# SECONDARY TO POSTSECONDARY NEXUS: AN EXPLORATION OF THE IMPACT OF SECONDARY EDUCATION ON POSTSECONDARY RESULTS THROUGH KNOWLEDGE FOR COLLEGE

by

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**SECONDARY TO POSTSECONDARY NEXUS: AN EXPLORATION OF THE IMPACT OF SECONDARY EDUCATION ON POSTSECONDARY RESULTS THROUGH KNOWLEDGE FOR COLLEGE**

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The literature outlines that while many high school graduates enroll in higher education, less than 60% complete their degree within six years of enrollment (Kena, et al., 2014). There is also a need to better understand how secondary schools are influencing students' college readiness and persistence through degree completion (Johnson, 2008). Since college readiness is complex, this investigation focuses specifically on *knowledge for college* as a key component of postsecondary preparedness. The postsecondary enrollment, persistence and degree completion of a graduate cohort are measured through a review of archival data. Rates of acquisition and sources of readiness in *knowledge for college* are measured through a graduate questionnaire. Through a model of practitioner inquiry, this study found that graduates enrolled in higher education at rates consistent with comparison groups, persisted at higher rates, and took longer than expected to complete degrees. The respondents reported varying degrees of readiness across seven components of *knowledge for college*, with the highest rating in Matriculation and the lowest in Postsecondary Costs. Teachers and school counselors were among the top three most influential groups on the acquisition of skills, while College Visits and Job Shadowing were found to be the most beneficial experiences.

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## ACKNOWLEDGMENTS

Education changes lives and I will be forever thankful to the loved ones who have helped to instill my desire to learn. Every individual deserves a cast of mentors who bring about the positive support that I have experienced during my ongoing educational journey. Accomplishments in my life are shared with family, friends, and teachers.

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# 1.0 INTRODUCTION

## 1.1 BACKGROUND

Secondary educational institutions (grades 7-12) influence both the enrollment and success of students during their experiences within the higher education system. Each high school graduate's attempt to enroll, persist in their studies and graduate from postsecondary institution rests on a foundation established through his/her middle and high school educational experiences. The need for high school graduates to be better prepared for postsecondary studies serves as a core aspect of secondary school reform, along with an urgency for deeper college and career readiness among exiting high school graduates (Bangser, 2008b). Therefore, a secondary school's need to prepare students for the transition from high school to higher education and their subsequent college success rate is core to this investigation.

In order to inform their decision making, secondary school counselors and administrators need to understand the trends in postsecondary enrollment and graduation rates of their college-bound student populations more deeply, as well as be aware of policies and programs to help improve the grim trends in college completion rates among high school graduates (Adelman, 1999; Bangser, 2008b; Engberg & Wolniak, 2010; Johnson, 2008; Massey, 2003; Wolniak & Engberg, 2010). Secondary education focuses on test scores, high school graduation rates, and postsecondary enrollment data, but it frequently does not define a vision of student success

beyond postsecondary enrollment in my experiences. Given the rate at which graduating high school students pursue higher education as well as the continued low rates at which student complete their degrees (Adelman, 2006, 2007; Aud et al., 2011; DesJardins, Ahlburg, & McCall, 2002; Kena et al., 2014; Wirt et al., 2004), it is more important to understand the high school contexts where students are most successful in obtaining their desired postsecondary outcomes.

Current research studies indicate there is a need for further investigation to fully understand the extent of which high school matters in postsecondary success (Engberg & Wolniak, 2014; Johnson, 2008; Wolniak & Engberg, 2010). Many of the programs, structures, and strategies within high schools have positive and negative effects on individual student outcomes after secondary completion (Adelman, 1999, 2006; Cabrera & La Nasa, 2001; Dickson, 2011; Engberg & Wolniak, 2010, 2014; L. D. Hill, 2008; Martinez & Klopot, 2005; Plank & Jordan, 2001; Stephan, 2010; Tierney, 2009). This investigation will offer some clarity to the characteristics and experiences at a specific secondary institution that have the strongest impact on students' postsecondary success. The knowledge acquired will inform secondary policy and practice, resulting in improved individual student outcomes related to both postsecondary studies and into their degree completion.

## 1.2 PURPOSE

This study seeks to investigate a select group of high school graduates through analysis of their college-going behaviors, knowledge they used to transition to postsecondary studies, and the skills they found necessary to be successful. The results from this study will benefit school

leaders and other school personnel by providing them with a deeper understanding of how secondary programming affects students.

One purpose of this study is to gain a better understanding of postsecondary students' educational outcomes, perceived *knowledge for college*[1] and how the information was obtained. This increased understanding will be used to improve secondary programming. This research will assist school counselors and administrators to identify areas where they can better support and prepare students. It will also assist school leaders to develop detailed action plans for programming, curricular revisions, and student opportunities so as to better prepare graduates for their transition to higher education.

Nationally, nearly 80% of all high school graduates enter postsecondary institutions (Adelman, 2007), while only slightly more than half of those students complete their intended degrees within six years from initial enrollment (Adelman, 2006). While factors are correlated with student postsecondary enrollment and completion, a specific area of interest for this research surrounds the role of the secondary (grades 7-12) institution and its effectiveness in helping students attain the necessary knowledge needed to be successful in the transition to, and the completion of, postsecondary studies.

Among the many roles of secondary schools, it is my opinion that focusing on increasing student postsecondary graduation rates should be a primary focus. Postsecondary educational outcomes can be attributed to many factors, including the qualities of the students themselves, family and demographic variables, and the influences of the postsecondary institutions; however,

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[1] *Knowledge for college* described briefly in Section 1.5, and in more detail in Section 2.2.6, refers to the information, skills, and attitudes that are important for postsecondary entry and success.

a primary role of a secondary institution is to ensure every student's successful postsecondary performance by building a strong foundation for his or her continued studies.

## 1.3 RESEARCH QUESTIONS

To better help secondary school counselors and administrators understand the impact their schools have on postsecondary student outcomes, a more thorough understanding of high school graduates' awareness of the components of *knowledge for college*, and how they obtained this knowledge is needed. This study is designed as practitioner inquiry into a problem of practice (Carnegie Project on the Education Doctorate, 2014), through an exploration of archival data and a graduate survey. Knowledge about the relationship between secondary exposure to *knowledge for college* and the subsequent postsecondary educational outcomes will build more informed decision-making at the high school level in order to address the problem of practice. One goal of this inquiry is to help the researcher understand the effectiveness of past secondary school practices and enhance the school system moving forward (Carnegie Project on the Education Doctorate, 2014; Stringer, 2008). The following research questions will assist with the phases of collecting data, analyzing data and reporting findings. With a goal of strengthening postsecondary student degree completion rates, the middle and high school systems could benefit by supporting student populations and better preparing them for postsecondary studies.

Data collected from recent district graduates will be analyzed to explore the following questions:

Question 1: What are the rates of postsecondary enrollment, persistence, and degree completion among district graduates?

Question 2: What do responding graduates know about the various components of *knowledge for college*?

Question 3: What sources have assisted responding graduates in obtaining *knowledge for college*?

Within these three research questions, question one will situate district graduates within the context of postsecondary outcomes. Questions two and three will define the role of secondary (7-12) education within the graduate's perceived level of and development of *knowledge for college* and help inform and guide school leaders to work toward graduating more informed students.

## 1.4 SIGNIFICANCE OF STUDY

As a practicing secondary school administrator and former secondary school counselor, I have developed a strong interest in the role of school programming in the eventual educational and career outcomes of high school graduates. Working with secondary student populations, their families, and district personnel leads me to believe secondary education places an over-emphasis on postsecondary enrollment. While significant attention is focused on getting secondary students to the doorstep of higher education, it is my experience that secondary schools commonly fail to measure their impact on students' long-term success beyond postsecondary enrollment. I hear K-12 educators and advocates ask questions about what skills are needed to graduate and how to assist students with acceptance into postsecondary institutions; but through studying postsecondary student outcomes, merely assisting students in starting on their higher education ventures should not be the end goal.

This research will allow for reflection on my school district's current practices in the form of programs, services to students, college-linking behaviors, and the roles of personnel in light of their influence on a student's preparedness and ability to find success in higher education. Results from this study will allow school leaders to first reflect upon and then adjust practices to better meet the needs of students and provide a better foundation for success in higher education. This research will guide the collection of data on both student outcomes beyond high school graduation and the perceptions surrounding graduates' *knowledge for college.* It will also analyzing the data to target key issues for improvement, sharing the results with a leadership team and taking action to improve postsecondary preparation (Stringer, 2008). Within the field of secondary education, whether at a district or state level, it is concerning that secondary institutions generally make few attempts to examine the educational and career outcomes of their graduates. While data are frequently tracked and reported regarding high school performance and postsecondary plans, graduates long-term successes or failures are generally not considered.

