMS participants and XCITE participants’ expectations about what it takes to succeed at the college-level were impacted by their program experiences, REHAMS participants’ perceptions of preparedness did not appear to be greatly affected by their program experience. Survey and interview data did not provide insight into why this was the case. It is worth noting the academic predispositions of the REHAMS and XCITE participants that was discussed above when considering why participants did not exhibit significant changes in their perceptions of preparedness. Domina (2009) asserts that precollege outreach positively impacts students with relatively low educational aspirations. As noted, however, students in REHAMS and XCITE were not low-achieving students.

It is circumstances like these, in which students who are not underserved or facing educational barriers yet are able to participate in unique educational support efforts, that have compelled researchers like Domina (2009) and Louie (2007) to express the position that precollege programs are most effective, and beneficial, for students who are academically or economically underserved. Nonetheless, though program participants did not exhibit increased perceptions of preparedness, there was evidence of program impact, one example being the fact that program interactions exposed participants to the campus environment, and, ultimately, assisted in the socialization process. REHAMS and XCITE participants reported feeling more adjusted and able to adapt to the college campus climate after taking part in their program
Ernest Pascarella, Patrick Terenzini, and Lee Wolfe (1986) describe precollege experiences as ones “that might function to positively influence anticipatory socialization” (1986, p. 169). The results of this study suggest that the precollege REHAMS and XCITE experiences did positively influence participants’ socialization. Focus group participants commented on how the interactions with program counselors, coordinators, and presenters impacted their views on college academics, campus living, the discipline of engineering, as well as on pursuing a career in engineering. Essentially, REHAMS and XCITE coordinators accomplished their goal of imparting to participants the knowledge and dispositions necessary for successful postsecondary transition (Brim, 1966).

**Student Effort**

Student effort is defined as the quality of effort invested by the student. Students who took part in the REHAMS and XCITE programs were required to invest significant effort in order to complete program tasks. Focus group proclamations about the intensity of the program were abundant. Likewise, individuals in the both the REHAMS and XCITE samples commented on how their program experiences have motivated them to make greater academic investments, including increased reading and writing, increased hours of study at the secondary and postsecondary levels, taking or retaking the ACT, utilizing tutoring and other support services, as well as an increased interest in pursuing academic scholarships and internships. This supports Domina’s (2009) finding that students who utilize precollege outreach services are more likely to pursue greater educational opportunities. Students also discussed commitments to consider new things, and to behave and perform in ways that were out of character for them. By doing so, students gained new levels of leadership and responsibility, and also learned more effective ways of collaborating,
While the findings indicate that gains were made in the aforementioned student effort areas, neither the REHAMS nor the XCITE set of participants showed great differences in their confidence when confronting academically challenging experiences. The researcher did question participants’ pre-program confidence levels. Precollege outreach programs have the potential to build students’ self-esteem (Swail & Perna, 2002; Timar et al., 2004). The data gathered, however, did not support this finding, or permit further exploration into the matter. Ultimately, conclusions could not be made as to whether or not participants’ entered the programs with high academic confidence, which would account for the lack of affect program interactions had on this student attribute.

Conclusions

Impact, Value, and Case Comparisons

The original intent of this study was to explore students’ perceptions of the impact of two precollege engineering programs on underserved students’ postsecondary aspirations and perceptions. The researcher augmented the purpose of the study to the exploration of students’ perceptions of the impact of the programs on all first-time program participants due to the unforeseen inclusion into the programs of significant numbers of students who cannot be classified as underserved. Under the new considerations, the researcher found that, overall, REHAMS and XCITE participants perceived the programs to have positively impacted their postsecondary perceptions. Descriptive and qualitative data from the student survey indicate that REHAMS and XCITE students exited their respective programs more informed about, and better prepared for, postsecondary participation. Likewise, participants’ overwhelming perceived the programs to have impacted their beliefs about the rigors of college, the field of engineering, student support services, campus life, and the academic investments required to succeed in college and in engineering. This finding coincides with Pascarella’s College Impact Model in
which pre-collegiate experiences “function to positively influence anticipatory socialization” (Pascarella, Terenzini, & Wolfe, 1986, p. 169).

