**PREDICTORS OF POST-SECONDARY SUCCESS AMONG POST-KATRINA GRADUATES FROM A NEW ORLEANS PUBLIC CHARTER HIGH SCHOOL**

AN ABSTRACT SUBMITTED ON THE 15TH DAY OF APRIL 2018

TO THE PAYSON CENTER FOR GLOBAL DEVELOPMENT

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

OF THE SCHOOL OF LAW OF TULANE UNIVERSITY

FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

BY

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ABSTRACT

This research seeks to identify which secondary curriculum achievement, testing achievement, and college selection factors appear to best predict post-secondary success among students who attended the same public charter high school serving predominately low-income, Black students. The research is grounded in Adelman's 1999 and 2006 Tool Box studies. Data obtained from a New Orleans public high school includes individual student transcript data, ACT test score data, and National Student Clearinghouse college tracking data for students who graduated between 2007-2014.

Using logistic regression, it was found that high school GPA and number of semesters in school positively predict post-secondary completion while number of failed high school credits, number of colleges attended, and attending an institution in New Orleans all negatively predict post-secondary completion. Further, the number of remedial classes required positively predicted dropouts. Meanwhile the number of high school credits completed, specifically dual enrollment and AP credits, as well as number of times a student took the ACT, number of semesters they spent enrolled in post-secondary, and attending an HBCU all negatively predicted dropouts. Students were more likely to complete a bachelor's degree over a credential less than a bachelor's degree when they completed the Louisiana high school core curriculum, required remediation, earned a higher ACT composite, and took the ACT additional times. The only significant predictors of completing a credential less than a bachelor's degree over

dropping out were the number of colleges attended and number of semesters enrolled in post-secondary.

This research is intended to inform school-level decisions on curriculum, testing, and college counseling. Additionally, it provides a research design that can be replicated in high schools across the country. It will add to the literature on post-secondary education completion and retention, and may inform policy decisions relating to improving post-secondary access and completion of racial minorities and low-income students.

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FORWARD

The research design of this study evolved from my personal interest in my students' success. I sought to gather all the data readily available to a school so that I could determine how I could best help my students succeed. I knew many students from similar backgrounds, who had been through similar trials and tribulations but who took very different paths after high school. The question of why some students succeed and some fail is usually answered with some unquantifiable individual level characteristic like grit, intrinsic motivation, or drive. As an educator, I have spent 10-12 hours a day with these young people over the last seven years. I have thought to myself that one particular student would succeed after high school only to watch them fail, and I have thought another student would fail after high school only to become their mentor and watch them succeed. My work with students allows for informed and nuanced insight into the issues students face. It is hoped that my experience can shed light on factors previously unconsidered.

Educators play a substantial role in helping students develop soft skills like grit and intrinsic motivation, even at the secondary level. This is a fact that is generally overlooked. We are quick to blame students for their own failures, but there must be things adults could be doing better at the secondary level to improve a student's chance of success after high school. As such, this work is dedicated to my students, past, present, and future. You are my inspiration.

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# LIST OF ACRONYMS

ACT- American College Test

AP- Advanced Placement

GC- General curriculum courses

GEE- Graduation Exit Exam

GPA- Grade Point Average

HBCU- Historically Black Colleges and Universities

NCES- National Center for Education Statistics

NELS- National Education Longitudinal Study

NGO- Non-Governmental Organization

NOCCA- New Orleans Center for Creative Arts

NSC- National Student Clearinghouse

NSLDS- National Student Loan Data System

OPSB- Orleans Parish School Board

RSD- Recovery School District

SAT- Scholastic Assessment Test

SPS-School Performance Score

TOPS- Taylor Opportunity Program Scholarship

UN- United Nations

PURPOSE

The purpose of this study is to isolate certain factors that best predict post-secondary success among poor, Black students who attended one public charter high school (hereafter referred to as High School) in New Orleans after surviving the natural disaster of Hurricane Katrina. I have spent seven years working with public high school students around New Orleans, and I have been surprised many times by which students choose to go on to post-secondary education, how difficult it is for them to do so, and inevitably by which ones who complete a credential and which ones get derailed at some point. Any post-secondary credential improves a young person's potential earning power, which can yield exponential returns among disadvantaged populations (Carnevale, Rose, and Cheah, 2011). This study therefore seeks to identify what factors most contribute to the success of those students who complete a credential. The study will examine secondary school achievement factors, standardized test achievement factors, and college selection factors by utilizing data readily available to any high school: transcript records, standardized test scores, and National Student Clearinghouse (NSC) data, which tracks students throughout their post-secondary careers. The High School serves a majority (97%) Black student body. It also has a high percentage of students who qualify for free and reduced price lunch (90%), which is used as a proxy for household income level here. These are two clear points of disadvantage, thus earning any form of post-secondary credential increases students' future income potential and ability to mitigate the circumstances of initial socioeconomic disadvantage. Therefore, in

the interest of students being able to better provide for themselves and their families in the future, the question of what the High School can do to improve the chance of post-secondary success for its students takes on particular significance. One goal of this study is to inform educators and policy-makers about what is really working at the secondary level in terms of post-secondary preparation. It also aims to help high school guidance counselors and teachers talk to students about making choices that are likely to improve their futures. Further, given the accessibility of the data sources, this study is easily replicable. It is hoped that the methodology used here will be applied to other high schools, particularly those serving high proportions of disadvantaged youth.

# 1. BACKGROUND

## 1.1 NEW ORLEANS IN A DEVELOPMENT CONTEXT

In many ways, New Orleans functions as a third world city. According to the United Nations (UN), Least Developed Nations must be considered separately from other Developing Countries because they are particularly handicapped in their ability to develop without support. Very low income per capita is the dominant factor leading a country to be categorized as Least Developed, but the UN also considers low levels of education (United Nations, 2015). The Human Development Index (HDI) looks at economic and education indicators to determine development status[1]. Based on the level of poverty and low literacy rates, compounded by racial disparities, New Orleans could fit into its own category of Least Developed City.

Poverty, or very low income per capita is one of the defining criteria of a Least Developed Nation (United Nations, 2015). If a large percentage of the population lives in poverty, they are not contributing to GDP, and are pulling on the inevitably limited resources of the government and non-governmental organizations (NGOs). In Orleans Parish in 2015, the median household income was $36,792. However, the median household income for Whites was $62,490 while the median income for Blacks was $25,347. Citywide, 24 percent of households earned less than $15,000 per year. However, 12.2 percent of White households and 32.6 percent of Black households earned less than $15,000 per year. Further, 21.7 percent of all families lived in poverty, but only

[1] HDI also includes health indicators. However, as this study is not related to health, only economic and education indicators are considered here.

5.1 percent of White families lived in poverty compared to 30.7 percent of Black families. For families with children under 18, the situation is worse. Of all families with children under 18, 33.8 percent lived in poverty. However, only 7.5 percent of White families with children under 18 lived in poverty while 44.7 percent of Black families did. What is worse, 41 percent of all children in New Orleans live in poverty, 9.1 percent of White children live in poverty and 51.7 percent of Black children live in poverty (US Census Bureau, 2016). When compared to the national data, New Orleans displays more extremes. In 2015, the national median income was $53,889 (almost 50 percent higher than in New Orleans). The national median income was $57,407 for whites (just less than in New Orleans) and $35,695 for Blacks (40 percent more than in New Orleans). Nationwide, only 11.3 percent of all families and 18 percent of families with children under the age of 18 lived in poverty. Again the disparity between Blacks and Whites is approximately twice as extreme in New Orleans as it is nationally. Most discouraging, children in New Orleans are about twice as likely to live in poverty. White children in New Orleans are half as likely to live in poverty as Black children, but Black children are 35 percent more likely to live in poverty as White children nationwide (US Census Bureau, 2016). Clearly New Orleans falls well below national averages in poverty indicators. What is more frightening is that New Orleans has a poverty rate greater than Uganda, Cambodia, and Bhutan. It is on par with Laos (CIA World Factbook, 2017). The child poverty numbers are particularly troubling because children living in poverty are more likely to repeat a grade, have a learning disability, experience violent crime, suffer from emotional problems, suffer from chronic neglect, and experience delayed brain development (Perry, 2016; Poverty affects Childhood, 2009; Hanson et. al., 2013).

Literacy is another key indicator of Human Development. Illiteracy is not well defined and varies over time and from one geographic region to another. Most sources define functionally illiterate as reading at an elementary level. In the most liberal interpretations, functional illiteracy is the inability to read beyond a fifth grade level (Mack, 1978). Those who are functionally illiterate would struggle to complete a job application or apply for food stamps, for example. According to Loyola University's Lindy Boggs National Center for Community Literacy, 39 percent of people in New Orleans age 16 and over are reading below a 5th grade level (2018). This means 39 percent of the city is functionally illiterate. This rate is higher than 25 least developed nations, 12 of which are in Sub-Saharan Africa. The literacy rate of New Orleans is on par with Haiti, a least developed nation according to the UN (United Nations, 2016; CIA World Factbook, 2017).

Education has been deemed a fundamental human right (United Nations, 1948). Access to higher education is an economic and social justice issue around the world. However, as Engstrom and Tinto (2008) point out, access without support is not opportunity. Many scholars focus on the issue of access to higher education, which is a necessary pre-cursor to the more challenging issue of post-secondary credential completion. Sending students to institutions of higher education without the resources to be successful is the opposite of opportunity, it is what Daniel Dennett (1984) calls a "bare opportunity". There are structural factors that have historically prevented access to post-secondary credentials for minorities and the poor worldwide. Unfortunately, these factors have not been entirely eliminated in the 21st century. Therefore, it is necessary to better understand the factors preventing minorities, particularly Blacks, and the poor from

succeeding in post-secondary education so that they have a chance to change their economic and social status (Hobden & Hobden, 2015). Only then, can real opportunity be offered to these students through higher education.

## 1.2 KATRINA'S IMPACT ON EDUCATION IN NEW ORLEANS

In addition to having dramatic and long-term effects on city residents, Hurricane Katrina allowed for a drastic restructuring of the city's educational system. Prior to the storm, education in New Orleans was its own disaster. It was known for "fraud, corruption, contract scams, flat-out theft, people walking out with laptops" and worse (Merrow, 2005, p. 1). In the three years from 2002 to 2005, there were 24 indictments against public school employees and $71 million dollars could not be located (Merrow, 2005). Further, the Orleans Parish School Board (OPSB) was in debt $450 million (Waldman, 2007, p. 88). Academically, 70 percent of eighth grade graduates were not proficient in math and 74 percent were not proficient in English (Merrow, 2005). Moreover, less than half of all students completed a high school diploma (Waldman, 2007, 94).

Katrina evacuated the vast majority of city residents, including education personnel. This allowed the school board to put all educators on disaster leave and terminate employment contracts. It destroyed the teacher's union, essentially allowing schools to re-hire teachers and staff on one-year contracts. The Recovery School District (RSD) was created in 2003 in an effort to fix the broken system; it allowed the state to take over failing schools and turn them into public charter schools (Nowakowski, 2015). The Louisiana state legislature passed Act 35 following Katrina, which allowed the RSD

to takeover 112 public schools in New Orleans. Act 35 granted the RSD permission to do as necessary with the land and facilities it acquired. The only restriction was that the buildings could not be sold. "The RSD was empowered to lease, rebuild, or renovate the school facilities as necessary for the successful operation of schools, but it could not sell any school buildings as they belong to the local school board" (The Boston Consulting Group, 2007, p. 10). The RSD was supposed to open only charter schools, however a shortage of operators required that the RSD operate some schools directly. By 2007, 58 schools had reopened. Two main bodies, the RSD and the OPSB, governed the schools. OPSB retained direct control of only five schools and issued 12 charters. The RSD issued 17 charters but had to directly run another 22 schools. As a state-run entity, the RSD faced bureaucratic difficulties that OPSB schools were able to avoid. RSD schools faced "operational problems in facilities, transportation, and meal service" (The Boston Consulting Group, 2007, p. 2).

Immediately following Katrina, 57 percent of New Orleans public school students attended charter schools. "Charter schools are public schools operated by a private entity through a contract, or charter, with a state-sanctioned entity called an authorizer" (The Cowen Institute, 2010, p. 10). Though they are still funded by tax dollars, as non-profit organizations, charter schools are able to raise their own funds to supplement government money. This gives schools a great deal of autonomy, as they are responsible for their own budgeting, staffing, and curriculum. Following Katrina, "charters were able to access a $20.9 million grant earmarked specifically for charter schools" (The Boston Consulting Group, 2007, p. 11).

The major contribution of charters to the city was the element of school choice. However, initially there were not many choices, and parents lacked information about their options. This has improved 10 years after the reopening of schools, but the system still faces plenty of challenges. The huge racial inequities that existed pre-Katrina have not disappeared (Sims & Rossmeier, 2015). The public school population is still largely Black; however, test scores are improving. In 2005, 40 percent of students scored basic or above on the Graduation Exit Exam (GEE) in English and 39 percent scored basic or above in math. By 2010, 52 percent of students scored basic or above on the GEE in English and 61 percent scored basic or above in math (The Cowen Institute, 2010). By 2015, 87 public schools were operating in New Orleans. The RSD was responsible for overseeing 59 charter schools. OPSB was responsible for 23 schools-six directly run by OPSB, the rest charters. In addition, there were four charters under the state Board of Elementary and Secondary Education and one independent school accountable to the state legislature (The Cowen Institute, 2014). In 2015, 93 percent of New Orleans public school students attended a charter school, and the charters had addressed many of their issues and started functioning as a system in may ways. They adopted shared policies including school performance standards, centralized enrollment, standardized expulsion process, wraparound services for chronically truant students, pooled funding and requirements for special education, and shared funding for facility maintenance (Sims and Rossmeier, 2015).

## 1.3 THE HIGH SCHOOL IN THE EDUCATION CONTEXT OF NEW ORLEANS

The High School sampled is housed in an extremely old building that experienced flooding of the entire first floor and damage to technology and library during Katrina. The High School was not fit for reopening after Katrina, so the staff and community came together to repair the damage of Katrina. The High School reopened in September of 2006. Prior to Katrina, this was a selective admissions high school with an excellent reputation. The school leadership after Katrina was largely the same as it was before the storm. When the school reopened as a charter, it no longer practiced selective admissions, though it did require an application for admissions. It also maintained a respectable academic reputation throughout the city (Gilyot, 2016).

## 1.4 THE IMPORTANCE OF POST-SECONDARY COMPLETION

Over 75 percent of business leaders in the US believe that improving post-secondary completion rates will positively impact the economy and lead to increasing productivity. They "have defined a college credential broadly to include short-term certificates as well as associate and baccalaureate degrees" (Price & Tovar, 2014, p. 767). A bachelor's degree, on average, is worth $2.8 million over the course of a lifetime. The median lifetime earnings for bachelor's degree recipients is approximately 75 percent more than the median lifetime earnings for those with only a high school diploma. Further, those with an associate's degree earn about one-third more over the course of a lifetime than those with only a high school diploma (Carnevale, Rose, & Cheah, 2011). Further, "on average, certificate holders earn 20 percent more than high school graduates

without any postsecondary education" (Carnevale, Rose, & Hanson, 2012, p. 4). Regardless of the post-secondary credential, a person who has completed some form of post-secondary education stands to earn more than a person who only holds a high school diploma. Therefore, completing any of these credentials is an indicator of potential success. It is important to consider that Black students experience different completion patterns than other groups. Table 1 displays National Center for Education Statistics (NCES, 2011) data on post-secondary completion rates. It shows that low-income students and Black and Hispanic students are more likely to complete certificate programs to improve their earning power quickly rather than invest in an associate's or bachelor's degree. When all credentials are considered together low-income students and Black and Hispanic students are less likely to complete a credential and are more likely to drop out.

**Table 1: 2004-2008 Five-Year Degree Attainment Rates**

| | Certificate | Associate's Degree | Bachelor's Degree | Total Completion | Total Dropout |
|---|---|---|---|---|---|
| **National Total** | 8.8% | 8.4% | 24.1% | 41.3% | 38.7% |
| **Low-income** | 10.1% | 9.0% | 18.3% | 37.4% | 41.2% |
| **Black & Hispanic** | 13.7% | 6.7% | 11.3% | 31.7% | 46.7% |

## 2. LITERATURE REVIEW

The study of college completion began in the 1930s, looking at "student mortality". Student attrition was seen as student failure. It took changes from WWII and the GI bill, Vietnam, and the Civil Rights Movement for the discussion about college completion to gain momentum. Two theories about college attrition were published in the 1970s, both based, at least in part, on Durkeim's suicide model (Demetriou, & Schmitz-Sciborski, 2011**)**. Spady's 1970 sociological model of student dropout in higher education was the first widely recognized model in the field. Spady posited a connection between social integration, satisfaction, and commitment to explain student drop-outs. In 1971, he published his *Dropouts from Higher Education,* which found academic performance was the leading factor predicting student's decision to drop-out (Demetriou, & Schmitz-Sciborski, 2011**)**. In 1975, Vincent Tinto published his student integration model, theorizing that students who leave their home community, integrate into their campus community, and integrate their academic experiences into their social experiences on campus are more likely to graduate because of a commitment to the university (Tinto, 1975; Demetriou, & Schmitz-Sciborski, 2011**)**. It was this theory that created the base for all modern research on the subject of college attrition and completion. Tinto's theory has been debated and revised numerous times over the past four decades. In these revisions, he has described student decision-making as it relates to goal commitment and dropping out. He has explored the idea of fit/match, where student expectations need to match the mission of the institution they choose to attend. He has

also identified different transitions students make within college (Demetriou, & Schmitz-Sciborski, 2011**)**. In the 1990's, the discussion around completion moved toward racial minorities and low-income populations. The importance of advising and student support services developed here. These ideas continued into the 21st century (Demetriou, & Schmitz-Sciborski, 2011**)**. One of the major limitations of Tinto's work is that it does not address the different experiences of disadvantaged groups such as minorities, low-income, and first generation college students. He has acknowledged these limitations and has sought to emphasize the need for institutions to take action to promote completion by "setting high expectations; providing academic, social, and financial support; engaging in frequent and timely assessment and feedback; and creating opportunities for student involvement" (Price & Tovar, 2014, p. 769).

While discussion of attrition remains, the more positive discussion about completion really took off in the late 1990s with Adelman. Adelman's 1999 Toolbox study sought to identify what factors contribute most to bachelor's degree attainment for students who attend 4-year colleges (Adelman, 1999). This study used high school and college transcript records, test scores, and surveys of a national cohort of students who were in the 10th grade in 1980. The study tracked them until 1993 when they were approximately 30 years of age. It allowed students 11 years to get to and through college. The analysis used six least square regressions adding variables to each model to improve its predictive capacity. The fifth model explains approximately 43 percent of the variance in bachelor's degree attainment while the sixth model suggests there is a plateau of variance explanation. A five-step logistical regression then sheds light on the variations within the data. This study found that continuous enrollment and the index he

created called 'academic resources' account for most of the model's explanatory power.[1] Further, the variables with the strongest relationship to degree attainment are continuous enrollment, two-year to four year college transfer, and grade trends. This study considers some previously unconsidered variables such as parenthood, repetition of and withdrawal from courses, and transfer between colleges. Important contributions of this study are the findings that race is not a statistically significant predictor of college success, and socio-economic status only marginally predicts degree attainment after the first year of college completion. Additionally, high school curriculum is the major driver of a student's academic resources that are brought to college. This is more pronounced for Black and Latino students than for Caucasian students. Math was found to have the strongest influence of high school courses on degree attainment. Students who completed math courses beyond Algebra 2 had more than double the odds of degree attainment than their peers who only completed Algebra 2 or less. Advanced Placement courses were more strongly correlated with degree attainment than with college access. Interestingly, the number of colleges a student attended did not effect degree completion. However, the fewer schools a student attended, the more likely he or she was to be continuously enrolled, a factor which was positively associated with college success. The study found that 63 percent of students who attended a four-year institution graduated with a bachelor's degree by age 30. Of the students who attended two-year colleges then transferred to four-year colleges, 70 percent completed a bachelor's degree. The average time to degree completion was 5 years. For students requiring remedial reading courses, only 39 percent completed a bachelor's degree while 69 percent of students who needed

[1] Academic resources is "a composite measure of the academic content and performance the student brings forward from secondary school into higher education" (vi).

no remedial courses completed a bachelor's degree. Additionally, students who completed less than 20 credit hours in their first year of college significantly reduced the chance of college graduation. Arguably the most significant contribution of Adelman is the development of the Academic Resources Index, and confirmation that quality of curriculum is the most important predictor of bachelor's degree attainment. Further, socio-economic status was a better predictor of degree attainment than high school Grade Point Average (GPA) or class rank alone (Adelman, 1999).

Adelman's Toolbox Revisited (2006) used data from National Education Longitudinal Study of 1988-2000 (NELS:88/2000). This study only considered likely post-secondary participants, a highly selective category. It included all students for whom at least one post-secondary transcript was received; students whose loan disbursement status in the National Student Loan Data System (NSLDS) would indicate some post-secondary enrollment; students who could account for post-secondary experiences, had a job and income consistent with having some post-secondary education, and a good high school background based on Advanced Placement (AP) courses and test scores, and students who claimed to have been enrolled in post-secondary education abroad. The sample size was 9,500 and the study considered 482 student-level variables. Adelman (2006, p. v) found that "of all likely post-secondary participants, 45 percent earned a bachelor's degree or higher by age 26 or 27." Further, completing ten credit hours in the first semester was a significant marker. Of those who earned more than 10 credits, 51 percent earned at least a bachelor's degree by the age of 26 or 27. When the variable "attended a four-year institution" was combined with more than 10 credits, 67 percent earned at least a bachelor's degree.

In The Toolbox Revisited, Adelman found that 24 percent of those who earned a bachelor's degree attended school in more than one state (2006). The majority of students attended school during the summer. Forty-one percent of Black students began post-secondary education at community colleges. Eighty-three percent of students who took calculus in high school earned a bachelor's degree. Students who started at selective schools had higher GPAs than those who attended less selective institutions. This seems logical as a higher GPA is necessary to enter the more selective institutions, so students in that category had more practice at earning higher grades. Further, the majority of students beginning post-secondary studies at the community college level took at least one remedial course.

Adelman (2006) found that regardless of other factors, male students were less likely than female students to earn a bachelor's degree. This is consistent with findings that females at almost every level had a higher average GPA than their male counterparts. Additionally, socio-economic status quintile had an effect on post-secondary attainment. Students from the lowest SES quintile were more likely to have a certificate as their highest level of post-secondary attainment than their peers in the upper three SES quintiles. It is important to note that this finding does not hold when only considering students who earned credit from a four-year school.

Of Blacks in the survey, 59.2 percent did not complete any form of post-secondary education, and 30.6 percent earned a bachelor's degree or higher (Adelman, 2006). Additionally, 59.5 percent of students in the lowest SES quintile did not complete any form of post-secondary education compared to only 22.6 percent of their peers in the highest SES quintile. Further, students in the lowest SES quintile completed bachelor's

degrees at a rate of 11.9 percent. The third SES quintile had more than double that amount (24.6%), the fourth SES quintile had almost triple that amount (33.0%), and the highest quintile had just shy of four times that amount (46.2%).

Adelman (2006) found a negative relationship between the number of remedial courses taken and level of post-secondary attainment. Of those who earned a bachelor's degree or higher, 77.5 percent took no remedial classes. There was also a positive correlation between high school academic intensity, high school GPA, and high school test scores, with the number of credit hours earned during the first year of post-secondary enrollment. Those same variables positively correlated to percentage of credits earned to those attempted.

The number of factors that could potentially contribute to a given student's success or failure is virtually unlimited. As such, all of the literature, including this study, looks only at certain components of the bigger completion picture. There are numerous demographic factors known to play a roll in educational attainment, specifically post-secondary completion. Growing up in a single-parent household has a negative correlation with student educational attainment. According to Krein (1986), children raised in single-parent households earn less, on average, than children raised in two-parent homes. Further, children from single-parent homes tend to face greater academic struggles. They are more likely to leave school prematurely than their peers from two-parent households. Krein and Beller (1988, p. 228) found that "in general, the longer the time spent in a single-parent family, the greater the reduction in educational attainment." This effect is larger for men than for women, and it is most pronounced for white men. Krein and Beller (1988) found the following:

> Each additional year spent in a single-parent family reduces education by about $1/10^{th}$ of a year, and this effect is significant at $p<0.10$. White men who spent the average number of years (5.1) in a single-parent family completed 0.5 fewer years of schooling than those who spent none; white men who spent all 18 years in a single-parent family completed 1.7 fewer years of schooling (p. 228).

Black men who spent an average of 8 years in single parent homes completed 0.6 fewer years of schooling than those who were never in single-parent households. They also found that Black men who spent their entire upbringing (18 years) in a single-parent household completed 1.3 fewer years of schooling. This was not significantly different when the researchers controlled for income (Krein & Beller, 1988).

In addition to parents in the home, family size has been linked with student success. Min (2014) found that college students with children living in the household were less likely to graduate. This could be particularly important given the number of high school students who are having babies of their own. "Research has shown that increased family size is negatively related to educational attainment because it reduces or dilutes the time and income inputs available to each child" (Krein & Beller, 1998, p. 226).

The family unit has a clear relationship to students' post-secondary completion. Choy (2001) found that first-generation college students are two times less likely to graduate from a four-year institution than their peers whose parents had bachelor's degrees. Further, "compared with their peers whose parents held bachelor's or advanced degrees, these graduates were more likely to be Black or Hispanic and to be from families in the lowest income quartile" (Choy, 2001, p. 5-6). According to Lightweis (2014),

about a third of a college freshman class is composed of first generation students. Further, of those who enroll, about a quarter drop out before their second year. There are many programs designed to help retain first generation students and improve their change of completion. Crisp & Cruz (2009) found that mentoring has a direct and positive correlation with the retention of first-generation students. Lightweis (2014, p. 465) found that "colleges and universities who included mentoring in programs for first-generation students built on competencies needed for success in higher education." This gave students a greater chance for success in college. Parent's education is significant for student post-secondary success. Min (2014) found that students whose mothers had a college degree or completed some college were more likely to graduate from college. This supports the findings of Kohn, Manski, & Mundel (1976) who found that mother's education was more important than father's education in determining student outcomes.

Secondary schools are frequently expected to somehow change a student's course, given their primary school and background characteristics. While this is not always possible, there are certain elements of secondary education that are important contributing factors to a student's ultimate educational success. Granted, students must seek out many of these opportunities, but ensuring they are available is an important contribution of a secondary school.

Min (2014) found that High School GPA was positively correlated to college graduation. Students who completed high school with an A or A- average were most likely to complete college. There are secondary schools that adjust grading scales to inflate student grades, and therefore it is important to know that GPA is only a part of a much bigger picture of academic quality.

Students who enter college without being academically prepared for college must complete a series of remedial classes upon arrival. According to Bailey (2008) fewer than half of these students complete their developmental coursework within three years, and they have lower graduation rates than their academically prepared peers. Hobden and Hobden (2015) found that their survey respondents felt that development of academic skills and the ability to handle demanding workloads in secondary school helped them in college. Though it is unclear which classes taught the most important academic skills and which demanded that students complete challenging workloads, it is important, from the secondary school standpoint, to explore this further. According to Choy (2001, p. 4) "rigorous high school course taking mitigates, but does not completely close, the gaps in access and persistence" of first-generation students.

Further, "it is widely accepted that student under-preparedness is the dominant learning-related cause of the poor performance patterns in higher education" (South Africa, Council on Higher Education, 2013:16). Bound, Lovenheim, & Turner (2010) used high school math test percentiles as a component of academic preparedness for college. They found "that shifts in the preparation of students entering college (as measured by math test scores) account for about one-third of the observed decline in completion rates" (p. 131). Adelman also found that math classes made up an important part of his Academic Resources Index. Unfortunately, "national data from the Education Department's Office for Civil Rights show that Black students are the least likely to attend high schools that offer algebra" and math-based science courses like physics and chemistry (Hannah-Jones, 2015, p. 1).

Dual enrollment is a strategy for high schools to improve college completion by smoothing the transition to tertiary-level studies. Dual Enrollment classes are college level courses that high school students take for either or both high school credit and college credit. Karp (2015, p. 106) argues that "dual enrollment participants are more likely to complete college and earn a postsecondary credential" though her evidence is unclear. However, she cites numerous other studies that suggest that dual enrollment has positive outcomes even for "students most at risk of falling through the cracks of the completion pipeline, including males, career and technical education, low-income, first-generation, and minority students" (Karp, 2015, p. 108).

According to the Louisiana Department of Education (2018), secondary school curriculum should equip students with the knowledge base to take college entrance exams like the American College Test (ACT) and the Scholastic Assessment Test (SAT). Light and Strayer (2000, p. 300) found that "students with high levels of measured ability are much more likely to graduate [from college] than are their less-able peers." ACT has set college-readiness benchmarks in each subject area of the test. According to ACT (2013), students who meet these benchmarks have a 50 percent chance of earning a B or higher in the corresponding college class. Students who earn an 18 or higher on the English section of the ACT have a 50 percent chance of earning a B or higher in the first level of college English. Students who earn a 22 or higher on the Math section of the ACT have a 50 percent chance of earning a B or higher in College Algebra. Students who earn a 21 or higher on the Reading section of the ACT have a 50 percent chance of earning a B or higher in an Introductory Social Science or Humanities course. Students who earn a 24 or higher on the Science section of the ACT have a 50 percent chance of earning a B or

higher in Introduction to Biology. Yet Bettinger, Evans, & Pope (2013) found that ACT English and Math sub-scores are better at predicting college success in terms of GPA and drop-out rates than the Reading and Science sub-scores.

Unfortunately, there are substantial differences in ACT scores between races and income groups. ACT (2016) reports that only six percent of Black students tested met all the college readiness benchmarks. This fact is generally explained by the "well documented educational inequalities in primary and secondary education between Black and white students" (Bettinger, Evans & Pope, 2013, p. 7). These inequalities often fall along income lines, so it is not surprising that students from lower-income families perform poorer, on average, on the ACT. In 2005, the average ACT score for students from families making $18,000 or less was 17.9, significantly lower than the 23.5 average of students whose families earned incomes over $100,000 (Bettinger, Evans & Pope, 2013).

Money has a hand in many factors related to college success. Hobden & Hobden (2015, p. 1) found that "the main factor disrupting a direct pathway through tertiary studies was a lack of finances." One of the main ways to finance post-secondary studies is through student loans. Min (2014) found that taking out loans up to $10,000 has a positive correlation with college completion. However, beyond the $10,000 threshold, loans actually reduce a student's chance of graduating. There is also a stronger relationship between loans and college success among students from families with lower financial assets. The amount of financial resources in the home has repeatedly been found to be significant in predicting educational attainment. Min (2014) found that the level of financial assets of parents is positively correlated with college completion.

"Compared to youth whose families had net worth of $50,000 or above, those from families with negative/zero or positive net worth lower than $5,000 were more likely to be (Black) and also were more likely to be married and to have children while they were enrolled in college. . .and they were also less likely to graduate from college" (Min, 2014, p. 144). Min (2014) found that students whose parents had a net worth of $50,000 or greater were more than two times more likely to complete college than their peers from families with no net worth. Importantly, "the graduation rate of students whose parental net worth was positive but below $50,000 was not different from the graduation rate of students whose families had negative/zero net worth" (Min, 2014, p. 150).

Kim, Desjardins, and McCall (2009, p. 741-2) found that Black and Hispanic students, as well as those from low-income families, were most responsive to tuition changes, especially when they do not receive the financial aid expected. Low-income and Black students are less likely to complete college when debt is high (Min, 2014, p. 138). While race and socio-economics are often linked, especially in education, race alone also corresponds to dropping out of college. Min (2014) found that minority students are less likely to graduate from college. Black students have made gains with graduation rates moving to 35 percent for males and 46 percent for females in 2006, up from 28 percent and 34 percent respectively in 1991. "Nevertheless, Black college students are attending college, progressing through, and graduating at significantly lower rates than their nonblack counterparts" (Bir & Myrick, 2015, p. 22). The effects of race and income from previous research demonstrate the importance of looking at post-secondary completion among poor, Black students.

This is where a student's college selection becomes extremely important. Financial factors can determine the viability of selecting certain institutions. Private schools tend to be the most expensive, followed by out-of state public schools, followed by in-state public institutions. Community colleges offer the least expensive option for students, and many students chose to attend post-secondary institutions that are close to home so they can save on living expenses. However, Tinto (1975) emphasized the importance of leaving home and assimilating to the college campus for students to complete their studies. Additionally, national persistence-to-degree rates are substantially lower at the less expensive public institutions. Only 21.9 percent of students at two-year public institutions complete an Associate's degree in three years, compared to 40.2 percent of students at two-year private institutions. At four-year public institutions only 36.4 percent of students complete a Bachelor's degree in 5 years, compared to 57.2 percent of students at four-year private schools (ACT, 2015).

Because of these numbers, it is imperative that students attend institutions that match their needs, both financially and academically. Tinto (1975) suggests that students will do best if they attend an institution that is a cultural fit to their expectations. Using data from the National Longitudinal Survey of Youth, Light and Strayer (2000, p. 301) found "that the 'match' between student ability and college quality does have a causal effect on college completion." Students who attend higher quality colleges without having higher-level abilities are less likely to graduate. High schools must consider this when weighting student GPAs.

While academic abilities significantly contribute to college success, social capital is another very important factor of success. Tinto (2012) emphasizes the importance of

both academic and social engagement with faculty outside the classroom. Further, Sandoval-Lucero, Maes, and Klingsmith (2014) found that social capital contributes to student success in college. Their research suggests that relationships with professors, engagement in campus activities, and supportive family members all contribute to post-secondary completion. Students who select colleges where they already have a degree of social capital are therefore more likely to succeed.