Based on my experiences, secondary institutions are equally weak at evaluating and then adjusting their own practices as they influence this specific form of student achievement. Therefore, this study will establish a model for exploration within secondary institutions to adjust the practices of the school system based on collected and analyzed graduate data. This work will inform other secondary school leaders about the need to consider long-term student outcomes, to provide a framework to track graduate progress, and to reflect upon current institutional practices.

There is also a need for greater awareness into policies and programs to help improve the historically low college completion rates among high school graduates (Adelman, 1999;

Bangser, 2008b; Engberg & Wolniak, 2010; Johnson, 2008; Massey, 2003; Wolniak & Engberg, 2010). This research aims to inform change surrounding a specific school issue with the potential to extend and broaden development within my own school system and perhaps serve as a model to similar school systems (Carnegie Project on the Education Doctorate, 2014; Stringer, 2008). The ultimate goal would be for the majority of secondary institutions to know and to understand how their practices and programming are influencing student populations based on long-term outcomes, not only high school graduation or intended postsecondary enrollment.

## 1.5 DEFINING KNOWLEDGE FOR COLLEGE

*Knowledge for college* refers to the information, skills, and attitudes postsecondary-bound students need to obtain for college entry and subsequent success. A significant portion of the research surrounding postsecondary preparation identifies the academic variables (Adelman, 1999, 2006, 2007; Akst, 2008; Chen, Wu, & Tasoff, 2010; Dickson, 2011) and demographic variables (Cabrera & La Nasa, 2001; Dickson, 2011; Plank & Jordan, 2001; Wolniak & Engberg, 2010) correlated with student success rates. *Knowledge for college* includes these and other skill sets that extend beyond academics and demographics, because high school graduates must successfully navigate the complex web of postsecondary admissions, financial aid, culture, and expectations that are in stark contrast to their previous educational experiences. While it is also vitally important that K-12 education prepares students with the necessary academic skills to succeed in postsecondary studies, this research targets more directly the role of itinerant skills and knowledge that ideally complement core academic abilities.

Furthermore, knowledge about the processes of applying to and attending institutions of higher education as well as a deep understanding of postsecondary school cultures and systems are associated with postsecondary success rates (Cabrera & La Nasa, 2001; Conley, 2008, 2011; Dickson, 2011; L. D. Hill, 2008; Martinez & Klopot, 2005; Plank & Jordan, 2001; Stephan, 2010; Tierney, 2009). Assisting students in understanding college requirements and financial aid is a targeted strategy to increase college access and success (Bryan, Moore-Thomas, Day-Vines, & Holcomb-McCoy, 2011; Martinez & Klopot, 2005; Tierney, 2009).

The phrase *knowledge for college* used in this dissertation is meant the capture the collective work of various authors surrounding skills and experiences such as increasing postsecondary exposure, exploring/understanding financial aid, navigating/understanding admissions, career pathways, postsecondary systems, postsecondary culture, understanding degrees of higher education, and distinctions in the types of learning environments. For example, Plank and Jordan (2001) and Stephan (2010) discuss exploring postsecondary information and systems, while Conley (2011) references "Contextual Skills and Awareness" and Dickson (2011) identifies and discusses "Postsecondary Knowledge" as one of her four components of college readiness. Conley (2013) later renames his aspects of college readiness and in greater detail discusses the components of "Key Transition Knowledge and Skills," which among all of the researchers mostly closely aligns with my notion of *knowledge for college.* In a broader context, *knowledge for college* is also considered a form of social capital (Bryan, et al., 2011; Lin & ebrary, 2001; Perna & Titus, 2005; Stephan, 2010). Other authors have referenced the college-linking behaviors at the secondary level (L. D. Hill, 2008) and the need for some groups of students to have supplemental support and to be connected with this type of information (Bryan, et al., 2011; Cabrera & La Nasa, 2001; Stephan, 2010; Tierney, 2009).

In summary, the concept of *knowledge for college* integrates what is known about information, skills and attitudes, as they are discussed throughout chapter two and in detail in Section 2.2.6. These experiences are important for students to possess in order to aid in their successful transition from secondary to postsecondary studies and to support their progress to degree completion. How and when students acquire this information within their secondary education is a primary focus of this research.

# 2.0 REVIEW OF LITERATURE

Through the review of literature I seek to better understand the role of secondary schools as it relates to postsecondary enrollment and educational outcomes. Given the growing rate at which graduating high school students are pursing higher education but the continued low rates at which they are completing their degrees, it is increasingly important to understand the high school contexts from which students are most successful in obtaining their desired postsecondary outcomes. In seeking a better understanding of these dynamics, the review of literature has been structured around the three primary areas of current enrollment and graduation trends in higher education (Section 2.1), variables influencing college preparedness (Section 2.2), and the roles of school counselors in student postsecondary outcomes (Section 2.3).

## 2.1 CURRENT ENROLLMENT AND GRADUATION TRENDS IN HIGHER EDUCATION

In early 2009, during a presidential address to congress, Barack Obama (2009) asked every American commit themselves to at least one year of higher education. A high school diploma was no longer enough formal education and more education was necessary to reach the goal of America having the highest proportion of college graduates in the world by 2020. Within the same year, The College Board formed a Commission on Access, Admissions and Success in

Higher Education, issued a call for 55% of young adults to earn a college degree by 2025 (J. Lee, Edwards, Menson, & Rawls, 2011). Coupled with a resurgence of data gathering and research related to postsecondary access and success, the attention to this general topic is helping is an appropriate response to decades of weak postsecondary graduation rates, and a growing awareness of ballooning student financial aid debt (Aud, et al., 2011; Baum & Payea, 2011; Kena, et al., 2014; J. Lee, et al., 2011).

The emergence of information in this area of study is quickly leading to a better understanding of the trends in postsecondary enrollment and graduation. There is also a call for further research into policies and programs to help improve the grim trends in college completion (Adelman, 1999; Bangser, 2008b; Engberg & Wolniak, 2010; Johnson, 2008; Massey, 2003; Wolniak & Engberg, 2010). Conceptually, the overarching trends in higher education are broken into the categories of enrollment, persistence and graduation (Adelman, 1999, 2006; DesJardins, et al., 2002). Each encompasses a body of literature outlining the current rates and recent trends in college-going behaviors and sheds significant light onto the current outcomes in higher education.

### 2.1.1 Enrollment Trends

Perhaps the most astounding trend in postsecondary education is the size of the growing population of students in higher education in the United States. Among high school graduates, 78% are enrolling in postsecondary studies at some point, with the majority (66%) entering some form of higher education immediately following high school graduation (Adelman, 2007). Between 1990 and 2009, 18- and 19-year-old enrollment rates in postsecondary studies increased from 37% to 50%, with the final 5% increase (from 45% to 50%) taking place in the last decade

(Aud, et al., 2011). As recently as 2012, the immediate enrollment in postsecondary studies following high school graduation has reached 66%, including 29% at two-year institutions, and 37% at four-year institutions (Kena, et al., 2014). Aud et al. (2011) also found an increase of students in their early twenties, from 7% to 39%. These rates have the potential to be much higher, given that eight to 40% of high school seniors intending to go to college fail to enroll the fall immediately following high school graduation (Castleman & Page, 2014).

In the recent publication of The Condition of Education, from the National Center for Education Statistics, Kena et al. (2014) reported that in the fall of 2012 there were 17.7 million people enrolled in undergraduate degree-granting institutions in the United States, which was a 48% increase since 1990. Of the students enrolled in postsecondary studies 76% were attending public institutions, 15% private not-for-profit and 9% private-for-profit. Private institution enrollment grew over the last nine years by 60% as compared to the 27% growth of public institutions.

The occurrence of students who enroll in higher education has been found to correlate with a multitude of variables. For instance, one of the greatest predictors of postsecondary enrollment is family socioeconomic status. Higher family socioeconomic status is correlated with a higher likelihood of enrollment (Adelman, 2007; Engberg & Wolniak, 2014; Johnson, 2008; Plank & Jordan, 2001). Family income has proven to be a major factor in students arriving on the door step of higher education institutions, with 91% of the students from the top third of the family income range entering, while only 69% of the bottom third enter (Adelman, 2007). Plank and Jordan (2001) found similar trends in the top quartile of students based on family income having 88.5% enroll in higher education within two years of high school completion compared to only 34.9% of the lowest family socioeconomic quartile. Essentially it

was found that students from high income families were as likely to enroll in four year institutions as low income students were to not enroll in any level of higher education (65%). Adelman also found that family income affected the timeliness of postsecondary enrollment, with students from lower socioeconomic statuses more likely to delay their enrollment, which is negatively correlated with college completion. Baum, Ma, and Payea (2010) described similar trends with 55% of high school graduates from the lowest income families (quintiles) enrolled immediately in higher education, while 80% of those from the high-income families made the immediate jump. A longitudinal study that followed a group of eighth graders who met a variety of college-going tasks, such as acquiring minimal qualifications, high school completion and submitting application to higher educations, 81% were enrolled in college within 6 years, but within that population only 10% of students living in low socioeconomic homes were enrolled in the same timeframe (Cabrera & La Nasa, 2001). Similar to individual family SES, the school SES is also related to eventual postsecondary enrollment rates with students from high SES schools more likely to enroll in four-year postsecondary studies than students from low SES schools (Engberg & Wolniak, 2014). In addition to family income, parent education levels had a substantial correlation to student enrollment as well. If parents had a high school diploma or less immediate enrollment following high school in postsecondary studies dropped to 51% and if parents had a bachelor's degree it increased to 86% (Planty et al., 2009).