Though there is evidence of program impact on perceptions associated with many of the subscales investigated, such as college and career planning, increased levels of student effort, and available resources, there were areas in which students did not perceive the programs to have greatly affect their postsecondary beliefs, such as feelings of preparedness, academic confidence, and higher degree aspirations. This may largely be due to the fact that the participants in REHAMS and XCITE were considered academically high-achieving prior to their involvement. In actuality, their participation in the precollege programs may be characteristic of students’ predispositions to exercise academically successful behaviors, and, as a consequence, there was little room for growth in these areas.

When compared, data collected from participants in REHAMS and XCITE indicated that there was no significant difference in the impact of the two programs. Precollege programs are support structures developed to help prepare students with the knowledge and skills necessary for educational success (Dabney, 2002; Santa Rita & Bacote, 1996; Swail & Perna, 2002). REHAMS and XCITE, fit that description, and are in fact programs designed to support student academic success and persistence. As with a majority of the nation’s precollege outreach, the objective of these two engineering programs was to impact the lives of students facing obstacles (Swail & Perna, 2002).

The similarities between the programs far outnumber the differences. This is not surprising, as both programs are sponsored by the College of Engineering. Many of the program staff of REHAMS were associated with XCITE, and the programs were designed in very similar fashion. The chief difference between the programs was the students. The REHAMS population consisted of male and female students. XCITE participants were all female. Additionally,
REHAMS participants were slightly older, 15 to 17 years old, and further along academically, in grades ranging from 10th to 12th grade. XCITE students, on the other hand, were 14 to 16 years old, in 9th, 10th, and 11th grades.

Implications for Practice

Precollege programs have proven to be popular interventions (Domina, 2009; Fisher, 2007). The presence of these mechanisms on the nation’s college campuses is prolific, and with continued academic, public, and legislative interest, (as in the case of the Louisiana GRAD Act), there is reason to believe that the number of these program will continue to grow. Popularity aside, calls have been made for exploration into the potential of these programs to affect underserved student gains (Domina, 2009). The original intention of this study was to conduct such an investigation. While the research was ultimately broadened to include investigation into the impact of the program on all first time students, both resourced and under-resourced, the findings of this study allow for several positive implications for policy and practice.

This study confirms the findings of previous research which posits that precollege programs are promising support mechanisms for students, with the potential to impact academic performance (Domina, 2009; Louie, 2007; Perna, Rowan-Kenyon, Bell, Thomas, & Li, 2008). Precollege programs should be considered by university administrators as viable options to provide support to young students, particularly those individuals who face educational barriers. The findings of this study show that well designed precollege programs, ones that are goal driven and incorporate frequent and high-quality interactions, may be utilized to positively affect the socialization of students new to postsecondary experiences.

The study provides evidence of the potential of precollege exchanges to expose students to the college experience, and the potential of this exposure to alter students’ academic investments. The students included in the study were high-achieving students from academically
supportive backgrounds. Not surprisingly, then, there was no quantifiable evidence of change in their expectations to attend college. Nonetheless, students’ qualitative comments about the programs imply appreciation for their program experiences, as well as enhanced goals because of those experiences. Students’ aspirations to attend college may not have undergone change, but the detail about the way in which they would persist did. Likewise, students’ exposure to campus living and college-level instruction, as well as their program interactions with undergraduate student counselors and field specialists, did influence considerations of new interests and intensified academic investments.

The participants in REHAMS and XCITE allowed for weaknesses in the research in that these students appear to be naturally inclined to invest in, and take advantage of, opportunities to further their education. This hindered the research effort to measure program effectiveness. The intent of the researcher was to focus on students who face greater academic risks. Due to an administrative compromise in admissions for both REHAMS and XCITE, participant selection procedures were broadened to include students who may not have been able to benefit as much as less advantaged students would under the same circumstances. Perna, Rowan-Kenyon, Bello, Thomas, and Li (2008) speak to this circumstance and posit that program coordinators impede outreach effectiveness when they exhibit a lack of clarity, coherence, and structured policy.