There are plenty of students who select a college that matches their needs and abilities who do not graduate, however. There are inputs at the college level that are also strongly tied to success. Bir and Myrick (2015, p. 22) looked at students who participated in a summer bridge program and found that participants "entered with significantly lower test scores and high school grades than nonparticipants, yet for all cohorts combined the summer bridge participants achieved significantly higher college GPAs and were retained to the second and third year at significantly higher rates." The idea behind summer bridge is to get students enrolled immediately after high school graduation, and to capitalize on time that students are usually losing knowledge and instead continue teaching them. This is consistent with Choy's (2001) findings that students who did not enroll in college immediately after high school were more likely to drop out.

Once students get to college, there appear to be a few things they can do to improve their chance of success. Min (2014) found that students who were enrolled full-time were more likely to complete college. Adelman found that students enrolled in more than 20 credit hours during their first year were more likely to complete a Bachelor's degree. Further, Stan Jones (2015) suggests that students who take at least 30

credit hours during their first year are more likely to have higher grades, stay in school, and ultimately complete a degree. Price and Tovar (2014) indicate that students who worked, but who worked 20 hours or less per week were more likely to have good grades than students who worked more than 20 hours a week and students who did not work. Choy (2001) found that students who worked more than 35 hours during college were more likely to drop out. The correlation with good grades make limited work and full-time enrollment key to college success. Choy (2001) found that students with low college GPAs (2.0 or below) were more likely to drop out of college.

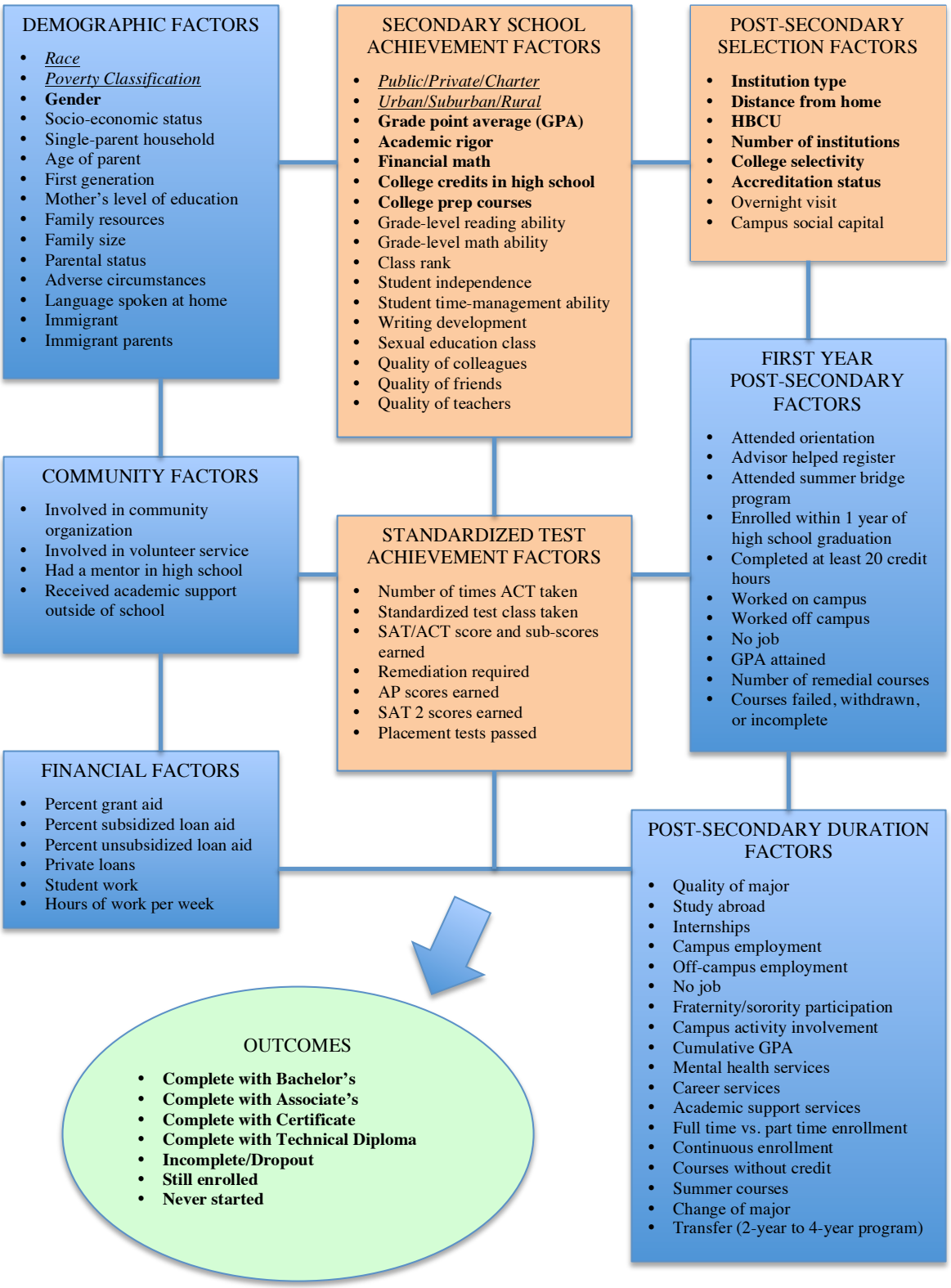
Despite the extensive body of research on student attrition, retention, and completion, more research is needed on sub-populations of the national student body. There is significant evidence throughout the literature suggesting that poor students and Black students have different experiences in post-secondary than their higher SES and White peers. However, much of the research on this sub-group focuses on the community college experience alone. In fact, most of the research evaluates either community college programs or bachelor's degree programs. Very few consider both. Additionally, technical, or trade education is largely omitted from the conversation. Much of the research is focused on ways to increase degree attainment rather than on methods to assist students in getting out of the cycle of poverty. It is with the intention of helping the most disadvantaged students avoid a life of poverty that this research is undertaken.

## 3. CONCEPTUAL FRAMEWORK

Figure 1 presents a conceptual framework for the research design. There are eight categories of independent variables that contribute to the post-secondary success of students. Some are more highly researched than others, but all of those presented here make a logical contribution to student success or failure. The desired outcome in this research is the completion of some form of post-secondary credential whether Bachelor's, Associate's, Certificate, or Technical Diploma. Depending on when a student graduated from high school, persistence within post-secondary can be another indicator of success. Dropping out and failure to enroll are considered failure. For the purpose of this study, underlying demographic and high school factors of the sample are underlined and in italics. The variables tested are presented in bold. The categories from which variables were drawn for this study are shaded orange. There are many variables that could be considered in future studies.

First, the student's demographic background must be considered. Adelman (1999 and 2006) considered demographic variables such as race, socio-economic status, if the student is a parent, number of siblings, language spoken in the home, and immigrant status of student and parent. The literature suggests that poverty (Bound, Lovenheim & Turner, 2010; Choy, 2001; Min, 2014; Kim, DesJardins, & McCall, 2009), race (Price & Tovar, 2014; Min, 2014; Bound, Lovenheim & Turner, 2010; Krein & Beller, 1988; Bir & Myrick, 2015), gender (Adelman, 1999; Murray, 2014; Bound, Lovenheim & Turner, 2010; Krein & Beller, 1988), first-generation status (Choy, 2001; Lightweis, 2014),

Figure 1: Factors Contributing to Post-Secondary Outcomes



growing up in a single-parent household (Bateman, 1997; Krein & Beller, 1988), and family resources such as home-ownership or having a wealthy relative (Murray, 2014; Min, 2014; Hobden & Hobden, 2015), contribute to student post-secondary success. International research suggests that mother's level of education (Min, 2014; Bound, Lovenheim & Turner, 2010; Kohn, Manski, & Mundel, 1976) and language spoken in the home (Gil & Bardack, 2010) are strongly related to a student's success in school. Based on the young age at which many children are having children, it would be reasonable that the age of a student's parents would impact their education in some way (Min, 2014; Krein & Beller, 1988). In the lower socioeconomic levels of New Orleans, other adversities students face should also be accounted for when considering post-secondary success. These include divorce, having a parent incarcerated, having been in foster care, having been homeless, having a sick relative at home, having a disabled parent or sibling, mental illness in the household, and effects suffered as a result of hurricane Katrina, among others. This study will shed light on a sample of poor, Black students affected by Hurricane Katrina. While the demographic variables outside of gender are unknown in the dataset, it is unique to have a sample that represents such a disadvantaged population.

A student's achievement in secondary school is another important component in post-secondary outcomes. It is in secondary school when students learn the majority of the skills that will support them in post-secondary education. Adelman (1999 and 2006) considered GPA, academic rigor, and class rank, in his research. He also used student standardized test scores, a demonstration of secondary academic knowledge and skill accrual. However, this leaves out a number of variables that most educators would consider highly important when predicting post-secondary outcomes. These variables

include grade level reading and math ability, independence, time management skills (Hobden & Hobden, 2015), writing skills, personal finance, sexual education, college credits completed during high school (Karp, 2015), quality of teaching and learning at school, and quality of peers and friends (Sandoval-Lucero, Maes, & Klingsmith, 2014).

Standardized tests are also given to students while they are in secondary school. ACT notes the importance of composite and sub-scores in predicting college success (Bettenger, Evans & Pope, 2013), and the College Board emphasizes the importance of AP scores on college success (Mattern, Shaw, & Xiong, 2009). Placement test scores for remediation would be a useful variable to consider because many students fall below remedial cut-offs on national timed standardized tests but can pass out of remediation on untimed placement tests (Bir & Myrick, 2015). Additionally, the number of times a student took the ACT or SAT could demonstrate how difficult they found the test to be or how important they felt it was in getting to college. SAT 2 subject test scores may also predict this.

Also, during secondary education, students may have access to important community inputs that could support them in post-secondary education. These include participating in academic programs outside the school, volunteering in the community, being involved in a community organization of some kind, and establishing a relationship with a mentor. While there are an unknown number of secondary school variables that could contribute to a student's success, this study will focus on curriculum variables, and test scores. Adelman (1999 and 2006) identifies curriculum as a highly important predictor of student success. This study will look at curriculum variables that were either not tested or were found to be insignificant by Adelman to see if this more disadvantaged

sample differs from Adelman's national sample. The goal is to help the high school determine what it can do to help students be more successful after high school.

While there does not appear to be a strong correlation with many Post-Secondary Environmental inputs on a national level, these inputs are likely to have a different impact on sub-groups of the national population. For example, Black students tend to perform better and be more comfortable at Historically Black Colleges and Universities (HBCUs) (Fries-Britt, 1998; Fleming, 1999). Adelman (1999 and 2006) included number of colleges attended, transferring from a two-year to a four-year college, and college selectivity in his studies. Experienced college counselors believe that campus visits, especially overnight visits, and knowing people on a campus can help a student succeed (Rowh, 2003; Brock, 2010). Further, it is unclear if the type of institution (public, private, two-year, four-year, urban, suburban, rural, size) is related to student success within certain sub-populations. Additionally, an institution's distance from home may be important for some sub-populations. Since this study considers a sample of Black students, HBCU is an important post-secondary selection factor to consider. Other factors included are location of post-secondary institution (in New Orleans, in Louisiana, or outside Louisiana), number of institutions attended, accreditations status of institutions attended, two-year or four-year institution, public or private institution, and average level of selectivity of the institutions attended.

Another very important factor in college selection is the financial picture. Students who obtain more grant aid are known to do better in post-secondary than students who rely more heavily on loans and employment (Min, 2014). One of the variables accessible in this sample is whether or not a student qualified for the Taylor

Opportunity Program Scholarship (TOPS), the state tuition scholarship program that basis its award on high school GPA and composite ACT score. There are four TOPS awards for which students can qualify. The TOPS Tech award is for students with a Cumulative high school GPA of 2.5 and a composite ACT score of 17. It pays for up to two years of trade school only. The TOPS Opportunity award is for students who have a cumulative high school GPA of 2.5 and an ACT composite score of 20 or higher. It pays for in-state public college tuition for four years. The TOPS Performance award is for students who maintained a 3.0 cumulative high school GPA and earned an ACT composite score of 23 or higher. It pays for in-state public college tuition for four years and provides a $400 per year stipend for books. The TOPS Honors award is given to students who maintained a 3.0 cumulative high school GPA and earned an ACT composite score of 27 or higher. It pays for in-state public college tuition for four years and provides an $800 per year stipend for books (Louisiana Office of Student Financial Assistance, 2017). To maintain a TOPS award, students must maintain the same GPA requirement throughout college. Therefore, it is important to note that this dataset provides no information on whether students maintained their TOPS throughout their post-secondary studies.

Student academic variables during post-secondary are the most obvious ties to post-secondary success. For the first year, Adelman considered time of student enrollment, number of courses taken during the first year, GPA, remedial courses (Bir & Myrick, 2015), and percent of courses failed, repeated, withdrawn, or incomplete. Other factors that academic advisors would label important include attending orientation, registering for classes with the help of an academic advisor, whether the student worked

on or off campus (Brock, 2010). First year inputs should be considered along with similar duration inputs. Adelman considered cumulative GPA, full-time enrollment, continuous enrollment, summer courses taken, change of major, and percent of courses failed, repeated, withdrawn or incomplete. Tinto (2006) would also suggest that overall quality of experience is likely an important contributor to completion. These things might include the quality of the student's major, study abroad, completed internships, working on or off campus, participation in Greek life, involvement in campus activities, and accessing career services, mental health services, and academic support services. However, since this study focuses on what a high school can do to help students succeed, these variables will not be considered here.

## 4. RESEARCH QUESTIONS AND HYPOTHESES

**1. Which secondary education, testing, and college selection inputs appear to best predict post-secondary credential completion among students who attended the same public charter high school serving predominately low-income, Black students?**

For the purpose of this study, post-secondary success is defined as completion of a Bachelor's Degree, Associate's Degree, Certificate, or Technical Diploma. This is a broad definition accepted by former President Obama and business leaders nationwide (Price & Tovar, 2014). Researchers generally include retention as an indicator of success, however it is important to separate those who complete a credential from those who are on track to complete a credential because it is always possible for a student to drop out. A bachelor's degree, on average, is worth $2.8 million over the course of a lifetime (Price & Tovar, 2014). The median lifetime earnings for a bachelor's degree is approximately 75 percent more than the median lifetime earnings for a high school diploma. Additionally, those with an associate's degree earn about 33 percent more over the course of a lifetime than those with only a high school diploma (Carnevale, Rose, & Cheah, 2011). Further, those with a certificate earn 20 percent more, on average, than those with only a high school diploma (Carnevale, Rose, & Hanson, 2012). Regardless of the post-secondary credential, a person who has completed some form of post-secondary education stands to earn more than a person who only holds a high school diploma. Therefore, completing any of these credentials is considered success. It is important to consider the number of semesters spent in school when finding correlations because

students who are in school longer are more likely to complete some form of post-secondary education. Unfortunately, students of color are less likely to complete a post-secondary credential than their White and Asian counterparts. Of the Black students who first enrolled in a four-year institution in 1995-96, only 46 percent completed a bachelor's degree in six years while 67 percent of White students and 72 percent of Asian students completed a bachelor's degree in the same time period (Swail, Redd, & Perna, 2003). Therefore, this research on a predominately Black group of students should help to isolate the factors that facilitate post-secondary completion among an underrepresented group. This will not only be useful to the high school these students attended, but also to academics and policy-makers who seek to increase equity in post-secondary outcomes.

**Hypothesis:**

It is expected that high school GPA, taking advanced high school coursework, taking financial math, ACT math score, number of ACT college benchmarks reached, qualifying for TOPS, and attending an HBCU will positively predict the earning of a post-secondary credential. Number of failed high school classes, number of remedial classes required, and number of institutions attended are expected to negatively predict the earning of a post-secondary credential.

**2. Which secondary education, testing, and college selection inputs appear to best predict post-secondary credential failure among students who attended the same public charter high school serving predominately low-income, Black students?**

For the purpose of this study, failure to earn a post-secondary credential includes students who began post-secondary education, but did not receive a credential *and* were not

enrolled at the time of data collection. It is important to determine if the factors that predict success are the opposite of the factors that predict failure.

**Hypothesis:**

It is expected that number of failed high school classes, number of remedial courses required, and number of institutions attended will positively predict the failure to earn a post-secondary credential. High school GPA, taking advanced high school coursework, taking financial math, ACT math score, number of ACT college benchmarks reached, earning TOPS, and attending an HBCU are expected to negatively predict the failure to earn a post-secondary credential.

**3. Which secondary education and testing inputs appear to best predict non-participation in post-secondary education among students who attended the same public charter high school serving predominately low-income, Black students?**

For the purpose of this study, non-participation in post-secondary education includes students who showed no record in the NSC database at the time the data was collected. It is important to determine the factors that predict non-enrollment in post-secondary education in order to show that the students who do not enroll in post-secondary education are significantly different from students who do enroll.

**Hypothesis:**

Students who do not enroll in post-secondary education are significantly different from their peers who enroll in post-secondary education in terms of GPA, ACT, number of failed classes, number of advanced classes taken (dual enrollment, AP, honors, gifted), and highest level of math taken.

# 5. METHODOLOGY

## 5.1 DATA COLLECTION

Data was collected for regular educational record keeping by a school staff member. The Principal and Assistant Principals agreed to let the researcher utilize the data for the present study under the condition that no student identifying information be available to the researcher and that the results be presented to the school's Board of Directors and Administration upon completion. Data was compiled using student academic files and National Student Clearinghouse (NSC) Data from one New Orleans public charter high school. Transcripts in the academic files provided student age at graduation, gender, date of entry into high school, date of graduation, cumulative GPA, number of credits earned, number of credits failed, what classes were taken, the academic level of those classes (Honors, Gifted, AP, Dual Enrollment), and which courses, if any, were taken at another high school along with the name of that high school. The researcher summed the total number of credits earned at any high school other than the sample school, the number of credits failed, and the number of classes taken at each academic level. The researcher also totaled the number of credits students earned within each academic department. English included English, reading, and writing courses. Math included Algebra 1, Algebra 2, Algebra 3, College Prep Algebra, Basic Algebra, Applied Algebra, Geometry, Trigonometry, Pre-Calculus, Advanced Math, Statistics, Calculus, and Financial Math. Social Studies included World Geography, Human Geography, World History, European History, Economics, Free Enterprise, US History,

US Government, Comparative Government, Civics, Law Studies, Black Studies, African-American Studies, and American Studies. Science included Physical Science, Biology, Biology 2, Chemistry, Chemistry 2, Physics, Applied Physics, Anatomy and Physiology, and Kinesiology. Foreign Language included Latin, Spanish, French, German, Chinese, and American Sign Language. College and Career Readiness (CCR) included Medical Terminology, Health Science, Accounting, Education for Careers, Journey to Careers, Entrepreneurship, Internship, Hospitality and Tourism, and all computer-based classes. Art included all music classes, fine arts classes, visual arts classes, film classes, theatre classes, performing arts classes, and specialty arts classes taken at other schools, especially New Orleans Center for Creative Arts (NOCCA). ACT prep and SAT prep were included in the test-prep category.

Test score cards from the academic files provided results from every standardized test each student took. The researcher took the highest test score on each sub-test as well as the highest composite and number of times ACT was taken. Students whose highest ACT English sub-score was below an 18 and students whose highest ACT math sub-score was below a 19 were marked as requiring remedial classes. TOPS qualification level was determined based on student GPA and highest composite ACT score as identified by the TOPS Scholarship Program (Louisiana Office of Student Financial Assistance, 2017). Students with a Cumulative GPA below a 2.5 and/or an ACT composite score below a 17 were categorized as 'no TOPS'. Students possessing a Cumulative GPA of a 2.5 or higher along with an ACT composite score of 17-19 were categorized as 'TOPS Tech'. Students possessing a Cumulative GPA of a 2.5 or higher and an ACT composite score of 20-22 were categorized as 'TOPS Opportunity'.

Students possessing a Cumulative GPA of a 3.0 or higher and an ACT composite score of 23-26 were categorized as 'TOPS Performance'. Students with a Cumulative GPA of 3.0 or higher and an ACT composite score of 27 or higher were categorized as 'TOPS Honors'.

NSC data provided the number and names of each post-secondary institution attended by each student. It also identified whether or not the student graduated, the date of graduation, the name of the school issuing the degree, and the degree type (Certificate, Technical Diploma, Associate's, or Bachelor's). Only the first credential completed is used in this study, but several students completed multiple credentials from the time they graduated high school to the date the data was collected in May 2015. The NSC also indicated the dates each student was enrolled in each institution. From the data provided, the researcher identified the types of schools each student attended (two-year or four-year, public, private, or for-profit, HBCU), as well as the school's location (local, in-state, out-of state), level of selectivity of schools attended, accreditation probationary status, how many semesters were spent in school, and whether the student was still enrolled in a post-secondary institution at the time the data was compiled.

## 5.2 THE SAMPLE

The purposive sample was collected from this school because it was well known and widely respected throughout the New Orleans community both before and after hurricane Katrina. Further, it provideed a unique set of traditionally highly disadvantaged students. Table 2 shows the percentage of students who identified as Black based on school reported data and the percentage of students who were eligible for free

and reduced price lunch based on published Louisiana Department of Education figures. The sample is a relatively homogenous group.

**Table 2: High School Demographics**

| Year | Black | Free and Reduced Lunch Qualifiers | Total Student Population |
|---|---|---|---|
| **2007** | 96% | 93% | 215 |
| **2008** | 97% | 90% | 209 |
| **2009** | 96% | 93% | 233 |
| **2011** | 97% | 84% | 221 |
| **2012** | 97% | 95% | 211 |
| **2013** | 97% | 89% | 224 |
| **2014** | 97% | 84% | 210 |

All students attended the same New Orleans public charter high school for at least one year prior to graduation, and graduated between 16 – 21 years of age. The sample includes all graduates for the years 2007-2009 and 2011-2014. The 2007 graduating class was the first class to graduate from the school following the devastation of Hurricane Katrina. The class of 2010 was omitted from the sample because there was no existing NSC file for that class. The original sample included 1,523 students who graduated in the seven years sampled. Special Education students and students missing either an academic or NSC file were removed from the sample. Two students whose gender could not be identified were also removed from the sample. This left a usable sample of 1,453 students.

## 5.3 VARIABLE CODING

The study includes students who completed high school and who are represented in the NSC data file. The NSC 'no record' parameter is not perfect as there are very few colleges nationwide who do not report data to the NSC. However, for the purpose of this

study, No Record will be assumed to represent students who never entered post-secondary education, as it is the closest estimation of that parameter.

First, the variables had to be renamed from the original excel file to be imported into SPSS. Gender is a dichotomous variable coded as Male, in which 1 represents male and 0 represents female. Graduation age is a scale variable representing a student's age when they completed high school. The variable was coded Age_HSgrad in SPSS and represents a scale of ages 16 to 22 (the youngest realistic age to the oldest legal age to complete high school). No partial years are available. Students' cumulative GPA was used instead of TOPS GPA because TOPS GPA was not available for the class of 2007. While cumulative GPA is less accurate as a gage for TOPS qualification, it is a reasonable substitute that can be used across all cohorts. Cumulative GPA was coded Cum_GPA in SPSS as a scale variable representing 0.000-4.440. Due to the weighting of dual enrollment, AP, gifted, and honors courses, it is possible for a student to have above a 4.000 cumulative GPA. Whether or not a student completed the core curriculum as determined by the state of Louisiana was coded Core_Curriculum_Complete as a dichotomous variable with 1 representing complete and 0 representing incomplete. It is important to note that the class of 2007 did not have the completion of a core curriculum demarcated on their transcripts. As such, the entire class is missing this variable. The core curriculum has changed over time, but in essence it includes four units of English, math, social studies, and science, two units of foreign language, and either an arts or technology unit. Number of credits complete was represented as a scale variable in increments of 0.25. It was labeled Credits_complete in SPSS. The number of credits a student failed was also represented in increments of 0.25 as scale variable Credits_failed.

The number of credits students earned at another high school and transferred to the high school under study was also represented in increments of 0.25 as a scale variable called Outside_credits.

The type and number of credits was also measured. Information on whether or not a student took dual enrollment classes, and if so, how many they took was compiled. It was recoded in SPSS as a scale variable with 0 representing took no dual enrollment classes. The variable was coded DE_credits, however it was not used in much of the analysis because none of the students from the classes with time to complete a bachelor's degree took dual enrollment classes. The number of AP credits a student completed was represented as scale variable AP_credits with increments of 0.5. The number of gifted and honors credits a student earned were represented by scale variables Gifted_credits and Honors_credits in increments of 0.25. Given the significance of math in Adelman's study, the number and type of math classes were broken down further. The number of math credits a student completed was represented by the scale variable Math_credits. Student's highest math class was noted and coded in the SPSS file as ordinal variable Math_level. This was done because math level was found to be a very important predictor of college success in Adelman's work. For this study, the highest level of math was broken down into those who completed basic math (Algebra 1, Algebra 2, and Geometry) or less, those who completed at least one math class beyond the basic requirement, and those who completed calculus. Students who completed basic or below were coded 0, those who completed at least one advanced math course were coded 1, and those who completed calculus were coded 2. Whether or not the student completed financial math was also separated as a dichotomous variable financial_math with 1

representing students who took some financial math and 0 representing students who did not take any financial math. The remaining class type categories were coded as scale variables with 0.25 increments in SPSS and were not broken down. The number of science credits completed was named Science_credits, the number of English credits completed was named English_credits, the number of social studies classes completed was named Social_Studies_credits, the number of art classes completed was named Art_credits, the number of College and Career Readiness classes completed was named CCR_credits, and the number of foreign language credits complete was named Language_credits. Whether or not a student completed some kind of test-prep class for high school credit was a dichotomous variable coded ACT_Prep_class where 1 represented the students who had taken some test-prep for credit and 0 represented the students who had not. This variable is not perfect however, as many of the test-prep classes available to students are not offered in conjunction with a high school or high school credit hours.

The type of TOPS for which a student qualified was broken into two variables. TOPS_level was an ordinal variable in which 0 represented students who did not qualify for TOPS, 1 represented students who qualified for a TOPS Tech award (possessed a cumulative GPA of 2.5 or higher and ACT of 17-19), 2 represented students who qualified for a TOPS Opportunity award (possessed a cumulative GPA of 2.5 or higher and an ACT score of 20-22), 3 represented students who qualified for a TOPS Performance award (possessed a cumulative GPA of 3.0 or higher and an ACT score of 23-26), and 4 represented students who qualified for a TOPS Honors award (possessed a cumulative GPA of 3.0 or higher and an ACT score of 27 or higher). TOPS_Y was a

dichotomous variable with 1 representing students who earned some level of TOPS and 0 representing students who did not. The students highest ACT composite and sub-scores were represented at scale variables ACT_Composite, ACT_English, ACT_Math, ACT_Reading, and ACT_Science. Possible scores on each section range from 0-36. The number of times the student took the ACT was represented by scale variable times_taken_ACT. The number of ACT College Readiness Benchmarks a student met was represented by scale variable ACT_Benchmarks_met. Students could meet 0, 1, 2, 3, or 4 benchmarks. Whether or not a student required remediation based on their ACT score (less than 18 in English and/or less than 19 in math) was recoded as a scale variable called Remedials. Based on their ACT score, students could be required to take 0, 1, or 2 remedial classes. While it is possible that a student might have to take more than 2 remedial classes once admitted to college, any additional remediation needs are not determinable based on the information available.

Next, the college environmental variables had to be addressed. Whether or not a student attended some form of post secondary was coded as dichotomous variable Attended_college with 0 representing the students who the NSC reported as having no record, and 1 representing students who enrolled in at least one post-secondary institution. The scale variable Number_of_colleges represents the number of post-secondary institutions a given student attended, including 0 for those who did not attend a post-secondary institution. Accreditation_Probation is a dichotomous variable representing whether or not a post-secondary institution that the student attended was on academic probation in 2015, when the data was collected. For this variable, 0 indicated that none of the institutions attended were on academic probation in 2015, and 1

indicated that at least one of the post-secondary institutions the student attended was on accreditation probation in 2015 (US Department of Education, 2015). The level of selectivity for each institution was broken into quintiles calculated based on the percent of admitted students.[1] Schools admitting 20% or fewer of students represented quintile 1, schools admitting 21-40% of students represented quintile 2, schools admitting 41-60% of students represented quintile 3, schools admitting 61-80% of students represented quintile 4, and schools admitting 81-100% of students represented quintile 5. Because many students attended more than one institution and those institutions often did not fall into the same selectivity quintile, Av_Selectivity was created in SPSS to represent the average selectivity quintile of the schools in which the student enrolled. The scale for Av_Selectivity is 1-5. Whether the student attended a two-year school, regardless of how many institutions were attended, was coded as dichotomous variable @2_year with 1 representing that the student attended a two-year institution and 0 representing that the student did not attend a two-year institution. Whether the student attended a four-year school, regardless of how many institutions were attended, was coded as dichotomous variable @4_year with 1 representing that the student attended a four-year institution and 0 representing that the student did not attend a four-year institution. Whether the student attended a public, private or for-profit institution school, regardless of how many institutions were attended, was coded as three separate dichotomous variables. The variable Public used 1 to represent that the student attended a public institution and 0 represented that the student did not attend a public institution. Variable Private used 1 to represent that the student attended a private institution and 0 represented that the student

[1] Utilized collegedata.com to find percent of admitted students to four-year institutions and niche.com to

did not attend a private institution. Variable For_Profit used 1 to represent that the student attended a for-profit institution and 0 represented that the student did not attend a for-profit institution. The location of the schools students attended was also broken into three separate dichotomous variables. Variable NOLA used 1 to represent that the student attended an institution in New Orleans and 0 represented that the student did not attend an institution in New Orleans. Variable LA used 1 to represent that the student attended an institution in the state of Louisiana and 0 represented that the student did not attend an institution in Louisiana. Variable Out_of_State used 1 to represent that the student attended an institution outside of Louisiana and 0 represented that the student did not attend an institution outside of Louisiana. Whether or not a student attended an HBCU was represented by dichotomous variable HBCU, in which 1 represented that the student attended an HBCU and 0 represented that the student did not attend an HBCU. The number of semesters a student spent in school was coded as scale variable Semesters_in_school. Students who attended schools in trimesters, quarters or who attended summer classes had fall terms categorized as one semester, winter and spring terms categorized as a separate semester and summer categorized as a separate semester. Whether or not the student was still enrolled in post-secondary education when the data was compiled is coded as dichotomous variable Enrolled_SP15, in which 1 represented that the student was enrolled in a post-secondary institution when the data was compiled and 0 represented that the student was not enrolled in a post-secondary institution when the data was compiled.

The type and level of post-secondary credential was broken down into several categories. Whether or not a student completed some form of post-secondary credential

was coded as dichotomous variable Graduated where 1 represented completion of some credential and 0 represented non-completion of an academic credential. Additionally, ordinal variable Degree_level was created in which 0 represented no degree, 1 represented the earning of a degree less than a bachelor's degree (Technical Diploma, Certificate, and Associates), and 2 represented the earning of a Bachelor's degree. These degree types remained in separate dichotomous variables Bachelors, Associates, Certificate, and TD. In these variables 1 represented that the student had attained that level of credential as their first degree and 0 represented that they had not. The number of years it took a student to graduate was coded as scale variable Years_to_graduate. The selectivity quintile of the institution from which a student graduated was coded as ordinal variable Grad_selectivity. The same dichotomous classifications for the schools attended were coded separately for the school from which students graduated. They are Public_degree, Private_degree, For_profit_degree, @2_year_degree, @4_year_degree, NOLA_degree, LA_degree, Out_of_state_degree, and HBCU_degree. Whether or not a student took additional classes after completing their post-secondary credential is coded as dichotomous variable Additional_Classes, in which 1 represented that the student attended classes after completing their first credential and 0 represented that the student did not completed an additional degree after completing their first post-secondary credential is coded as dichotomous variable Additional_Degree, in which 1 represented that the student completed an additional degree after completing their first credential and 0 represented that the student did not complete an additional degree after completing their first credential.

## 5.4 INDEPENDENT VARIABLES

Adelman (1999) found extremely high correlations between certain academic variables leading him to create the Academic Resources Index. It is important to note that Black and Hispanic students have lower access to high quality curriculum and high test scores than their White and Asian peers. Black and Hispanic students are also less likely than their White and Asian peers to have high GPAs and class ranks (Adelman, 1999, p. 85). According to Adelman (1999, p. 86), improving the quality of curriculum would increase bachelor's degree attainment for Black and Latino students by 27.5 and 18.5 percent respectively. Since this study will be looking almost exclusively at Black high school graduates, it is important to consider additional independent variables within academic resources than Adelman did for his national sample. Therefore, this study will consider the following high school academic variables: on-time graduation, high school cumulative GPA, number of credits earned, number of credits failed, number of credits taken at another high school, dual enrollment credits earned, Advanced Placement credits earned, gifted credits earned, honors credits earned, number of math credits earned, highest level of math, whether or not financial math was taken in high school, number of science credits earned, number of English credits earned, number of Social Studies credits earned, number of art credits earned, number of Career and College Readiness credits earned, number of foreign language credits earned, whether or not a test-prep course was taken.