A multitude of other variables have also been found to relate to student enrollment in higher education to a lesser extent, including many variables based on secondary education as opposed to individual student variables (Dickson, 2011). There is a trend for increased student matriculation from high schools with lower percentages of SAT test takers, although they are not necessarily more likely to persist and graduate (Johnson, 2008). Secondary institutions see

varying trends in subsequent college enrollment based on their available resources (encouraging college visits, assisting with applications, assist with financial aid, college representative contact) and the organization of those resources. For instance, secondary schools that lacked college-going resources saw nearly 40% of their graduates not continue their education and as few as 11% attend four-year institutions, while schools that had significant college-going resources but did not work to distribute them to all students saw an increase of postsecondary enrollment with a strong enrollment in both two-year and four-year institutions, 23% and 41% respectively. The last group of schools, those with resources that were distributed to all students, saw the highest percentage of students enroll in four-year institutions (41%) with some having continued enrollment in two-year institutions (19%) (L. D. Hill, 2008). Engberg and Wolniak (2010) investigated several additional secondary school variables that had positive correlations to student postsecondary enrollment, including higher secondary GPA, higher college aspirations among friends and families of students, and a college-going school culture. The relationship of higher likelihood of enrollment and higher high school academic achievement was also shared by Plank and Jordan (2001). The size and location of school system (Howley, Johnson, Passa, & Uekawa, 2014) as well as parent and peer relationships (Perna & Titus, 2005) are also associated with the likelihood of postsecondary enrollment. Lastly, secondary college-linking programs such as Dual Enrollment and Early College initiatives also have demonstrated an increased likelihood that students will enroll in postsecondary studies (Berger, Adelman, & Cole, 2010).

### 2.1.2 Persistence

Persistence in degree completion is often the forgotten factor in a review of the trends in higher education as they related to matriculation and degree completion. In many ways, true persistence

can be measured as the extent to which students complete their intended degrees; however given the light this area of interest sheds on degree completion, it warrants an independent discussion. Overall, the majority of postsecondary institutions are making efforts to address retention and graduation rates but many are not devoting the necessary resources to fully impact the persistence rates given their high and continued occurrence (College Board Advocacy Policy Center, 2011; J. Lee, et al., 2011).

Persistence of individual student enrollment can be painted in two drastically different portraits depending if it measures individual student persistence at a specific institution or if students are tracked as they move from one institution to the next. The separations of rates in retention are also dependent on the window of enrollment examined, whether retention was looked at after a specific number of credits earned, by academic semesters or by calendar year. There is no standard practice, whether in credits or years, that sets a clear projection toward postsecondary graduation, although most studies explore trends based on a minimum number of credits earned, such as ten, or the equivalent of one year of full time enrollment, approximately 30 credits. A major component of the literature on persistence is the high probability of transferring between institutions, which is commonplace among postsecondary populations.

Rates of postsecondary retention display a disturbing trend of taking the record setting number of students matriculated and turning them into low rates of student persistence. For instance, 9% of high school graduates attend postsecondary studies but never reach a credit threshold as low as 10 credits (Adelman, 2007). Only 77% of full time students who entered four year institutions in 2008 returned in 2009 to the same institution (Aud, et al., 2011). Two year institutions show even lower rates of individual student retention with only 61% of full time students returning a year later. It is important to note the variation of retention rates as they

depend significantly on the selectivity of the institution being studied. Institutions of higher education that are considered to have open enrollment (those that accept close to 100% of applicants) only returned 57% of students while the most highly selective institutions (those that accept less than 25% of applicants) retained 95% of full time students (Aud, et al., 2011).

In addition to persistence rates varying based on the selectivity of the postsecondary institution and on the past secondary performance of the student. According to Adelman (2007) of the students in the top 60% of their high school graduating class in terms of curriculum, grades and test scores, 97% of the group who immediately enrolled in a postsecondary program managed to reach the 10-credit benchmark. This measure significantly outweighed other contributing factors, such as family income or race, which only showed minor differences.

Another component affecting persistence is the extremely high rate in which students are taking remedial coursework. They are not entering higher education prepared for the level of academics expected by the postsecondary institutions. Wirt et al. (2004) says this includes 31% of the students entering college, including 61% of students at two-year institutions and 25% of students at four-year institutions. Chen et al. (2010) found similar rates of remedial coursework with 16.2% of students at four year institutions taking remedial reading and 25.8% taking remedial mathematics courses. Furthermore, postsecondary students at two-year institutions fared even worse with 26.9% taking remedial reading and 38.7% taking remedial mathematics courses.

One of the biggest influences on persistence rates is the occurrence of stopping out. Stopping out, as opposed to dropping out, represents a large portion of postsecondary populations. These are students that leave and later return to their studies either at the same or, many times, at different institutions. In a national sample of students, Adelman (2006) found

that 60% of undergraduate students enrolled in more than one institution. Within that sample of students, men were more likely than female to do stop-out. DesJardins et al. (2002) also found they represented a racial minority, lived close to the postsecondary institution, had a lower grade point average, had higher student loans, and entered with lower ACT scores and high school class rank. Most notable about the population that stop out of their studies is that 40% return to higher education at some point, but 70% of that subgroup drops out again. Akst (2008) referenced the "kiss of death" as stopping out for more than a semester from higher education, which is one of the strongest correlations with not persisting through to graduation.

A trend in postsecondary studies intertwined with persistence is the high rate of transferring between institutions. Postsecondary institutions are witnessing incredible rates of students transferring between institutions during their cumulative studies (Adelman, 1999, 2006). Transferring between institutions is associated with numerous negative outcomes, including lower graduation rates, with the exception of transferring from community colleges (Adelman, 1999). This occurrence is otherwise referred to as purposeful transferring (Akst, 2008). Four year institutions have witnessed a growing trend of students transferring from community colleges with a 10% increase in community college transfers between the late 1990s and the mid-2000s (Adelman, 2006).

In recognition of the high rates of students stopping-out and dropping-out of their studies, nearly all institutions focus on retention rates, generally with a committee or personnel specified to track and address this concern. The vast majority of postsecondary institutions have also established some form of early warning systems to help identify and intervene with students prior to withdrawal (College Board Advocacy Policy Center, 2011).

In a 2011 report on four-year institutions' responses to student persistence issues the College Board Advocacy and Policy Center (2011) identified policies and procedures commonly found within the institutions to address this trend: Many institutions (68%) had a retention program coordinator, 62% had a retention committee who met regularly, and research and assessment on retention was completed by institutions with 82% analyzing retention data annually. A majority of institutions had formal orientation programs designed on building vital relationships for students early during their enrollment. While the majority of institutions had orientation programs, many spanning a year of studies, not all institutions had them or required students to take part. Only 76% reported that at least half of all students participated in an orientation program and the percentage of transfer students were lower among those institutions. The report also found that many institutions have early warning practices, such as the 88% which had an early warning system for drop outs (in many cases mid-term grade reports) and 58% had faculty complete early-alert forms on students likely to depart. In addition, many institutions also relied on faculty/student interaction through attempts to have smaller class sizes for freshman with full-time faculty members teaching them or through advisement and in many cases (69%) required that first year students to meet with advisors at least once per term.

Davidson, Beck and Milligan (2009) reported that many pre-college performance measures, such as high school class rank and test scores, were not as accurate predictors of college persistence as were the perceptions and attitudes of students enrolled in college and measured during their enrollment. In the case of these authors the College Persistence Questionnaire was utilized. This finding is intriguing for many institutions that may either rely on pre-college data reported on high school transcripts to determine which students are at risk for stopping out, or for the many institutions who do not utilize a student questionnaire process.

In a summary discussion on college persistence, Adelman (2006) referenced two overarching themes within the context of student persistence in postsecondary studies. The first is that *when* postsecondary studies happen is more important than *where* they happen. This alludes to the positive relationship of persistence and graduation with timeliness and continuous enrollment. While it appears that where a student attends a program can affect their ability to stay enrolled through graduation, greater value could be placed on students having timely enrollment after high school and maintaining continuous enrollment regardless of transferring. Second, his extensive evaluation focuses on student responsibility. Regardless of the systems in place, students must engage in the process and act out their own desire to take advantage of available resources if they are to persist.