Realizing the potential of precollege programs requires much of what the REHAMS and XCITE programs already encompass, namely clear program goals, objectives, and content identity; but it also requires clarity about who will be included in the target population. Likewise, it requires commitment to adhere to population parameters, while also maintaining a commitment to accomplish fundamental program goals. When devising program policies, program administrators and stakeholders best serve students by ensuring the clear definition and execution of program objectives.
Well-defined and implemented precollege programs represent effective academic opportunities for students’ who are not otherwise receiving adequate educational support, and who, ultimately, run the risk of attrition (Domina, 2009; Louie, 2007; Perna et al., 2008). The outcomes of this study support the findings of other research in which this notion is put forth, and, subsequently, these outcomes should serve as compelling evidence to stakeholders that precollege programs are viable options to assist underserved student development. With that said, the findings here provide a platform for advocating the expansion of the precollege outreach supported by the RU institution.

A survey of the outreach programs that are sponsored by university departments aligned with the Louisiana State Department of Education’s Goal Offices revealed very few operating programs that served students from the focus district. The evidence presented here supports the expansion of REHAMS and XCITE; specifically, in line with participant suggestions. The programs could be extended beyond one week, which is also in line with 65% of the precollege programs on U.S. campuses. Likewise, university and department heads should consider the expansion of precollege program presence at the university.

As the state’s postsecondary institutions embark upon government mandated outreach efforts, university outreach policies and programs aligned with GRAD Act outreach stipulations may be informed by the research presented here. Therefore, the researcher recommends the development of programs in academic areas in addition to engineering that are designed to support students in East Baton Rouge Parish. This suggestion is reasonable in light of new GRAD Act mandates, as well as the positive findings of this study.

**Recommendations**

This study contributes to the research on outreach programming targeting secondary students, and, based on findings of positive change for both program samples, may be extended
to applications to underserved student populations, as well. While the research presented here adds to the conversation on precollege programming, as well as the potential impact of pre-collegiate interventions on student socialization, further research is needed.

Questions remain about the effectiveness of precollege programs in which underserved students are the focus. It is recommended, then, that a study be conducted that investigates student outcomes following inclusion in a precollege program designed to address the academic barriers of disadvantaged students. Further, research should be done to explore the impact of precollege outreach on students in the focus district in an effort to measure the effectiveness of GRAD Act mandates to facilitate the postsecondary persistence of this particular students group. Finally, another recommendation is for a longitudinal study of participants in REHAMS and XCITE, or in other, similar precollege programs, to determine student attrition and persistence, particularly underserved student persistence. As noted, a limitation of this study is that outcome threats are present. Student reports of intentions to pursue a college education may not come to fruition after they exit high school. Therefore, conducting longitudinal research would be prudent. By conducting a longitudinal study, student outcomes and persistence patterns could be revealed and questions about the impact of precollege programs could be more fully addressed.
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Washington, DC: Author.


PRECOLLEGE PROGRAM STUDENT SURVEY

1. * How old are you?  

2. * What grade are you in?  

3. * Please list the precollege programs you have participated in while you have been in high school.  

4. What precollege program(s) have you most recently participated in?  

5. What is your GPA?  
   - 4.0 and above = A  
   - 3.0 - 3.9 = B  
   - 2.0 - 2.9 = C  
   - 1.0 - 1.9 = D  
   - 0 - .9 = F  

6. What are most of your high school grades? (Select only one.)  
   - A  
   - B  
   - C  
   - D
7. During high school, have you failed any core classes (English, Math, Social Studies, or Science)?
- [ ] Yes
- [ ] No

8. Do you expect to graduate from high school on time?
- [ ] Yes
- [ ] No

9. Have you taken the ACT/SAT?
- [ ] Yes
- [ ] No

10. What is the highest level of education your parent(s) have attained?

<table>
<thead>
<tr>
<th></th>
<th>Less than a high school graduate</th>
<th>High school graduate</th>
<th>Some college/vocational school</th>
<th>Associate's degree</th>
<th>Bachelor's degree</th>
<th>Some graduate school</th>
<th>Graduate degree (DDS, JD, MD, Ph.D., etc.)</th>
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<tbody>
<tr>
<td>Mother</td>
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<td>Father</td>
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</table>

11. During your last year of high school, how often do(es) your parent(s) or guardian(s) help you with your school work?
- [ ] Never
- [ ] Rarely
- [ ] Sometimes
- [ ] Often
- [ ] Very Often
12. During your last year of high school, how often do other adults, (other than parents/guardians), help you with your school work?