Another important determining factor in the post-secondary admissions process is standardized test achievement. Therefore, this study will consider TOPS qualification

status, highest of each ACT composite and sub-scores (English, Math, Reading, Science), number of times the student took the ACT, number of remedial classes that would be required based on ACT scores, and number of ACT benchmarks met. An ACT math score below a 19 and an ACT English score below an 18 indicate that a student requires remediation unless the student passes a placement test. Since no data on placement test administration or results is available, this research will assume students achieving lower than an ACT math score of 19 and ACT English score of 18 were required to take some form of remedial class in order to enter post-secondary education. While this is not necessarily the case, students who scored so poorly on the ACT math and English sections certainly fell towards the bottom of performance indicators in their first college level courses in these subjects if remediation was not attempted. ACT scores, especially when combined with GPA can lead to money to help finance post-secondary options. This is important to consider, as finances are one of the main reasons students drop out of post-secondary studies (Min, 2014). In Louisiana, if a student achieves a composite ACT score of 17 with a 2.5 GPA, they qualify for a TOPS Tech Award, which covers the equivalent cost of in-state tuition at any public two-year institution within Louisiana for two years. A student who achieves an ACT composite score of 20 with a 2.5 GPA qualifies for a TOPS Opportunity Award, which covers the equivalent cost of in-state tuition at any public four-year institution within Louisiana for four years. A student who achieves an ACT composite score of 23 or higher with a 3.0 GPA is eligible for additional dollar amounts to pay for books and fees. These awards can also be used at private institutions in Louisiana for the dollar amount of the average two-year or four-year public institution in the state.

Several post-secondary environmental inputs will also be considered in this study. It will look at the number of schools attended, number of semesters spent in school, whether the institution is a two-year or four-year school, whether it is public, private, or for-profit, whether or not it is an HBCU, and whether it is in New Orleans, in Louisiana, or outside Louisiana. It also will consider the level of selectivity (quintile) of the schools attended as well as the school's accreditation probation status.

The only demographic variables available for this study are gender and age at high school graduation. The purpose behind evaluating effects of these variables on post-secondary attainment is that the high school could then adjust curriculum requirements to better support students through a post-secondary education option. Therefore, these variables will be included along with high school factors. Additionally, guidance counselors should emphasize any standardized test inputs and post-secondary environmental inputs that are strongly correlated with post-secondary success as they help students apply for post-secondary institutions.

## 5.5 METHODOLOGICAL BACKGROUND

Adelman's Tool Box studies will serve as the methodological foundation for this study (Adelman, 1999; Adelman, 2006). The purpose of Adelman's broad studies was to identify the factors contributing to bachelor's degree attainment among students nationwide. Adelman is one of the few researchers who considered completion rather than just access or persistence. Adelman's original Tool Box was published in 1999 using the 1998 restricted edition of the High School & Beyond/Sophomore cohort files. As in Adelman (1999), here the purpose is more to explain outcomes in order to enhance

the inputs rather than to use specific inputs to predict a certain outcome. In the original Tool Box, Adelman used two stages to tell the story of student success. Initially he completed a series of six Ordinary Least Squares (OLS) regressions to identify how much of degree completion variation could be explained by a student's background (6 variables), financial aid (3 variables), college attendance patterns (9 variables), first year college performance (3 variables), continuing performance (3 variables), and satisfaction (5 variables). With each regression he dropped insignificant variables and added new independent variables to the model. Adelman then tested his models using logistic regressions as suggested by Cabrera (1994). The logistic regression is preferable when the dependent variable is binary, such as completed a bachelor's degree. It uses odds ratios to make "dramatic statements" about the relationship between variables. Adelman identified 10 independent variables that explained 40.98 percent of the variation in 4-year

**Table 3: Adelman's Findings[2]**

| Variable | P-Value | Contribution to $R^2$ | Odds Ratio |
|---|---|---|---|
| **NOSTOP (Student continuously enrolled as undergraduate)** | 0.001 | .1581 | 3.85 |
| **Academic Resources (Secondary school math, test score, and GPA)** | 0.001 | .1011 | 1.48 |
| **DWI Index (Student withdrew or did not complete 20% or more of credits attempted)** | 0.001 | .0714 | 0.21 |
| **Low-Credits (Student completes fewer than 20 credit hours in their first true year of enrollment)** | 0.01 | .0207 | 0.40 |
| **GPA Trend (ratio of final year GPA to first year GPA)** | 0.01 | .0173 | 3.21 |
| **Children (If the student is a parent by age 22/23)** | 0.01 | .0136 | 0.23 |
| **Freshman GPA (First full year enrolled)** | 0.01 | .0087 | 3.02 |
| **No-Return (Student attended more than one school, but did not return to the first school)** | 0.01 | .0087 | 0.59 |
| **Transfer (student earned 10 or more credits at a 2-year school before transferring to a 4-year school)** | 0.01 | .0057 | 3.51 |
| **SES Quintile** | 0.05 | .0045 | 1.18 |

*$R^2$=.4098

[2] Adapted from Adelman 1999 p. 78 and p. 80-81.

degree completion. See Table 3 for p-values and contribution to $R^2$.

In the original toolbox, the OLS and logistic models show very similar results. The academic resources index is a better predictor of success in the OLS model than in the logistic model. The transfer variable also becomes a better predictor of success in the logistic regression. However, all the important variables, as shown in Table 3, were consistent between both models.

Adelman's Revisited Toolbox (2006) used the National Educational Longitudinal Study of 1988-2000 (NELS: 88/2000) data, collected by the National Center for Education Statistics, to further substantiate the findings of the original toolbox. However, in the Revisited Toolbox, Adelman used only logistic regression and further separated the steps to degree completion in order to get a better understanding of how the cohort members were earning bachelor's degrees. He again started with demographic and academic background information. Again, the academic resources variable was the most important background characteristic in explaining eventual bachelor's degree attainment. The second stage of variables he considered were post-secondary entrance variables such as how quickly a student enrolled in a post-secondary program and what type of institution the student attended. In the third stage of analysis, Adelman considered the first year of a student's post-secondary education including variables related to curriculum and performance. The fourth stage of analysis included financial variables such as student loans and grant awards. The fifth stage of analysis examined post-secondary attendance patterns, and the sixth stage looked at post-secondary curriculum and performance after the first year. The seventh stage of analysis included all the significant variables from the first six stages. The model created in the seventh stage

explained 43.8 percent of the variation in degree completion among the sample. It included academic resources, socio-economic quintile, first-year grades, multiple schools, summer credits, if the student was ever enrolled part-time, GPA trend, college math credits, ratio of classes taken to classes completed, and continuous enrollment. It is important to note that earning fewer than 20 credits in the first year of attendance was statistically important at many stages of the model, but did not make it into the final logistic model. This variable was significant in Adelman's original toolbox study.

Adelman utilized a national sample, however, college completion rates are notably lower in some regions of the country and among certain racial groups. As such, the present study looks to shed more light on the inputs contributing to post-secondary success of a highly disadvantaged sub-population: low-income, Black students from an urban public charter high school in New Orleans. This group has a far lower post-secondary completion rate than the national average (see Table 1 in Section 1.4). Due to limits in the sources of data available on this particular group of students, certain variables that were important in Adelman's research cannot be included in this study. However, other variables that Adelman did not consider can be included to determine if they affect this sample of a subset of the national population. Further, because the sources of data are easily accessible to any high school, the ease of replication could lead to increased knowledge of what factors most contribute to college success among varying population sub-groups and in various regions of the country.

However, this study is able to consider institution location, student demographics, and information about the type of post-secondary school (whether it is two-year or four-year , or a public or private school), using a sample of low income Black students, a

subset of the national population that is particularly disadvantaged when it comes to post-secondary completion.

## 5.6 UNIVARIATE ANALYSIS

Once the file was imported into SPSS, it was possible to find the mean, standard deviation, and frequency for each variable in the sample as a whole. The frequencies for each of the dichotomous variables were found and the mean and standard deviation for each of the scale variables was found. Box plots for each of the scale variables were produced to look for outliers and skewedness.

There were outliers for several high school variables. Because the purpose of the study is to isolate factors that contribute to post-secondary completion, most outliers were maintained in the sample. For age at high school graduation, most students were 17 or 18, but three students graduated at the age of 21, seven students graduated at the age of 16, and one student did not have age reported. In the state of Louisiana, a student can graduate from high school until they are 22 years old. As such, having very few students graduate at 21 is valid. Additionally, while it is rare for students to complete high school at the age of 16, the dispersion of students across the country, many to far better schools, allowed some students to skip several grades upon their return to New Orleans. This makes it reasonable that seven students graduated at the age of 16. The one student whose age was not reported was removed from the sample. High school GPA should range 0.0-4.0. However, one student had a GPA of 4.11 due to Advanced Placement and honors classes on top of her straight As. This also is valid given the weighting system at the high school. In fact, it is somewhat surprising that there is only one student with a

GPA above a 4.0. There were very few students who took Dual Enrollment, AP, or gifted classes. As such, mathematical outliers are completely reasonable. For example, a student who took five AP credits is considered a mathematical outlier, but taking five AP credits in high school is reasonable. Likewise, it is reasonable for a gifted student to take 10 gifted credits, which was the maximum, in high school. It is also reasonable for a student to take as many as 19 honors credits, which one student did. In terms of the subjects studied, students have some choice in the number of credits taken. However, it is unreasonable that any student would have taken fewer than two courses in any core (Math, Science, English, and Social Studies) course. As such, the student who took 0 science credits was removed from the sample. There were 11 students who were extreme outliers in the number of art credits taken. However, given the emphasis on art, especially music, in New Orleans and the fact that students can participate in an extra-curricular arts program for credit, these outliers are reasonable and maintained in the sample. For students who graduated in 2007-2008, foreign language was not a graduation requirement. Therefore, the 18 students who did not take any foreign language, who also graduated in 2007-2008, were not omitted from the sample.

There were many outliers in number of credits failed; 39 students were extreme outliers, failing more than six credits. Yet, only nine of these students graduated from high school late, and 22 of them went on to attend college. The extreme outliers for the failed credits variable were maintained in the sample because they provide an interesting layer to the research. Intuitively, a student who failed more than six credit hours in high school would not continue on to post-secondary. The fact that so many of them did could inform the research. Additionally, students who were extreme outliers in the more

intuitively positive variables (AP credits and gifted credits) were not removed, so the outliers in the intuitively negative variable of failed credits will be maintained in the sample. This will be factored into the multivariate analysis to see how these 39 students might affect the outcome graduated.

In terms of standardized test variables, there were 175 students who did not take the ACT. These students are not outliers, because taking the ACT was not a graduation requirement until 2014. Therefore, these students are maintained in the sample. There were no extreme outlier scores on any of the ACT sub-tests. Only one student took the ACT nine times, which was the extreme outlier cutoff for that variable. There was not a wide enough range in remedials or benchmarks to have extreme outliers. Therefore, no students were removed from the sample based on test variables. There were also no extreme outliers in any of the college environmental variables.

## 5.7 BIVARIATE ANALYSIS

The first comparison looked at the whole sample of students, separating those who attended post-secondary from those who did not. The frequencies of the dichotomous variables were found for each group, and the means and standard deviations were found for the ordinal and scale variables for each group. Chi squared tests were used to identify if the difference between frequencies for each variable between the two groups was significant. This produced p-values for each dichotomous variable comparing those who attended college in the entire sample to those who did not. The means of each of the ordinal and scale variables between the two groups were compared using independent t-tests. First, Levene's Test for Equality of Variances was used to

determine whether the independent t-tests could assume equal variances or not. If Levene's Test proved significant ($p<0.05$) for a variable, equal variances could not be assumed between the two groups. This provided appropriate p-values to determine if there was a significant difference between the two groups in each of the variables. For both Chi Squared tests and independent samples t-tests, the point of rejection of the null hypothesis (there is no significant difference between the two groups) was set at $p<0.05$.

After comparing students who attended post-secondary and students who did not among the whole sample, the researcher thought to do a similar comparison using only the graduating classes that would have had time to finish a post-secondary credential (2007-2009). A new dichotomous variable was created called Grad_Count. Students from the classes of 2007-2009 were identified as 1 and the classes of 2011-2014 were identified as 0. The file was then split so only Grad_Count=1 students were considered. The frequencies of the dichotomous variables were found, and the means and standard deviations of the ordinal and scale variables were found for students who attended post-secondary education and those who did not. Chi squared tests were used to identify if the difference between frequencies for each variable between the two groups was significant. This produced p-values for each dichotomous variable comparing those who attended college to those who did not among students who would have had time to graduate. The point of rejection of the null hypothesis was set at $p<0.05$. The means of each of the ordinal and scale variables between the two groups were compared using independent t-tests. First, Levene's Test for Equality of Variances was used to determine whether the independent t-tests could assume equal variances or not. If Levene's Test proved significant ($p<0.05$) for a variable, equal variances could not be assumed between the two

groups. This provided appropriate p-values to determine if there was a significant difference between the two groups in each of the variables. Again, the point of rejection of the null hypothesis was $p<0.05$.

After comparing students who attended post-secondary education and students who did not among 2007-2009 graduates, it was necessary to further analyze those who did attend post-secondary education. High school graduates of 2007-2009 who attended post-secondary were compared based on those who completed a post-secondary credential and those who did not. The frequencies of the dichotomous variables were found, and the means and standard deviations of the ordinal and scale variables were found for students who completed post-secondary education and those who did not. Chi squared tests were used to identify if the difference between frequencies for each variable between the two groups was significant. This produced p-values for each dichotomous variable comparing those who completed college to those who did not among students who attended post-secondary and would have had time to graduate. The point of rejection of the null hypothesis was set at $p<0.05$. The means of each of the ordinal and scale variables between the two groups were compared using independent t-tests. First, Levene's Test for Equality of Variances was used to determine whether the independent t-tests could assume equal variances or not. If Levene's Test proved significant ($p<0.05$) for a variable, equal variances could not be assumed between the two groups. This provided appropriate p-values to determine if there was a significant difference between the two groups in each of the variables. Again, the point of rejection of the null hypothesis was $p<0.05$.

Once the difference between graduates and non-graduates was determined, it was important to learn more about the profiles of the students who earned the four different degree types: Bachelor's, Associate's, Certificate, and Technical Diploma. The frequencies of dichotomous variables were found; the means and standard deviations for ordinal and scale variables were also found. Because there were so few students who completed a post-secondary credential, a new variable was created called Degree_level. Students who completed a bachelor's degree were entered as 2, students who completed a credential below a bachelor's degree were entered as 1, and students who did not complete a credential were entered as 0. This allowed for comparison between students who earned a bachelor's degree and those who completed post-secondary, but earned a degree less than a bachelor's degree (associate's, certificate, and technical diploma). The frequencies of the dichotomous variables were found, and the means and standard deviations of the ordinal and scale variables were found for students who completed a bachelor's degree and those who completed a degree less than a bachelor's. Chi squared tests were used to identify if the difference between frequencies for each variable between the two groups was significant. This produced p-values for each dichotomous variable comparing those who completed a bachelor's degree to those who completed a degree less than a bachelor's among students who graduated from post-secondary education. The point of rejection of the null hypothesis was set at $p<0.05$. The means of each of the ordinal and scale variables between the two groups were compared using independent t-tests. First, Levene's Test for Equality of Variances was used to determine whether the independent t-tests could assume equal variances or not. If Levene's Test proved significant ($p<0.05$) for a variable, equal variances could not be assumed between

the two groups. This provided appropriate p-values to determine if there was a significant difference between the two groups in each of the variables. Again, the point of rejection of the null hypothesis was $p<0.05$.

There were some similarities noticed between students who completed a credential less than a bachelor's degree and those who did not complete post-secondary from the 2007-2009 high school graduates who attended college at some point. Therefore, these two groups were compared. The frequencies of the dichotomous variables were found, and the means and standard deviations of the ordinal and scale variables were found for students who completed a degree less than a bachelor's and students who attended college but did not graduate. Chi squared tests were used to identify if the difference between frequencies for each variable between the two groups was significant. This produced p-values for each dichotomous variable comparing those who completed a degree less than a bachelor's and those who attended post-secondary but did not graduate among students from the 2007-2009 high school graduating classes. The point of rejection of the null hypothesis was set at $p<0.05$. The means of each of the ordinal and scale variables between the two groups were compared using independent t-tests. First, Levene's Test for Equality of Variances was used to determine whether the independent t-tests could assume equal variances or not. If Levene's Test proved significant ($p<0.05$) for a variable, equal variances could not be assumed between the two groups. This provided appropriate p-values to determine if there was a significant difference between the two groups in each of the variables. Again, the point of rejection of the null hypothesis was $p<0.05$.

Finally, students who attended but dropped out of post-secondary studies as of the spring of 2015 semester were compared to students who attended but did not drop out. These students were either still enrolled in a post-secondary institution during the spring of 2015, or had completed a degree. Several students in fact fell into both categories and were still considered not dropouts. The frequencies of the dichotomous variables were found, and the means and standard deviations of the ordinal and scale variables were found for students who did and did not drop out of post-secondary studies. Chi squared tests were used to identify if the difference between frequencies for each variable between the two groups was significant. This produced p-values for each dichotomous variable comparing those who dropped out of post-secondary studies and those who did not among all students who attended college. The point of rejection of the null hypothesis was set at $p<0.05$. The means of each of the ordinal and scale variables between the two groups were compared using independent t-tests. First, Levene's Test for Equality of Variances was used to determine whether the independent t-tests could assume equal variances or not. If Levene's Test proved significant ($p<0.05$) for a variable, equal variances could not be assumed between the two groups. This provided appropriate p-values to determine if there was a significant difference between the two groups in each of the variables. Again, the point of rejection of the null hypothesis was $p<0.05$.

Prior to running any multivariate analysis, correlations between each variable had to be found. Strong correlations could lead to a multicollinearity issue in multivariate analysis. Pearson's correlation was found between all pairs of scale variables to show strength and direction of the relationship. Phi coefficients were found between all pairs

of nominal, or categorical, variables to show strength and direction of their relationship. However, it was necessary to use Eta coefficients to determine the strength of the relationship between scale and nominal variable sets. This does not provide information on the direction of the relationship, but it is the only option in SPSS for identifying the relationship between one nominal and one scale variable (George & Mallery, 2001).

## 5.8 MULTIVARIATE ANALYSIS

Exploratory principal component analysis was conducted to identify meaningful clustering within variable groupings (Shlens, 2003). A principal component analysis (PCA) was done of all scale variables related to high school and standardized testing among students who did not attend post-secondary education. The goal was to reduce 26 variables into less than five components that explain the majority of the variation in the data. Oblimin rotation was used to simplify the components because there were strong correlations between several sets of variables (Brown, 2009). This procedure was repeated, eliminating all variables that did not load strongly into one of the first four components. Only components that were relatively easily interpretable were used in the final selection matrices.

PCAs were also done of all scale variables related to high school, standardized testing, and college selection among all students who attended post-secondary, those who dropped out of post-secondary, and those who completed a post-secondary credential. Here, the goal was to reduce the 29 variables into approximately five components that explain the majority of the variation in the data. Again, oblimin rotation was used to simplify components because there were strong correlations between several sets of

variables. This procedure was repeated for each group, eliminating all variables that did not load strongly into one of the components and variables that were alone in loading strongly to one component. The pattern matrix was used for interpretation in order to assume variables only loaded to one component.

Upon completion of all PCA analyses, logistic regression was performed to determine which variables predicted pre-determined outcomes. Logistic regression was performed on the outcome Attended_college. First, every variable possessing a significant difference between students who attended post-secondary and students who did not attend post-secondary at the bivariate level was included in the model. Then, the variables that were significant were pulled to run a second logistic regression for Attended_college. Any non-significant variables were removed and a final model was run again until all variables were significant predictors of college attendance. Expected $\beta$ values were determined along with their 95 percent confidence intervals in order to determine the expected change in students who attended postsecondary based on an increase of each independent variable by one.

Logistic regression was also performed on Graduated_0709. Again, every variable showing significant difference between students who completed a post-secondary credential and students who did not from the bivariate analysis was added to the model to determine what was significant ($p<0.05$) at the multi-variate stage. The variables that were not significant were removed from each model and each was re-run with only significant variables. Variables demonstrating strong correlation to those retained in the model were forced into the model to strengthen it. Variables that had an association with the dependent variable at $p<.10$ were maintained in the final model.

Expected β values were determined along with their 95 percent confidence intervals in order to determine the expected change in students who completed postsecondary based on an increase of each independent variable by one.

A logistic regression was also performed on the Dropout outcome. First, all variables that showed significant difference at the bivariate level between students who dropped out of post-secondary education and those who did not were included in the regression analysis. Variables that had a $p<0.10$ were included in a second logistic regression. All variables that proved significant ($p<0.05$) in the second logistic regression were retained for a third logistic regression to confirm all variables remained significant ($p<0.05$). Again, the expected β values were determined along with their 95 percent confidence intervals in order to determine the expected change in students who dropped out of postsecondary based on an increase of each independent variable by one.

Another logistic regression was performed on the outcome Degree_type. First, a new variable was created called Degree_type. Degree_level was copied, the zeros were replaced with missing, the ones were replaced with zeros, and the twos were replaced with ones. Each of the high school and standardized test variables that showed significant difference in the bivariate analysis between students who earned a bachelor's degree and those who earned a credential less than a bachelor's degree were added to the model. Because of the small sample size, variables that were significant at $p<0.10$ were maintained and the regression was run again without variables that were not significant in the first model. Expected β values were reported along with their 95 percent confidence intervals.

The final logistic regression predicted variables associated with those who completed a post-secondary credential less than a bachelor's degree versus those who dropped out of post-secondary education. A new variable was created called Dropout_less_bach in which 1=students who completed a credential less than a bachelor's degree and 0=students who dropped out of post-secondary education. Students who never attended college and those who attended and were still enrolled but had not completed a degree were omitted from this variable. The logistic regression included all variables that proved to show significant difference between these two groups at the bivariate level. Variables that were significant ($p<0.10$) were retained and the model was run again. All variables that were significant contributors to the model ($p<0.05$) were retained and the model was run one last time to confirm accuracy and the Nagelkerke R square value. Again, expected $\beta$ values were reported along with their 95 percent confidence intervals.

# 6. RESULTS

## 6.1 UNIVARIATE AND BIVARIATE RESULTS

The results tables can be found in APPENDIX A. Table 1 displays the descriptive statistics of the high school variables of the entire sample as well as a breakdown based on whether or not the student attended a post-secondary institution of any kind. Levene's Test for inequality of variances yielded significant F-statistics for high school GPA, the number of failed classes, the number of AP, gifted, and honors classes, as well as the highest math level achieved. As such, equal variances could not be assumed. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. The corresponding p-values were recorded for each variable. Many of the variables proved to have a significant difference between students who enrolled in post-secondary education and those who did not. The variables that displayed an extremely significant difference ($p<0.001$) were age at high school graduation, whether or not a student graduated high school late, high school GPA, whether or not the student completed the core curriculum, the number of failed classes, the number of AP classes, the number of honors classes, and highest level of math. Variables that showed significant difference ($p<0.05$) included gender, whether or not the student took financial math, number of science classes, and number of foreign language classes. All of these variables will be added to the logistic regression for post-secondary attendance to determine whether they help predict attendance or are simply different between the two groups.

Table 2 displays the descriptive statistics of the standardized test variables of the entire sample as well as a breakdown based on whether or not the student attended a post-secondary institution of any kind. Levene's Test for inequality of variances yielded significant F-statistics for TOPS level, ACT Math score, times the test was taken, as well as both the number of remedial credits required and the number of ACT benchmarks achieved. As such, the variances could not be assumed equal. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. Every single standardized test variable proved extremely significant ($p<0.001$) between students who did and those who did not attend post-secondary education.

Table 3 shows the breakdown of variables among graduates earning the different post-secondary credentials. Post-secondary graduates from the high school graduating classes of 2007-2009 spent very similar periods of time earning bachelor's degrees, associate's degrees, and certificates. However, those who earned a technical diploma spent just over half the time earning their credential. A much larger percentage (approximately triple) of students earning a post-secondary credential below a bachelor's degree were still enrolled in post-secondary education compared to only 20 percent of students who earned a bachelor's degree as their first degree. Students who earned a bachelor's degree as their first degree also were much less likely to have taken classes beyond their degree, however they were almost twice as likely as those who earned an associate's, and as likely as those who earned a certificate to earn an additional degree. Students whose first degree was a technical diploma were much more likely (triple those with a bachelor's or certificate and five times more than those with an associate's) to earn an additional credential. Students who earned less than a bachelor's degree were very

likely to do so at post-secondary institutions in New Orleans while only about half of students who earned a bachelor's degree did so at institutions in New Orleans. Approximately 39 percent of bachelor's degree recipients completed post-secondary studies in the state of Louisiana and about 12 percent completed their degree outside the state. None of the students completing associate's degrees or certificates did so at Louisiana institutions outside of New Orleans, but approximately 12 percent of associate's degrees and five percent of certificates were completed at institutions outside the state of Louisiana. The opposite is true for technical diploma holders, 33 percent of whom completed their credential in Louisiana outside New Orleans. None of the technical diplomas earned were completed at an out-of-state institution. The HBCU status only appears to be important for students who obtained a bachelor's degree. None of the students earning less than a bachelor's degree graduated from an HBCU while 35.6 percent of bachelor's degree recipients completed their degree at an HBCU. Students who attended a for-profit school only did so for certificates or technical diplomas. Students who earned bachelor's degrees completed at either public (58%) or private non-profit institutions (42%) while all students who earned associate's degrees did so at public institutions. As expected, all students earning a bachelor's degree did so at a four-year institution, and all students earning associate's degrees and certificates did so at two-year institutions. Students earning technical diplomas were split between two-year (67%) and four-year (33%) institutions. This is possible because Herzing is a four-year for-profit institution that grants many technical diplomas. The average selectivity of the graduation institution was higher for students who earned bachelor's degrees (3.8) than for those who earned a credential less than a bachelor's degree (5.0). In fact, all students

earning a credential less than a bachelor's degree did so at the least selective institutions. Students who earned bachelor's degrees and certificates attended, on average, one or two post-secondary institutions while students who earned associate's degrees or technical diplomas attended, on average, two or three institutions.

Table 4 displays the descriptive statistics of the high school variables for the students who graduated from high school between 2007 and 2009 as well as a breakdown based on whether or not the student attended a post-secondary institution of any kind. The classes of 2007-2009 are separated because these students would have had enough time to complete any level of post-secondary credential. Levene's Test for inequality of variances yielded significant F-statistics for high school GPA, the number of failed classes, the number of credits earned from another high school, the number of honors classes, the highest math level achieved, as well as the number of science, CCR, and foreign language credits earned. As such, equal variances could not be assumed for those variables. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. Many of the variables proved to have a significant difference between students who enrolled in post-secondary education and those who did not.

However, only cumulative GPA and number of honors credits taken remained highly significant ($p<0.001$) from the whole sample to just those who graduated in 2007-2009. Variables that showed significant difference ($p<0.05$) between 2007-2009 graduates who did and did not attend post-secondary education included gender, high school graduation age, whether or not the student completed the core curriculum, the

number of failed credits, highest level of math completed, number of science classes, and number of foreign language classes taken.

Table 5 displays the descriptive statistics of the standardized test variables of the 2007-2009 high school graduates as well as a breakdown based on whether or not the student attended a post-secondary institution of any kind. Levene's Test for inequality of variances yielded significant F-statistics for TOPS level, times the test was taken, as well as both the number of remedial credits required and the number of ACT benchmarks achieved. As such, equal variances could not be assumed. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. Again every test variable proved to have a significant difference ($p<0.05$) between students who enrolled in post-secondary education and those who did not. The only standardized test variable that was not highly significant ($p<0.001$) among 2007-2009 high school graduates was ACT Math. However, ACT Math is still significant ($p=0.008$).

Table 6 displays the descriptive statistics of the high school variables for the students who attended post-secondary education from the high school graduating classes of 2007 through 2009, as well as a breakdown based on whether or not the student completed a post-secondary credential of any kind. Levene's Test for inequality of variances yielded significant F-statistics for high school graduation age, the number of credits earned, the highest math level achieved, as well as the number of science, and English credits earned. As such, equal variances could not be assumed. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. Many of the variables proved to have a significant

difference between students who completed a post-secondary credential and those who did not. The variables that displayed an extremely significant difference ($p<0.001$) were gender, high school cumulative GPA, the number of failed classes, as well as the number of honors classes and math courses completed. Variables that showed significant difference ($p<0.05$) included whether or not the student completed the core curriculum, the highest level of math attained, and number of science courses taken.

Table 7 displays the descriptive statistics of the standardized test variables of the 2007-2009 high school graduates who attended college as well as a breakdown based on whether or not the student completed a post-secondary credential of any kind. Levene's Test for inequality of variances yielded significant F-statistics for TOPS level, ACT Math, ACT Science, the number of remedial credits required, and the number of ACT benchmarks achieved. As such, equality of variances could not be assumed. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. Again every test variable proved to have a very significant difference ($p\leq0.001$) between students who completed a post-secondary credential and those who did not.

Table 8 displays the descriptive statistics of the college environmental variables for the students who attended post-secondary education from the high school graduating classes of 2007 through 2009 as well as a breakdown based on whether or not the student completed a post-secondary credential of any kind. Levene's Test for inequality of variances yielded significant F-statistics for the number of colleges attended and the number of semesters spent in school. As such, the variances cannot be assumed to be equal. For the remaining scale variables, Levene's F-Statistic was not significant and

therefore equal variances could be assumed. Many of the variables proved to have a significant difference between students who completed a post-secondary credential and those who did not. The variables that displayed an extremely significant difference ($p<0.001$) were attended a two-year college, attended a four-year college, average college selectivity level, attended college in Louisiana, and number of semesters spent in post-secondary school. Variables that showed significant difference ($p<0.05$) included number of colleges attended, attended public and attended private college, attended an institution in New Orleans, attended an HBCU, and whether or not the student was still enrolled at the time of data collection.

Table 9 displays the descriptive statistics of the high school variables for the students who attended and completed post-secondary education from the high school graduating classes of 2007 through 2009 as well as a breakdown based on whether or not the student completed a bachelor's degree or a post-secondary credential less than a bachelor's degree. Levene's Test for inequality of variances yielded significant F-statistics for the number of failed classes, gifted classes, and honors classes. Therefore, equality of variances could not be assumed for those variables. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. Many of the variables proved to have a significant difference between students who completed a bachelor's degree and those who earned a post-secondary credential less than a bachelor's degree. The variables that displayed a highly significant difference ($p<0.001$) were gender, high school GPA, and whether or not the core curriculum was completed. Variables that showed significant difference ($p<0.05$) included the number of

failed credits, number of gifted credits, number of honors credits, and highest level of math completed.

Table 10 displays the descriptive statistics of the standardized test variables for the students who attended and completed post-secondary education from the high school graduating classes of 2007 through 2009 as well as a breakdown based on whether or not the student completed a bachelor's degree or a post-secondary credential less than a bachelor's degree. Levene's Test for inequality of variances did not yield significant F-statistics for any of the variables. As such, the p-values for equal variance were reported for all variables. Many of the variables proved to have a significant difference between students who completed a bachelor's degree and those who earned a post-secondary credential less than a bachelor's degree. The only variable that displayed an extremely significant difference ($p<0.001$) was whether or not the student earned some level of TOPS. Variables that showed a significant difference ($p<0.05$) included average TOPS level, ACT Composite score, ACT English score, ACT Reading score, ACT Science score, number of times the student took the ACT, and the number of remedial classes a student is required to take.

Table 11 displays the descriptive statistics of the college environmental variables for the students who attended and completed post-secondary education from the high school graduating classes of 2007 through 2009 as well as a breakdown based on whether or not the student completed a bachelor's degree or a post-secondary credential less than a bachelor's degree. Levene's Test for inequality of variances yielded significant F-statistics for the average selectivity variable. As such, equal variances between groups could not be assumed for this variable. For the remaining scale variables, Levene's F-

Statistic was not significant and therefore equal variances could be assumed. Many of the variables proved to have a significant difference between students who completed a bachelor's degree and those who earned a post-secondary credential less than a bachelor's degree. The variables that displayed an extremely significant difference ($p<0.001$) were attended a two-year college, attended a four-year college, attended a private college, average college selectivity level, attended college in New Orleans, attended college in Louisiana, and attended an HBCU. Variables that showed significant difference ($p<0.05$) included attended a public college and attended out-of-state college.

Table 12 displays the descriptive statistics of the college completion variables for the students who attended and completed post-secondary education from the high school graduating classes of 2007 through 2009 as well as a breakdown based on whether or not the student completed a bachelor's degree or a post-secondary credential less than a bachelor's degree. Levene's Test for inequality of variances yielded significant F-statistics for the semesters spent in school, years to graduate, and selectivity quintile of the institution of graduation. As such, the variances could not be assumed to be equal. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. Many of the variables proved to have a significant difference between students who completed a bachelor's degree and those who earned a post-secondary credential less than a bachelor's degree. The variables that displayed an extremely significant difference ($p<0.001$) were whether or not the student is still enrolled in a post-secondary institution, whether the student attended a two-year school, a four-year school, a private school, or a for-profit school, the level of selectivity of the graduation institution, whether the school was in New Orleans or in Louisiana, whether

the school was an HBCU, and whether or not the student took classes beyond their first degree. Variables that showed significant difference ($p<0.05$) included semesters enrolled in school and whether the school was public.

Table 13 displays the descriptive statistics of the high school variables for the students who attended post-secondary education and completed a credential less than a bachelor's degree and those who completed no degree from the high school graduating classes of 2007 through 2009. Levene's Test for inequality of variances yielded significant F-statistics for the number of failed classes and the number of gifted classes. As such, equal variances could not be assumed. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. Only a few of the variables proved to have a conservative significant difference ($0<0.10$) between students who earned a post-secondary credential less than a bachelor's degree and those who earned no credential. The variables included gender, cumulative high school GPA, number of failed credits, and number of gifted classes.