### 2.1.3 Graduation Rates

The rate of degree completion serves as the core motivation to examine these trends. While studying enrollment and retention are important to understanding the full context of higher education, little is relevant unless educators fully engage the staggeringly low rates at which students pursue their studies through to graduation. Adelman (2006) articulates this point best in saying, "It is about completion of academic credentials – the culmination of opportunity, guidance, choice, effort, and commitment" (p. XV). This point is well taken that given the very high rates of enrollment and postsecondary access, those enrollment trends can be detrimental if postsecondary student continue to complete their intended studies at surprising low rates.

There are numerous ways to look at graduation rates. On the surface, of the students attending four-year institutions, only 54% to 58% are completing their degrees (Adelman, 2006). However, without knowing variables such as the years allotted to complete studies, or if figures

are based on institutional data or tracking individual student data across institutions, it is difficult to compare reported graduation rates. In this instance, Adelman was referring to graduates earning a bachelor's degree within six years from the same institution. Length of time given until degree completion is an important factor because only about 39% of graduates are considered timely graduates, meaning they graduate in four years of continuous enrollment, according to DesJardins et al. (2002) and about 33% according to Adelman (2006). While the standard practice appears to be giving undergraduates six years to complete what are generally four-year bachelor's degrees, Adelman (2006) extended that window to 8.5 years and finds that nearly 70% completed their studies.

In addition to Adelman's work, another more recent look at college completion has emerged from The Condition of Education 2014 (Kena, et al., 2014). Kena et al. (2014) reports that 59% of first-time college freshman in bachelor's degree programs who began in the fall of 2006 completed their degree within six years at the same institution. Furthermore, Aud et al. (2011) shows that at two year institutions approximately 27% of students beginning in the fall of 2002 had completed associate's degrees or certification programs within a window of 150% of the designed length of the program.

However, degree completion rates trend in different directions when looking at subgroups or qualifications. For example, in both four-year and two-year institutions graduation rates were higher at private (not-for-profit) institutions than they were at public institutions (Aud, et al., 2011), but Scott, Bailey, and Kienzl (2006) demonstrate that when you control for differences in student characteristics between public and private institutions that public institutions actually have a slightly higher graduation rates. In addition to institution type, there is a 90% graduation rate for students who attend highly selective institutions, which indicates a distinct influence

regarding the selectivity of the chosen postsecondary institutions (Adelman, 1999). Another example from Adelman's (1999) research is that there is a 70% graduation rate among students who earned at least 30 credits during their studies. This is a substantial finding, given that 30 credits is approximately the equivalent to one year of full time study. This indicates that the vast majority of students who fail to complete their intended degrees are lost at some point during their initial year of study. In a similar finding, Akst (2008) established that the most important outcome of the first year in higher education leading to graduation is the completion of at least 20 credits. Therefore, the act of maintaining continuous enrollment not only is associated with persistence, also has a substantial relationship with graduation trends as 88% of students who do not stop out complete their degrees (DesJardins, et al., 2002).

The characteristics of both the institution and the behaviors of the student are significant determinants that influence graduation rates. Beyond enrollment and persistence patterns, as well as types of institutions and institution selectivity, several other factors correlate with graduation. According to Clifford Adelman's original study in 1999 and his follow up study in 2006, the two most important variables for bachelor's degree completion are the academic resources of students coming out of high school and the aforementioned continuous enrollment in higher education. These academic resources coming are defined as both the intensity and the quality of secondary academic curriculum. While this topic is touched on more in-depth later in this review, secondary curriculum and rigor are more predictive of student success than test scores, class rank, and grade point average (Adelman, 1999). This is an essential piece of information for all secondary educators and students to know and understand. Beyond institution type and enrollment patterns, students who reach a certain level of high school academic intensity have a 95% bachelor's degree completion rate (Adelman, 2006).

There is also a trend that students completing remedial reading courses are half as likely to earn a degree or certificate as students not in need of remediation courses (Wirt, et al., 2004). Students who require remedial postsecondary coursework are actually at an advantage by first attending a community college, given that they graduate at higher rates than students needing remediation that go directly to four-year institutions (Alfonso, 2006).

### 2.1.4 Political and Cultural Emphasis

The nation's levels of educational attainment have been and continue to be a focus for the country, as well as a key indicator in comparisons with other leading nations in the world (J. Lee, et al., 2011). A 2011 report on the Condition of Education, the National Center for Educational Statistics reports that the educational attainment of those students in their late twenties has increased. In 1975 only 83% of 25-29 year olds had at least a high school diploma while in 2010 89% of the same age group had a high school diploma, although that percentage has fluctuated between 85-89% since 1980. Likewise, there is an increase in completing a bachelor's degree. In 1975 it was only 22% and in 2010 it went up to 32%. In 2010, 7% of those in their late 20's completed a master's degree (Aud, et al., 2011). In the decade leading up to 2009 the number of associate's degrees earned increased by 41% and bachelor's degrees earned increased by 33%. Aud et al. (2011) has that in 2009 there were 3.2 million people in the United States had a degree in higher education, 787,325 with an associate's degrees, 1,601,368 with a bachelor's degrees, 656,784 holding a master's degree, and 67,700 who had completed their doctoral studies.

In 2009 a report by the Commission on Access, Admission and Success in Higher Education was published by the College Board where they established a goal of having 55% of young adults earn a college degree by 2025. In a follow up report two years later, the

commission was able to report moderate progress on some indicators (J. Lee, et al., 2011). They also show positive progress that indicates lowering counselor to student ratios, increased high school graduation rates, increased quantity of Dual Enrollment programming, lower rates of remedial coursework in college, increased access to college admissions processes through national application systems, and increased grant aid. On the other hand, noted failures to reach the goals of completing higher education include school counselors spending lower percentages of time on postsecondary admissions counseling, only 28% of states have college and career ready assessments and less than a third of states having P-16 longitudinal data systems (J. Lee, et al., 2011). J. Lee et al. (2011) established revised indicators issued in the follow up report to assist in reaching the goal of 55% higher education completion among adults. Those revised indicators are shown in the Table 1.

**Table 1. Revised Indicators for Increased College Degree Completion**

| |
|---|
| Provide a program of voluntary preschool education, universally available to children from low-income families |
| Improve middle and high school college and career counseling |
| Implement the best research-based dropout prevention programs |
| Align the K-12 education system with international standards and college admission expectations |
| Improve teacher quality and focus on recruitment and retention |
| Clarify and simplify the admission process |
| Provide more need-based grant aid while simplifying and making financial aid processes more transparent |
| Keep college affordable |
| Dramatically increase college completion rates |
| Provide postsecondary opportunities as an essential element of adult education programs |

(J. Lee et al., 2011)

According to Lee et al. (2011), even with an increasing interest in attaining postsecondary degrees, the United States only ranks 12th among industrialized nations for young adults that have an associate degree or higher at 41.6%. The United States ranks 5$^{th}$ with 41.1% of all adults having an associate degree or higher. Lee et al. (2011) also ranks each state. Pennsylvania ranks slightly above national norms at 15th among states with 43.4% of young

adults have an associate degree or higher. Postsecondary access remains a primary focus of both federal and state agencies.

Approximately $227.5 billion in federal student aid plus $7.9 billion in state and private aid was distributed for the 2010-2011 academic year (Baum & Payea, 2011). However, the benefits of higher education extend beyond competition in world economics. According to Baum, Ma and Payea (2010) around the age of 33, the average person begins to outweigh the cost of higher education expenses. Since there is a lack of income during these studies, a person will need to determine if it is worth the higher wages associated with advanced degrees. The median earnings of a person with a postsecondary degree is $68,000 annually, while the same earnings for a high school graduate are only $39,000 (Baum & Payea, 2011). The age in which college graduates surpass high school graduates in earnings continues to decrease as the average median wages of college graduates increases faster than those of high school graduates. There is also a widening gap in unemployment rates between those with degrees in higher education and those without. In 2009, only 4.6% of college graduates were unemployed while 9.7% of high school graduates were unemployed (Baum & Payea, 2011).

In terms of lifetime earnings, individuals without a high school diploma earn approximately 71% of a high school graduate. Additionally, those with associate's degrees earn 124% of the lifetime earnings and those with bachelor's degrees are 166% of the lifetime earnings of a high school graduate (Baum, et al., 2010). Overall the authors best summarize their findings related to the benefits of higher education:

> "Education enables people to better adapt to change. It also makes them more likely to take responsibility for their health, to take responsibility for the society in which they live, and to parent in ways that improve the prospects for their own

> children. The evidence is overwhelming that higher education improves people's lives, makes our economy more efficient and contributes to a more equitable society." (Baum, et al., 2010, p. 4)

On a macro level the educational attainment of a group of citizens is used for a point of comparison across nations, while on an individual level there are strong relationships between not only live time earnings, but also other resiliency factors such as adaptability, health, and quality of life.