- Never
- Rarely
- Sometimes
- Often
- Very Often

13. Please answer the following:

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<thead>
<tr>
<th>Statement</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tbody>
<tr>
<td>I know the subject areas where I am academically weak.</td>
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<td>I know what I want to be doing in 10 years.</td>
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<td>My family has always wanted me to go to college.</td>
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<td>If tutoring is made available at no cost, I will attend.</td>
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<td>I have talked about my career goals with someone who is familiar with that field.</td>
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<td>I try to find opportunities to learn new things.</td>
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<tr>
<td>I have studied things about my future career goals (or favorite subject) on my own.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>When I have problems concerning school, I have someone who would listen to me and help me.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

14. During your last year of high school, about how much reading and writing did you do?

- Never
14. Since participating in a precollege program, about how much reading and writing do you do?

- Never
- Rarely
- Sometimes
- Often
- Very Often

16. Before participating in a precollege program, about how often did you spend in a typical 7-day week doing each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studying/Doing homework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extra-academic Preparations, (tutoring, college prep)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extra-curricular Activities, (clubs, hobbies, sports)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. Since participating in a precollege program, about how often do you spend in a typical 7-day week doing each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
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<tr>
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<tr>
<td>Extra-academic Preparations, (tutoring, college prep)</td>
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<td>Extra-curricular Activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
18. Before participating in a precollege program, when working on a challenging assignment, how confident were you that you would succeed?

- Very confident
- Confident
- Somewhat confident
- Not at all confident

19. Since participating in a precollege program, when working on a challenging assignment, how confident are you that you will succeed?

- Very confident
- Confident
- Somewhat confident
- Not at all confident

20. Before participating in a precollege program, about how many hours did you expect to spend in a typical 7-day week preparing for class while in college?

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16+

21. Since participating in a precollege program, about how many hours do you expect to spend in a typical 7-day week preparing for class while in college?

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16+

22. Before participating in a precollege program, about how often did you miss a day of school?
23. Since participating in a precollege program, about how often have you missed a day of school?

- Never
- Sometimes
- Often
- Very often

24. Before participating in a precollege program, how involved were you in academic and/or vocational clubs?

- Very Involved
- Somewhat Involved
- Rarely Involved
- Not Involved

25. Since participating in a precollege program, how involved were you in academic and/or vocational clubs?

- Very Involved
- Somewhat Involved
- Rarely Involved
- Not Involved

26. Before participating in a precollege program, about how often did you talk with a counselor, teacher, or other staff member about college or career plans?

- Never
- Rarely
- Sometimes
- Often
27. Since participating in a precollege program, about how often did you talk with a counselor, teacher, or other staff member about college or career plans?

- Never
- Rarely
- Sometimes
- Often
- Very Often

28. Before participating in a precollege program, how difficult did you expect it would be to get help with college schoolwork?

- Not at all difficult
- Somewhat difficult
- Difficult
- Extremely difficult

29. Since participating in a precollege program, how difficult do you expect it to be to get help with college schoolwork?

- Not at all difficult
- Somewhat difficult
- Difficult
- Extremely difficult

30. Before participating in a precollege program, how prepared did you feel for college-level schoolwork?

- Not at all prepared
- Somewhat prepared
- Prepared
- Very prepared

31. Since participating in a precollege program, how prepared do you feel for college-level schoolwork?
32. Before participating in a precollege program, did you expect to attend college?
- Yes
- No

33. Since participating in a precollege program, do you expect to attend college?
- Yes
- No

34. Before participating in a precollege program, what was the highest academic degree you expected to obtain?
- I am uncertain.
- A high school degree
- An Associates degree
- A Bachelor’s degree
- A Master’s degree
- A Doctoral degree
- I do not intend to earn any academic degree.