Table 14 displays the descriptive statistics of the standardized test variables for the students who attended post-secondary education and completed a credential less than a bachelor's degree and those who completed no degree from the high school graduating classes of 2007 through 2009. Levene's Test for inequality of variances yielded significant F-statistics for the number of remedial classes required, and the number of ACT benchmarks met. Therefore, equal variances could not be assumed for those variables. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. None of the standardized test variables showed even a conservative significant difference ($p<0.10$) between students who earned

a credential less than a bachelor's degree and those who did not earn a credential of any kind.

Table 15 displays the descriptive statistics of the college environmental variables for the students who attended post-secondary education and completed a credential less than a bachelor's degree and those who completed no degree from the high school graduating classes of 2007 through 2009. Levene's Test for inequality of variances yielded significant F-statistics for the number of colleges attended and the average selectivity of institutions. As such, equality of variances could not be assumed for those variables. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. There were several college selection variables that were conservatively significantly different ($p<0.10$) between the two groups. These included number of colleges attended, whether the student attended a two-year institution, the average level of selectivity of the institutions attended, whether the institution was in New Orleans, the number of semesters enrolled in a post-secondary institution, and whether the student was still enrolled in post-secondary education.

Table 16 displays the descriptive statistics of the high school variables for the students who attended post-secondary education and either did or did not drop out of post-secondary education among the entire sample. Levene's Test for inequality of variances yielded significant F-statistics for high school GPA, number of credits failed, number of Dual Enrollment credits, number of AP credits, number of gifted credits, number of honors credits, math level, and number of CCR credits. As such, equal variances could not be assumed, so the p-values for unequal variance were reported for those variables. For the remaining scale variables, Levene's F-Statistic was not

significant and therefore equal variances could be assumed. Many variables showed significant difference ($p<0.001$) between students who dropped out of post-secondary and those who did not. These included high school GPA, completion of the core curriculum, number of high school credits earned, number of failed credits, number of credits earned at another high school, number of Dual Enrollment credits earned, number of AP credits earned, number of honors credits earned, number of science classes taken, number of social studies classes taken, and number of CCR classes taken. The variables male, number of math credits, math level, and number of art credits were significantly different ($p<0.01$) between the two groups. Only the number of gifted credits proved to have a significant difference ($0<0.05$) between students who dropped out of post-secondary studies and those who did not.

Table 17 displays the descriptive statistics of the standardized test variables for the students who attended post-secondary education and either did or did not drop out of post-secondary education among the entire sample. Levene's Test for inequality of variances yielded significant F-statistics for TOPS level, ACT math score, ACT science score, the number of times a student took the ACT, the number of remedial classes the student had to take, and the number of ACT benchmarks the student met. As such, equal variances could not be assumed, so the p-values for unequal variance were reported for those variables. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. All of the standardized test variables showed significant difference ($p<0.001$) between students who dropped out of post-secondary education and students who did not.

Table 18 displays the descriptive statistics of the college environmental variables for the students who attended post-secondary education and either did or did not drop out of post-secondary education. Levene's Test for inequality of variances yielded significant F-statistics for the number of colleges attended and the number of semesters spent in school. As such, equal variances could not be assumed, so the p-values for unequal variance were reported for those variables. For the remaining scale variables, Levene's F-Statistic was not significant and therefore equal variances could be assumed. The variables attended a public institution and attended a private institution were significantly different ($p<0.01$) between the two groups. Additionally, many variables showed significant difference ($p<0.001$) between students who dropped out of post-secondary and those who did not. These included number of colleges attended, student attended a 2-year institution, student attended a 4-year institution, average selectivity quintile of colleges attended, student attended an institution in New Orleans, student attended an institution in Louisiana, student attended an HBCU, number of semesters in post-secondary, and whether or not the student was still enrolled in the spring of 2015. If a student was still enrolled in a post-secondary institution during the spring of 2015, they could not be considered a dropout. As such, this variable will be omitted from further analysis as it is a part of the definition of the group.

## 6.2 CORRELATION RESULTS

The correlation analysis revealed that none of the high school factors were strongly correlated with one another (See Appendix A, Tables 19-32). This suggests that none of these variables are representing the same variation in the sample. However,

many of the variables have a significant correlation and so should be considered in further analysis. Several high school variables were found to have a significant correlation ($p<.05$) that was negative. These include: graduation age and number of gifted credits attained, graduation age and number of foreign language credits earned, high school GPA and number of Dual Enrollment credits earned, number of failed courses and number of gifted courses attained, number of failed courses and number of art credits attained, and credits from another high school and number of honors courses taken. Several other high school variables were found to have a correlation ($p<.05$) that was positive. These include: number of credits complete and number of honors credits complete, number of credits complete and number of English credits complete, and number of math credits complete and number of foreign language credits complete.

There were also many high school variables that were found to have a significant correlation ($p<.01$) that was negative. These include: age at high school graduation and high school GPA, age at high school graduation and number of credits earned at other high schools, age at high school graduation and number of honors classes attained, age at high school graduation and highest level of math classes complete, high school GPA and the number of credits failed, number of credits taken and number of failed credits, number of credits taken and number of credits taken at other high schools, number of failed credits and number of AP classes, number of failed credits and number of honors classes, number of failed credits and number of math classes, number of failed credits and highest level of math, number of failed credits and number of science classes, number of failed credits and number of social studies classes, number of failed credits and number of CCR classes, number of failed credits and number of foreign language classes, number

of credits from another high school and number of dual enrollment classes, number of credits from another high school and number of math credits, number of credits from another high school and highest level of math, number of credits from another high school and number of science credits, number of credits from another high school and number of art credits, number of credits from another high school and number of CCR credits, number of credits from another high school and number of foreign language credits, number of dual enrollment credits and number of science credits, number of gifted credits and number of English credits, number of science credits and number of English credits, number of English credits and number of art credits, number of English credits and number of CCR credits, number of English credits and number of foreign language credits, and number of art credits and number of CCR credits.

Many other high school variables were found to have a significant correlation ($p<.01$) that was positive. These include: age at high school graduation and number of classes failed, high school graduation age and number of English classes taken, high school GPA and the number of credits taken, high school GPA and credits earned at other high schools, high school GPA and AP courses taken, high school GPA and gifted courses taken, high school GPA and honors courses taken, high school GPA and number of math classes taken, high school GPA and level of math classes taken, high school GPA and number of science classes taken, high school GPA and the number of CCR credits taken, high school GPA and the number of foreign language credits taken, number of credits taken and number of dual enrollment classes, number of credits taken and number of AP classes, number of credits taken and number of math credits taken, number of credits taken and highest level of math, number of credits taken and number of science

classes, number of credits taken and number of social studies credits, number of credits taken and number of art classes, number of credits taken and number of CCR classes, number of credits taken and number of foreign language credits, number of credits from another high school and number of AP credits, number of credits from another high school and number of English credits, number of dual enrollment credits and number of AP credits, number of dual enrollment credits and number of math credits, number of dual enrollment credits and number of social studies credits, number of dual enrollment credits and number of CCR credits, number of AP credits and number of gifted credits, number of AP credits and number of honors credits, number of AP credits and number of math credits, number of AP credits and highest level of math, number of AP credits and number of science credits, number of AP credits and number of English credits, number of AP credits and number of social studies credits, number of AP credits and number of CCR credits, number of gifted credits and number of honors credits, number of gifted credits and highest level of math, number of gifted credits and number of art credits, number of gifted credits and number of foreign language credits, number of honors credits and number of math credits, number of honors classes and highest level of math, number of honors credits and number of science credits, number of honors credits and number of art credits, number of honors credits and number of foreign language credits, number of math credits and highest level of math, number of math credits and number of science credits, number of math credits and number of CCR credits, math level and number of science credits, math level and number of CCR credits, math level and number of foreign language credits, number of science credits and number of social studies credits, number of science credits and number of CCR credits, number of science credits

and number of foreign language credits, and number of CCR credits and number of foreign language credits.

The standardized test variables revealed a much larger magnitude of correlation between them. Only the number of times taken had a correlation relatively low in magnitude across all other variables. However, given the importance placed on standardized test scores by the state and by the literature (Adelman, 1999 & 2006; Light & Strayer, 2000), all standardized testing variables will be retained in the analysis.

The correlation analysis of the college-level variables revealed significant relationships of relatively low magnitude between most variables. Only the average selectivity level of colleges attended and the selectivity of the degree granting institution were strongly correlated (0.816). However, this seems logical as students attending more selective schools would graduate from more selective schools and students who attend less selective schools are likely to graduate from less selective schools. As such, these two variables are likely reflecting similar variation in the sample. This is actually helpful because the sample of graduates is so small. It means that average selectivity is a variable worthy of remaining considered among students who are still enrolled in post-secondary education but who have not yet completed a credential.

The correlation analysis among college-level variables disclosed relatively intuitive relationships. The number of colleges attended has a moderately strong, positive, significant linear relationship with the number of semesters spent in school. This is logical because if a student attends multiple schools, they must be enrolled in each school for at least a semester. Average selectivity had a significant negative linear relationship with both the semesters spent in school and years to graduation. This

suggests that the more selective schools were less likely to retain and graduate students than less selective institutions. Another significant, moderately strong, positive linear relationship was found between number of semesters spent in school and number of years to graduate. This suggests, as one would expect, that the longer a student is in school, the longer it takes them to graduate.

## 6.3 PRINCIPAL COMPONENT ANALYSIS RESULTS

Four components explained 65.667 percent of the variation in students who did not attend post-secondary (Table 33). They clustered around testing variables, courses associated with career preparation within the high school, grades, and rigor of courses. The first component comprises every scale standardized test variable. This suggests that these variables are all highly related, which makes intuitive sense. The second component comprises career and college readiness (CCR) courses and dual enrollment courses, which for the classes in the sample were almost exclusively for career preparation and trade courses. As the CCR curriculum became more varied, the school began to allow students to take more career-related electives. This increased the number of credits students earned, so it makes sense that Credits_complete would load in this component. Most high schools in the region do not have the same variety of career-related courses as the high school under study. As such, taking additional classes at another high school would reduce the number of career-related classes a student could take as electives. The third component included GPA and number of failed classes, two variables that are highly correlated. It is impossible for students to have a high cumulative GPA if they are failing multiple courses. The addition of math level to this

component can be explained by the way students are promoted in math. Students who earn good grades in math are likely to be placed into multiple math classes each year in an effort to prepare them for further education. As such, math level attained is directly related to grades. The fourth component loaded variables that show higher performance levels. Students selected for honors classes tend to be better students. Students decide if they want to take an AP class. Therefore, students who have earned AP credits tend to be motivated in the subject area of the AP class, even if not in other courses (as would be reflected by GPA). Also, at the high school under study, the majority of courses for talented students fall in the art category. The school offers a wide variety of talented music and graphic arts courses. Many musically and artistically talented students at this high school are able to take special courses for talented artists at a local arts school.

Five components explained 68.086 percent of the variation in students who attended post-secondary education (Table 34). Again, all testing variables cluster together and represent the greatest percentage of variation in the sample. The career preparation variables again clustered together as explaining the second greatest variation in the sample. The third component loaded only two variables: math credits and math level. This is reasonable as Adelman found math to be a significant predictor of academic success. Both English and foreign language credits clustered together in the fourth component. This is understandable as communication is such an important skill for higher education. The fifth component relates the scale college environmental variables available in the study. It is logical that the number of colleges attended and the number of semesters spent in school cluster together. The more schools attended, the longer a student must be enrolled.

Four components explained 62.824 percent of the variation in students who completed a post-secondary credential (Table 35). Again, test variables loaded together as they did with the previous two groups. However, for students who completed some form of post-secondary credential high school cumulative GPA, number of failed classes and number of honors classes taken cluster with the test variables. This supports the traditional college acceptance practice based on test scores, GPA, and rigor of high school coursework. Interestingly, high school career prep classes and semesters in school loaded together among post-secondary graduates. The negative in front of the Semesters_in_school coefficient suggests that students who enroll in more career courses in high school spend less time earning a post-secondary credential. This may be because they are more likely to earn a certificate or technical diploma related to a specific career of interest rather than a bachelor's degree. These credentials require fewer credit hours and therefore often take less time than a bachelor's degree. The third component is labeled problem solving. It includes math level and number of math credits. Math is an academic area that requires substantial problem solving skills. However, the inclusion of a negative loading of failed courses in this component suggests more than just math problem solving capabilities. Students need to be able to problem solve in their other classes to prevent failure of those classes. As such, it is reasonable that fewer failed classes loads with more math classes and higher levels of math. The last component includes English and foreign language credits as it did previously. However, among students who completed post-secondary education, the number of credits earned at other high schools loads with language. One possible explanation for this is that other schools

offer more language-based electives than the school under study. This is reasonable because the school under study is known for its music and career electives.

Six components explained 68.985 percent of the variation in students who dropped out of post-secondary education (Table 36). As previously shown, testing and career classes cluster together and explain the largest two components as percent of variation in the sample. High school grades again cluster with number of failed classes and number of honors classes. This makes intuitive sense because failed classes reduce a student's GPA and honor's classes are weighted at this high school and so increase a student's GPA. Language classes again load together as one component. Semesters in school and number of colleges attended also load together as previously seen. Math classes again cluster together. This suggests that the clustering is similar among most groups, though directionalities may be different depending on which students are included in the analysis.

The PCA clusters identified do not add to the interpretations of the logistic regressions as expected. For example, the testing cluster represents substantial variation in each data grouping. However, only one variable in the testing cluster is significant in each of the logistic regressions of students who attended college and students who completed a bachelor's degree. Further, the variable times_taken_ACT does not cluster with other variables in the PCA, yet it is a significant predictor of post-secondary attendance, dropouts, and bachelor's degree attainment. This suggests that while all testing variables are related, they do not actually predict attendance, dropout, or completion. Rather, the effort put forward in sitting through a three and a half hour standardized test repeatedly may be a more accurate measure of the perseverance

required to attend post-secondary education, not drop out, and complete a bachelor's degree.

## 6.4 LOGISTIC REGRESSION RESULTS[1]

The logistic regression predicting factors associated with attending college required two regression analyses. The first used all variables that were significantly different between students who attended college and students who did not attend college. Four variables proved significant ($p<0.05$): Cumulative high school GPA, number of science credits earned in high school, ACT_English sub-score, and the number of times a student took the ACT (data not shown). The variables that were not significant ($p>0.05$) were removed from the model and the logistic regression was run again. In the end, only three variables were significant ($p<0.05$) in predicting whether a student attended college: Cumulative high school GPA, ACT_English sub-score, and the number of times a student took the ACT (Table 37). Together, these three variables produced a Nagelkerke R-square value of only 0.131. Therefore, this model does a poor job of explaining all the variance in these factors associated with attending college. This suggests that there are variables not considered in the model, which play a considerable role in determining whether a student attends post-secondary education. The model included 1276 students, but only proved correct approximately 82.4 percent of the time based on the classification table. The sensitivity, the regression's ability to correctly predict attendance, was 99.6 percent, but the specificity, the regression's ability to correctly predict non-attendance, was 1.3 percent. Therefore, the model does well in predicting college attendance, but

[1] Logistic Regression Tables can be found in Appendix A.

does extremely poorly in predicting non-attendance. However, this model reveals an important characteristic of the New Orleans school system. Charter schools have been founded on the premise of getting all children to college. This premise promotes open access to college regardless of whether a student is actually prepared to handle college level work. The model suggests that there are a large percentage of students who are attending to post-secondary education that would not be predicted to attend statistically. Based on Table 37, a one-point increase in a student's GPA multiplies their chance of attending post-secondary education by 2.822. A one-point increase in a student's ACT English sub-score multiplies the chance that the student would attend college by 1.061. Taking the ACT one additional time multiplies the chance that a student will attend college by 1.3. Confidence intervals for these estimates can be found in Table 37.

The logistic regression predicting completion of post-secondary education required seven regression analyses. The first logistic regression used all variables that were significantly different between students who completed a post-secondary credential and students who did not. Four variables proved significant ($p<0.05$): Number of high school credits failed, attended a public post-secondary institution, attended a private post-secondary institution, and the number of semesters the student was enrolled in post-secondary studies (data not shown). The variables that were not significant ($p>0.05$) were removed from the formula and the logistic regression was run again. All four variables remained significant (Table 38a). Together, these four variables produced a Nagelkerke R-square value of 0.593. Therefore, this model does a reasonable job of predicting the outcome, but it also suggests there are variables not considered in the model that play a considerable role in determining whether a student completes post-

secondary education. The model included 493 cases, but only proved correct approximately 86.4 percent of the time. The sensitivity was 72.5 percent, and the specificity was 91.4 percent. Therefore, the model does reasonably well in predicting post-secondary completion, though it does better at predicting non-completion. However, interpreting this model is challenging because it includes both public and private post-secondary selection options. Several variables were highly correlated with public and private post-secondary selection options, so these were forced into the third model and public and private were removed from this model. The variables that proved significant ($p<0.10$) were maintained for the fourth model. These included high school cumulative GPA, number of failed high school credits, number of post-secondary institutions attended, and the number of semesters the student enrolled in post-secondary study (Table 38b). The logistic regression including these four variables yielded a Nagelkerke R-square value of 0.556, and each variable proved significant ($p<0.05$). Therefore, this model does a reasonable job of predicting the outcome, and it is more interpretable. Again, the model, which included 493 cases, only proved correct approximately 86.4 percent of the time. The sensitivity was 74.0 percent, and the specificity was 90.9 percent. When the HBCU variable, which was highly correlated with public and private institution selection, was forced into the model it proved insignificant, but the other four variables remained significant ($p<0.05$). When the 4-year institution variable, which was also highly correlated with public and private institution selection, was forced into the regression, the significance of high school cumulative GPA, number of high school credits failed, and attending a four-year post-secondary institution were not significant ($p<0.05$). This model had a Nagelkerke R-square value of

0.562, and correctly predicted the graduated outcome 86.6 percent of the time (data not shown). When the 4-year institution variable was removed and the NOLA variable was added, the number of credits failed and the number of colleges attended were no longer significant at $p<0.05$. However, all variables were significant at $p<0.10$. Further, this model had a Nagelkerke R-square value of 0.564, and correctly predicted the graduated outcome 86.6 percent of the time (Table 38). Since this model achieves the greatest Nagelkerke R-square value, best predicts both outcomes, and has the most interpretable significant variables, this was the model accepted. Table 38 displays the results of the accepted logistic regression for students who both had time to complete a post-secondary credential and did so. The model included 493 cases, and produced a Nagelkerke R-square value of 0.564. This model does a much better job of predicting post-secondary credential completion than the attendance model did of predicting post-secondary attendance. This suggests that there are more measurable variables that predict post-secondary success than post-secondary entrance. This model was correct 86.6 percent of the time with specificity of 73.3 percent and sensitivity of 91.4 percent, again showing improvement over the attendance model. As expected, higher GPA, lower number of failed courses in high school, more semesters enrolled in a post-secondary institution, and fewer post-secondary institutions attended were associated with credential completion. Unexpectedly, attending an institution in New Orleans was negatively associated with credential completion. This will be elaborated upon in the discussion section.

Based on Table 38, a one-point increase in a student's GPA multiplies their chance of earning a post-secondary credential by 2.315. Failing one additional credit reduces the chance that the student would complete a post-secondary credential by a

factor of 0.694. Attending a post-secondary institution in New Orleans reduces the chance that the student would complete a post-secondary credential by a factor of 0.431. Spending one additional semester in school multiplies the student's chance of completing a post-secondary credential by 1.523. Attending one additional post-secondary institution reduces the chance that a student would complete a post-secondary credential by a factor of 0.738. Confidence intervals for these expected values are included in Table 38.

The logistic regression for post-secondary dropouts quickly identified the variables that best predicted whether a student dropped out of post-secondary education. Table 39 displays the logistic regression for post-secondary dropouts. The model included 1159 cases, and produced a Nagelkerke R-square value of 0.410. This model does a reasonable job of predicting post-secondary dropouts. The model was correct 75.4 percent of the time with specificity of 68.7 and sensitivity of 80.5. As expected, completing fewer high school credits, taking fewer AP and dual enrollment classes, taking the ACT fewer times, not attending an HBCU, spending fewer semesters in school and requiring more remedial classes are significant predictors of dropping out.

Based on Table 39, taking one more high school class reduces the chance of dropping out by a factor of 0.858. Taking an additional Dual Enrollment or Advanced Placement class reduces a student's chance of dropping out of post-secondary education by factors of 0.198 and 0.472 respectively. Taking the ACT one extra time reduces a student's chance of dropping out of post-secondary education by a factor of 0.852. Attending an HBCU reduces a student's chance of dropping out of post-secondary education by a factor of 0.616, and spending an additional semester in post-secondary reduces the chance of dropping out by a factor of .743. However, taking one additional

remedial course multiplies the chance a student will drop out by 1.435. Confidence intervals for these expected values are provided in Table 39.

Finding a logistic regression model for predicting factors associated with the type of degree earned required two attempts. First, the high school and standardized test variables showing significant difference between bachelor's degree earners and lower credential completers at the bivariate level were considered in a logistic regression model alone. Four variables proved significant ($p<0.10$): completion of the high school core curriculum, ACT Composite score, the number of times a student took the ACT, and the number of remedial classes a student required. A second logistic regression was run using only these four variables and every one of them proved significant ($p<0.05$) to the model. There were 78 cases included in this model, which produced a Nagelkerke R Square value of 0.462 (Table 40). Therefore, it does a reasonable job of predicting degree type. The model proved accurate 76.9 percent of the time. The sensitivity was 90.2 and the specificity was 51.9. This means the model is better at predicting bachelor's degree completion than completion of a post-secondary credential less than a bachelor's degree. This is reasonable because there are three different credentials less than a bachelor's degree. Each of these credentials may include other variables to predict their outcome, however the sample sizes are not large enough to test them individually. Because of the small sample size, the fact that any variables were significant predictors of degree type is meaningful. The fact that other variables were not significant must be interpreted with caution. However, the fact that some variables were significant predictors of the type of degree a student earned, means that school officials and policy

makers may have a place to start in assisting students in their college selection process. This will be further discussed in the discussion section.

Based on Table 40, students who completed the high school core curriculum are 15.548 times more likely to complete a bachelor's degree than a post-secondary credential less than a bachelor's degree. This is a substantial finding that warrants further study. For each additional time a student took the ACT, they increased their chance of completing a bachelor's degree by 2.263. The model also shows that students who earn one additional point on their ACT Composite score are 2.347 times more likely to complete a bachelor's degree than a post-secondary credential below a bachelor's degree. This however, raises a new question: what ACT score makes a student likely to complete a post-secondary credential less than a bachelor's degree? Among this sample, ACT composite scores of students who earned a bachelor's degree ranged from 14 to 26. The ACT composite scores of students who earned a post-secondary credential less than a bachelor's degree ranged from 13-23. This is a potential area for further research. The logistic regression for degree type includes a variable that is counterintuitive and seems to contradict the dropout model discussed previously. For each additional remedial class a student has to take, they are 5.170 times more likely to complete a bachelor's degree than a post-secondary credential less than a bachelor's degree. One possible interpretation here is that the remedial classes offered at a four-year school are of better quality than those offered at a two-year institution where most technical diplomas, certificates, and associate's degrees are awarded. Perhaps students who take remedial classes at a four-year university feel more connected to their institution than students who

have to take remedial classes at a community college and then transfer them. This warrants further study.

The logistic regression of students who earned a post-secondary credential less than a bachelor's degree opposed to post-secondary dropouts quickly identified the variables that contribute to completion of a post-secondary credential less than a bachelor's degree: number of institutions attended and semesters enrolled in post-secondary study. Table 41 displays the logistic regression results. The model included 540 cases, and produced a Nagelkerke R-square value of 0.462. This model does a reasonable job of predicting completion of a credential less than a bachelor's degree opposed to dropping out. The model was correct 93.1 percent of the time with specificity of 98 percent and sensitivity of 34.1 percent. The model was highly accurate at predicting the completion of a post-secondary credential less than a bachelor's degree, however, it was quite poor at predicting dropouts. Interestingly, none of the high school or standardized test variables separated credential earners from dropouts. The two variables that proved significant ($p<0.05$) were the number of colleges a student attended and the number of semesters a student spent in post-secondary.

Based on Table 41, attending one additional college multiplies the chance a student will complete a post-secondary credential by 1.599. While this seems counterintuitive, given the context of New Orleans public schools, it is quite possible that students do not initially select a post-secondary institution that fits their needs. For example, a lot of students frequently choose to attend a four-year university when they are really only prepared to complete a trade credential or an associate's degree. Therefore, if a student realizes that they are not suited for their initial college choice and

transfers, they are more likely to complete some credential. This is consistent with the model showing that attending one additional semester of post-secondary education increases the chance a student will earn a credential less than a bachelor's degree by 1.614 times. The model suggests that students who eventually find the right school for them and stay enrolled long enough will complete a post-secondary credential less than a bachelor's degree. This is an important finding for guidance counselors and state policy makers and will be elaborated upon in the discussion section.

This study set out to identify factors predicting post-secondary success. The first research question sought to identify which factors predict credential completion. To consider this, it was important to only include students who would have had time to complete a degree from the population. This included high school graduating classes of 2007, 2008, and 2009. This would give students five and a half years to graduate based on when the NSC data was collected. Of these students, 81.5 percent attended some form of post-secondary, but only 26.7 percent of those who attended post-secondary completed some post-secondary credential.

The variables that showed significant difference between completers and non-completers were used to build a logistic model. This model showed that a one-point increase in high school GPA made a student 2.315 times as likely to complete a post-secondary credential. Likewise, an additional semester enrolled in post-secondary education made a student 1.523 times more likely to complete a post-secondary credential. Failing one additional class in high school, attending one additional college, and attending an institution in New Orleans made students less likely to complete a post-secondary credential by factors of 0.694, 0.783, and 0.431 respectively. The completion

model correctly predicted the outcomes 86.6 percent of the time and explained 56.4 percent of the variation in the sample.

Of the students who completed, 68 percent completed a bachelor's degree and 32 percent completed a credential less than a bachelor's degree (Associate's, Certificate, or Technical Diploma). The logistic regression comparing bachelor's degree completers to students who earned a credential less than a bachelor's degree only required four variables to explain 46.2 percent of the variation between the groups. Students who completed the high school core curriculum were 15.548 times more likely to complete a bachelor's degree than a post-secondary credential less than a bachelor's. Students requiring one additional remedial class were more likely to complete a bachelor's degree than a post secondary credential less than a bachelor's. Students who took the ACT one additional time and earned a one point higher score were 2.263 and 2.347 times, respectively, more likely to complete a bachelor's degree over a post-secondary credential less than a bachelor's degree. The model was only accurate approximately 77 percent of the time, correctly predicting bachelor's degree completion 90 percent of the time and correctly predicting credential completion below a bachelor's degree only about 50 percent of the time. This suggests that there are more high school measures that strongly predict bachelor's degree attainment, but not the attainment of a lower credential.

The second question posed by this study is which factors best predict those students who drop out of post-secondary education. Dropouts consisted of students who had enrolled in post-secondary education, but who had not completed a credential and were not enrolled during the semester the data was collected. They made up 34 percent

of students. Seven factors explained 41 percent of the variation in dropouts and correctly predicted outcomes 75 percent of the time. The model correctly predicted dropouts 80.5 percent of the time and correctly predicted non-dropouts 69 percent of the time. Students requiring one additional remedial class were 1.435 times more likely to drop out of post-secondary studies. Students completing one additional high school credit, one additional dual enrollment class and one additional AP class were less likely to drop out of post-secondary studies by factors of 0.858, 0.198, and 0.472 respectively. Students who took the ACT one additional time, attended an HBCU, and spent more semesters enrolled in post-secondary studies reduced their chance of dropping out by factors of 0.852, 0.616, and 0.743 respectively.

Students who did not complete a degree, but had time to do so, did not seem to be very different from students who completed a post-secondary credential less than a bachelor's degree. As such, these two groups were compared for further analysis. The only two variables that proved significant in the logistic model were the number of colleges attended and semesters spent in school. Students who attended one additional college were 1.599 times more likely to complete a post-secondary credential than drop out. Students who attended post-secondary for an additional semester were 1.614 times more likely to complete a credential than to drop out. This model explained 46.2 percent of the variation in the data and correctly predicted outcomes 93.1 percent of the time. The model was approximately three times better at predicting credential completion than dropouts.

The third question posed in this study aimed to determine which factors predict post-secondary attendance. The data showed that most of the High School graduates,

approximately 80 percent, attended some form of post-secondary education. Only three variables were significant at predicting post-secondary attendance. Students with a one-point higher high school GPA were 2.822 times more likely to attend post-secondary education. Students who took the ACT one additional time and earned one additional point on the English section were 1.300 and 1.061 times more likely to attend post-secondary education, respectively. However, these three variables were only able to explain 13.1 percent of the variation in the data. Further, the model was only correct 82.4 percent of the time. While it correctly predicted attendance 99.6 percent of the time, it was only able to predict non-attendance 1.3 percent of the time. That means the model *incorrectly* predicts non-attendance 98.7 percent of the time.

# 7. DISCUSSION

This study set out to identify predictors of post-secondary attendance, completion, and failure among a small group of predominantly low income, Black high school graduates from one High School in New Orleans, Louisiana in the aftermath of hurricane Katrina. The goal was to assist a range of practitioners in implementing programs to support this traditionally disadvantaged group and others like it worldwide. It also has provided support for the need for further research on this demographic group as well as others.

The argument is simple: post-secondary credentials increase an individual's earning potential over the course of a lifetime and should be widely accessible to all population groups. Unfortunately, this is not the current situation in any country. In the US, Black students are completing post-secondary credentials at rates far lower than their White peers. Low-income students are also completing post-secondary credentials at lower rates than their middle- and high-income peers (NCES, 2011). Therefore, understanding what supports low-income, Black students through the post-secondary process is extremely important for educators, policy makers, and students nationwide.

This study found that high school GPA and the semesters enrolled in post-secondary education positively predict credential completion while the number of failed high school classes and attending a post-secondary institution in New Orleans predicted non-completion. Completers were separated into two categories: bachelor's degree earners and lesser credential completers. Completing the Louisiana High School Core

Curriculum, requiring remedial courses, taking the ACT more times, and earning a higher ACT Composite score all positively predicted bachelor's degree attainment over completion of a lesser credential. This suggests that measures of high school achievement are better predictors of success in a more liberal arts based post-secondary education than in vocational or trade-based post-secondary education.

In the battle for equity in higher education, predicting failure is equally as important as predicting success. This study found that requiring remediation predicted failure while completing more high school credits, especially dual enrollment and AP classes, reduced a student's risk of dropping out. Further, taking the ACT more times, attending an HBCU, and spending more semesters enrolled in post-secondary studies also reduced a student's chance of dropping out. Interestingly, only two factors separated students who completed a lesser credential from those who dropped out. Students who enrolled in more semesters of post-secondary education and who attended an additional post-secondary institution were more likely to complete a lesser credential than to drop out of post-secondary studies.

Given that only 26.7 percent of students who enrolled in post-secondary studies completed any credential, it is important to understand what leads students to attempt post-secondary education in the first place. This study found only three variables that predict post-secondary enrollment: high school GPA, number of times the student took the ACT, and ACT English score. What is arguably more important is that those three variables do a terrible job at predicting non-enrollment. They inaccurately predict non-enrollment 99 percent of the time. Additionally, they only explain a very small 13.3 percent of the variation in attendance.

## 7.1 CONTRIBUTIONS TO THE EXISTING LITERATURE

It is important to consider the ways in which this study contributes to the existing literature on post-secondary completion before delving into the complex issues it raises. The father of the discussion on college success, Vincent Tinto (1975), argued that a student's success in bachelor's degree programs required the student to leave home, assimilate to his or her campus culture, and integrate his or her academic and social experience on campus. The variables required to support this theory were not under review in the current study. However, this theory directly relates to the New Orleans issue, in which students were less likely to complete a post-secondary credential of any kind if they attended institutions in New Orleans.

Tinto's work has been updated many times over the years, and his theory has adapted to include what students and institutions can do to improve completion rates. In the 1990s, much of the conversation shifted to the academic resources students were bringing to post-secondary education. This was enhanced by Clifford Adelman's study, *Answers in the Tool Box* (1999). Adelman used a national sample of 1988 high school sophomores and conducted a longitudinal study of their success through bachelor's degree attainment. He compiled an academic resources index which became the best predictor of bachelor's degree attainment among other factors such as race, socio-economic status, gender, standardized test scores, parental status, continuous enrollment in post-secondary, and college transfer.

Adelman's academic resources index included high school GPA, high school class rank, and the quality of the high school curriculum. The quality of curriculum was

based largely on the availability of advanced classes (AP, honors, gifted), and the highest level of math students attained. He found that students completing math beyond Algebra 1, Algebra 2, and Geometry were more likely to complete college. Further, students who completed Calculus were the most likely to complete college. There were other factors included in the curriculum component of the academic resources index, but these two stand out because of the role they played in the present study.

This study found a significant difference between completers and non-completers in several of the ways Adelman's academic resources index predicted. Completers had significantly higher high school GPAs, took more honors classes, took more math classes, and reached a higher level of math than their peers who did not complete post-secondary. However, there was no significant difference in the number of AP classes taken between completers and non-completers. This could be because of the small number of AP courses offered, or it could be that AP test scores were better predictors of post-secondary success. The High School has had very few students reach college-level scores on AP tests since the inception of its AP program. It is important to note that while there was a significant difference between the two groups (completers and non-completers) in most of the academic resources components, only high school GPA proved to significantly contribute to the logistic model predicting post-secondary completion. Students with a one point higher GPA were 2.3 times as likely to complete a post-secondary credential of some kind. Additionally, completing the Louisiana High School Core Curriculum, which is largely based on Adelman's curriculum findings, did make students 15.5 times more likely to complete a bachelor's degree over a lesser credential (Louisiana Department of Education, 2017). Further, taking AP and dual

enrollment classes did negatively predict student's dropping out of post-secondary studies. Therefore, it would be necessary to utilize more current NSC data to see if, as the AP and dual enrollment programs at the High School expanded, they may have become significant predictors of post-secondary success.