### 2.1.5 Summarizing Enrollment and Graduation Trends

The overarching trend in higher education is not a shortage of students pursuing postsecondary education. The current challenge surrounds closing the gap between college-going and college-completing populations (Adelman, 2006). While enrollment is increasing and bachelor degree completion rates have been relatively steady, the odds of students still being enrolled after five years (17%) has also increased (Wirt, et al., 2004). Stopping out, as opposed to continuous enrollment, and graduation are in competition with each other (DesJardins, et al., 2002). Little is accomplished by the masses of students who enroll in higher education, accumulate debt, and fail to persist through to graduation. As mentioned earlier, Adelman argues that it is about the culmination of opportunities, choices, and efforts that leads to sufficient academic credentials for postsecondary readiness. Some researchers suggest that it is an important for educational leaders to dually focus on investing in 1) higher education access and degree completion while also refocusing on 2) the quality of high school graduates. Through improved high school curriculum and the increased opportunity-to-learn for student populations, educational leaders can seek to

increase the overall educational attainment of students (Adelman, 1999, 2006; J. Lee, et al., 2011).

## 2.2 VARIABLES INFLUENCING COLLEGE PREPAREDNESS

In 2012 there were 17.8 million students enrolled in undergraduate collegiate studies; Out of those, 66% of all secondary students started immediately following high school graduation (Aud et al., 2012; Kena, et al., 2014). However, there is still a lack of clarity regarding the most effective ways to prepare students to maximize their success in higher education. Unfortunately, as previously stated, while millions of students continue their studies following high school graduation each year, we also know that nearly half of these students will not complete their intended studies within six years of enrollment (Adelman, 2006). Bridgeland and Bruce (2011a) quote a school counselor as saying, "are we preparing them to get into college, or are we preparing them to succeed once they're there?" While high school reform initiatives are ever-changing, there is an increased focus on college and career readiness to propel students into more successful postsecondary outcomes. Postsecondary student success and failure can largely be attributed to their education and experiences as secondary students. Many factors influence the long-term educational outcomes of students, and relevant literature finds that it is important to prepare students in a variety of domains, not just academics. The following investigates those variables as well as the need for secondary institutions to refocus their efforts on preparing students for postsecondary studies and providing the necessary *knowledge for college* to help students succeed beyond postsecondary enrollment to degree completion.

### 2.2.1 Role of Secondary Schools

It was once felt that school context had minimal impact on students' college-going behaviors (Alwin & Otto, 1977); however, secondary education and experiences greatly influence postsecondary enrollment and degree completion (Adelman, 1999, 2006; Cabrera & La Nasa, 2001; Dickson, 2011; Engberg & Wolniak, 2010, 2014; L. D. Hill, 2008; Johnson, 2008; Kirst, 2008; J. Lee, et al., 2011; McDonough, 2006; Plank & Jordan, 2001; Shulruf, Hattie, & Tumen, 2008; Stephan, 2010; Tierney, 2009; Wolniak & Engberg, 2010). The literature on this topic suggests that high schools influence postsecondary outcomes and are increasingly focused on the high schools' ability to graduate students who are adequately college and career ready (Bangser, 2008b; Barton & Coley, 2011; Bridgeland & Bruce, 2011b; Martinez & Klopot, 2005; Partnership for 21st Century Skills, 2011). The body of research on what is known about best-practices and competing models of secondary education as it impacts postsecondary success is still developing.

The overall mission of high school has evolved from a college focused curriculum in the late 1800s where only 10% of student-aged populations were in high school, to a model of multiple tracks for secondary students to select from. Then there was a call for rigor following A Nation at Risk in the 1980s and the standards-based reform movement in the 1990s. Now there is the Common Core Standards movement (Barton & Coley, 2011). The movement for Common Core Standards necessitates high academic standards for all students to be college and career ready upon high school completion. Barton and Coley (2011) argue that the mission of high school is more challenging than ever before, as once it was to prepare students to be successful in college and has since added the element of success in careers. Some find fault in the Common Core Standards' narrow focus on only math and language arts standards (Barton & Coley, 2011).

The definition of college and career readiness itself is a moving target and carries varied descriptions.

In order to say all high school graduates need to be ready for college, what constitutes college readiness still needs to be defined. However, there are very large disparities within states and across the country in terms of college entrance requirements. It is believed that no one secondary curriculum can prepare students for the variety of college expectations across institutions and fields of study (Barton & Coley, 2011). While the Common Core movement is focused largely on mathematics and language arts standards, Conley (2008, 2011, 2013) and others suggest defining College Readiness not just in terms of high school course completion and GPA, but to include other interconnected non-core academic dimensions, such as Cognitive Strategies, Content Knowledge, Academic Behaviors and Contextual Skills. A parallel recommendation is to think of readiness using the four Cs of creativity, critical thinking, communication and collaboration (Partnership for 21st Century Skills, 2011). Both of these sources define college and career readiness beyond academic preparedness. They incorporate a variety of skills and attitudes. These broader definitions generally integrate what I refer to as knowledge of college throughout this study. Students having the necessary *knowledge for college* possess the known components of a strong academic foundation with certain levels of cognitive skills, positive educational attitudes, supportive academic behaviors and skills, postsecondary knowledge of the systems of higher education, and the transition between secondary and postsecondary studies (Dickson, 2011).

While secondary institutions cannot change a student's socioeconomic status or the parents' education levels, they can substantially change the institutional and academic factors that play an essential role in the readiness for postsecondary studies and career paths. Schools

control significant portions of the conditions that lead to higher education, even if they cannot fully control demographics or student choice variables involved in the overall development of students (Adelman, 2007). The variations in postsecondary outcomes based on socioeconomic status and academic achievement can be significantly influenced by high school and family actions (supported by schools) by bringing information into the student's hands. These include college-linking behaviors, exploring financial aid, assistance with forms and processes, planning and discussing continued education, transition guidance, and other contributing aspects of *knowledge for college* (Cabrera & La Nasa, 2001; Engberg & Wolniak, 2014; Plank & Jordan, 2001; Stephan, 2010).

The Partnership for 21st Century Skills (2011) states that more than 2 million jobs go unfilled partially because workers lack the necessary skills. The national unemployment rate hovers near 9%. High school graduates headed for either college or the workforce lack the necessary skills to fill open positions with specific skills. Employers feel that half of high school graduates, and 25% of college graduates, are not prepared with important skills, further contributing to unemployment rates and challenges in filling skilled positions (Partnership for 21st Century Skills, 2011). Given the divide in skills present when students complete secondary studies and the skills expected upon entrance into college or career, only limited progress has been made in the alignment of skills, data management to track these individuals, or accountability systems for schools to measure student success/failure (Kirst, 2008).

A recent review of systemic high school reform initiatives found four practices associated with improved college access and success for underserved student populations: access to a rigorous academic common core curriculum, personalized learning environments for students, balanced academic and social support for students in developing social networks and

relationships, and aligned curriculum between the levels of education in K-12 and to postsecondary studies (Martinez & Klopot, 2005). These practices appropriately reflect the combination of academic skills and knowledge about college systems needed for students to maximize their opportunities to succeed. Similar in nature, but more specific to college and career readiness, Bottoms, Young and Han (2009) identify several similar concepts secondary schools could implement which are effective in assisting students in increasing readiness. These too involve student access to rigorous academic core curriculum (four years of English, four years of math with at least Algebra 2 and a senior math, three years of science, and three years of social studies) and high-quality career/technical courses that do not lose academic focus. Their recommendations also include connecting every student to an adult adviser or mentor who has the time and skills to provide guidance and support.

Lastly, Tierney (2009) also completed an in-depth review of numerous school reform initiatives and identify the practices most important to secondary schools to increase college access. Again there is a duality in the need for academic preparation to be accompanied by social/knowledge about college development. The two primary barriers to improve college enrollment rates are identified as students need to be academically prepared and secondly, students must take the necessary steps to prepare for and enter college. Examples of necessary steps include taking entrance exams, searching colleges, applying for financial aid, submitting applications, and selecting a college. While there is an increased emphasis on the growing definition of College and Career Readiness, only 28% of states have a college and career ready assessment in place (J. Lee, et al., 2011). In general, many students inherently lack adequate guidance in the two domains, increasing the need for secondary schools to help students gain the

necessary academic, social, and cultural skills. High schools are critical to both acquiring academic skills and informing and navigating the college-going process.

### 2.2.2 Projecting Success and Failure

National sampling shows that from looking at eighth grade students, 78% are graduating from high school, while only 53% are progressing on to postsecondary enrollment immediately following high school completion (Adelman, 2006). Of that original population, only 48% persist in their studies on to the second year of postsecondary enrollment and eventually only 35% earn their bachelor's degree within 8.5 years of high school graduation (Adelman, 2006). When looking within the population of students, not all eighth graders have equal opportunity to find success in their continued studies. Among eighth graders, out of those completed the three tasks of acquiring minimal college qualification, graduating from high school and applying to college, 81% enrolled in college. Although, of the same group, only one in 10 students from a low socioeconomic background were enrolled (Cabrera & La Nasa, 2001).