35. Since participating in a precollege program, what is the highest academic degree you expect to obtain?
- I am uncertain.
- A high school degree
- An Associates degree
- A Bachelor’s degree
- A Master’s degree
- A Doctoral degree
I do not intend to earn any academic degree.

36. Before participating in a precollege program, how difficult did you expect it would be to pay college expenses?
- Not at all difficult
- Somewhat difficult
- Difficult
- Extremely difficult

37. Since participating in a precollege program, how difficult did you expect it would be to pay college expenses?
- Not at all difficult
- Somewhat difficult
- Difficult
- Extremely difficult

38. Before participating in a precollege program, how did you expect to pay for college?
- I did not expect to attend college.
- I expected to pay for college with scholarships and grants.
- I expected to pay for college with student loans.
- I expected my parents/family to pay for college.
- I expected to pay for college.
- I did not know how I would pay for college.

39. Since participating in a precollege program, how did you expect to pay for college?
- I do not expect to attend college.
- I expect to pay for college with scholarships and grants.
- I expect to pay for college with student loans.
- I expect my parents/family to pay for college.
- I expect to pay for college.
- I do not know how I will pay for college.
40. Did your precollege program provide information about college financial aid options?

- Yes
- No

41. Please answer the following items:

| Since participating in a precollege program, I am | Somewhat Agree | Agree | Strongly Agree | Somewhat Disagree | Disagree | Strongly Disagree |
| more aware of the subject areas where I am | | | | | | |
| academically weak. | | | | | | |
| Since participating in a precollege program, I | | | | | | |
| developed a better idea of what I want to be | | | | | | |
| doing in 10 years. | | | | | | |
| Since participating in a precollege program, I | | | | | | |
| am more likely to attend tutoring if it is | | | | | | |
| made available. | | | | | | |
| As part of my precollege program, I talked about | | | | | | |
| my career goals with someone who is familiar | | | | | | |
| with that field. | | | | | | |
| Since participating in a precollege program, I | | | | | | |
| am more likely to find opportunities to learn new | | | | | | |
| things. | | | | | | |
| Participating in a precollege program has motivated | | | | | | |
| me to study things about my future career | | | | | | |
| goals (or favorite subject) on my own. | | | | | | |
| When participating in my precollege program, I spoke | | | | | | |
| with someone who would | | | | | | |

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listen to me and help me if I had problems concerning school.

42. What impact has participating in a precollege program had on your academic performance?

43. What impact has participating in a precollege program had on your college plans?
APPENDIX B

Precollege Perception Study Permission Form

1. Study Title:
Impact of Precollege Programs on Underserved Students’ Perceptions and Aspirations

2. Performance Site:
Louisiana State University and Agricultural and Mechanical College

3. Investigators:
The following investigators are available for questions about this study, M-F, 8:00 a.m.-4:30 p.m.

   Kimberly Powell LeSage       225-778-5571
   Dr. Roland Mitchell          225-578-2156

Louisiana State University and Agricultural and Mechanical College

4. Purpose of the Study:
The purpose of this research is to explore the impact of precollege programs on underserved students’ postsecondary perceptions and aspirations.

5. Inclusion Criteria:
Individuals between the ages of 14 and 19, who are in high school, and who participated in a precollege program during 2011-2012.

6. Description of the Study:
Over a period of approximately three months, the investigator will administer student perception surveys to participants. Also during that time, focus groups will be conducted, one for each precollege program explored. The focus groups will include 5 to 10 subjects.

7. Study Risks: There are no known risks.

8. Right to Refuse:
Participation is voluntary, and a child will become part of the study only if both child and parent agree to the child's participation. At any time, either the participant may withdraw from the study or the participant's parent may withdraw the participant from the study without penalty or loss of any benefit to which they might otherwise be entitled.
9. Privacy:
Precollege program records of participants in this study may be reviewed by
investigators. Also, results of the study may be published, but no names or identifying
information will be included for publication. Participant identity will remain confidential
unless disclosure is required by law. Results of the study may be published, but no names
or identifying information will be included in the publication. Subject identity will
remain confidential unless disclosure is required by law.