Numerous other studies have looked at various factors that affect students' post-secondary success. The results of this study are consistent with some of the existing literature, though there are several notable deviations. Adelman (1999) and Light & Strayer (2000) found that test scores improve students' chance of degree attainment. This study found that ACT composite score positively predicted bachelor's degree attainment over completion of a lesser credential. A one point increase in a student's ACT composite score made them 2.3 times more likely to complete a bachelor's degree than a lower credential.

Light & Strayer (2000) found that college selection and fit for a student were important predictors of degree attainment. This is somewhat supported by the present study. Attending an HBCU made students less likely to drop out of post-secondary studies. Since the vast majority of High School graduates were Black, it would make sense that they would feel more comfortable at an HBCU. As suggested by Tinto (1975), they may have found assimilation into campus culture easier and therefore been more likely to stay in school. Additionally, in the initial logistic model for completion, attending both public and private institutions were significant positive contributors to success. Attending a public institution increased a student's chance of post-secondary completion. Attending a private institution also increased a student's chance of post-secondary success. They were omitted from the model due to interpretation difficulty.

However, it is possible that one interpretation of this result is that students who fit at a public institution were more likely to be successful there while students who fit at a private institution were more likely to be successful there. This interpretation could be enhanced through qualitative interviews, and is a potential area for further study.

Adelman (1999) found that students who attended multiple colleges were less likely to complete a bachelor's degree, because they were less likely to be continuously enrolled. However, students who attended a two-year college then transferred to a four-year college were more likely to complete a bachelor's degree. He referred to students attending multiple colleges, beyond two, as partaking in a phenomenon called swirling. Essentially students who may not want to be in college transfer multiple times in hopes that they might find a college they actually want to attend. This is consistent with Light and Strayer's (2000) research showing that college selection and fit are crucial to student success. Based on the data collected, it was not possible to determine which students started at a two-year institution and transferred to a four-year institution. However, it was possible to determine how many different institutions a student attended. Students, regardless of whether or not they completed a degree, did not, on average, attend more than two institutions. This is consistent with Adelman's (1999) findings.

This study showed many deviations from the existing literature, which may suggest that the racial and socio-economic make-up of the High School leads to different results than studies that considered national samples. Math level, especially reaching Calculus, was found to be an important predictor of college completion by both Adelman (1999) and Bound, Lovenheim, & Turner (2010). However, no aspect of math studied here proved significant in contributing to post-secondary attendance, success, or failure.

Gender was another predictor of bachelor's degree attainment according to Adelman (1999). While females were significantly more likely to complete a post-secondary credential than males, gender was not a significant predictor of completion or dropping out.

Financial support was an important contributing factor to student success in studies by Min (2014), and Kim, Desjardins, & McCall (2009). Both of these studies found that students receiving financial assistance to support their post-secondary studies were more likely to be successful. In the present study, completers were more likely to receive TOPS and higher levels of TOPS. However, TOPS did not predict success or failure among students from the High School.

Remediation was an important factor considered at length by both Adelman (1999 and 2006) and Bailey (2008). They both found that students requiring developmental coursework (remediation) were less likely to graduate with a bachelor's degree. While remediation did not prove significant for post-secondary completion, it did positively predict dropouts. Students who required one additional remedial class were 1.4 times more likely to drop out of post-secondary studies. Remediation was not a significant predictor of post-secondary success when success included bachelor's degrees, associate's degrees, certificates, and technical diplomas. However, remediation was a significant predictor of bachelor's degree completion over a lower credential. That being said, remediation proved to have an effect opposite than expected on students from the High School. High School students who required an additional remedial course were more than five times as likely to complete a bachelor's degree over a lesser credential.

This study also found several additional factors that predict success beyond what the literature provides. However, each of these factors is in some way consistent with the existing literature. For example, here the more credits a student failed in high school, the less likely the student was to complete a post-secondary credential. This is separate but consistent with the findings of both Adelman (1999 and 2006) and Min (2014) suggesting that high school GPA positively predicts degree attainment as failing a class reduces GPA.

Additionally, this study found that completing more high school credits made students less likely to drop out of post-secondary studies. This is separate but consistent with the GPA impact. If students perform well in more classes their GPA will be higher. It is also somewhat consistent with Adelman's academic resources index (1999). If students are completing more classes, they are likely to be completing classes that improve their academic resources to bring to post-secondary studies.

Two factors in this study do not seem to have a place in the existing research and thus should be noted. First, the more times a student took the ACT proved to reduce a student's chance of dropping out of post-secondary education. It also increased the chance that the student would complete a bachelor's degree over a lesser credential. Given the amount of work that must be done to raise an ACT score, it is less likely that taking the ACT more frequently increased a student's score substantially. It is more likely that students who were motivated to attend college, specifically with the intention of earning a bachelor's degree, took the ACT repeatedly in an effort to improve their scores to increase their chance of being accepted to the college of their choice. While this does not suggest that the High School should push students to take the ACT

repeatedly, it does suggest that students who do take the ACT repeatedly might be separated somehow and placed into dual enrollment classes to help them prepare for post-secondary, or encouraged to participate in a summer bridge program between high school and college to improve their chance of success. Since these students are motivated, it is important that their first experiences in post-secondary education are positive.

The semesters spent in school variable proved interesting as well. In this study, the more semesters a student was enrolled in a post-secondary institution, the more likely that student was to complete a post-secondary credential and the less likely that student was to drop out. These results support each other and make intuitive sense, and therefore may have been too obvious to be considered in other studies. Since this variable was one of only two that distinguished between students who completed a credential less than a bachelor's degree and students who dropped out, it is an important variable to consider. It raises the question, if students who have dropped out of post-secondary studies were to re-enter and stay longer, would they necessarily complete a credential?

## 7.2 MAIN CONCLUSIONS

The results of this study raise five important issues in post-secondary education. First, school leaders and community members throughout the city of New Orleans must consider the issue of post-secondary attendance. The push to send all high school graduates to bachelor's degree programs has disastrous consequences for students, their families, and the community as a whole. Second, teachers, counselors, and school administrators must consider the New Orleans issue. If students are less likely to complete any sort of post-secondary credential in New Orleans, they should be advised to

more strongly consider post-secondary options outside New Orleans. Third, students should also be advised to better consider school fit and transfer plans when they are considering post-secondary options. This feeds into the remedial issue. Fourth, schools with bridge programs are likely a better fit for students from the High School, regardless of the student's need for remedial coursework. Fifth, state policy makers need to consider the dropout issue. Since dropouts are so similar to lower level credential earners, there is a potential to reach out to students who have left post-secondary, and support them through a trade program so they can better provide for themselves and their families.

### 7.2.1 THE ISSUE OF ATTENDANCE

The attendance issue is an issue of poverty. Not all students are prepared for or interested in going to a traditional four-year college. Yet in New Orleans, college is the main focus of education-even in elementary and middle schools. Approximately 42 percent of elementary and middle schools in New Orleans have the word college in their title or mission statement on the school website (The Cowen Institute, 2017). Pushing students who would not otherwise attend a four-year institution to do so, may be pushing those students further into poverty. College is expensive. Though most students attending public schools in New Orleans receive Pell Grants, they are not nearly enough to cover the expenses of attending a four-year institution unless the student lives at home and his or her parent is able to provide for all needs outside of school. This quite simply is not realistic in a city where the median household income is $37,488 annually and 20.6 percent of families live in poverty (US Census Bureau, 2016).

It is more realistic that students pushed to attend college will take out loans to pay for it (Cilluffo, 2017). The amount of money available to students through federal loans is enticing for students who have never had access to money. However, issuing these loans to students with minimal loan counseling is irresponsible as the majority of High School graduates do not complete a credential of any kind. Therefore, they will not be eligible for the higher paying jobs a complete education provides. This drastically reduces their ability to repay their loans. For many, default is inevitable. According to the 2012-2016 American Community Survey conducted by the US Census Bureau, the average annual income of a person with some college or an associate's degree is $28,435. Combining these two groups is counterproductive, but even if a person makes $28,435 annually, they will have enough to pay for food, housing, transportation, and little else. If they are unable to repay their loans, it will hurt their credit, preventing them from having access to reasonable interest rates for home and auto purchases, thus increasing their cost of living. If these people are parents, or worse, single parents, there is little they can do to improve their bleak financial situation. Considering this, pushing students into college who are not well prepared to finish can have devastating consequences.

Teachers, administrators, and counselors need to do a much better job helping students understand their abilities and set realistic goals. It is standard practice in New Orleans to encourage students to believe they can be anything they want to be. However, this is often unrealistic given their levels of preparation for post-secondary study. A student with a 2.0 high school GPA who hates math and only earns Bs and Cs in science classes should not be encouraged to pursue a medical degree. However, if a child is encouraged to believe they can and should pursue a medical career when it does not fit

their interests or academic abilities and motivation level, they are more likely to not complete post-secondary, and experience serious self-doubt in their future endeavors. The idea that teachers should encourage students to reach their dreams should come with a warning label: false encouragement is detrimental to students and it may hurt them throughout the rest of their lives.

### 7.2.2 THE NEW ORLEANS ISSUE

The New Orleans issue is crucial for the future of college advising. The logistic regression for post-secondary completion shows that attending an institution in New Orleans is a negative predictor of post-secondary success. Students who attended a post-secondary institution in New Orleans were less than half as likely to complete a credential as their peers who attended institutions elsewhere. One possible explanation for this is Tinto's work suggesting that students must leave home in order to assimilate into their college's culture (1975). This would suggest that all students considering post-secondary studies should look for schools outside of their hometowns.

It is also possible that institutions in New Orleans are not providing the support students need to be successful. According to college search website Niche, the average graduation rate among all students in New Orleans is 36.6 percent. This is skewed by the high graduation rate (83 percent) of Tulane University, located in New Orleans. Only a very few High School students can earn admission to Tulane as they accept only 21 percent of applicants. Further, the average ACT score is a 30-33 composite (Tulane University, 2018). Any student accepted at Tulane University arguably needs less academic support than those attending other New Orleans institutions. Without the

weight of Tulane, the graduation rate in New Orleans falls to 30.75 percent. This is below the state average outside New Orleans of 36.7 percent, and well below the national average of 49 percent. This suggests that most students, regardless of race or socio-economic status do not graduate from post-secondary institutions in New Orleans. Given that graduation rates tend to be lower for Black students than for White or Asian students, it is likely these New Orleans rates are actually lower for the population under study. This is highly concerning because it shows that most institutions in New Orleans are not providing the supportive academic environment students need to thrive. These supports are crucial for students who are not prepared to complete credentials in the environment they select for post-secondary studies.

While some fault may rest on unsupportive institutions, it is also possible that New Orleans is a particularly negative influence on students who choose to stay. New Orleans suffers huge disparities based on race and socioeconomic status. The median income for Black residents of New Orleans is $22,198 while the median income for White residents is $39,804. Blacks are making just over half (55.8 percent) as much as Whites (US Census Bureau, 2016). Further, 34 percent of Blacks in New Orleans live in poverty while only 12.8 percent of Whites do (US Census Bureau, 2016). Poverty is almost three times more prevalent among Blacks than Whites in New Orleans. It is possible that removing children from such a racially charged environment and pulling them from unequal poverty to a place where many students are in a similar financial situation may help (Cheshire, 2007). While some college students are better off than others financially, most have to deal with the financial aid office, refund checks, and

learning to live on a budget. In this way, all students are learning to deal with their financial issues together, rather than in isolation.

It is also possible that removing young people from their responsibilities in a poor home could allow them to better focus on their own success. For example, children who are away from their parents may be less likely to feel pressured to use their financial aid and loan money to pay for family obligations (Morton, 2018). If parents are not seeing their students spending large sums of money, they may be less likely to feel their student is making poor choices, and less likely to pressure their student to contribute to expenses at home. This may be especially true for students whose parents did not go to college, as they are less likely to understand the huge costs associated with education (Mollison, 1999).

### 7.2.3 THE REMEDIAL ISSUE

The results of this study seem contradictory regarding the effects of remediation. This raises the remedial issue. The results show that students requiring more remedial classes are more likely to drop out of post-secondary education. This seems logical, as they are likely less prepared to handle the academic rigor than their peers who do not require remediation. It also supports the existing literature that the percentage of Black and developmental students on a college campus negatively predict completion rates (Price & Tovar, 2014). However, the results also show that requiring more remedial classes lead High School graduates to a greater chance of bachelor's degree completion. This seems contradictory. However, it is likely that the timing and quality of remedial classes may be very relevant determinants of success. It also seems probable that the

branding of these programs ("remedial" vs. "bridge") may also contribute to student success.

*Remedial* or *developmental* courses that bear no credit make students feel as though they are not a valuable part of the campus community. This makes it more challenging for them to assimilate into campus culture. Further, needing these courses teaches students that they are not as smart as their peers, reducing their self-efficacy. Any negative impact on self-efficacy should be avoided if the goal is to retain and eventually graduate students (Tinto, 2017b). Additionally, these courses are often taken at a community college instead of a four-year institution, and students rarely receive the support in remedial programs that they need. If students are taking remedial classes at a community college without additional support and guidance, they could wind up taking remedials multiple times due to failure or not progressing through the remedial requirements at a satisfactory pace. In fact, only about a third of developmental students complete their remedial math sequence and less than half complete their remedial reading sequence (Bailey, Jeong, and Cho, 2010). Further, students who are not a part of a program or cohort lack the social support to stay motivated and keep trying. These students may feel misunderstood, and their academic confidence is probably already low. As such, remedial classes outside of a program or cohort may be detrimental to a student's chance of success.

Incorporating developmental coursework into a summer bridge program, on which schools place higher value, has proven to be much more successful. Bir and Myrick (2015, p. 22) looked at students who participated in a summer bridge program and found that participants "entered with significantly lower test scores and high school

grades than nonparticipants, yet for all cohorts combined the summer bridge participants achieved significantly higher college GPAs and were retained to the second and third year at significantly higher rates." The idea behind summer bridge is to help students adjust to college-level expectations and begin earning credit while in a supportive environment. Students generally build meaningful relationships with students and faculty. They also learn how to access resources on campus that are integral to success for all students. Many bridge programs also include mentoring services for students throughout their first year of college. This is supported by the research of Crisp & Cruz (2009), who found that mentoring has a direct and positive correlation with the retention of first-generation students. Additionally, Lightweis (2014, p. 465) found that "colleges and universities who included mentoring in programs for first-generation students built on competencies needed for success in higher education."

Bridge programs and mentoring programs support students in adjusting to college. This is not only useful to help students develop the skills they need to be successful in college; it is also the creation of an important support network that may prevent a student from dropping out of post-secondary education. If students are able to find support and motivation among their peers, they are more likely to be encouraged to stay in school and finish their degree (Engstrom & Tinto, 2008; Tinto 2017a). It would seem that placing developmental coursework inside the high school curriculum through dual enrollment would be one way to mitigate post-secondary dropouts (Karp, 2015). This study found that taking AP and dual enrollment classes in high school could reduce dropout risk. This result must be interpreted with caution however. It is possible that AP and dual enrollment classes better prepare students for the rigorous academic environment of post-

secondary studies. Additionally, if students earn college credit for their AP scores or their dual enrollment grades, they enter college with more flexibility in scheduling and a greater safety net if they make mistakes early in their post-secondary career. They also can take fewer classes while adjusting to college and still remain on track to graduate in four years without requiring expensive summer classes (Tinto, 2013). It is, however, important to note that at the High School under study, students selected themselves for AP classes, and many opted for the dual enrollment opportunity. It is likely that students who self select to take harder classes in high school are those more likely to attend and do well in college on their own.

### 7.2.4 THE ISSUE OF FIT

Another factor this study found to reduce the probability of a student dropping out is attending an HBCU. This likely points to the importance of college fit (Light & Strayer, 2000). Many Black students face subtle and blatant forms of racism at Predominately White Institutions (PWIs) (Fries-Britt, 1998). They often have an easier time acclimating to a campus where they look like more of the students (Allen, 1992). Allen found that Black students who attended HBCUs "reported better academic performance, greater social involvement, and higher occupational aspirations than Black students who attended [P]redominately White [I]nstitutions" (1992, p. 39). He further noted that Black students experienced alienation, hostility, discrimination and lack of integration at PWIs while at HBCUs they felt engaged, connected, accepted, supported, and encouraged. Given that humans by nature perform better when they feel accepted

and supported, it is unsurprising that Black students were more likely to be successful at HBCUs (Allen, 1992).

Students who do not receive enough support adjusting to college expectations will ultimately give up on their studies (Huerta & Watt, 2015). Fries-Britt (1998) found that Black students entered college with few or no academic relationships with other Black students. Further, supportive environments in which students are able to learn from each other are crucial to success of Black students in college. Established mentor programs can encourage the adjustment of Black students to campus. Fries-Britt argues this is particularly important at Predominately White Institutions (PWIs) because "if Black students can find the support within a cultural and community framework that is familiar, it may increase their success in integrating into the larger White campus" (1998, p. 570).

Students perform better on campuses with wide support networks. As such, counselors should be advising students to attend schools known for their support offerings. Additionally, teachers must help students learn how and when to reach out for support in their high school classrooms so they can do so appropriately in higher education settings. It is reasonable to think that students who do sufficient research to select a post-secondary institution whose culture matches the student's core values will wind up at an institution in which they are invested and therefore more likely to be successful (Engstrom & Tinto, 2008). However, it is not just culture that allows students to thrive. Light and Strayer (2000) found that students, regardless of their abilities, were more likely to graduate from institutions in which quality of academics matched student abilities. Using a national sample, they found a college match had a causal effect on completion. Students of low academic ability were hindered by attending colleges too

rigorous for their ability level, and students with high abilities were thwarted by attending colleges that did not challenge them sufficiently. This means that the ability of High School teachers, counselors, and administrators to help students reflect on their true abilities and set realistic goals may have a strong impact on whether a student drops out of post-secondary education or finishes.

### 7.2.5 THE DROPOUT ISSUE

Of particular importance in this study was the finding that post-secondary dropouts were in most ways no different from students who completed a credential less than a bachelor's degree. Dropouts were more likely to be male, have failed more high school classes, and have taken more gifted classes than their peers who completed a credential less than a bachelor's degree. Students who earned credentials attended more post-secondary institutions, spent more semesters in school, and were more likely to attend a two-year institution. However, the logistic regression separating the two groups only found the number of institutions and the number of semesters in school to be significant predictors of earning a credential over dropping out. This raises the question of support for students after they leave High School. The logistic model suggests that dropouts simply need to stay in school longer and transfer to an institution that better meets their needs. While this is obviously an over-simplification, its implication is worthy of discussion.

Post-secondary dropouts cost society billions of dollars. Taxpayers contribute to the Pell Grant fund, money that is not repaid if a student drops out. Additionally, dropouts are more likely to rely on taxpayer funded public assistance programs. Jones

(2015) claims that dropouts at traditional colleges and universities cost taxpayers over nine billion dollars and community college dropouts cost taxpayers four billion dollars. He notes that 30 million people have some college credit but lack degrees allowing them to earn the money to repay debt and life free of public assistance. Bound, Lovenheim, and Turner (2010) identify the increasing returns to a bachelor's degree as one reason more students, even those who are under prepared) are going to college. They expect that this explains part of the dropout issue, as those who are not prepared to attend post-secondary studies are likely to drop-out. They also note a shortage of resources on both the demand and supply side. Students are entering post-secondary studies less prepared at the same time that colleges are receiving less funding per student to be able to support them. For example, they found that the large increase in student-to-faculty ratios nationally explained 81.6 percent of the drop in completion rates (Bound, Lovenheim & Turner, 2010).

The increasing numbers of students, especially academically under prepared students, matriculating to college campuses nationwide requires the establishment of stronger support services on all college campuses. Unfortunately, some schools are doing this better than others. As such, guidance counselors play a key role in helping students apply for colleges with the best support programming. Finding a supportive campus environment where a student feels like they are a valuable contribution to their institution is imperative for student success. In a qualitative review of community college students, Sandoval-Lucero, Maes, and Klingsmith (2014) found that two of the major contributing factors to students' success were relationships with faculty as well as campus engagement and support. Tovar (2013) found that quantity of interactions with faculty and students'

perception that faculty valued them contributed to retention. In order to increase equity in education, institutions must offer academic, financial, and career services as well as innovative teaching methods, and social inclusion for all cultures to ensure students are successful (Altbach, Reisberg, & Rumbley, 2009).

## 7.3 RECOMMENDATIONS

While the attendance and New Orleans issues clearly need further study, it is arguable that the remedial issue and the dropout issue could be solved with a slight change in high school programming. The High School has already partnered with the local community college to offer dual enrollment courses to many students. According to Mize (2014), dual enrollment has a greater impact on college completion than other advanced course offerings like Advanced Placement and International Baccalaureate. Generally students take classes like English 1 and English 2, US history, psychology, or political science. Some students have taken remedial math while in high school, and others have been able to take College Algebra based on their ACT score. While offering dual enrollment courses is beneficial to students, it is not enough.

One key takeaway from this research is the importance of building supportive transitions between high school and all types of post-secondary programs. Since 80 percent of High School students required remediation in at least one subject (50.5 percent required remediation in both English and math), it is imperative that any transition program includes a developmental education component. It is also necessary to utilize strategies that are proving effective in existing transition programs nationwide. According to Engstrom & Tinto (2008), incorporating learning communities into any

transition program is crucial for students to learn how to learn, to take risks in their learning, and to be accountable for their learning. Therefore, instituting cohort-based learning communities within the high school curriculum that blend basic skills courses with credit bearing dual enrollment courses could support students transition to any form of post-secondary study (Tinto, 2012; Engstrom & Tinto, 2008). Any transition program must also offer mental health counseling, development of financial literacy, and career services to students (Tinto, 2013). A successful transition program must consider several groups of students, and it will require a substantial partnership between the High School and the local community college.

### 7.3.1 STUDENTS WHO PLAN TO ATTEND COLLEGE

The first group of students who must be considered are those who enter high school with plans to attend college. These students are likely to self-select to take the ACT prior to the mandatory state-wide testing that occurs during students' junior year of high school. They are also likely to enroll in optional AP courses during their freshman and sophomore years of high school. These students should be encouraged to enroll in a pre-college transition program beginning the summer prior to their junior year of high school. The Proposed Course Progression Plan can be found in APPENDIX B. Students will take dual enrollment classes and receive basic skills support as well as academic planning and advising services throughout the summer (Tinto, 2012). Students who successfully complete the summer pre-college transition program will be eligible to take two dual enrollment courses (one in the fall and one in the spring) plus a basic skills support class (throughout the year) during their junior year of high school. They will also continue to receive support from an academic advisor regarding the college planning

process (Tinto, 2013). These students will then take a summer of college science the summer between junior and senior year of high school. This will include two college science classes with labs and a basic skills support class to help students master the skills they need to be successful in a college science class (Tinto, 2012; Engstrom & Tinto, 2008). By the end of this summer, students will have outlined a proposed course of study after high school. Students will receive support in deciding whether to attend an associate's or bachelor's degree program after high school and in what area they would like to major. All students will take College Algebra with a basic skills math lab during the fall of their senior year. Students planning to attend an associate's program will select one major class in which to enroll in the fall accompanied by a study skills class that will function like student study groups based on the class taken. Students planning to attend a bachelor's degree program will take Spanish 1 with a basic skills language lab during this time. In the spring, students planning to attend an associate's program will select two major courses to take plus a basic skills support lab. Students planning to attend a bachelor's degree program will take Spanish 2 and one major class of their choosing with a basic skills support lab.

Through this program, students will complete 30 college credit hours, granting them sophomore status when they enter the post-secondary institution of their choice. This allows them greater flexibility once they get to college, prepares them with the basic skills needed to be successful in any type of college level course, and allows them to save money by requiring one fewer year of investment in schooling (Tinto, 2013). Students will have had excellent guidance in outlining their post-high school paths, and will likely make a smoother transition onto the college campus they choose to attend. The academic

advisor responsible for counseling these students through the transition program will remain in regular contact with students throughout their first year out of high school. This gives students a resource for transferring, changing majors, and making other academic decisions (Jones, 2011). Additionally, since so many students from the High School attend the same colleges, it would be possible to build a mentoring program to help future students transition to their campuses.

### 7.3.2 STUDENTS PLANNING NOT TO ATTEND COLLEGE

The second group of students who must be considered in the building of bridges between high school and life after high school are students who are not planning to attend college. The goal for these students is to be able to secure a living wage job right out of high school. For them, completing a trade certificate while in high school is highly desirable because it provides an additional layer of job security. Many of these students will earn a Jumpstart diploma, a high school diploma with a career focus. Others will earn a college-preparatory diploma, but may be unsure if they want to attend college. Essentially, any high school student not taking part in the college transition program must be required to complete a trade certificate of their choosing as a part of their high school studies. This offers students the flexibility to engage in meaningful work before deciding if they want to attempt an advanced degree of some kind. It also ensures that if students decide to pursue a higher degree and take out loans to do so, they will be able to repay their loans even if they do not complete an additional program.

The High School has already developed a trade program with the local community college in which 10-20 students begin taking dual enrollment courses for the

Residential Electrician Certificate of Technical Studies during their junior year of high school and complete a certificate at the same time they graduate from high school. This qualification allows students to take entry-level jobs right out of high school that pay $24 per hour (Bureau of Labor Statistics, 2017). These are the exact type of programs that must be expanded. The technical certification programs requiring only two semesters of coursework are ideal because students can complete them while in high school. Because students are still full-time high school students, they will require at least a full year to complete a semester of post-secondary coursework. Some will also require summer classes to meet this goal. The High School should add at least one new trade program each year until student demand is met. APPENDIX B provides a flowchart of how to incorporate these programs into the existing curriculum. These programs should include Certificate and Technical Diploma programs leading to jobs with median incomes of $30,000 or more annually. At the local community college in New Orleans, these include the following Certificate programs: Legal Secretary, Computer and Electronics Service Technology, Fire Science Technology, Motor Vehicle Technology, Carpentry, Electric Line Technician, Commercial Electrician, HVAC, Precision Machining, Welding, Maintenance Technology, Dialysis Technician, Emergency Medical Technician, Medical Coding, Medical Registration, Massage Therapy, Opthalmic Medical Assistant, Pharmacy Technician, Phlebotomy Technician, Surgical Technology, and Water and Wastewater Technology (Delgado Community College, 2018a).

### 7.3.3 BRIDGES FOR DROPOUTS

The third and final group of students who must be considered in the building of bridges between education and life are post-secondary dropouts. It is difficult to say who is responsible for these students, so it is likely multiple levels of support will be necessary to provide a real bridge for post-secondary dropouts to return to school. The implementation of a high school transition program and the requirement of trade certificate at high school graduation should help reduce the number of future post-secondary dropouts. However, further support is needed from the high school in the meantime. This would be further encouraged if high school performance scores incorporated post-secondary completion rates instead of high school graduation rates. This would lead to the creation of a post-graduate student support specialist position at many high schools. If this person was responsible for maintaining contact with students for 2-5 years after they finish high school, they could counsel students away from dropping out of post-secondary studies entirely and encourage them to transfer to a two year institution to complete an associate's degree or trade program that will allow them to reach their goals.

This, however, does not address the numerous existing post-secondary dropouts. These students might benefit from the creation of post-secondary resource centers at community colleges (US Department of Education, 2016). These types of centers are currently operating in Wisconsin, Missouri, Kansas, Virginia, Rhode Island, and Mississippi (Workforce GPS, 2018). This type of center could be housed in the adult basic education programs that currently exist at community colleges nationwide. This type of program would conduct extensive outreach efforts throughout the community. It

would also require developing a network of current community college students to talk to their families and friends about how to connect to the resource center. At the resource center, trained advisors will assist students in identifying what certificate programs best align with their interests, and help students register and find funding for those programs (US Department of Education, 2016). Through existing adult basic education programs, basic skills courses will be taught alongside trade courses (Delgado Community College, 2018b). These will help students build a support network to push them to succeed in their program while teaching them the skills they need to be successful students. Learning communities could be extremely effective in this effort as well (Engstrom & Tinto, 2008). Counseling workshops could also exist in this environment to further support re-entry students in small group settings. This type of program would require additional funding for existing adult basic education programs as well as extensions to financial aid, including grants to help returning students pay for their education (US Department of Education, 2016).

### 7.3.4 SCHOOL PERFORMANCE SCORES

The only way transition programs are likely to be successful is if the School Performance Score (SPS) rubric on which Louisiana high schools are graded is adjusted. Once upon a time, high schools offered trade education as part of the curriculum (Wyman, 2015). However, as the state's education policy has moved to further support college access for all students, high schools have taken their cue and all but eliminated these trade programs from the curriculum. Therefore, state money to support dual enrollment programs is imperative. In Louisiana, high schools are graded based on a

SPS. These scores have four components: EOC scores make up 25 percent of SPS, ACT scores make up 25 percent of SPS, cohort graduation rate makes up 25 percent of SPS, and graduation index makes up 25 percent of SPS (Louisiana Department of Education, 2016). This grading system needs adjustment to support real post-secondary readiness. See APPENDIX D for an example of possible changes to be considered.

The EOC and ACT components are reasonably effective and objective measures of student progress, and should remain as they are in the calculation of future SPS scores. The cohort graduation rate, however, is neither objective nor effective in measuring schools. Incorporating this metric in SPS leads to a system in which schools want higher SPS scores, so they graduate more students, regardless of their abilities. This weakens the value of a high school diploma considerably. Students know if they come to school, they can do little to no learning and still graduate. This is a system that consistently moves Louisiana schools to the bottom of national rankings (State grades on K-12 education, 2018; Education Rankings, 2018). It is also a system that ensures the majority of students are not aware of their true abilities because the teachers' measures of success must be artificially low to ensure everyone can pass and graduate. This is a significant contributing factor to the low post-secondary completion rates in Louisiana. To change this, the cohort graduation rate should be replaced with six-year post-secondary completion rate. This data is readily available to high schools and the state through the NSC database. It is important that post-secondary completion include completion of any post-secondary credential because the goal is not to increase the number of degrees awarded, rather to increase the earning potential of all people in Louisiana (Carnevale,

Rose, and Cheah, 2011). This can be done through the completion of most post-secondary programs.

In the long run, the graduation index component of SPS will also need to be adjusted to reward completion of college-level coursework while in high school and post-secondary credential completion within one year of high school graduation. It is important to note that this change will require more time than changing the cohort graduation rate component of SPS. However, once the change is made, it will force high schools to be responsible for what happens to their graduates after they leave the controlled high school environment. This change supports the creation of transition programs and forces high schools to be more accountable to their graduates. This way, there is no benefit for passing students who have not mastered the skills needed to do well. Further, high schools will be penalized in their SPS for not equipping students with the skills they need to succeed in the future. This will better allow parents and students to make choices regarding which high school to attend.

## 7.4 IMPLICATIONS

This research, the issues it raises, and the bridges that must be built for students each have implications for a vast array of stakeholders. The parents and family members of students, as well as community members, must be made aware of the stable income and job security afforded by numerous trade degrees (See APPENDIX C). This will be particularly challenging in an environment that has learned to praise the college degree. It is important to ensure that members of the community do not see a trade or associate's degree as undesirable. They must see these credentials as an equally valuable 'college'

option for their children. If nothing else, possessing one of these credentials within a year of high school graduation would allow young people to work for a living wage after only a year of additional education. The financial benefits of this must be prioritized in explaining the value of these credentials to students, their families, and community members.

Unfortunately, families and community members are not the only people who must be persuaded of the value of the trade credential. Teachers, counselors, and school administrators must also see the value of these credentials. The proposed SPS changes in APPENDIX D could support this effort. For the college transition program to work, high school administrators and guidance counselors must form meaningful relationships with local community colleges. Administrators must prioritize dual enrollment in junior and senior scheduling by providing time for students to leave campus to attend a community college. They also must allow dual enrollment to count for high school credit so that student GPAs are not penalized by taking on the challenge of dual enrollment (Louisiana Department of Education, 2018). Students could be further incentivized to participate in the college transition program if their dual enrollment electives were weighted, as AP and honors classes frequently are. Counselors must encourage students to take dual enrollment classes and help students schedule these classes through the local community college. State legislators also must continue subsidizing dual enrollment courses for high school students. Teachers must be assigned to teach a study skills class that targets the development of the skills students need to master for success in their college-level classes. Teachers must be trained to support students learning from each other in groups (Tinto, 2012; Engstrom & Tinto, 2008). It would be ideal if these basic skills classes

were small. However, this would require a high school's administration to prioritize these basic skills classes.

When it comes to the college selection process, counselors and teachers must be more straightforward with students about the costs and benefits of different degree options (Jones, 2011). They must be realistic with students about college-level expectations and help students understand why some schools are a better fit for their needs and abilities than others. They also should be honest with students about their opinion of whether the student is ready to attend a four-year college immediately following high school graduation or if a two-year program would serve as a better bridge to a potential career or four year college option in the future. This would be made easier if longer college bridge programs were available, hence the need for a college transition program during high school (Tinto, 2013; Bir & Myrick, 2015). Administrators should also be more forthcoming with students and parents about college-level expectations, costs, and the benefits of shorter programs. In addition, for students who are planning to attend a four-year college, counselors and teachers need to know and express the benefits of attending HBCUs to Black students (Allen, 1992; Fries-Britt, 1998).