Of substantial significance was if an eighth grader was able to eventually satisfy minimal "college qualifications" during their high school studies. Based on a sample of over 2.6 million eighth graders, only 54% minimally met "college qualifications" by the time of high school graduation. However, from that select group 99.9% graduated high school and 97% enrolled in a postsecondary institution. Cabrera and La Nasa (2001) continue to say of the 46% who did not meet college qualifications, 84% still enroll in some level of postsecondary education. Students with a low socioeconomic status failed to obtain college qualifications at a much higher rate (71%) than students with a high socioeconomic status (30%). Even within the group of low-socioeconomic students who met college qualifications only 66% applied to college, compared

to 88% of high-socioeconomic students. A startling 99% of high-socioeconomic status student's parents had enrolled in higher education compared to only 23% of lowest-socioeconomic students (Cabrera & La Nasa, 2001).

There has been a steady climb in the percentage of students immediately enrolling in higher education following secondary studies, as well as an ongoing divide in enrollment rates based on family income. In 2009, 55% of graduates from low-income families (bottom 20% of all family incomes) immediately enrolled compared to the 84% of high-income (top 20% of family incomes) high school graduates (Aud, et al., 2011). These findings show that college going decisions are dependent upon a number of factors beyond academic preparation, including parental encouragement, student ability, parent/sibling educational attainment, access to information about college and costs, and perceived cost/benefit analysis of college. Cabrera and La Nasa (2001) also teach us that specifically targeting underrepresented student populations and scaffolding them with specific experiences and knowledge helps to close the socioeconomic gap in postsecondary outcomes. It is clear that some student populations need assistance in learning that academics resources are vital (Adelman's opportunity-to-learn), connecting students/parents to college information, economic and social benefits, and financial planning/awareness.

Among high school populations, not all students who plan to attend college, even as late as their senior year, follow through with forming specific plans. While many secondary students report having intentions to pursue postsecondary studies, many students fail to enroll in higher education (Stephan, 2010). Even as high schools assist students in reaching the doorstep of higher education by supporting their development of postsecondary plans to the point of matriculation, Castleman and Page (2005) have found that college-indenting students from low-income families experience higher rates of summer attrition prior to enrollment the following

fall. Students enrolled immediately following high school at a rate of 66% and are eventually joined by older students for a cumulative total of 79% (Adelman, 2007).

High school graduates who are in need of remedial coursework are entering postsecondary studies at alarming rates. At four-year institutions, 16% of the graduates were in enrolled in remedial reading courses, 25% in remedial writing courses, and 26% in remedial mathematics courses. The number is higher at two-year institutions where 27% of high school graduates are in remedial reading, 30% remedial writing, and 39% remedial math course enrollment was necessary (Chen, et al., 2010). Incredibly, over 20% of students who completed pre-calculus in high school still enrolled in remedial mathematics during 4-year postsecondary studies. However, completing a high level of academic work in high school overall resulted in about a 10% less likelihood of completing remedial coursework in postsecondary studies (Chen, et al., 2010). In all, some of the eventual success and failure of postsecondary students is strongly correlated to the factors influencing the secondary studies, including academic preparation, demographic variations, social/cultural experiences and acquired knowledge about college.

### 2.2.3 Variables Affecting Postsecondary Enrollment and Outcomes

One difficulty lies in understanding the complex effects of the variables affecting the postsecondary outcomes of high school students. A number of variables influence a student's postsecondary achievement. These variables are commonly separated into domains to assist in understanding the strength of their relationship to postsecondary outcomes as well as the ability for a secondary institution to influence a student's skills and experiences. One valuable

perspective is to consider what is within the control of secondary schools and what is beyond their control.

We have learned that both school-level characteristics and individual variables are highly influential in student postsecondary success. Dickson (2011) suggests the strongest correlations with enrollment/persistence are demographic (female, white, higher SES), academic (demanding curriculum, college track, test scores, GPA), behavioral (good attendance, not disciplined), school climate (academic rigor, high teacher expectations, focus on learning not performance, college going culture, immediate enrollment), and other variables (parent/peer support, college aspirations, knowledge about financial aid). Other predominate research in this field identifies socioeconomic status, high school grade point average, college aspirations of friends and family, parent contact, parent relationships and peer networks as the strongest factors correlated with postsecondary studies (Engberg & Wolniak, 2010, 2014; Perna & Titus, 2005). For the purpose of this review of literature the variables are distributed into three primary domains: School-Level, Individual, and Demographic.

#### 2.2.3.1 School-Level Variables

School-level characteristics contain a variety of attributes. They include the academic programming offered by a school system, personnel, access to personnel, and the overall school culture that surrounds a secondary student's development. School-level variables have been found to have a stronger influence than individual variables on student college-going behaviors and are among the leading attributes that influence postsecondary outcomes and are within the control of secondary schools (Dickson, 2011; Engberg & Wolniak, 2010).

Student behaviors and outcomes are strongly influenced by what schools do to assist students in navigating the college-going process and how schools are organized (L. D. Hill,

2008). Wolniak and Engberg (2010) share similar findings and state, "the extant literature indicates that college pathways are influenced by high school characteristics, the structure of organizations, social resources based on parental involvement and peer interactions, and networks of secondary and postsecondary institutions" (p. 454). It has also been found that increasing the levels of information, guidance, and certain college-going actions that students receive has a significant and positive association with enrollment (Plank & Jordan, 2001; Stephan, 2010).

The most necessary component with regard to school-level variables is finding the combination of high levels of academic rigor, situated within a college-going culture that offers strong social and academic support. This was the most important predictor of a student's eventual enrollment and completion of postsecondary studies (Martinez & Klopot, 2005). The academic variables, in addition to a school climate, are at the center of school variables (Dickson, 2011). Much of the literature regarding these variables falls back on the core findings of Adelman (Adelman, 1999, 2006, 2007; DesJardins, et al., 2002), which push schools to provide an "Opportunity to Learn." It then couples with a school culture that establishes a climate for high student expectations and the motivation to seize the opportunities provided by the school system. Through this combination of rigor and relevance within the high school curriculum comes the environment where students are most likely to succeed (Bangser, 2008b).

A common thread among the school variables is the role and accessibility of school counselors. A college-going culture is enhanced if counselors have reasonable caseloads, are held accountable for college enrollment and receive college counseling training (Bangser, 2008b). Leaders in school counseling report the following as highly important in influencing graduates to enroll in postsecondary studies: costs of tuition, developing student postsecondary

plans, parent expectations/support and senior grade point average. Second tier influences relate to class rank, entrance exam scores, admissions process, and school personnel expectations (Dickson, 2011). Students' perception of their school counselor influences their likelihood of accessing them for college information. Students at larger schools or schools with fewer school counselors are less likely to access their services (Bryan, Holcomb-McCoy, Moore-Thomas, & Day-Vines, 2009).

Within Conley's four components of college readiness, the college-going culture is immensely important as is guiding students towards academic course sequences that prepare them for college, teach cognitive strategies, and self-management skills in addition to core content, and providing knowledge about college (Conley, 2008, 2011, 2013). In general, beyond academic preparation, school-level variables are centered on students gaining social capital. Depending on their demographic and individual variables, students may have access to these skills and experiences. Otherwise the responsibility to develop social capital becomes a key role of the secondary institutions in helping build a student's opportunity for postsecondary success (Bryan, et al., 2011; Stephan, 2010).

Other school systems and programs have been found to increase postsecondary student access and success, including Dual Enrolment and Early College Programs to help with better attendance in secondary studies, higher scores on assessments, earning college credits, gaining confidence, and having exposure to postsecondary studies (Berger, et al., 2010). Approximately 84% of high schools offer Dual Enrollment programs (J. Lee, et al., 2011; V. Lee & Bell, 2011). Better planning and structure within secondary school systems is needed to further strengthen school-level variables. Only 31% of schools have P-16 (Preschool through College) longitudinal data systems to help track students as they transition from secondary to postsecondary studies.

Likewise, only 28% of the states have a college and career readiness assessment in place (J. Lee, et al., 2011). The lack of P-16 data and integrated systems are examples of the curriculum disconnect between the current levels of high school rigor/readiness and that of college entrance expectations (Adelman, 2006).

Overall, secondary schools need to realign high school graduation requirements with college readiness expectations. Secondary schools must also partially serve the role of a family to share information about college-going and help foster detailed conversations with students surrounding postsecondary planning and how to effectively navigate the surrounding college-going systems (Plank & Jordan, 2001).

#### 2.2.3.2 Individual Variables

The academic intensity within which a student exits high school and enters postsecondary studies is at the center of individual variables (Adelman, 2006; Dickson, 2011). Students who reach a certain level of high school academic intensity have a 95% bachelor's degree completion rate (Adelman, 2006). Chen, Wu and Tasoff (2010) identify high level academic course work as completing four years of English, three years of math with at least one year of Algebra II or higher, three years of science with at least one year of biology or higher, three years of social studies, and two years of a second language. Only 26.8% of students in their study had what was considered a high-level of academic coursework. High school graduates averaged only three and half math credits, with only 72.1% completing Algebra 2 and only 30.1% reaching at least the level of pre-calculus (Chen, et al., 2010). Other primary research findings conclude that high school grade point average (GPA) serves as a better predictor of extended success in college, including graduation, than SAT scores, parent income, or parent education.