10. Financial Information:
There is no cost for participation in the study, nor is there any compensation to the
subjects for participation.

Signatures:

The study has been discussed with me and all my questions have been
answered. I may direct additional questions regarding study specifics to the investigators. If I
have questions about subjects' rights or other concerns, I can contact Robert C. Mathews,
Institutional Review Board,
(225) 578-8692. I agree to participate in the study described above and
acknowledge the investigator's obligation to provide me with a signed copy of this consent form.

Parent's Signature   Date

The parent/guardian has indicated to me that he/she is unable to read. I certify
that I have read this consent form to the parent/guardian and explained that by
completing the signature line above he/she has given permission for the child to
participate in the study.

Signature of Reader   Date
APPENDIX C

Precollege Perception Study Consent Form

1. Study Title:
Impact of Precollege Programs on Underserved Students’ Perceptions and Aspirations

2. Performance Site:
Louisiana State University and Agricultural and Mechanical College

3. Investigators:
The following investigators are available for questions about this study, M-F, 8:00 a.m.-4:30 p.m.

   Kimberly Powell LeSage    225-778-5571
   Dr. Roland Mitchell       225-578-2156

Louisiana State University and Agricultural and Mechanical College

4. Purpose of the Study:
The purpose of this research project is to determine whether there is an association between controlled drug use and migraine headaches and whether migraine headaches alter one's ability to concentrate.

5. Inclusion Criteria:
Individuals between the ages of 18 and 65 who do not report psychological or neurological conditions.

6. Description of the Study:
Over a period of one month, 2-3 days per week, the investigator, posing as a teacher's aide, will observe subjects' general classroom behavior, assign specific tasks to the subjects, and will use three intervention techniques with the subjects: positive attention, reprimand, and time-out.

   In the positive attention technique, the "teacher's aide" will provide the subject with positive attention, regardless of the occurrence of problem/disruptive behavior. In the reprimand technique, the "teacher's aide" will respond to each instance of disruptive behavior with a neutral reminder (e.g., you need to be working). In the time out technique, for each instance of problem behavior, the "teacher's aide" will remove the subject's work and turn his/her desk away from the classroom activities and other students for 30 seconds.
At the end of 30 seconds, the investigator will turn the subject's desk back to the original position and gesture for the subject to return to work.

7. Study Procedures:
The study will be conducted in two phases. In the first phase, subjects will spend approximately 20 minutes completing two questionnaires, one about migraine headache symptoms; and the other, about past or current psychological diagnoses and alcohol and drug use. In the second phase, subjects will spend approximately two hours completing 8 tests of attention.

8. Benefits:
Subjects will be paid $10 to participate in the study. Additionally, the study may yield valuable information about migraine headaches.

9. Risks:
The only study risk is the inadvertent release of sensitive information found in the second questionnaire. However, every effort will be made to maintain the confidentiality of your study records. Files will be kept in secure cabinets to which only the investigator has access.

10. Right to Refuse:
Subjects may choose not to participate or to withdraw the study at any time without penalty or loss of any benefit to which they might otherwise be entitled.

11. Privacy:
Results of the study may be published, but no names or identifying information will be included in the publication. Subject identity will remain confidential unless disclosure is required by law.

12. Signatures:
The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the investigator's obligation to provide me with a signed copy of this consent form.

Signature of Subject               Date
APPENDIX D
IRB Approval

ACTION ON PROTOCOL APPROVAL REQUEST

TO: Kimberly LeSage
CMIE

FROM: Robert C. Mathews
Chair, Institutional Review Board

DATE: February 14, 2012
RE: IRB# 3245
TITLE: Impact of Precollege Programs on Underserved Students' Postsecondary Perceptions and Aspirations


Review type: Full ___ Expedited X ___ Review date: 2/14/2012
Risk Factor: Minimal X ___ Uncertain _____ Greater Than Minimal_______
Approved X ___ Disapproved_______

Approval Date: 2/15/2012 Approval Expiration Date: 2/14/2013

Re-review frequency: (annual unless otherwise stated)

Number of subjects approved: approx. 60

Protocol Matches Scope of Work in Grant proposal: (if applicable)_______

By: Robert C. Mathews, Chairman ____________________________

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects.
2. Prior approval of any protocol change, including revision of consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
8. SPECIAL NOTE:
   *All investigators and support staff have access to copies of the Belmont Report, LSU’s Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*
Application for Approval of Projects Which Use Human Subjects

This application is used for projects/studies that cannot be reviewed through the exemption process.