National policy-makers could implement changes to FAFSA and Pell grants that would further support a nation-wide effort to improve post-secondary completion rates for low-income students. First, financial aid resources should be more available to students from poor and lower middle-income families (Perna & Li, 2006). Second, there needs to be stronger restrictions on the disbursement of federal student loans (Holland & Healy, 1989). Students should not be allowed to take out student loans until they have completed a qualifying trade credential. This ensures that even if the student does not

complete a more advanced degree, he or she will be able to repay federal loans. In order for this to be realistic, a form of Pell must be made available to students for a maximum two-year period after high school to complete a qualifying trade credential. The availability of strong dual enrollment and college transition programs during high school must become more widespread to support this effort. Some related areas for further consideration and research regarding college financing are discussed in APPENDIX E.

Community college participation is crucial to the success of this work. Community colleges must partner with area high schools to offer dual enrollment classes to high school juniors and seniors. Further, to ensure high school students have access to classes, community colleges will have to scale up offerings of introductory classes. Dual enrollment instructors will have to partner with high school teachers to ensure students are learning the basic skills needed for dual enrollment classes in the high school basic skills classes (Tinto, 2012; Brock, 2010). This partnership should help high school teachers better understand the skills students must master to do well at the next level, as well as support post-secondary instructors in developing a more learner-centered pedagogy (Engstrom & Tinto, 2008; Brock, 2010).

Many four-year colleges and universities will benefit from stronger pre-college bridge programs because students could enter university with as many as 30 credit hours complete. This would increase four-year graduation rates exponentially (Tinto, 2013). In particular, it will improve completion rates of under-prepared populations. Many top colleges rely on external programs such as Posse and College Track to bring diversity to their campuses. In dealing with the developmental courses in high school, more minorities, who disproportionally require remediation, will be ready to compete at a

higher academic level. Further, if colleges admit cohorts of students who have completed a college transition program in high school, these students will be even more successful at a four-year college. These students could even serve as mentors for students who do not complete a transition program. College mentoring programs have been widely successful at improving student completion rates (Crisp & Cruz, 2009). These types of programs could increase diversity on college campuses nationwide.

Universities can contribute to the success of this effort with research. There is currently a gap in educational research around technical and vocational education programs. More research needs to be conducted on the long-term effects of technical education on students and their families. This research can advise on the effects of implementing trade certificates into the high school curriculum. It could also support the expansion of this idea.

Research and evaluation of high school to college transition programs and dropout reentry programs will also be a crucial component of expanding the ideas outlined here. It is imperative to pilot these programs and fully evaluate them before scaling them throughout the state and country. Further research and evaluation can recommend additional changes to existing programming that could improve student outcomes. A wide qualitative component reaching a vast array of stakeholders is necessary for a full evaluation prior to program expansion and replication (Patton, 1990).

The very limited predictive power of the attendance model suggests that further research on this issue is also needed. Clearly the academic variables provided in this study do not sufficiently influence a student's choice to continue their education. As such, a qualitative review of students who choose to attend and those who choose not to

attend may provide additional variables that cannot be quantified by a high school (Patton, 1990). Such a study could contribute to the other models as well, but understanding attendance needs the most additional support.

Expanding the demographic and geographic groups studied using similar methods as this research could also inform students and educators about the New Orleans issue, or the issue of attending a post-secondary institution in one's hometown. This could advise Tinto's theory on student assimilation to a college campus. It also would create a more robust body of literature on different types of disadvantage that should be considered in this field.

## 7.5 LIMITATIONS

There are an unlimited number of factors potentially contributing to a student's success. Trying to find variables to represent each factor and study them all together is virtually impossible. This study utilized data sources readily available to any American high school. A review of existing longitudinal studies assisted in identifying some of the factors that are known to be associated with some form of post-secondary success. Those that were accessible in the three data sources were used, along with any other variable that could logically be connected to post-secondary success in some way. Because the data sources are those readily available to a high school, there are several factors that are not considered in this study. The researcher did not have access to data about each student's household. Information on a student's community involvement was also inaccessible. Transcripts were used to collect academic data, and many academic factors were not included on those transcripts or are difficult to quantify. Finally, none of the

post-secondary first-year or duration factors had data to represent them. These factors omitted from the present study could interact with and/or confound the data in unknown ways.

The most substantial limitation of this research is the relatively small number of high school graduates who completed some form of post-secondary credential. In part, this is due to the fact that a low percentage of students are successful. However, this number is also affected (and likely diminished) by the time the data was pulled from the National Student Clearinghouse as the 2014 class would not have had enough time to complete any credential. Further, the classes of 2011 and beyond could not include many students who completed bachelor's degrees as those degrees would have been conferred at the end of May 2015 and beyond and may not have been not updated in the database at the time the data was collected.

Under ideal circumstances, students would also be interviewed to add depth to the study with a purposive sample drawn to further explore data variations qualitatively. Unfortunately, to protect the subjects of the study, no identifying information exists in the data set to match data to students interviewed. Further, to interview students, the school would have to contact the students to be interviewed and there is potential bias in the students who would be selected for interviews. Nevertheless, this qualitative angle constitutes a consideration for further related research on the subject.

It is important to note that this study uses correlations and cannot determine causation. Significant predictors of success cannot therefore be assumed to cause success. Additionally, this study only considers one High School in New Orleans, therefore data cannot be assumed to represent students in New Orleans generally. The

purpose of this research is not to provide a script of what works for all students. Every student has a unique background that contributes to his or her post-secondary experience. There is no one-size-fits-all model to achieve student success. This study can only help educators explore a variety of factors that may improve a chance that a given student succeeds in post-secondary education. The benefit here is that the sample consists of predominately poor, Black students, a sub-group of the population that is often neglected in the literature. It also provides a methodology that can be used across high schools so they can help determine what best supports their students.

## 7.6 CONCLUDING REMARKS

Any post-secondary credential improves a young person's potential earning power, which can yield exponential returns among disadvantaged populations (Carnevale, Rose, and Cheah, 2011). Sadly, low-income and Black students complete post-secondary credentials at rates lower than the national average (NCES, 2011). There are a plethora of factors that contribute to this fact, but there needs to be a greater understanding of the barriers these students face in order to create services to change this situation.

This study sheds light on the intense complexity of the issue of post-secondary completion. This is relevant for anyone interested in increasing equity and diversity in post-secondary education: policy-makers, university administrators, secondary school administrators, and teachers. Post-secondary success of minorities is a major issue in the US. Blacks attend and graduate from post-secondary institutions at rates significantly lower than their white peers (Bir & Myrick, 2015). This study identifies factors that

predict which poor, Black students succeed and which do not. This in turn could assist policy-makers and university administrators in making changes to institutional culture and regulations that govern student success at the post-secondary level. Hopefully, an increasing awareness of the problem and the most important factors contributing to success will increase funding available to deal with the obstacles poor, Black students face in completing post-secondary education.

This study is crucial for helping the sample school understand how to best help students while they are in high school. By identifying the curriculum factors that best predict student post-secondary success, this study can show teachers and administrators which aspects of the curriculum are most helpful to students after high school. This may allow for rearranging of resources and seeking additional funding for specific academic programs that are working well. In identifying the standardized test scores that best predict student success in post-secondary education, the school can help guide students into a post-secondary education path appropriate for their academic level. Further, it can assist school faculty and staff in targeting students for further programming. Understanding which post-secondary institution selection factors predict success can help high school guidance counselors discuss post-secondary options with students. Here, guidance counselors may be able to provide students with much more specific advice given the experience of previous students from similar backgrounds.

This study utilizes data that is easily accessible for any high school: transcript data, standardized test scores, and National Student Clearinghouse data. The accessibility of this type of data makes this study easily replicable across secondary schools nationwide. This could help individual institutions around the country improve their

curriculum and increase the accuracy of information teachers and counselors are providing to students of any given background. The replication of this study across a large number of secondary schools in varying geographic and demographic contexts would contribute significantly to the body of literature available on the subject of post-secondary completion.

New Orleans possesses many attributes of a developing country. Further, the relatively homogenous sample studied shares many characteristics with students in developing countries; therefore, it is possible that disadvantaged students worldwide may face similar issues. This warrants further research as it directly relates to the eradication of poverty. According to the World Bank (2000), half of students enrolled in tertiary education around the world live in developing countries. If those students can benefit from similar interventions as poor, Black students from a developing environment (New Orleans), then this research, related research, and any programming generated from it have global implications.

APPENDIX A: RESULTS TABLES

**Table 1: Descriptive Statistics of High School Variables among the Entire Sample**

| | Total N=1451 | Attended Post-Secondary N=1163 | Did Not Attend Post-Secondary N=288 | P-values |
|---|---|---|---|---|
| **Male (%)** | 36.0 | 34.3 | 43.1 | 0.006 |
| **Mean Grad age (SD)** | 17.63 (0.698) | 17.58 (0.662) | 17.84 (0.798) | <0.001 |
| **Late Grad (%)** | 1.9 | 1.2 | 4.5 | <0.001 |
| **Mean HS GPA (SD)** | 2.709 (0.506) | 2.771 (0.501) | 2.455 (0.442) | <0.001 |
| **Core Curriculum Complete (%)**[1] | 86.9 | 88.9 | 78.7 | <0.001 |
| **Mean Credits Complete (SD)** | 29.05 (3.111) | 29.10 (3.127) | 28.85 (3.042) | 0.197 |
| **Mean Failed Classes (SD)** | 1.14 (1.772) | 0.97 (1.565) | 1.87 (2.301) | <0.001 |
| **Mean Credits from other HS (SD)** | 6.16 (6.579) | 6.28 (6.543) | 5.68 (6.708) | 0.167 |
| **Mean DE Classes (SD)** | 0.17 (0.407) | 0.17 (0.403) | 0.17 (0.422) | 0.971 |
| **Mean AP Classes (SD)** | 0.24 (0.668) | 0.26 (0.699) | 0.13 (0.508) | <0.001 |
| **Mean Gifted Classes (SD)** | 0.24 (1.261) | 0.27 (1.323) | 0.15 (0.971) | 0.088 |
| **Mean Honors Classes (SD)** | 2.20 (3.419) | 2.49 (3.583) | 1.03 (2.317) | <0.001 |
| **Mean Math Classes (SD)** | 4.36 (0.640) | 4.38 (0.640) | 4.30 (0.639) | 0.052 |
| **Mean Math Level (SD)** | 0.86 (0.406) | 0.89 (0.389) | 0.74 (0.449) | <0.001 |
| **Took Financial Math (%)** | 16.6 | 15.0 | 22.9 | 0.001 |
| **Mean Science (SD)** | 4.02 (0.418) | 4.04 (0.426) | 3.95 (0.381) | 0.002 |
| **Mean English (SD)** | 4.50 (0.624) | 4.50 (0.625) | 4.50 (0.625) | 0.975 |
| **Mean Social Studies (SD)** | 4.55 (0.900) | 4.54 (0.900) | 4.59 (0.899) | 0.447 |
| **Mean Art (SD)** | 2.19 (1.637) | 2.21 (1.669) | 2.11 (1.501) | 0.397 |
| **Mean CCR (SD)** | 4.33 (1.991) | 4.35 (1.976) | 4.27 (2.051) | 0.526 |
| **Mean Foreign Language (SD)** | 2.02 (0.353) | 2.04 (0.336) | 1.97 (0.411) | 0.003 |
| **Took Test Prep (%)** | 12.9 | 13.7 | 9.7 | 0.073 |

[1] There was no separation of core curriculum on 2007 transcripts

**Table 2: Descriptive Statistics of Standardized Test Variables among the Entire Sample**

| | Total N=1451 | Attended Post-Secondary N=1163 | Did Not Attend Post-Secondary N=288 | P-values |
|---|---|---|---|---|
| **Earned Some TOPS (%)** | 36.7 | 41.6 | 16.7 | <0.001 |
| **Average TOPS Level (SD)** | 0.56 (0.828) | 0.64 (0.862) | 0.23 (0.564) | <0.001 |
| **Mean ACT Composite (SD)**[2] | 17.62 (2.824) | 17.86 (2.803) | 16.50 (2.650) | <0.001 |
| **Mean ACT English (SD)** | 17.58 (4.063) | 17.95 (4.005) | 15.83 (3.877) | <0.001 |
| **Mean ACT Math (SD)** | 17.55 (2.623) | 17.73 (2.682) | 16.72 (2.144) | <0.001 |
| **Mean ACT Reading (SD)** | 17.98 (4.006) | 18.27 (3.968) | 16.64 (3.919) | <0.001 |
| **Mean ACT Science (SD)** | 18.50 (3.338) | 18.77 (3.274) | 17.19 (3.341) | <0.001 |
| **Mean times taken (SD)** | 2.07 (1.478) | 2.23 (1.482) | 1.43 (1.272) | <0.001 |
| **Mean Remedial Classes (SD)** | 1.33 (0.786) | 1.25 (0.801) | 1.61 (0.653) | <0.001 |
| **Mean Benchmarks Met (SD)** | 0.76 (1.034) | 0.85 (1.068) | 0.40 (0.789) | <0.001 |

**Table 3: Profile of Graduates**

| | Bachelor's N=90 | Associate's N=17 | Certificate N=19 | Technical Diploma N=6 |
|---|---|---|---|---|
| **Mean Institutions Attended (SD)** | 1.70 (0.917) | 2.24 (0.970) | 1.68 (0.820) | 2.17 (1.169) |
| **Mean Semester's in School (SD)** | 11.83 (2.381) | 10.47 (3.338) | 11.05 (3.274) | 6.20 (3.271) |
| **Mean Years to Graduate (SD)** | 4.65 (0.783) | 4.72 (1.281) | 4.45 (1.393) | 2.50 (1.904) |
| **Still Enrolled (%)** | 20.0 | 64.7 | 52.6 | 66.7 |
| **Graduated 2-year Institution (%)** | 0.0 | 100.0 | 100.0 | 66.7 |
| **Graduated 4-year Institution (%)** | 100.0 | 0.0 | 0.0 | 33.3[3] |
| **Graduated Public Institution (%)** | 57.8 | 100 | 78.9 | 66.7 |
| **Graduated Private Institution (%)** | 42.2 | 0.0 | 0.0 | 0.0 |
| **Graduated For-Profit Institution (%)** | 0.0 | 0.0 | 21.1 | 33.3 |
| **Mean Selectivity of Grad. Institution (SD)** | 3.80 (0.927) | 5.00 (0.000) | 5.00 (0.000) | 5.00 (0.000) |
| **Grad Institution in NOLA (%)** | 48.9 | 88.2 | 94.7 | 66.7 |
| **Grad Institution in LA (%)** | 38.9 | 0.0 | 0.0 | 33.3 |
| **Grad Institution Out-of-State (%)** | 12.2 | 11.8 | 5.3 | 0.0 |
| **Grad Institution HBCU (%)** | 35.6 | 0.0 | 0.0 | 0.0 |
| **Took Credits beyond Degree (%)** | 36.7 | 76.5 | 63.2 | 83.3 |
| **Obtained Additional Degree (%)** | 10.0 | 5.9 | 10.5 | 33.3 |

[2] Only 1277 students took the ACT

[3] Herzing is a four-year, for-profit school that also has a large number of technical and trade programs.

**Table 4: Descriptive Statistics of High School Variables among 2007-2009 Graduates[4]**

| | 2007-2009 Graduates Total N=606 | Attended Post-Secondary N=494 | Did Not Attend Post-Secondary N=112 | P-values |
|---|---|---|---|---|
| **Male (%)** | 34.8 | 32.1 | 46.4 | 0.004 |
| **Mean Grad age (SD)** | 17.56 (0.667) | 17.52 (0.636) | 17.75 (0.765) | 0.001 |
| **Late Grad (%)** | 2.1 | 1.8 | 3.6 | 0.247 |
| **Mean HS GPA (SD)** | 2.744 (0.495) | 2.786 (0.503) | 2.558 (0.410) | <0.001 |
| **Core Curriculum Complete (%)[5]** | 76.1 | 78.6 | 64.9 | 0.011 |
| **Mean Credits Complete (SD)** | 26.22 (1.780) | 26.23 (1.743) | 26.15 (1.942) | 0.682 |
| **Mean Failed Classes (SD)** | 1.19 (1.613) | 1.08 (1.495) | 1.69 (1.987) | 0.003 |
| **Mean Credits from other HS (SD)** | 10.54 (5.269) | 10.41 (5.189) | 11.09 (5.599) | 0.242 |
| **Mean AP Classes (SD)[6]** | 0.01 (0.137) | 0.01 (0.151) | 0.00 (0.047) | 0.644 |
| **Mean Gifted Classes (SD)** | 0.19 (1.008) | 0.19 (1.017) | 0.16 (0.973) | 0.746 |
| **Mean Honors Classes (SD)** | 2.22 (3.098) | 2.44 (3.269) | 1.25 (1.916) | <0.001 |
| **Mean Math Classes (SD)** | 4.13 (0.666) | 4.15 (0.657) | 4.04 (0.701) | 0.117 |
| **Mean Math Level (SD)** | 0.79 (0.477) | 0.82 (0.474) | 0.67 (0.472) | 0.003 |
| **Took Financial Math (%)** | 1.5 | 1.4 | 1.8 | 0.769 |
| **Mean Science (SD)** | 3.88 (0.458) | 3.91 (0.453) | 3.78 (0.464) | 0.011 |
| **Mean English (SD)** | 4.50 (0.691) | 4.48 (0.668) | 4.57 (0.785) | 0.196 |
| **Mean Social Studies (SD)** | 4.26 (0.926) | 4.23 (0.896) | 4.38 (1.042) | 0.114 |
| **Mean Art (SD)** | 1.70 (1.266) | 1.69 (1.256) | 1.74 (1.314) | 0.735 |
| **Mean CCR (SD)** | 3.26 (1.257) | 3.27 (1.223) | 3.17 (1.399) | 0.464 |
| **Mean Foreign Language (SD)** | 1.97 (0.450) | 1.99 (0.405) | 1.85 (0.599) | 0.023 |
| **Took Test Prep (%)** | 17.1 | 17.4 | 16.1 | 0.741 |

**Table 5: Descriptive Statistics of Standardized Test Variables among 2007-2009 Graduates**

| | Total N=606 | Attended Post-Secondary N=494 | Did Not Attend Post-Secondary N=112 | P-values |
|---|---|---|---|---|
| **Earned Some TOPS (%)** | 30.6 | 34.7 | 12.5 | <0.001 |
| **Average TOPS Level (SD)** | 0.43 (0.725) | 0.49 (0.763) | 0.15 (0.429) | <0.001 |
| **Mean ACT Composite (SD)[7]** | 16.77 (2.655) | 16.98 (2.609) | 15.57 (2.615) | <0.001 |
| **Mean ACT English (SD)** | 16.26 (3.894) | 16.57 (3.772) | 14.51 (4.132) | <0.001 |
| **Mean ACT Math (SD)** | 16.88 (2.347) | 17.00 (2.391) | 16.21 (1.964) | 0.008 |
| **Mean ACT Reading (SD)** | 16.66 (3.742) | 16.95 (3.704) | 15.07 (3.573) | <0.001 |
| **Mean ACT Science (SD)** | 17.78 (3.200) | 18.02 (3.142) | 16.40 (3.196) | <0.001 |
| **Mean times taken (SD)** | 1.46 (1.181) | 1.58 (1.197) | 0.91 (0.926) | <0.001 |
| **Mean Remedial Classes (SD)** | 1.58 (0.691) | 1.54 (0.716) | 1.80 (0.517) | <0.001 |
| **Mean Benchmarks Met (SD)** | 0.42 (0.804) | 0.47 (0.831) | 0.18 (0.618) | <0.001 |

[4] Dual Enrollment is not included because none of the students in the classes of 2007-2009 took Dual Enrollment classes

[5] There was no separation of core curriculum on 2007 transcripts

[6] Variances are small because only four students who went to college and one student who did not completed AP coursework in the classes of 2007-2009.

[7] Only 480 students took the ACT

**Table 6: Descriptive Statistics of High School Variables among 2007-2009 Graduates who Attended Post-Secondary Education**

| | Attended Post-Secondary N=494 | Post-Secondary Complete N=132 | Post-Secondary Not Complete N=362 | P-values |
|---|---|---|---|---|
| **Male (%)** | 32.1 | 19.5 | 36.7 | <0.001 |
| **Mean Grad age (SD)** | 17.52 (0.636) | 17.46 (0.544) | 17.55 (0.666) | 0.139 |
| **Late Grad (%)** | 1.8 | 0.0 | 2.5 | 0.066 |
| **Mean HS GPA (SD)** | 2.786 (0.503) | 3.110 (0.470) | 2.667 (0.461) | <0.001 |
| **Core Curriculum Complete (%)[8]** | 78.6 | 91.5 | 74.5 | 0.001 |
| **Mean Credits Complete (SD)** | 26.23 (1.743) | 26.41 (1.527) | 26.16 (1.813) | 0.134 |
| **Mean Failed Classes (SD)** | 1.08 (1.495) | 0.36 (0.873) | 1.34 (1.588) | <0.001 |
| **Mean Credits from other HS (SD)** | 10.41 (5.189) | 10.19 (5.266) | 10.50 (5.166) | 0.564 |
| **Mean AP Classes (SD)** | 0.01 (0.151) | 0.01 (0.087) | 0.01 (0.168) | 0.748 |
| **Mean Gifted Classes (SD)** | 0.19 (1.017) | 0.26 (1.169) | 0.17 (0.955) | 0.393 |
| **Mean Honors Classes (SD)** | 2.44 (3.269) | 3.36 (3.818) | 2.10 (2.977) | <0.001 |
| **Mean Math Classes (SD)** | 4.15 (0.657) | 4.34 (0.679) | 4.08 (0.635) | <0.001 |
| **Mean Math Level (SD)** | 0.82 (0.474) | 0.92 (0.454) | 0.78 (0.476) | 0.003 |
| **Took Financial Math (%)** | 1.4 | 2.3 | 1.1 | 0.336 |
| **Mean Science (SD)** | 3.91 (0.453) | 3.99 (0.444) | 3.88 (0.454) | 0.017 |
| **Mean English (SD)** | 4.48 (0.668) | 4.43 (0.578) | 4.50 (0.698) | 0.279 |
| **Mean Social Studies (SD)** | 4.23 (0.896) | 4.20 (0.944) | 4.24 (0.879) | 0.634 |
| **Mean Art (SD)** | 1.69 (1.256) | 1.64 (1.256) | 1.71 (1.257) | 0.556 |
| **Mean CCR (SD)** | 3.27 (1.223) | 3.33 (1.161) | 3.25 (1.246) | 0.537 |
| **Mean Foreign Language (SD)** | 1.99 (0.405) | 2.00 (0.326) | 1.99 (0.431) | 0.737 |
| **Took Test Prep (%)** | 17.4 | 21.8 | 15.7 | 0.115 |

**Table 7: Descriptive Statistics of Standardized Test Variables among 2007-2009 Graduates who Attended Post-Secondary Education**

| | Attended Post-Secondary N=494 | Post-Secondary Complete N=132 | Post-Secondary Not Complete N=362 | P-values |
|---|---|---|---|---|
| **Earned Some TOPS (%)** | 34.7 | 52.6 | 28.2 | <0.001 |
| **Average TOPS Level (SD)** | 0.49 (0.763) | 0.77 (0.867) | 0.39 (0.694) | <0.001 |
| **Mean ACT Composite (SD)** | 16.98 (2.609) | 17.87 (2.504) | 16.62 (2.568) | <0.001 |
| **Mean ACT English (SD)** | 16.57 (3.772) | 17.79 (3.918) | 16.08 (3.604) | <0.001 |
| **Mean ACT Math (SD)** | 17.00 (2.391) | 17.87 (2.476) | 16.65 (2.268) | <0.001 |
| **Mean ACT Reading (SD)** | 16.95 (3.704) | 17.87 (3.600) | 16.57 (3.686) | 0.001 |
| **Mean ACT Science (SD)** | 18.02 (3.142) | 18.91 (2.588) | 17.66 (3.275) | <0.001 |
| **Mean times taken (SD)** | 1.58 (1.197) | 2.04 (1.339) | 1.42 (1.096) | <0.001 |
| **Mean Remedial Classes (SD)** | 1.54 (0.716) | 1.27 (0.827) | 1.63 (0.645) | <0.001 |
| **Mean Benchmarks Met (SD)** | 0.47 (0.831) | 0.76 (1.031) | 0.36 (0.718) | <0.001 |

[8] There was no separation of core curriculum on 2007 transcripts

**Table 8: Descriptive Statistics of College Environmental Variables among 2007-2009 Graduates who Attended Post-Secondary Education**

| | Attended Post-Secondary N=494 | Post-Secondary Complete N=132 | Post-Secondary Not Complete N=362 | P-Values |
|---|---|---|---|---|
| **Mean Colleges Attended (SD)** | 1.64 (0.817) | 1.80 (0.935) | 1.59 (0.762) | 0.022 |
| **Attended 2-Year College (%)** | 70.3 | 52.6 | 76.8 | <0.001 |
| **Attended 4-Year College (%)** | 65.3 | 86.5 | 57.5 | <0.001 |
| **Attended Public College (%)** | 84.6 | 78.2 | 87.0 | 0.016 |
| **Attended Private College (%)** | 32.5 | 40.6 | 29.6 | 0.020 |
| **Attended For-Profit College (%)** | 10.7 | 9.0 | 11.3 | 0.463 |
| **Attended College on Probation (%)** | 0.8 | 0.8 | 0.8 | 0.933 |
| **Mean College Selectivity Level (SD)** | 4.37 (0.765) | 4.12 (0.809) | 4.46 (0.728) | <0.001 |
| **Attended College in NOLA (%)** | 84.8 | 77.4 | 87.6 | 0.005 |
| **Attended College in LA (%)** | 23.6 | 36.1 | 19.1 | <0.001 |
| **Attended College Out-of-State (%)** | 17.2 | 20.3 | 16.0 | 0.263 |
| **Attended HBCU (%)** | 31.5 | 39.1 | 28.7 | 0.028 |
| **Mean Semesters in School (SD)** | 6.96 (4.369) | 11.30 (2.895) | 5.38 (3.690) | <0.001 |
| **Still Enrolled (%)** | 24.4 | 32.3 | 21.5 | 0.013 |

**Table 9: Descriptive Statistics of High School Variables among 2007-2009 Graduates who Attended and Completed Post-Secondary Education**

| | Post-Secondary Complete N=132 | Earned Bachelor's Degree N=90 | Earned Degree less than Bachelor's N=42 | P-values |
|---|---|---|---|---|
| **Male (%)** | 19.5 | 18.9 | 21.4 | <0.001 |
| **Mean Grad age (SD)** | 17.46 (0.544) | 17.48 (0.524) | 17.43 (0.590) | 0.630 |
| **Late Grad (%)** | 0.0 | 0.0 | 0.0 | 0.158 |
| **Mean HS GPA (SD)** | 3.110 (0.470) | 3.254 (0.443) | 2.809 (0.381) | <0.001 |
| **Core Curriculum Complete (%)**[9] | 91.5 | 98.1 | 78.6 | <0.001 |
| **Mean Credits Complete (SD)** | 26.41 (1.527) | 26.52 (1.550) | 26.19 (1.489) | 0.256 |
| **Mean Failed Classes (SD)** | 0.36 (0.873) | 0.17 (0.487) | 0.79 (1.293) | 0.005 |
| **Mean Credits from other HS (SD)** | 10.19 (5.266) | 10.39 (5.382) | 9.810 (5.101) | 0.555 |
| **Mean AP Classes (SD)** | 0.01 (0.087) | 0.01 (0.105) | 0.00 (0.000) | 0.497 |
| **Mean Gifted Classes (SD)** | 0.26 (1.169) | 0.38 (1.406) | 0.00 (0.000) | 0.011 |
| **Mean Honors Classes (SD)** | 3.36 (3.818) | 4.03 (4.061) | 1.92 (2.828) | 0.001 |
| **Mean Math Classes (SD)** | 4.34 (0.679) | 4.41 (0.717) | 4.19 (0.573) | 0.083 |
| **Mean Math Level (SD)** | 0.92 (0.454) | 0.98 (0.449) | 0.81 (0.455) | 0.048 |
| **Took Financial Math (%)** | 2.3 | 3.3 | 0.0 | 0.235 |
| **Mean Science (SD)** | 3.99 (0.444) | 4.02 (0.468) | 3.91 (0.386) | 0.159 |
| **Mean English (SD)** | 4.43 (0.578) | 4.42 (0.567) | 4.46 (0.609) | 0.661 |
| **Mean Social Studies (SD)** | 4.20 (0.944) | 4.16 (0.981) | 4.27 (0.878) | 0.522 |
| **Mean Art (SD)** | 1.64 (1.256) | 1.67 (1.234) | 1.60 (1.326) | 0.763 |
| **Mean CCR (SD)** | 3.33 (1.161) | 3.31 (1.177) | 3.39 (1.147) | 0.708 |
| **Mean Foreign Language (SD)** | 2.00 (0.326) | 2.02 (0.331) | 1.96 (0.320) | 0.393 |
| **Took Test Prep (%)** | 21.8 | 24.4 | 14.3 | 0.131 |

[9] There was no separation of core curriculum on 2007 transcripts

**Table 10: Descriptive Statistics of Standardized Test Variables among 2007-2009 Graduates who Attended and Completed Post-Secondary Education**

| | Post-Secondary Complete N=132 | Earned Bachelor's Degree N=90 | Earned Degree less than Bachelor's N=42 | P-values |
|---|---|---|---|---|
| **Earned Some TOPS (%)** | 52.6 | 64.4 | 28.6 | <0.001 |
| **Average TOPS Level (SD)** | 0.77 (0.867) | 0.96 (0.873) | 0.40 (0.734) | 0.001 |
| **Mean ACT Composite (SD)** | 17.87 (2.504) | 18.35 (2.425) | 16.81 (2.376) | 0.002 |
| **Mean ACT English (SD)** | 17.79 (3.918) | 18.54 (3.834) | 16.11 (3.616) | 0.002 |
| **Mean ACT Math (SD)** | 17.87 (2.476) | 18.15 (2.440) | 17.25 (2.477) | 0.070 |
| **Mean ACT Reading (SD)** | 17.87 (3.600) | 18.46 (3.588) | 16.56 (3.308) | 0.008 |
| **Mean ACT Science (SD)** | 18.91 (2.588) | 19.38 (2.343) | 17.86 (2.830) | 0.003 |
| **Mean times taken (SD)** | 2.04 (1.339) | 2.23 (1.374) | 1.67 (1.162) | 0.022 |
| **Mean Remedial Classes (SD)** | 1.27 (0.827) | 1.17 (0.838) | 1.48 (0.773) | 0.045 |
| **Mean Benchmarks Met (SD)** | 0.76 (1.031) | 0.88 (1.090) | 0.52 (0.862) | 0.066 |

**Table 11: Descriptive Statistics of College Environmental Variables among 2007-2009 Graduates who Attended and Completed Post-Secondary Education**

| | Post-Secondary Complete N=132 | Earned Bachelor's Degree N=90 | Earned Degree less than Bachelor's N=42 | P-Values |
|---|---|---|---|---|
| **Mean Colleges Attended (SD)** | 1.80 (0.935) | 1.70 (0.917) | 1.98 (0.950) | 0.114 |
| **Attended 2-Year College (%)** | 52.6 | 31.1 | 97.6 | <0.001 |
| **Attended 4-Year College (%)** | 86.5 | 100.0 | 57.1 | <0.001 |
| **Attended Public College (%)** | 78.2 | 71.1 | 92.9 | 0.002 |
| **Attended Private College (%)** | 40.6 | 48.9 | 21.4 | <0.001 |
| **Attended For-Profit College (%)** | 9.0 | 5.6 | 16.7 | 0.107 |
| **Attended College on Probation (%)** | 0.8 | 0.0 | 2.4 | 0.286 |
| **Mean College Selectivity Level (SD)** | 4.12 (0.809) | 3.88 (0.832) | 4.61 (0.476) | <0.001 |
| **Attended College in NOLA (%)** | 77.4 | 67.8 | 97.6 | <0.001 |
| **Attended College in LA (%)** | 36.1 | 43.3 | 21.4 | <0.001 |
| **Attended College Out-of-State (%)** | 20.3 | 22.2 | 16.7 | 0.038 |
| **Attended HBCU (%)** | 39.1 | 43.3 | 28.6 | <0.001 |

**Table 12: Descriptive Statistics of College Completion Variables among 2007-2009 Graduates who Attended and Completed Post-Secondary Education**

| | Post-Secondary Complete N=132 | Earned Bachelor's Degree N=90 | Earned Degree less than Bachelor's N=42 | P-Values |
|---|---|---|---|---|
| **Mean Institutions Attended (SD)** | 1.80 (0.935) | 1.70 (0.917) | 1.98 (0.950) | 0.114 |
| **Mean Semester's in School (SD)** | 11.30 (2.895) | 11.83 (2.381) | 10.22 (3.567) | 0.011 |
| **Mean Years to Graduate (SD)** | 4.55 (1.084) | 4.65 (0.783) | 4.32 (1.543) | 0.206 |
| **Still Enrolled (%)** | 32.3 | 20.0 | 59.5 | <0.001 |
| **Graduated 2-year Institution (%)** | 30.3 | 0.0 | 95.2 | <0.001 |
| **Graduated 4-year Institution (%)** | 69.7 | 100.0 | 4.8 | <0.001 |
| **Graduated Public Institution (%)** | 66.7 | 57.8 | 85.7 | 0.002 |
| **Graduated Private Institution (%)** | 28.8 | 42.2 | 0.0 | <0.001 |
| **Graduated For-Profit Institution (%)** | 4.5 | 0.0 | 14.3 | <0.001 |
| **Mean Selectivity of Grad. Institution (SD)** | 4.18 (0.948) | 3.80 (0.927) | 5.00 (0.000) | <0.001 |
| **Grad Institution in NOLA (%)** | 61.4 | 48.9 | 88.1 | <0.001 |
| **Grad Institution in LA (%)** | 28.0 | 38.9 | 4.8 | <0.001 |
| **Grad Institution Out-of-State (%)** | 10.6 | 12.2 | 7.1 | 0.377 |
| **Grad Institution HBCU (%)** | 24.2 | 35.6 | 0.0 | <0.001 |
| **Took Credits beyond Degree (%)** | 47.7 | 36.7 | 71.4 | <0.001 |
| **Obtained Additional Degree (%)** | 10.6 | 10.0 | 11.9 | 0.741 |