Among all individual level variables, math achievement in high school coursework had the strongest correlation to degree completion, with the benchmark of finishing a course beyond Algebra II more than doubling the odds of bachelor degree completion (Adelman, 1999, 2006). Akst (2008, p. 14) states, "a student's high school record, dominated by a high academic intensity curriculum, provides the most significant momentum prior to college entry." Two key curricular benchmarks of secondary education that point students toward postsecondary degree completion are specific math proficiencies (statistics, finite/discrete math, and calculus) as well as reading (complex inference) skills (Akst, 2008).

Adelman (2007) makes several other observations based on individual academic performance during secondary studies. He finds being in the top 60% of the graduating class results in 97% of those students persisting through the completion of at least 10 college credits. The bottom third of students based on income-level did not attend postsecondary studies and showed 67% were reading below the level of simple inference as high school seniors and 71% never reached Algebra II. Given the strong trends in low secondary academic performance that results in either no postsecondary enrollment or poor postsecondary performance, Adelman concludes that school systems are not going to see a substantial improvement from students in the lower academic ranks of graduation classes without a substantial change in their academic preparation.

#### 2.2.3.3 Demographic Variables

Among the relationships between demographic variables and student postsecondary outcomes is the awareness that within this domain there is very little that secondary schools can do to influence postsecondary outcomes or these preceding variables. It is within a school's control to assist with the flow of information to and from student populations and it is within this domain

that student populations are most in need of the positive influences of secondary schools to help compensate for what is lost or gained based on their demographic dispositions.

Among the numerous demographic variables, few are talked about and studied more fully than socioeconomic status. It is well established in the literature that the lower a student's family income, the lower the likelihood they will find success in reaching and/or completing higher education. Looking at access to higher education alone, a family's income is a major factor with 91% of the students from the top third of the family income entering postsecondary studies and only 69% of the bottom third entering higher education institutions. Lower-income students were also more likely to delay starting their postsecondary studies than other income groups (Adelman, 2007). Similarly, lower income is associated with a lower freshmen grade point average (Wolniak & Engberg, 2010).

In 2009, 19% of school aged children lived in families of poverty, which provides for a very large subset of the student population with limited access to college-going information and resources without adequate school systems in place (Aud, et al., 2011). Another issue is that 71% of low socioeconomic status (SES) students failed to obtain college-entry qualifications, compared to only 30% of high SES students (Cabrera & La Nasa, 2001). Even within the group of low-SES students who met college qualifications only 66% applied to college, compared to 88% of high-SES group. Cabrera and La Nasa (2001) further point out that to access college information these students come from families where only 23% of their parents have been enrolled in higher education, while 99% of high-SES students' parents have been enrolled in higher education at some point.

Plank and Jordan (2001) found similar trends as Adelman, in that students from higher SES were more likely than lower SES to enroll based on 88.5% of the top quartile of SES enroll

in two-year or four-year institutions compared to 34.9% of the lowest quartile of SES students. Four-year institutions alone had a 65.4% to 12.9% divide. Other demographic variables are also associated with high enrollment rates, such as higher parental education levels and higher parental involvement in secondary studies (Wolniak & Engberg, 2010), specific parenting practices and relationships with their children (N. Hill & Wang, 2015; Perna & Titus, 2005), and the location of the secondary school the student was enrolled in (Howley, et al., 2014). However, parent income and education have less of a correlation with extended postsecondary success, including college completion, than both high school GPA and SAT scores. So, variables within student and school control are more influential than those beyond its control (Geiser, 2007). Low income and other at-risk groups are more likely to enroll if they have access to quality high school programs and school counselors that address their lack of social capital for transitioning to postsecondary studies (Bryan, et al., 2011; Stephan, 2010).

In summary, the quality of secondary curriculum and the rigor of academics completed are a larger factor in postsecondary degree completion than test scores, class rank, GPA and other individual and demographic variables (Adelman, 1999). Two of the most important variables in completing a bachelor degree are academic resources out of high school (intensity and quality of secondary curriculum) and the continuous enrollment in higher education (Adelman, 1999, 2006; Akst, 2008). If secondary schools can consistently provide all students with information and guidance that rivals that provided to the most affluent student groups, the association between demographic variables and postsecondary achievement could be weakened or removed altogether (Plank & Jordan, 2001; Stephan, 2010). As outlined in Cabrera and Nasa (2001), college going decisions are highly dependent upon parental encouragement, student ability, high school preparation, parent/sibling educational attainment, access to information

about college and costs, and perceived cost/benefit analysis of college. Specifically targeting lower SES students and scaffolding them with specific experiences and knowledge closes the SES gap. Students need to have supplemental academic resources that are vital (Adelman's opportunity-to-learn), connected to colleges and programs, educated on economic and social benefits, and explained financial planning/awareness.

Therefore, recommendations for future effective reform include fully implementing the Common Core and College Readiness Standards, advanced math coursework, eliminating non-rigorous course sequences, developing supportive relationships for students, K-12 and postsecondary collaboration/alignment, and building more informed student populations surrounding college requirements, admissions and costs (Martinez & Klopot, 2005). Someone needs to assist students in gaining the necessary knowledge to be successful, support them during the planning and transitioning, and monitor their progress. In some families this may be the parents, but in many cases, it needs to be a school counselor or another school-based mentor.

### 2.2.4 Refocusing Secondary Institutions on College-Linking Behaviors

The two areas where secondary schools most commonly fail to provide necessary support for successful student transitions between secondary and postsecondary studies are in the realms of P-16 alignment (Bangser, 2008a; Kirst, 2008; Kirst & Venezia, 2001; Martinez & Klopot, 2005) and on providing quality *knowledge for college* to compliment academic preparation (Bangser, 2008a; Bryan, et al., 2009; Cabrera & La Nasa, 2001; Conley, 2011; L. D. Hill, 2008; V. Lee & Bell, 2011; Stephan, 2010). Both are closely related to College and Career Readiness depending on how the concept is defined and both demonstrate a need for students to gather information and skills vital to successful outcomes.

### 2.2.5 P-16 Alignment

A detailed look at The College Completion Agenda shows the movement for P-16 efforts to increase college completion (J. Lee, et al., 2011). Building a foundation is important to postsecondary planning and starting to plan in at least middle school is supported in the literature (McDonough, 2006; Tierney, 2009). P-16 councils are growing in popularity and currently exist in as many as 37 states (Kirst, 2008), yet only approximately a third of states have College and Career Readiness assessments or P-16 longitudinal data systems (J. Lee, et al., 2011). New assessment measures to evaluate college and career readiness are needed to evaluate student awareness of their preparation for college and assist them in overcoming deficiencies as they are identified (Tierney, 2009). Tierney refers to this as a culture of evidence and progress toward college readiness that is openly shared with students and parents.

A renewed focus on secondary programs, such as Dual Enrollment, and other college-linking behaviors are important bridges to student success commonly overlooked during an emphasis on math and language arts standards (Berger, et al., 2010). As part of the P-16 alignment, schools or states need to further develop student data systems and track students beyond high school graduation in order to hold secondary institutions accountable for such performances (Bangser, 2008b; Kirst, 2008). Allison Dickson (2011) outlines, but does not operationalize, a readiness checklist to first include a strong cognitive base in core academic areas, followed by positive educational attitudes that include commitment, engagement, motivation, perseverance and optimism towards education. She further suggests that there needs to be supportive academic behaviors and skills like work ethic, time management, academic self-awareness, stress management, and study skills. Finally she recommends having postsecondary knowledge which is a comprehensive understanding of the structure of the postsecondary

system, how to get into college, and the college culture. Secondary school programming and interventions for college readiness take on a variety of behaviors. A few avenues that these can be addressed through are college advising/counseling, college admissions counseling, financial aid counseling, attendance enhancement policies, test preparation courses, dual credit programs, postsecondary partnerships, and career exploration/planning are addressed (Dickson, 2011).

### 2.2.6 Knowledge for College

The level of *knowledge for college* that a secondary student possesses is essential to building momentum for college entry and completion. Within the numerous components of college and career readiness are critical areas of knowledge to build informed consumers of higher education and assist students in navigating a complex web of postsecondary preparation, admissions, financial aid, enrollment and degree progress. While many of the core academic skills and experiences (Adelman, 1999, 2006, 2007; Akst, 2008; Chen, et al., 2010; Dickson, 2011) and demographic variables (Cabrera & La Nasa, 2001; Dickson, 2011; Engberg & Wolniak, 2014; Plank & Jordan, 2001; Wolniak & Engberg, 2010) are known to influence college-going behaviors, there is also evidence to support that high schools also have a profound impact on student development of knowledge about going to college (Adelman, 1999; Bangser, 2008b; Bottoms, et al., 2009; Bryan, et al., 2009; Conley, 2011, 2013; Dickson, 2011; Engberg & Wolniak, 2010, 2014; L. D. Hill, 2008; J. Lee, et al., 2011; V. Lee & Bell, 2011; Martinez & Klopot, 2005; McDonough, 2006; Partnership for 21st Century Skills, 2011; Plank & Jordan, 2001; Stephan, 2010; Tierney, 2009).