- Applicant, please fill out the application in its entirety and include two copies of the competed application as well as parts A-E, listed below. Once the application is completed, please submit to the IRB Office for review and please allow ample time for the application to be reviewed. Expedited reviews usually take 2 weeks. Carefully completed applications should be submitted 3 weeks before a meeting to ensure a prompt decision.

- A Complete Application includes all of the following:
  (A) Two copies of this completed form and two copies of part B thru E.
  (B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1 & 2).
  (C) Copies of all instruments to be used.
  (D) The consent form that you will use in the study (see part 3 for more information).
  (E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless on file with the IRB. Training link: (https://php.nihtraining.com/users/login.php)
  (F) IRB Security of Data Agreement: (http://www.lsu.edu/irb/IRB%20Security%20of%20Data.pdf)

1) Principal Investigator*: Kimberly Powell Le Sage
*PI must be an LSU Faculty Member

Dept: ETPP Ph: 225-335-0339 E-mail: kpowell@tigers.lsu.edu

2) Co-Investigator(s): Please include department, rank, phone, and e-mail for each.
Dr. Roland Mitchell, ETPP, Associate Professor, 225-578-2156, rmitch@lsu.edu

3) Project Title:
Impact of Precollege Programs on Underserved Students’ Postsecondary Perceptions and Aspirations

4) Proposal Start Date: March 1, 2012
5) Proposed Duration Months: 8

6) Number of Subjects Requested: approx. 60
7) LSU Proposal #: 3245

8) Funding Sought From:

ASSURANCE OF PRINCIPAL INVESTIGATOR named above
I accept personal responsibility for the conduct of this study (including ensuring compliance of co-investigators/co-workers) in accordance with the documents submitted herewith and the following guidelines for human subject protection: The Belmont Report, LSU's Assurance (FWA00003892) with OHRP and 45 CFR 46 (available from http://www.lsu.edu/irb). I also understand that copies of all consent forms must be maintained at LSU for three years after the completion of the project. If I leave LSU before that time, the consent forms should be preserved in the Departmental Office.

Signature of PI

ASSURANCE OF STUDENT/PROJECT COORDINATOR named above. If multiple Co-Investigators, please create a “signature page” for all Co-Investigators to sign. Attach the “signature page” to the application.

I agree to adhere to the terms of this document and am familiar with the documents referenced above.

Signature of Co-PI (s)
VITA

Kimberly Powell LeSage is a native of Baton Rouge, Louisiana, and is the daughter of Richard and Mary Powell. She graduated from Baton Rouge Magnet High School in 1995. In 1999, Kimberly earned a Bachelor of Arts in History with a minor in Sociology at Louisiana State University.

Following her college graduation, Kimberly accepted a position with the East Baton Rouge Parish School System as a secondary social studies teacher. During her time in the classroom, Kimberly returned to Louisiana State University to pursue graduate studies, and eventually accepted a graduate assistantship working with summer bridge programs in University College. In 2005, Kimberly completed her Master of Arts in Curriculum Theory.

That same year, Kimberly accepted a position as an Education Program Consultant for the Louisiana State Department of Education. It was also in that year that she enrolled in the Department of Educational Leadership, Research, and Counseling (now, Educational Theory, Policy & Practice) at Louisiana State University to pursue a doctorate in higher education. In 2012, after serving for several years as an education specialist at the State Department of Education, Kimberly was offered an opportunity to join the Cecil Picard Center for Child Development and Lifelong Learning, and is currently employed there as a Research Associate.