**Table 13: Descriptive Statistics of High School Variables among 2007-2009 Graduates who Attended and Completed a Post-Secondary Credential Less than a Bachelor's Degree and Those who Did Not Earn Any Credential**

| | Post-Secondary Not Complete N=362 | Earned Degree less than Bachelor's N=42 | P-values |
|---|---|---|---|
| **Male (%)** | 36.7 | 21.4 | 0.050 |
| **Mean Grad age (SD)** | 17.54 (0.665) | 17.43 (0.590) | 0.282 |
| **Late Grad (%)** | 2.5 | 0.0 | 0.302 |
| **Mean HS GPA (SD)** | 2.667 (0.460) | 2.809 (0.381) | 0.056 |
| **Core Curriculum Complete (%)**[10] | 74.5 | 78.6 | 0.646 |
| **Mean Credits Complete (SD)** | 26.16 (1.811) | 26.19 (1.489) | 0.927 |
| **Mean Failed Classes (SD)** | 1.34 (1.588) | 0.79 (1.293) | 0.013 |
| **Mean Credits from other HS (SD)** | 10.49 (5.160) | 9.81 (5.101) | 0.419 |
| **Mean AP Classes (SD)** | 0.01 (0.168) | 0.00 (0.000) | 0.633 |
| **Mean Gifted Classes (SD)** | 0.17 (0.954) | 0.00 (0.000) | 0.001 |
| **Mean Honors Classes (SD)** | 2.10 (2.974) | 1.92 (2.828) | 0.699 |
| **Mean Math Classes (SD)** | 4.08 (0.634) | 4.19 (0.573) | 0.281 |
| **Mean Math Level (SD)** | 0.78 (0.475) | 0.81 (0.455) | 0.725 |
| **Took Financial Math (%)** | 1.1 | 0.0 | 0.494 |
| **Mean Science (SD)** | 3.88 (0.453) | 3.91 (0.386) | 0.694 |
| **Mean English (SD)** | 4.49 (0.697) | 4.46 (0.609) | 0.788 |
| **Mean Social Studies (SD)** | 4.24 (0.878) | 4.27 (0.878) | 0.800 |
| **Mean Art (SD)** | 1.71 (1.256) | 1.60 (1.326) | 0.570 |
| **Mean CCR (SD)** | 3.25 (1.245) | 3.39 (1.147) | 0.485 |
| **Mean Foreign Language (SD)** | 1.99 (0.430) | 1.96 (0.320) | 0.749 |
| **Took Test Prep (%)** | 15.7 | 14.3 | 0.776 |

**Table 14: Descriptive Statistics of Standardized Test Variables among 2007-2009 Graduates who Attended and Completed a Post-Secondary Credential Less than a Bachelor's Degree and Those who Did Not Earn Any Credential**

| | Post-Secondary Not Complete N=362 | Earned Degree less than Bachelor's N=42 | P-values |
|---|---|---|---|
| **Earned Some TOPS (%)** | 28.2 | 28.6 | 0.949 |
| **Average TOPS Level (SD)** | 0.39 (0.693) | 0.40 (0.734) | 0.867 |
| **Mean ACT Composite (SD)** | 16.62 (2.568) | 16.81 (2.376) | 0.684 |
| **Mean ACT English (SD)** | 16.08 (3.604) | 16.11 (3.616) | 0.964 |
| **Mean ACT Math (SD)** | 16.65 (2.268) | 17.25 (2.477) | 0.141 |
| **Mean ACT Reading (SD)** | 16.57 (3.686) | 16.56 (3.308) | 0.977 |
| **Mean ACT Science (SD)** | 17.66 (3.275) | 17.86 (2.830) | 0.729 |
| **Mean times taken (SD)** | 1.41 (1.097) | 1.67 (1.162) | 0.160 |
| **Mean Remedial Classes (SD)** | 1.63 (0.644) | 1.48 (0.773) | 0.210 |
| **Mean Benchmarks Met (SD)** | 0.36 (0.717) | 0.52 (0.862) | 0.252 |

[10] There was no separation of core curriculum on 2007 transcripts

**Table 15: Descriptive Statistics of College Environmental Variables among 2007-2009 Graduates who Attended and Completed a Post-Secondary Credential Less than a Bachelor's Degree and Those who Did Not Earn Any Credential**

| | Post-Secondary Not Complete N=362 | Earned Degree less than Bachelor's N=42 | P-Values |
|---|---|---|---|
| **Mean Colleges Attended (SD)** | 1.59 (0.765) | 1.98 (0.950) | 0.015 |
| **Attended 2-Year College (%)** | 76.8 | 97.6 | 0.002 |
| **Attended 4-Year College (%)** | 57.5 | 57.1 | 0.957 |
| **Attended Public College (%)** | 87.0 | 92.9 | 0.279 |
| **Attended Private College (%)** | 29.6 | 21.4 | 0.260 |
| **Attended For-Profit College (%)** | 11.3 | 16.7 | 0.308 |
| **Attended College on Probation (%)** | 0.8 | 2.4 | 0.335 |
| **Mean College Selectivity Level (SD)** | 4.47 (0.727) | 4.61 (0.476) | 0.091 |
| **Attended College in NOLA (%)** | 87.6 | 97.6 | 0.053 |
| **Attended College in LA (%)** | 19.1 | 21.4 | 0.706 |
| **Attended College Out-of-State (%)** | 16.0 | 16.7 | 0.908 |
| **Attended HBCU (%)** | 28.7 | 28.6 | 0.962 |
| **Mean Semesters in School (SD)** | 5.38 (3.690) | 10.22 (3.567) | <0.001 |
| **Still Enrolled (%)** | 21.5 | 59.5 | <0.001 |

**Table 16: Descriptive Statistics of High School Variables among Students Who Did and Did Not Drop Out of Post-Secondary Studies**

| | Post-Secondary Dropout N=499 | Post-Secondary Non-Dropout N=663 | P-values |
|---|---|---|---|
| **Male (%)** | 39.3 | 30.6 | 0.002 |
| **Mean Grad age (SD)** | 17.62 (0.688) | 17.55 (0.639) | 0.086 |
| **Late Grad (%)** | 1.4 | 1.1 | 0.591 |
| **Mean HS GPA (SD)** | 2.623 (0.435) | 2.882 (0.518) | <0.001 |
| **Core Curriculum Complete (%)**[11] | 84.6 | 92.0 | <0.001 |
| **Mean Credits Complete (SD)** | 28.23 (3.073) | 29.75 (3.005) | <0.001 |
| **Mean Failed Classes (SD)** | 1.33 (1.718) | 0.69 (1.380) | <0.001 |
| **Mean Credits from other HS (SD)** | 7.26 (6.502) | 5.52 (6.468) | <0.001 |
| **Mean DE Classes (SD)** | 0.08 (0.235) | 0.24 (0.481) | <0.001 |
| **Mean AP Classes (SD)** | 0.08 (0.345) | 0.40 (0.850) | <0.001 |
| **Mean Gifted Classes (SD)** | 0.18 (1.090) | 0.34 (1.472) | 0.038 |
| **Mean Honors Classes (SD)** | 1.79 (2.939) | 3.02 (3.922) | <0.001 |
| **Mean Math Classes (SD)** | 4.31 (0.645) | 4.43 (0.622) | 0.002 |
| **Mean Math Level (SD)** | 0.85 (0.407) | 0.92 (0.374) | 0.003 |
| **Took Financial Math (%)** | 13.4 | 16.3 | 0.177 |
| **Mean Science (SD)** | 3.98 (0.462) | 4.08 (0.391) | <0.001 |
| **Mean English (SD)** | 4.51 (0.674) | 4.48 (0.577) | 0.405 |
| **Mean Social Studies (SD)** | 4.41 (0.865) | 4.64 (0.914) | <0.001 |
| **Mean Art (SD)** | 2.05 (1.488) | 2.32 (1.786) | 0.007 |
| **Mean CCR (SD)** | 4.01 (1.875) | 4.60 (2.013) | <0.001 |
| **Mean Foreign Language (SD)** | 2.02 (0.401) | 2.05 (0.276) | 0.254 |
| **Took Test Prep (%)** | 11.6 | 15.2 | 0.076 |

[11] There was no separation of core curriculum on 2007 transcripts

**Table 17: Descriptive Statistics of Standardized Test Variables among Students Who Did and Did Not Drop Out of Post-Secondary Studies**

| | Post-Secondary Dropout N=499 | Post-Secondary Non-Dropout N=663 | P-values |
|---|---|---|---|
| **Earned Some TOPS (%)** | 29.1 | 51.0 | <0.001 |
| **Average TOPS Level (SD)** | 0.40 (0.691) | 0.83 (0.931) | <0.001 |
| **Mean ACT Composite (SD)** | 16.96 (2.674) | 18.47 (2.727) | <0.001 |
| **Mean ACT English (SD)** | 16.64 (3.760) | 18.83 (3.931) | <0.001 |
| **Mean ACT Math (SD)** | 17.02 (2.538) | 18.20 (2.676) | <0.001 |
| **Mean ACT Reading (SD)** | 17.12 (3.797) | 19.03 (3.898) | <0.001 |
| **Mean ACT Science (SD)** | 17.81 (3.449) | 19.41 (2.986) | <0.001 |
| **Mean times taken (SD)** | 1.73 (1.255) | 2.61 (1.527) | <0.001 |
| **Mean Remedial Classes (SD)** | 1.53 (0.695) | 1.05 (0.814) | <0.001 |
| **Mean Benchmarks Met (SD)** | 0.51 (0.844) | 1.10 (1.147) | <0.001 |

**Table 18: Descriptive Statistics of College Environmental Variables among Students Who Did and Did Not Drop Out of Post-Secondary Studies**

| | Post-Secondary Dropout N=499 | Post-Secondary Non-Dropout N=663 | P-Values |
|---|---|---|---|
| **Mean Colleges Attended (SD)** | 1.38 (0.630) | 1.53 (0.769) | <0.001 |
| **Attended 2-Year College (%)** | 71.7 | 54.0 | <0.001 |
| **Attended 4-Year College (%)** | 52.5 | 75.0 | <0.001 |
| **Attended Public College (%)** | 88.6 | 83.4 | 0.013 |
| **Attended Private College (%)** | 20.0 | 28.7 | 0.001 |
| **Attended For-Profit College (%)** | 6.4 | 4.4 | 0.123 |
| **Attended College on Probation (%)** | 0.8 | 1.2 | 0.499 |
| **Mean College Selectivity Level (SD)** | 4.44 (0.808) | 4.16 (0.849) | <0.001 |
| **Attended College in NOLA (%)** | 80.6 | 70.4 | <0.001 |
| **Attended College in LA (%)** | 24.0 | 38.9 | <0.001 |
| **Attended College Out-of-State (%)** | 12.8 | 15.8 | 0.149 |
| **Attended HBCU (%)** | 21.6 | 33.8 | <0.001 |
| **Mean Semesters in School (SD)** | 3.90 (2.728) | 6.13 (4.004) | <0.001 |
| **Still Enrolled (%)** | 0.0 | 85.4 | <0.001 |

## Table 19: Correlations of High School Basics to High School Basics

| | Late Grad | Male | Age HS Grad | HS GPA | Core Complete | Credits | Failed Credits | Outside Credits |
|---|---|---|---|---|---|---|---|---|
| **Late Grad** | 1.00 | .098** | .175** | .175** | .197** | .046 | .303** | .025 |
| **Male** | .098** | 1.00 | .096** | .305** | -.084** | .045 | .220** | .043 |
| **Age HS Grad** | .227** | .118** | 1.00 | -.212** | .128** | .037 | .170** | -.072** |
| **HS GPA** | .504** | .466** | -.212** | 1.00 | .515** | .121** | -.637** | .071** |
| **Core Complete** | .197** | -.084** | .109** | .312** | 1.00 | .263** | .313** | .163** |
| **Credits** | .156 | .204** | .037 | .121** | .344** | 1.00 | -.292** | -.396** |
| **Failed Credits** | .492** | .279** | .170** | -.637** | .384** | -.292** | 1.00 | -.027 |
| **Outside Credits** | .235** | .208** | -.072** | .071** | .271** | -.396** | -.027 | 1.00 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 20: Correlations of High School Basics to High School Credits

| | Late Grad | Male | Age HS Grad | HS GPA | Core Complete | Credits | Failed Credits | Outside Credits |
|---|---|---|---|---|---|---|---|---|
| **DE** | .036 | .075 | .029 | -.068** | .177** | .359** | -.012 | -.248** |
| **AP** | .044 | .075 | -.046 | .311** | .135** | .231** | -.172** | -.149** |
| **Gifted** | .029 | .093 | -.059* | .111** | .080 | .032 | -.059* | -.026 |
| **Honors** | .126 | .217** | -.137** | .517** | .197* | .058* | -.250** | .067* |
| **Math Credits** | .170** | .110* | -.020 | .152** | .332** | .315** | -.215** | -.169** |
| **Math Level** | .201** | .091** | -.138** | .384** | .521** | .218** | -.380** | -.147** |
| **Financial math** | .076** | .055* | .107** | .223** | -.187** | .229** | .152** | .186** |
| **Science** | .090 | .117** | -.013 | .133** | .452** | .274** | -.159** | -.172** |
| **English** | .164** | .094 | .100** | -.037 | .176** | .054* | .036 | .194** |
| **Social Studies** | .121 | .143* | .036 | -.024 | .196** | .352** | -.072** | -.037 |
| **Art** | .102 | .181* | -.017 | .013 | .235** | .378** | -.063* | -.078** |
| **CCR** | .092 | .199** | -.023 | .106** | .267** | .632** | -.202** | -.388** |
| **Language** | .134 | .131** | -.065* | .189** | .293** | .186** | -.174** | -.075** |
| **ACT Prep** | -.038 | -.062* | .034 | .124** | .050 | .064* | .107** | .039 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 21: Correlations of High School Basics to Standardized Testing

| | Late Grad | Male | Age HS Grad | HS GPA | Core Complete | Credits | Failed Credits | Outside Credits |
|---|---|---|---|---|---|---|---|---|
| **TOPS** | -.105** | .208** | .176** | .670** | .290** | .166** | .383** | .041 |
| **TOPS level** | .105** | .213** | -.169** | .660** | .290** | .165** | -.352** | -.065* |
| **ACT Comp** | .187** | .181** | -.180** | .468** | .306** | .218** | -.289** | -.118** |
| **ACT English** | .229** | .164 | -.183** | .443** | .272** | .240** | -.289** | -.127** |
| **ACT Math** | .183** | .140 | -.138** | .433** | .266** | .169** | -.238** | -.094** |
| **ACT Reading** | .199** | .205** | -.109** | .325** | .298** | .221** | -.228** | -.145** |
| **ACT Science** | .152 | .184** | -.143** | .428** | .298** | .198** | -.288** | -.079** |
| **Times Taken** | .130** | .176** | -.069** | .342** | .247** | .403** | -.295** | -.225** |
| **Remedials** | .094** | .070* | .142** | -.466** | .229** | -.256** | .273** | .147** |
| **Benchmarks** | .105** | .096** | -.118** | .420** | .220** | .238** | -.242** | -.131** |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 22: Correlations of High School Basics to Post-Secondary Environment

| | Late Grad | Male | Age HS Grad | HS GPA | Core Complete | Credits | Failed Credits | Outside Credits |
|---|---|---|---|---|---|---|---|---|
| **Institutions** | .104** | .128** | -.162** | .251** | .127** | -.085** | -.197** | .114** |
| **Probation** | -.013 | .042 | .007 | .019 | -.034 | .007 | .012 | .025 |
| **Av. selectivity** | .112 | .138 | .082** | -.271** | .187** | -.112** | .220** | -.018 |
| **2-year** | -.003 | -.035 | .048 | .121** | -.056* | .094** | .050 | .041 |
| **4-year** | -.114** | -.092** | .187** | .463** | .205** | .053* | .340** | .054* |
| **Public** | -.050 | -.025 | .100** | .070** | .068* | .027 | .098** | .012 |
| **Private** | -.069** | -.110** | .088** | .276* | .110** | .088** | .175** | .088** |
| **For-Profit** | .022 | -.029 | .033 | .011* | -.104** | .178** | .005 | .151** |
| **NOLA** | -.033 | -.106** | .122** | .106* | .024 | .101** | .066* | .056* |
| **LA** | -.070** | -.012 | .103** | .214* | .135** | .123** | .168** | .071** |
| **Out-of-State** | -.034 | .005 | .009 | .023* | -.002 | .038 | .036 | .081** |
| **HBCU** | -.075** | -.060* | .104** | .143* | .097** | .008 | .129** | .028 |
| **Semesters** | .094 | .201** | -.138** | .350** | .194** | -.288** | -.205** | .228** |
| **Still Enrolled** | -.037 | -.079** | .082** | .216* | .137** | .316** | .179** | .168** |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 23: Correlations of High School Basics to Post-Secondary Completion

| | Late Grad | Male | Age HS Grad | HS GPA | Core Complete | Credits | Failed Credits | Outside Credits |
|---|---|---|---|---|---|---|---|---|
| **Years to grad.** | | .444* | -.068 | .027 | .418 | -.458** | .046 | .272** |
| **Grad. selectivity** | | .132 | -.059 | -.261** | .237 | .175* | .219** | -.238** |
| **Public degree** | | .136 | .238** | .110 | -.119 | .076 | .043 | .094 |
| **Private degree** | | -.131 | .213** | .174* | .181 | .024 | .059 | .119 |
| **For-profit degree** | | .040 | .162* | .196* | -.098 | .046 | .090 | .088 |
| **2-year degree** | | .096 | .086 | .431** | -.279** | .248** | .289** | .216** |
| **4-year degree** | | -.096 | .086 | .431** | .279** | .248** | .289** | .216** |
| **NOLA degree** | | .016 | .020 | .117 | -.056 | .060 | .140 | .032 |
| **LA degree** | | .074 | .126 | .174* | .077 | .065 | .174* | .006 |
| **Out-of-State degree** | | -.129 | .146 | .063 | -.020 | .001 | .028 | .057 |
| **HBCU degree** | | -.032 | .009 | .124 | .157 | .095 | .123 | .193* |
| **+ Courses** | | -.151 | .037 | .042 | .022 | .172* | .056 | .003 |
| **+ Degree** | | -.062 | .079 | .205* | .092 | .041 | .095 | .084 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent
No late grads completed post-secondary

## Table 24: Correlations of High School Credits to High School Credits

| | DE | AP | Gifted | Honors | Math Credit | Math Level | Financial Math | Science | English | Social Studies | Art | CCR | Language | ACT Prep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DE** | 1.00 | .103** | -.013 | -.033 | .140** | -.036 | .357** | .158** | .035 | .120** | .045 | .302** | .005 | .086 |
| **AP** | .103** | 1.00 | 124** | .311** | .076** | 116** | .051 | .084** | .071** | .182** | .051 | .119** | .055* | .131** |
| **Gifted** | -.013 | .124** | 1.00 | .090** | .014 | .097** | .071 | .038 | -.082** | -.002 | .086** | -.008 | .080** | .116 |
| **Honors** | -.033 | .311** | .090** | 1.00 | .079** | .230** | .199** | .098** | .002 | -.042 | .101** | -.010 | .068** | .163 |
| **Math Credits** | .140** | .076** | .014 | .079** | 1.00 | .439** | .417** | .119** | .012 | .005 | -.043 | .097** | .067* | .142** |
| **Math Level** | -.036 | .116** | .097** | .230** | .439** | 1.00 | .307** | .137** | -.108** | -.005 | .038 | .137** | .179** | .066* |
| **Financial math** | .281** | .028 | .045 | .111** | .345** | .290** | 1.00 | .065* | .027 | .092** | .052* | .069** | .027 | -.039 |
| **Science** | .158** | .084** | .038 | .098** | .119** | .137** | .117* | 1.00 | -.126** | .073** | -.006 | .120** | .213** | .060 |
| **English** | .035 | .071** | -.082** | .002 | .012 | -.108** | .083 | -.126** | 1.00 | -.039 | -.097** | -.074** | -.189** | .141** |
| **Social Studies** | .120** | .182** | -.002 | -.042 | .005 | -.005 | .175** | .073** | -.039 | 1.00 | .012 | .029 | .046 | .116 |
| **Art** | .045 | .051 | .086** | .101** | -.043 | .038 | .188** | -.006 | -.097** | .012 | 1.00 | -.155** | -.012 | .192** |
| **CCR** | .302** | .119** | -.008 | -.010 | .097** | .137** | .142 | .120** | -.074** | .029 | -.155** | 1.00 | .080** | .163 |
| **Language** | .005 | .055* | .080** | .068** | .067* | .179** | .072 | .213** | -.189** | .046 | -.012 | .080** | 1.00 | .049 |
| **ACT Prep** | .030 | .049 | .010 | .107** | .077** | .054* | -.039 | .006 | .026 | .078** | .117** | .058* | .016 | 1.00 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 25: Correlations of High School Credits to Testing

| | DE | AP | Gifted | Honors | Math Credit | Math Level | Financial Math | Science | English | Social Studies | Art | CCR | Language | ACT Prep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TOPS** | .002 | .331** | .065* | .424** | .131** | .309** | -.105** | .124** | .015 | .028 | .004 | .158** | .116** | .079** |
| **TOPS level** | .010 | .417** | .122** | .457** | .133** | .302** | .111** | .108** | -.019 | .061* | .004 | .149** | .105** | .108** |
| **ACT Comp** | .081** | .375** | .207** | .380** | .130** | .306** | .118 | .146** | -.069* | .117** | .069* | .150** | .092** | .134 |
| **ACT English** | .108** | .348** | .185** | .364** | .128** | .283** | .133 | .135** | -.066* | .129** | .077** | .160** | .092** | .150 |
| **ACT Math** | .033 | .339** | .154** | .352** | .133** | .266** | .128 | .132** | -.063* | .103** | .048 | .091** | .062* | .141 |
| **ACT Reading** | .106** | .330** | .177** | .287** | .093** | .207** | .168 | .140** | -.059* | .115** | .078** | .146** | .090** | .159 |
| **ACT Science** | .068* | .301** | .153** | .308** | .128** | .293** | .174* | .136** | -.034 | .098** | .034 | .154** | .119** | .168* |
| **Times Taken** | .203** | .261** | .016 | .239** | .245** | .252** | .132** | .196** | -.040 | .147** | .136** | .249** | .130** | .128** |
| **Remedials** | -.083** | -.383** | -.170** | -.362** | -.181** | -.299** | .025 | -.162** | .057* | -.126** | -.071** | -.165** | -.084 | .018 |
| **Benchmarks** | .078** | .412** | .208** | .388** | .154** | .257** | .056 | .153** | -.055* | .130** | .075** | .142** | .088** | .043 |

*Significant p<0.05

**Significant p<0.01

Columns are dependent, rows are independent

## Table 26: Correlations of High School Credits to Post-Secondary Environment

| | DE | AP | Gifted | Honors | Math Credit | Math Level | Financial Math | Science | English | Social Studies | Art | CCR | Language | ACT Prep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Institutions** | -.102** | -.013 | .018 | .157** | .008 | .126** | .153** | -.002 | -.015 | -.054* | -.041 | -.029 | .071** | .056 |
| **Probation** | .010 | .002 | .018 | .028 | .010 | .024 | .021 | .041 | .024 | .008 | .001 | .013 | .006 | -.035 |
| **Av. selectivity** | .000 | -.203** | -.121** | -.220** | -.044 | -.149** | .144* | -.044 | .037 | -.031 | -.163** | -.007 | -.025 | .074 |
| **2-year** | .054 | .184** | .060* | .120** | .042 | .030 | -.040 | .027 | .025 | .049 | .091** | .011 | .025 | -.030 |
| **4-year** | .035 | .205** | .105** | .333** | .095** | .229** | -.123** | .073** | .033 | .011 | .071** | .005 | .070** | .070** |
| **Public** | .025 | .038 | .005 | .031 | .045 | .095** | -.050 | .054* | .013 | .000 | .013 | .023 | .042 | .016 |
| **Private** | .091** | .074** | .061* | .187** | .010 | .099** | -.107** | .017 | .065* | .055* | .004 | .054* | .048 | .050 |
| **For-Profit** | .088** | .048 | .021 | .004 | .090** | .104** | -.075** | .064* | .033 | .050 | .076** | .104** | .025 | -.029 |
| **NOLA** | .099** | .011 | .008 | .034 | .024 | .035 | -.084** | .010 | .014 | .034 | .076** | .018 | .052* | -.008 |
| **LA** | .082** | .099** | .029 | .197** | .093** | .155** | -.034 | .082** | .025 | .012 | .018 | .082** | .017 | .062* |
| **Out-of-State** | .057* | .022 | .019 | .028 | .042 | .000 | -.041 | .038 | .029 | .030 | .085** | .090** | .034 | .008 |
| **HBCU** | .015 | .002 | .078** | .087** | .009 | .062* | -.049 | .042 | .045 | .082** | .059* | .004 | .025 | .074** |
| **Semesters** | -.252** | -.111** | .032 | .143** | -.033 | .082** | .191** | -.094** | -.033 | -.121** | -.135** | -.137** | .027 | .161 |
| **Still Enrolled** | .222** | .273** | .058* | .174** | .102** | .122** | .040 | .152** | .015 | .144** | .110** | .190** | .080** | .037 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 27: Correlations of High School Credits to Post-Secondary Completion

| | DE | AP | Gifted | Honors | Math Credit | Math Level | Financial Math | Science | English | Social Studies | Art | CCR | Language | ACT Prep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Institutions** | -.102** | -.013 | .018 | .157** | .008 | .126** | .153** | -.002 | -.015 | -.054* | -.041 | -.029 | .071** | .056 |
| **Years to grad.** | -.175* | -.202* | .001 | .051 | .033 | -.091 | .526** | -.102 | .100 | -.196* | -.181* | -.287** | -.112 | .289 |
| **Grad. selectivity** | .089 | .126 | -.116 | -.161 | -.017 | .019 | .034 | -.061 | .043 | .165* | .047 | .103 | -.056 | .178 |
| **Public degree** | .076 | .097 | .012 | .073 | .106 | .073 | .014 | .056 | .034 | .011 | .045 | .064 | .050 | .068 |
| **Private degree** | .069 | .116 | .008 | .057 | .074 | .059 | .006 | .022 | .015 | .025 | .015 | .000 | .049 | -.026 |
| **For-profit degree** | .025 | .036 | .048 | .021 | .092 | .031 | -.050 | .002 | .047 | .019 | .123 | .098 | .009 | -.109 |
| **2-year degree** | .148 | .012 | .160 | .326** | .121 | .180* | .097 | .054 | .030 | .123 | .070 | .236** | .010 | -.151 |
| **4-year degree** | .148 | .012 | .160 | .326** | .121 | .180* | -.097 | .054 | .030 | .123 | .070 | .236** | .010 | .151 |
| **NOLA degree** | .008 | .010 | .073 | .054 | .128 | .173* | -.027 | .091 | .019 | .082 | .002 | .154 | .118 | -.131 |
| **LA degree** | .066 | .094 | .049 | .139 | .176* | .249** | .013 | .155 | .001 | .050 | .046 | .173* | .093 | .108 |
| **Out-of-State degree** | .080 | .147 | .044 | .112 | .049 | .083 | .024 | .078 | .031 | .055 | .068 | .004 | .052 | .052 |
| **HBCU degree** | .059 | .084 | .008 | .022 | .049 | .125 | .114 | .052 | .046 | .152 | .032 | .061 | .022 | -.006 |
| **+ Courses** | .112 | .032 | .015 | .126 | .052 | .061 | .032 | .101 | .041 | .138 | .027 | .063 | .083 | -.104 |
| **+ Degree** | .038 | .155 | .029 | .028 | .113 | .161 | -.071 | .003 | .028 | .014 | .076 | .018 | .020 | -.051 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 28: Correlations of Testing to Testing

| | TOPS | TOPS Level | ACT Composite | ACT English | ACT Math | ACT Reading | ACT Science | Times Taken | Remedials | Benchmarks |
|---|---|---|---|---|---|---|---|---|---|---|
| **TOPS** | 1.00 | .894** | .597** | .547** | .462** | .457** | .496** | .384** | .603** | .532** |
| **TOPS level** | 1.00** | 1.00 | .721** | .640** | .579** | .578** | .554** | .363** | -.679** | .690** |
| **ACT Comp** | .688** | .721** | 1.00 | .859** | .736** | .830** | .793** | .324** | -.789** | .843** |
| **ACT English** | .576** | .640** | .859** | 1.00 | .579** | .679** | .604** | .366** | -.791** | .780** |
| **ACT Math** | .527** | .579** | .736** | .579** | 1.00 | .499* | .561** | .336** | -.761** | .688** |
| **ACT Reading** | .504** | .578** | .830** | .679** | .499** | 1.00 | .567** | .331** | -.601** | .735** |
| **ACT Science** | .549** | .554** | .793** | .604** | .561** | .567** | 1.00 | .356** | -.568** | .636** |
| **Times Taken** | .414** | .363** | .324** | .366** | .336** | .331** | .356** | 1.00 | -.448** | .397** |
| **Remedials** | .614** | -.679** | -.789** | -.791** | -.761** | -.601** | -.568** | -.448** | 1.00 | -.814** |
| **Benchmarks** | .587** | .690** | .843** | .780** | .688** | .735** | .636** | .397** | -.814** | 1.00 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 29: Correlations of Testing to Post-Secondary Environment

| | TOPS | TOPS Level | ACT Composite | ACT English | ACT Math | ACT Reading | ACT Science | Times Taken | Remedials | Benchmarks |
|---|---|---|---|---|---|---|---|---|---|---|
| **Institutions** | .241** | .189** | .141** | .166* | .077** | .125** | .168** | .143** | -.143** | .146** |
| **Probation** | -.022 | .042 | .083 | .133 | .072 | .088 | .129 | .059 | .057 | .019 |
| **Av. selectivity** | .387** | -.276** | -.288** | -.267** | -.237** | -.227** | -.258** | -.212** | .265** | -.230** |
| **2-year** | -.142** | .172** | .250** | .227** | .230** | .240** | .225** | .108* | .179** | .191** |
| **4-year** | .448** | .456** | .476** | .448** | .387** | .378** | .447** | .331** | .410** | .416** |
| **Public** | .061* | .063 | .109 | .151 | .136 | .156 | .169* | .171** | .101** | .108** |
| **Private** | .206** | .216** | .188** | .180* | .171** | .168 | .199** | .128** | .091** | .100** |
| **For-Profit** | -.017 | .062 | .094 | .100 | .114 | .165 | .106 | .107 | .067* | .063 |
| **NOLA** | .054* | .058 | .116 | .143 | .115 | .147 | .142 | .103 | .023 | .036 |
| **LA** | .267** | .280** | .313** | .313** | .281** | .274** | .285** | .291** | .301** | .318** |
| **Out-of-State** | .022 | .088* | .149* | .137 | .137 | .125 | .121 | .101 | .036 | .069 |
| **HBCU** | .113** | .132** | .162* | .165 | .139 | .174 | .173* | .158** | .088** | .078 |
| **Semesters** | .282** | .149** | .054 | .035 | .043 | -.002 | .111** | -.001 | -.046 | .036 |
| **Still Enrolled** | .228** | .264** | .314** | .329** | .266** | .322** | .289** | .352** | .325** | .333** |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 30: Correlations of Testing to Post-Secondary Completion

| | TOPS | TOPS Level | ACT Composite | ACT English | ACT Math | ACT Reading | ACT Science | Times Taken | Remedials | Benchmarks |
|---|---|---|---|---|---|---|---|---|---|---|
| **Institutions** | .241** | .189** | .141** | .166** | .077** | .125** | .168** | .143** | -.143** | .146** |
| **Years to grad.** | .385 | -.004 | .002 | -.028 | -.024 | -.079 | .002 | -.190* | .069 | -.065 |
| **Grad. selectivity** | .194 | -.109 | -.083 | -.115 | -.053 | -.089 | -.035 | -.060 | -.077 | .026 |
| **Public degree** | -.070 | .040 | .067 | .057 | .022 | .061 | .099 | .055 | .007 | .019 |
| **Private degree** | .075 | .051 | .103 | .105 | .009 | .103 | .146 | .078 | .019 | .028 |
| **For-profit degree** | -.038 | .048 | .100 | .137 | .010 | .094 | .094 | .046 | .003 | .007 |
| **2-year degree** | -.348** | .315** | .294** | .317** | .184* | .223* | .199* | .115 | .199* | .173* |
| **4-year degree** | .348** | .315** | .294** | .317** | .184* | .223* | .199* | .115 | .199* | .173* |
| **NOLA degree** | -.178* | .237** | .210* | .170 | .174* | .123 | .113 | .021 | .169* | .161 |
| **LA degree** | .171* | .207* | .119 | .108 | .144 | .046 | .060 | .035 | .178* | .161 |
| **Out-of-State degree** | .034 | .075 | .166 | .116 | .067 | .135 | .095 | .083 | .010 | .022 |
| **HBCU degree** | -.015 | .079 | .110 | .131 | .085 | .019 | .039 | .084 | .105 | .143 |
| **+ Courses** | -.096 | .064 | .025 | .044 | .068 | .097 | .062 | .076 | .033 | .060 |
| **+ Degree** | .011 | .043 | .049 | .048 | .075 | .087 | .005 | .036 | .111 | .038 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 31: Correlations of Post-Secondary Environment to Post-Secondary Environment

| | No. Inst. | Probat. | Av. Sel | 2-year | 4-year | Public | Private | For-Profit | NOLA | LA | Out-of-state | HBCU | Semesters | Still Enrolled |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Institutions** | 1.00 | .091* | .048 | .580** | .627** | .747** | .342** | .287** | .638** | .396** | .314** | .324** | .438** | .410** |
| **Probation** | .060* | 1.00 | .021 | .062* | .041 | .013 | .069** | .019 | -.003 | .119** | .014 | .005 | .030 | .051* |
| **Av. Selectivity** | .048 | .178** | 1.00 | .711** | .739** | .380** | .494** | .176** | .332** | .215** | .254** | .545** | -.109** | .203** |
| **2-year** | .550** | .062* | .668** | 1.00 | -.171** | .652** | -.083** | .061 | .625** | -.003 | .037 | -.104** | .028 | .087** |
| **4-year** | .589** | .041 | .606** | -.171** | 1.00 | .221** | .473** | .172** | .123** | .495** | .230** | .470** | .293** | .343** |
| **Public** | .587** | .013 | .348** | .652** | .221** | 1.00 | -.245** | -.021 | .441** | .395** | .023 | -.017 | .036 | .274** |
| **Private** | .338** | .069** | .329** | -.083** | .473** | -.245** | 1.00 | .067* | .265** | -.168** | .238** | .565** | .274** | .143** |
| **For-Profit** | .254** | .019 | .079** | .061* | .172** | -.021 | .067* | 1.00 | .115** | -.054* | .256** | -.016 | .067* | .001 |
| **NOLA** | .540** | -.003 | .252** | .625** | .123** | .441** | .265** | .115** | 1.00 | -.189** | -.119** | .114** | .108** | .169** |
| **LA** | .373** | .119** | .119** | -.003 | .495** | .395** | -.168** | -.054* | -.189** | 1.00 | -.103** | .128** | .093** | .246** |
| **Out-of-State** | .303** | .014 | .100** | .037 | .230** | .023 | .238** | .256** | -.119** | -.103** | 1.00 | .124** | .080** | .087** |
| **HBCU** | .311** | .005 | .397** | -.104** | .470** | -.017 | .565** | -.016 | .114** | .128** | .124** | 1.00 | .161** | .202** |
| **Semesters** | .438** | .083 | -.109** | .234** | .341** | .205** | .303** | .218** | .225** | .215** | .162* | .222** | 1.00 | .315** |
| **Still Enrolled** | .326** | .051* | .113** | .087** | .343** | .274** | .143** | .001 | .169** | .246** | .087** | .202** | .054 | 1.00 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 32: Correlations of Post-Secondary Environment to Post-Secondary Completion

| | No. Inst. | Probat. | Av. Sel | 2-year | 4-year | Public | Private | For-Profit | NOLA | LA | Out-of-state | HBCU | Semesters | Still Enrolled |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Institutions** | 1.00 | .091* | .048 | .580** | .627** | .747** | .342** | .287** | .638** | .396** | .314** | .324** | .438** | .410** |
| **Years to grad.** | .124 | .407 | -.208* | .498** | .628** | .408 | .430* | .473** | .363 | .363 | .300 | .380 | .576** | .307 |
| **Grad. selectivity** | .144 | .101 | .816** | .500** | .409** | .222 | .306** | .100 | .321** | .113 | .225 | .392** | -.221** | .399** |
| **Public degree** | .092 | -.047 | .163* | .292** | -.247** | .766** | -.702** | -.306** | -.155 | .396** | -.291** | -.327** | .011 | .064 |
| **Private degree** | .036 | -.072 | .211** | -.355** | .253** | -.733** | .770** | .024 | .112 | -.346** | .233** | .377** | .116 | -.096 |
| **For-profit degree** | .098 | .249** | .120 | .134 | -.058 | -.197* | -.106 | .718** | .121 | -.162* | .129 | -.100 | .268** | .037 |
| **2-year degree** | .054 | .156 | .448** | .667** | -.631** | .287** | -.313** | .064 | .306** | -.215** | -.090 | -.175* | .315** | .403** |
| **4-year degree** | .054 | -.156 | .448** | -.667** | .631** | -.287** | .313** | -.064 | -.306** | .215** | .090 | .175* | .315** | -.403** |
| **NOLA degree** | .005 | -.154 | .051 | .181* | -.328** | -.155 | .176* | -.010 | .671** | -.613** | -.330** | .066 | .033 | .264** |
| **LA degree** | .041 | .064 | .011 | -.168* | .242** | .270** | -.357** | .034 | -.501** | .756** | -.139 | -.148 | .127 | -.173* |
| **Out-of-State degree** | .050 | .147 | .094 | -.044 | .167* | -.140 | .231** | -.033 | -.335** | -.115 | .705** | .105 | .127 | -.165* |
| **HBCU degree** | .016 | -.062 | .461** | -.366** | .252** | -.373** | .451** | .009 | -.110 | -.138 | .151 | .712** | .157 | -.145 |
| **+ Courses** | .371** | .118 | .148 | .276** | .018 | .117 | .085 | .168* | .115 | .000 | .052 | .086 | .173* | .675** |
| **+ Degree** | .118 | -.040 | .011 | .074 | -.018 | .011 | .066 | -.027 | -.086 | -.008 | .113 | -.018 | .242** | -.155 |

*Significant p<0.05
**Significant p<0.01
Columns are dependent, rows are independent

## Table 33: PCA Pattern Matrix for Students who Did Not Attend Post-Secondary Education

| | Testing | Career Prep | Grades | Advanced Courses |
|---|---|---|---|---|
| **TOPS_level** | .546 | -.059 | .383 | .080 |
| **ACT_Composite** | .962 | .045 | .008 | -.023 |
| **ACT_English** | .828 | .099 | -.046 | .114 |
| **ACT_Math** | .804 | -.023 | .031 | -.027 |
| **ACT_Reading** | .774 | .106 | -.083 | -.002 |
| **ACT_Science** | .678 | .078 | .165 | -.116 |
| **Remedials** | -.878 | .076 | .048 | -.084 |
| **ACT_Benchmarks_met** | .935 | -.105 | -.081 | .000 |
| **Credits_complete** | -.050 | .773 | .325 | .285 |
| **Outside_credits** | -.098 | -.703 | .209 | .011 |
| **DE_credits** | .016 | .634 | -.140 | .065 |
| **CCR_credits** | .064 | .757 | .403 | -.269 |
| **Cum_GPA** | .127 | -.214 | .820 | .076 |
| **Credits_failed** | .128 | -.045 | -.859 | -.044 |
| **Math_level** | .122 | .077 | .573 | -.025 |
| **AP_Credits** | .127 | .129 | .007 | .653 |
| **Honors_credits** | .118 | -.252 | .265 | .534 |
| **Art_credits** | -.099 | .059 | -.071 | .837 |
| **Total Variation (%)** | **34.476** | **12.140** | **11.186** | **7.864** |

*Rotation Method: Oblimin with Kaiser Normalization.
**Rotation converged in 7 iterations.

## Table 34: PCA Pattern Matrix for Students who Attended Post-Secondary Education

| | Testing | Career Prep | Math | Language | College |
|---|---|---|---|---|---|
| **TOPS_level** | .791 | .056 | .039 | .014 | .108 |
| **ACT_Composite** | .969 | -.006 | -.016 | -.007 | -.009 |
| **ACT_English** | .869 | -.063 | -.015 | .002 | .015 |
| **ACT_Math** | .790 | .097 | .070 | -.020 | -.110 |
| **ACT_Reading** | .819 | -.084 | -.092 | -.007 | -.009 |
| **ACT_Science** | .745 | -.046 | .051 | -.018 | .100 |
| **Remedials** | -.877 | -.004 | -.023 | -.019 | .040 |
| **ACT_Benchmarks_met** | .923 | .004 | -.042 | .025 | -.031 |
| **CCR_credits** | -.010 | -.887 | -.029 | -.061 | .196 |
| **Credits_complete** | .061 | -.764 | .239 | .067 | -.066 |
| **Outside_credits** | -.034 | .609 | .018 | .224 | .147 |
| **DE_credits** | .022 | -.556 | -.045 | .217 | -.155 |
| **Math_level** | .116 | .046 | .771 | -.127 | .066 |
| **Math_credits** | -.051 | -.088 | .844 | .089 | -.067 |
| **English_credits** | -.016 | .006 | .164 | .846 | .042 |
| **Language_credits** | **-.013** | **-.020** | **.191** | **-.611** | **.019** |
| **Number_of_Colleges** | -.013 | -.109 | -.044 | .024 | .883 |
| **Semesters_in_school** | .044 | .171 | .043 | .000 | .767 |
| **Total Variation (%)** | **34.064** | **13.703** | **7.780** | **6.370** | **6.168** |

*Rotation Method: Oblimin with Kaiser Normalization.
**Rotation converged in 6 iterations.

**Table 35: PCA Pattern Matrix for Students who Completed Post-Secondary Education**

| | Academics | Career Prep | Problem Solving | Language |
|---|---|---|---|---|
| **TOPS_level** | .890 | .016 | .054 | -.025 |
| **ACT_Composite** | .949 | .034 | .050 | .014 |
| **ACT_English** | .822 | .029 | .098 | .026 |
| **ACT_Math** | .765 | -.036 | .130 | -.033 |
| **ACT_Reading** | .850 | .033 | -.128 | .018 |
| **ACT_Science** | .655 | .097 | .146 | .024 |
| **Remedials** | -.820 | -.023 | -.122 | .003 |
| **ACT_Benchmarks_met** | .926 | .000 | -.024 | -.052 |
| **Cum_GPA** | .490 | -.069 | .467 | .135 |
| **Gifted_credits** | .576 | -.091 | -.300 | -.065 |
| **Honors_credits** | .417 | -.101 | .400 | .033 |
| **Credits_complete** | -.047 | .895 | .113 | .106 |
| **CCR_credits** | .081 | .864 | -.031 | .051 |
| **Semesters_in_school** | -.012 | -.504 | .116 | .303 |
| **Math_credits** | -.083 | -.036 | .803 | -.140 |
| **Math_level** | .078 | .057 | .753 | -.130 |
| **Credits_failed** | -.130 | -.006 | -.598 | -.137 |
| **Outside_credits** | -.018 | -.222 | -.077 | .720 |
| **English_credits** | -.070 | .185 | -.139 | .774 |
| **Language_credits** | -.022 | -.003 | -.049 | -.593 |
| **Total Variation (%)** | **36.526** | **10.558** | **8.465** | **7.275** |

Rotation Method: Oblimin with Kaiser Normalization.
Rotation converged in 6 iterations.

## Table 36: PCA Pattern Matrix for Students who Dropped Out of Post-Secondary Education

| | Testing | Career Prep | Grades | Language | College | Math |
|---|---|---|---|---|---|---|
| **TOPS_level** | .612 | .032 | .419 | .011 | -.024 | -.080 |
| **ACT_Composite** | .945 | -.003 | .034 | -.013 | -.020 | -.001 |
| **ACT_English** | .840 | -.062 | .030 | -.040 | .111 | -.029 |
| **ACT_Math** | .687 | .051 | .073 | .012 | -.099 | .170 |
| **ACT_Reading** | .791 | -.094 | -.024 | -.076 | -.025 | -.126 |
| **ACT_Science** | .696 | .048 | .069 | .019 | .032 | .080 |
| **Remedials** | -.878 | .001 | .052 | -.008 | -.056 | -.042 |
| **ACT_Benchmarks_met** | .943 | .012 | -.116 | .073 | -.006 | .007 |
| **Credits_complete** | .014 | -.789 | .140 | .102 | -.128 | .172 |
| **Outside_credits** | -.091 | .563 | .271 | .142 | .121 | -.121 |
| **CCR_credits** | -.022 | -.928 | .101 | .014 | .071 | -.127 |
| **Cum_GPA** | .120 | -.025 | .805 | -.049 | .111 | .040 |
| **Credits_failed** | -.001 | .224 | -.641 | -.004 | -.182 | -.173 |
| **Honors_credits** | .076 | .051 | .672 | -.030 | -.107 | -.052 |
| **English_credits** | -.064 | -.009 | .166 | .862 | -.052 | .045 |
| **Language_credits** | -.078 | .009 | .256 | -.652 | -.043 | .095 |
| **Semesters_in_school** | -.029 | .133 | .091 | .095 | .755 | .098 |
| **Number_of_Colleges** | .057 | -.054 | -.074 | -.092 | .880 | -.065 |
| **Math_level** | .062 | .091 | .110 | -.114 | .037 | .777 |
| **Math_credits** | .009 | -.121 | -.107 | .056 | -.015 | .842 |
| **Total Variation (%)** | **31.174** | **11.551** | **9.250** | **6.119** | **5.613** | **5.277** |

*Rotation Method: Oblimin with Kaiser Normalization.
**Rotation converged in 7 iterations.

## Table 37: Logistic Regression for Predicting Post-Secondary Attendance

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% CI for EXP(B) |
|---|---|---|---|---|---|---|---|
| **Cum_GPA** | 1.037 | .185 | 31.365 | 1 | .000 | 2.822 | (1.963, 4.057) |
| **ACT_English** | .059 | .022 | 7.130 | 1 | .008 | 1.061 | (1.016, 1.108) |
| **times_taken_ACT** | .262 | .076 | 11.831 | 1 | .001 | 1.300 | (1.119, 1.509) |
| **Constant** | -2.740 | .483 | 32.157 | 1 | .000 | .065 | |

**N = 1451** **Cases included = 1276** **Nagelkerke R-Square = 0.133**

## Table 38: Logistic Regression for Post-Secondary Credential Completion

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% CI for EXP(B) |
|---|---|---|---|---|---|---|---|
| **Cum_GPA** | .839 | .370 | 5.152 | 1 | .023 | 2.315 | (1.121, 4.777) |
| **Credits_failed** | -.365 | .193 | 3.589 | 1 | .058 | .694 | (0.476, 1.013) |
| **Semesters_in_school** | .421 | .044 | 92.787 | 1 | .000 | 1.523 | (1.398, 1.660) |
| **NOLA(1)** | -.841 | .396 | 4.509 | 1 | .034 | .431 | (0.199, 0.937) |
| **Number_of_Colleges** | -.304 | .177 | 2.958 | 1 | .085 | .738 | (0.522, 1.043) |
| **Constant** | -5.537 | 1.257 | 19.401 | 1 | .000 | .004 | |

**N = 494** **Cases Included = 493** **Nagelkerke R-Square = 0.564**

## Table 38a: Logistic Regression for Post-Secondary Credential Completion

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% CI for EXP(B) |
|---|---|---|---|---|---|---|---|
| **Credits_failed** | -.735 | .172 | 18.275 | 1 | .000 | .479 | (0.342, 0.671) |
| **Public** | -2.439 | .481 | 25.695 | 1 | .000 | .087 | (0.034, 0.224) |
| **Private** | -1.558 | .368 | 17.901 | 1 | .000 | .210 | (0.102, 0.433) |
| **Semesters_in_school** | .487 | .047 | 107.603 | 1 | .000 | 1.627 | (1.484, 1.784) |
| **Constant** | -2.068 | .520 | 15.820 | 1 | .000 | .126 | |

**N = 494** **Cases Included = 493** **Nagelkerke R-Square = 0.593**

## Table 38b: Logistic Regression for Post-Secondary Credential Completion

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% CI for EXP(B) |
|---|---|---|---|---|---|---|---|
| **Cum_GPA** | .833 | .366 | 5.175 | 1 | .023 | 2.299 | (1.122, 4.711) |
| **Credits_failed** | -.381 | .193 | 3.899 | 1 | .048 | .683 | (0.468, 0.997) |
| **Number_of_Colleges** | -.400 | .171 | 5.465 | 1 | .019 | .670 | (0.480, 0.937) |
| **Semesters_in_school** | .425 | .044 | 94.503 | 1 | .000 | 1.530 | (1.404, 1.667) |
| **Constant** | -6.088 | 1.228 | 24.587 | 1 | .000 | .002 | |

**N = 494** **Cases Included = 493** **Nagelkerke R-Square = 0.556**

## Table 39: Logistic Regression for Post-Secondary Dropouts

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% CI for EXP(B) |
|---|---|---|---|---|---|---|---|
| **Credits_complete** | -.154 | .028 | 29.163 | 1 | .000 | .858 | (0.811, 0.907) |
| **DE_credits** | -1.621 | .261 | 38.561 | 1 | .000 | .198 | (0.119, 0.330) |
| **AP_Credits** | -.750 | .158 | 22.621 | 1 | .000 | .472 | (0.347, 0.643) |
| **times_taken_ACT** | -.160 | .060 | 7.052 | 1 | .008 | .852 | (0.757, 0.959) |
| **Remedials** | .361 | .105 | 11.775 | 1 | .001 | 1.435 | (1.167, 1.763) |
| **HBCU(1)** | -.484 | .163 | 8.759 | 1 | .003 | .616 | (0.447, 0.849) |
| **Semesters_in_school** | -.297 | .024 | 147.405 | 1 | .000 | .743 | (0.708, 0.780) |
| **Constant** | 6.076 | .877 | 48.026 | 1 | .000 | 435.433 | |

**N = 499** **Cases Included = 1159** **Nagelkerke R-Square = 0.410**

## Table 40: Logistic Regression of High School and Standardized Test Variables on Bachelor's Degree Completion Opposed to Other Credential Completion

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95%CI for EXP(B) |
|---|---|---|---|---|---|---|---|
| **Core_Complete(1)** | 2.744 | 1.232 | 4.963 | 1 | .026 | 15.548 | (1.391, 173.792) |
| **ACT_Composite** | .853 | .268 | 10.112 | 1 | .001 | 2.347 | (1.387, 3.970) |
| **times_taken_ACT** | .817 | .339 | 5.798 | 1 | .016 | 2.263 | (1.164, 4.398) |
| **Remedials** | 1.643 | .727 | 5.103 | 1 | .024 | 5.170 | (1.243, 21.501) |
| **Constant** | -20.979 | 6.190 | 11.486 | 1 | .001 | .000 | |

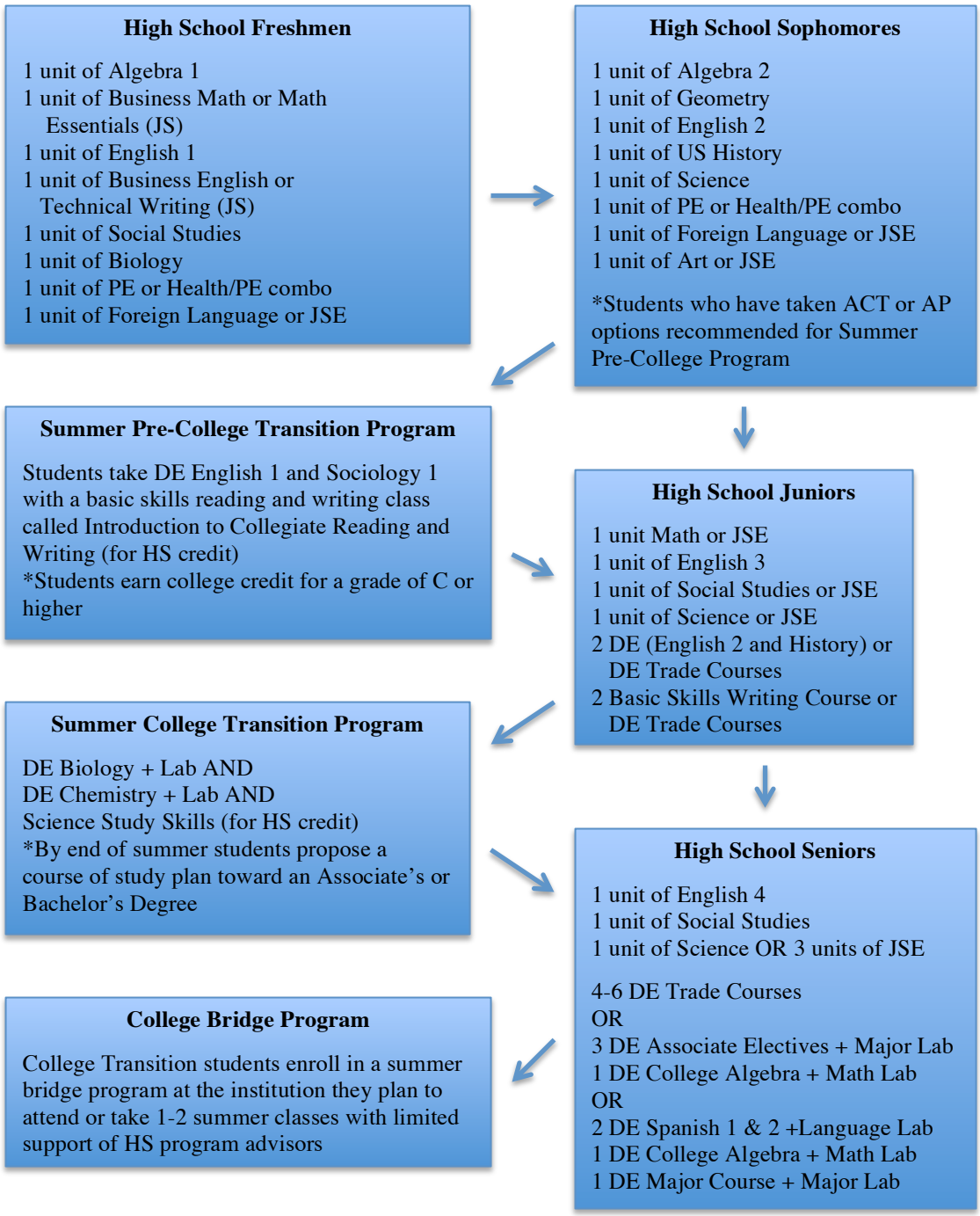
**N = 132** **Cases Included = 78** **Nagelkerke R-Square = 0.462**

**Table 41: Logistic Regression Predicting Completion of a Post-Secondary Credential Less than a Bachelor's Degree Opposed to Dropping Out of Post-Secondary Studies**

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% CI for EXP(B) |
|---|---|---|---|---|---|---|---|
| **Number_of_Colleges** | .469 | .236 | 3.953 | 1 | .047 | 1.599 | (1.007, 2.538) |
| **Semesters_in_school** | .479 | .060 | 64.027 | 1 | .000 | 1.614 | (1.436, 1.815) |
| **Constant** | -6.573 | .703 | 87.519 | 1 | .000 | .001 | |

**N = 541** **Cases Included = 540** **Nagelkerke R-Square = 0.462**

## APPENDIX B: Proposed High School Progression



## APPENDIX C: CREDENTIAL PROGRAMS LEADING TO LIVING WAGES

**Business & Technology:**

Hospitality Management, AAS, 2 years
- Hotel Managers median income $51,840/year or $24.93/hr
- Food Service Managers median income $50,820/yr or $24.43/hr

Culinary, AAS, 2 years
- Head cook/pastry chef median income $43,180/yr or $20.76/hr

Accounting, AAS, 2 years
- Bookkeeper/Accounting clerk median income $38,390/yr or $18.46/hr

Business Administration, AAS, 2 years
- Executive Assistant median income $55,860/yr or $26.86/hr
- Administrative Assistant median income $37,230/yr or $17.90/hr

Legal Secretary, CTS, 1 year
- Legal Secretary median income $44,180/ yr or $21.24

Electrical Engineering Technology, or Electronics Service Technology AAS, 2-2.5 years
- Electrical Technician median income $62,190/yr or $29.90/hr

Computer Aided Design and Drafting, AAS is 2 years, CTS is less than a year
- Drafter (associate's) median income $53,480/yr or $25.71/hr

Computer Information Technology, AAS, 2 years or website design CTS 1 year
- Web Developer median income $66,130/yr or $31.79/hr
- Desktop Publisher median income $41,090/yr or $19.76/hr

Computer Network Technology, AAS, 2-2.5 years
- Telecommunications installer median income $53,640/yr or $25.79/hr

Computer and Electronics Service Technology, CTS, less than a year
- Computer support specialist median income $52,160/yr or $25.08/hr

Architectural Design AAS, 2.5 years
- Estimator median income $61, 790/ yr or $29.71/hr
- Building Inspector median income $58,480/yr or $28.12/hr

Civil Construction and Applied Engineering Technology AAS, 2-2.5 years
- Civil Engineering Technician median income $49,980/yr or $24.03/hr

Fire Science Technology CTS, 1 year
- Firefighter median income $48,030/yr or $23.09/hr

**Technical Division:**

Motor Vehicle Technology CTS, less than a year
Automotive Service Technician/Mechanic median income $38,470/yr or $18.5/hr
Carpentry CTS, 1 year
Carpenter median income $43,600/yr or $20.96/hr
Electric Line Technician CTS, 1 year
Line installer/repairer median income $62,650/yr or $30.12/hr
Residential Electrician CTS, 1 year or less or Commercial Electrician CTS, 1 year
Electrician median income $52,720/yr or $25.35/hr
HVAC CTS, 1 year
HVAC Mechanics and Installers median income $45,910/yr or $22.07/hr
Precision Machining CTS, 1 yr
Machinist median income $43,160/yr or $20.75/hr
Welding CTS, 1 year
Welder median income $39,390/yr or $18.94/hr
Ironworker median income $50,830/yr or $24.44/hr
Maintenance Technology CTS, 1 yr
Industrial maintenance Technician median income $49,100/yr or $23.61/hr

**Allied Health:**

Dialysis Technician TCA, 1 semester; Medical Lab Technician AAS, 2 years;
Polysomnographic Technology AAS, 2.5 years
Medical Technician median income $50,930/yr or $24.48/hr
Emergency Medical Technician TCA, 8-12 weeks
EMT median income $32,670/yr or $15.71/hr
Diagnostic Medical Sonography Associate's plus Certificate, 3 years
Diagnostic medical Sonographer median income $64,280/yr or $30.90/hr
Funeral Service Education, AAS, 2 years
Funeral Service worker median income $54,830/yr or $26.36/hr
Health Information Technology AAS, 2.5 years;
Medical Coding CAS, 1.5 years;
Medical Registration CTS, 1 year
Health Information Technician median income $38,040/yr or $18.29/hr
Massage Therapy CTS, 1 year
Massage Therapist median income $39,860/yr or $19.17/hr
Nuclear Medical Technology Associate's plus Certificate, 3 years
Nuclear Medicine Technologist median income $74,350/yr or $35.75/hr
Occupational Therapy Assistant AAS, 2.5 years
Occupational Therapy Assistant median income $56,070/yr or $26.96/hr
Opthalmic Medical Assistant CTS, 1 year
Dental and Ophthalmic lab technician median income $34,630/yr or $16.65/hr
Pharmacy Technician CTS, 1 year
Pharmacy Technician median income $30,920/yr or $14.86/hr

Phlebotomy Technician TCA, 4 months
Phlebotomist median income $32,710/yr or $15.72/hr
Physical Therapy Assistant AAS, 2.5 years
Physical Therapy Assistant median income $45,290/yr or $21.77/hr
Radiation Therapy, Post-associate certificate, 3 years
Radiation Therapist median income $80,160/yr or $38.54/hr
Radiologic Technology, AAS, 2.5 years
Radiologic and MRI technologist median income $58,960/yr or $28.35/hr
Respiratory Care Technology AAS, 2.5
Respiratory Therapist median income $58,670/yr or $28.21/hr
Surgical Technology CTS, 1 year
Surgical Technologist median income $45,160/yr or $21.71/hr
Veterinary Technology AAS, 2 years
Vet tech median income $32,490/yr or $15.62/hr

**Arts and Humanities**
Transfer Diploma AA, 2 years
Transfer to any instate public college to earn a bachelor's degree
Teaching Grades 1-5 (AST, transfer program) 2 years
Elementary School Teacher median income $55,490/yr
Criminal Justice AA, 2 years
Police Officer median income $61,600/yr or $29.62/hr
Correctional Officer median income $42,820/yr or $20.59/hr
Interior Design AA, 2.5 years; Kitchen and bath design CTS, 1 year
Interior Designer $49,810/yr or $23.95/hr (need work experience)
Visual Communications AAS, 2 years
Graphic Designer median income $47,640/yr or $22.90/hr
Photographer median income $34,070/yr or $16.38/hr

**Communication**
American Sign Language Interpreting AA 2 years
Interpretor median income $46,120/yr or $22.17/hr

**Nursing**
Practical Nursing TD, 2 years
Practical Nurse median income $44,090/yr or $21.20/hr
Registerd Nuring AS, 2.5 years
Registered Nurse median income $68,450/yr or $32.91/hr

**Math and Science**
Water and Wastewater Technology (courses to prepare for state exam)
Water and wastewater operator median income $45,760/yr or $22.00/hr

APPENDIX D: PROPOSED SPS CHANGE

**Current SPS Formula**

**25% EOC tests**

Excellent=150 pts
Good=100 pts
Fair/Poor=0 pts

**25% ACT**

ACT 18/Workkeys Silver=100 pts
ACT 20=105.6 pts
ACT 23=114 pts
ACT 24/Workkeys Gold=116.8 pts
ACT 27=125.2 pts
ACT 31/Workkeys Platn. =136.4 pts
ACT 36=150.4 pts

**25% Cohort Graduation Rate**

0-60%= GCR x 1.6667 pts
61-100%= (GCR x 2)-50 pts

**25% Graduation Index**

Non-graduate=0 pts
HiSet/GED=25 pts
6-year graduate=50 pts
5-year graduate=75 pts
4-year graduate=100 pts.
4-year graduate plus =110 pts
AP/IB/Dual Enrollment in Core
OR
Basic Jumpstart Credential
4-year graduate plus+=115 pts
AP/IB/Dual Enrollment in Core
AND
Basic Jumpstart Credential
5-year graduate plus =140 pts
AP>2, IB>3, CLEP>49
4-year grad college ready=150 pts
AP>2, IB>3, CLEP>49
OR
Advanced Jumpstart Credential
4-year grad college ready+=160 pts
AP>2, IB>3, CLEP>49
AND
Advanced Jumpstart Credential

**Proposed SPS Formula**

**25% EOC tests**

Excellent=150 pts
Good=100 pts
Fair/Poor=0 pts

**25% ACT**

ACT 18/Workkeys Silver=100 pts
ACT 20=105.6 pts
ACT 23=114 pts
ACT 24/Workkeys Gold=116.8 pts
ACT 27=125.2 pts
ACT 31/Workkeys Platn. =136.4 pts
ACT 36=150.4 pts

**25% 6-year College Graduation Rate**

Cert./Technical Diploma=100 pts
Associate's Degree=125 pts
Bachelor's Degree=150 pts
More than one degree=160 pts

**25% Graduation Index**

Non-graduate=0 pts
HiSet/GED=20 pts
6-year graduate=40 pts
5-year graduate=60 pts
4-year graduate=80 pts.
4-year graduate plus =90 pts
AP/IB/Dual Enrollment in Core
OR
Basic Jumpstart Credential
4-year graduate plus+=100 pts
AP/IB/Dual Enrollment in Core
AND
Basic Jumpstart Credential
5-year graduate plus =110 pts
AP>2, IB>3, CLEP>49
4-year grad college ready=120 pts
AP>2, IB>3, CLEP>49
OR
Advanced Jumpstart Credential
4-year grad college ready+=130 pts
AP>2, IB>3, CLEP>49
AND
Advanced Jumpstart Credential
4-year grad college freshman=140 pts
Passed 5 dual enrollment classes and earned 15 college credit hours
4-year grad college sophomore=150 pts
Passed 10 dual enrollment classes and earned 30 college credit hours
4+1 high school diploma and associate=160 pts
Completed qualifying Associate's program within 1 year of HS graduation

APPENDIX E: ADDITIONAL FINANCIAL CONSIDERATIONS

There also need to be changes made to the way financial aid refunds are disbursed. Students should not be given the opportunity to spend all of their refund at once. Any refund amount should be dispersed to students into three equal payments: first at the beginning of the term, once in the middle of the term, and once at the end of the term. If the student does not pass all courses, they should not be eligible for their final refund disbursement, as this money would have to be repaid to the school anyway. This prevents students from unexpected charges after the semester is over. It also incentivizes students to be responsible for passing all of the classes they attempt. This makes good financial sense for both the federal government and students.

Congress also needs to enact a change to the banking system. Currently, for minors to have any kind of bank account, their parent or guardian's name must also be on the account. This is meant to ensure the safety of the account. However, there are widespread examples of abuse. To protect children, two laws must be enacted. First, any withdraw from a minor's account must require two adults until the child reaches the age of six. From the age of six to 18, any withdraw from a minor's account must be witnessed by both the parent/guardian and the child. In this case, the cash must be handed to the minor, not the adult. This means that debit cards cannot be available for minor accounts. Further, any ATM withdraw must include the pin numbers for both child and adult. Second, all banks issuing minor accounts must notify the minor in writing on their 18$^{th}$ birthday of their right to remove their parent or guardian from their

account. Alternatively, this could be done automatically, and the account owner can opt to add their parent or guardian back to their account. This prevents parents from taking a student's financial aid money for their own use, a practice that is far more common than most realize.

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