Bestowing information about college requirements and costs into the minds of students and their families is a recommended component of future high school reform initiatives designed

to increase college access and success (Martinez & Klopot, 2005; Tierney, 2009). Plank and Jordan (2001) and Stephan (2010) identify the differences between postsecondary enrollment among students of varying levels of socio-economic status and academic achievement can be significantly influenced by high school and family actions that bring information into the students' hands. Some of the information includes increasing the frequency of postsecondary exposure, exploring financial aid, and assistance with forms and processes that lead to more effective transitions from high school. While also addressing the essential cognitive abilities, content knowledge or academic behaviors, Conley (2011) discusses the concept of *knowledge for college* through a discussion on "Contextual Skills and Awareness," which encompasses the systems and culture that higher education operates. These include admissions, leveled degrees of study, tuition, financial aid, rigor and expectations. Later Conley further articulates this key area of college readiness in what he calls "Key Transition Knowledge and Skills" (Conley, 2013). Within his framework, the six components of this area include role and identity, self-advocacy, postsecondary awareness, postsecondary costs, matriculation, and career awareness.

Similarly, Dickson (2011) includes "Postsecondary Knowledge" as one of her four components of college readiness. It is defined as a thorough understanding of the postsecondary system that includes the structure, admissions and the unique postsecondary culture. In addition, Tierney (2009) includes as many reform recommendations surrounding steps for college entry as he does surrounding academic components. Understanding the various influences of a school system in student postsecondary planning is challenging to categorize. In many ways, all of the actions of a K-12 school system prepare or fail to prepare students for higher education. Hill (2008) explains that by helping to link students to colleges has an impact on their eventual postsecondary transitions through the high school's organizational characteristics and structures.

By specifically targeting students with lower socio-economic statuses and scaffolding them with experiences and knowledge, the gap in college knowledge will close (L. D. Hill, 2008). Students with less inherent *knowledge for college* need supplemental support such as connecting students to adults with college degrees, knowledge of the economic and social benefits of higher education, and financial awareness (Cabrera & La Nasa, 2001; Stephan, 2010; Tierney, 2009).

*Knowledge for college* is often situated within the context of a secondary school's culture. In cases where there is a strong college-going culture in place, it may be less necessary for school counselors to specifically share this information with students because it is embedded in a school-wide culture. Within a healthy college-going culture there is an understanding that college can be for all students and the pathways, academics, learning habits, necessary course selection patterns, financial literacy, application planning and college selection are already embedded in the secondary system (Cabrera & La Nasa, 2001; Conley, 2011; V. Lee & Bell, 2011; Tierney, 2009).

The importance of *knowledge for college* is based on the notion that for students to be more successful in postsecondary studies if they first become informed consumers of college-going information as secondary students; however, this area of knowledge is broad and diverse. Cabrera and La Nasa (2001) show pathways to college where 81% of eighth graders who acquired minimal college qualifications, graduated from high school and applied to college enroll within six years. This knowledge varies greatly from understanding the structure of postsecondary studies, to accessing resources during the application process, to selecting and financing higher education, and also understanding important shifts in students' expectations and school cultures in continued studies. Students must also understand the importance of taking and passing early courses and gatekeeper courses, such as Algebra 1 (Bangser, 2008a; Cabrera & La

Nasa, 2001) and in obtaining other academic skill sets, such as complex reference skills in reading (Akst, 2008). Informed consumers of higher education should value the knowledge surrounding postsecondary rates of remediation. Whereas 20-30% of students take remedial courses in college. Of those being remediated, only 26.8% of students take high-level academic course work in high school (Kirst, 2008).

Simply knowing the benefits of higher education is a starting point with a diverse population of students who may not want to continue their education. Educating students on the difference in earnings potential is frequently a high interest point for secondary populations (Baum, et al., 2010). While fears about the cost of financing postsecondary studies deter student expectations, studies have found that young adults with a bachelor's degree earned more than twice as much as individuals without a high school diploma and 50% more than diploma holders (Aud, et al., 2011). As discussed earlier, further information about the positive timing of continued studies and the negative relationship with delayed entry is valuable to students and families as well (Akst, 2008). Within a comprehensive school counseling program, the communication of this information to students and parents is essential (Tierney, 2009).

Another difficult aspect is the knowledge to navigate the financial aid systems. How to make application, the difference in types of aid, funding sources, borrowing expectations, and trends in aid constitutes a significant focus within the desired *knowledge for college* (Baum & Payea, 2011). Information about the availability of aid, such as full time undergraduates receiving an average of $12,455 in financial aid and $6,539 in grant aid, is important for those overwhelmed by the "sticker price" of college tuition (Baum & Payea, 2011). While state funding for public higher education institutions is rapidly declining (Tandberg, 2010), there are also 10.3 million postsecondary students receiving Stafford loans and 9.1 million receiving Pell

Grants (Baum & Payea, 2011). Baum and Payea (2011) report that in the last decade total federal grants are up 249% and federal loans are up 139%.

The total funds used to finance postsecondary expenses have risen in the last 10 years from $104 billion to $235 billion. Over 40% of all undergraduate student aid is now comprised of loans. In 2009-2010, 55% of public four-year college graduates had debt, with an average of $22,000. The number of graduates from private institutions with debt is larger at 66% with an average of $28,100 (Baum & Payea, 2011). Again, knowing important information such as anticipated student aid and potential student debt, as well as the non-financial benefits of continuing an education, are valuable for families and students to make informed decisions about postsecondary plans.

Overall, the concept of *knowledge for college* takes what is known about the effective transition of students from secondary to postsecondary studies and helps to communicate that information to students and parents. This knowledge includes, but is not limited to, an awareness of labor and education trends, effective secondary academic preparation, social and cultural attitudes, and the fundamental knowledge of processes surrounding college admissions, financial aid and degree completion.

### 2.2.7 Summarizing College Preparedness Variables

College-going decisions are based on a multitude of factors from a range of influences including demographic, individual and school variables. However, specifically targeting student needs in *knowledge for college* and ensuring that every student has access to an appropriate college-preparatory courses can greatly compensate for other inherit risks. High schools can be viewed as having two key components. The first is the capacity that includes resources, structure, and

awareness. The second is the commitment of norms, systems, and desire. Schools need to have the capacity to promote improved postsecondary outcomes and also the desire and systems to distribute those resources evenly among student populations (L. D. Hill, 2008). To be truly effective, secondary schools need to move beyond providing rigorous academic curriculum opportunities to students and move towards a culture that encourages students to participate fully in the opportunities to learn and helps them navigate the complex web of higher education and the transition from high school. It is important to prepare students in a variety of domains, not just academics.

Patricia McDonough (2006) embodies the convergence of academics with *knowledge for college* in her four recommendations for a school to effectively prepare students for postsecondary studies. These four include a college preparatory curriculum, a college-going culture that establishes high expectations and communicates those with students, personnel committed to the previous recommendations, and resources to counsel and advise college-bound students. Access and contact with school counselors is believed to be a vital component of the effective school system. Counselors and other mentors can address the gaps in social capital for students to increase their likelihood of postsecondary enrollment and success (Bryan, et al., 2011). Beyond counselors, the schools' environment has a powerful influence on a student's college aspirations and transition.

## 2.3 SCHOOL COUNSELORS AND STUDENT POSTSECONDARY OUTCOMES

Like all school personnel, school counselors work within a larger K-12 context and at times struggle to fully prepare many students for postsecondary success (Bangser, 2008a; Barton &

Coley, 2011; Bridgeland & Bruce, 2011b; Martinez & Klopot, 2005). There are high rates at which former secondary students enroll in higher education and eventually withdraw prior to graduation. Because of this, there is a blame placed on the institutions of higher education, but also the secondary schools that prepare, or fail to prepare, students for their continued studies. Within the literature there are many concerns with K-12 preparation for postsecondary studies, including the gap between secondary and postsecondary studies, the overall academic and cultural preparation of secondary students, a void in the necessary knowledge needed for success in colleges and, most relevant to the following pages, the profession of school counseling as a bridge builder between secondary and postsecondary studies. Bridgeland and Bruce (2011b) indicate, "the high school and college completion crisis means that there is a chasm between the hopes of many students and the futures they likely face" (p. 34). The divide between student hopes and the reality of the college completion crisis demands more efficient and effective involvement by secondary schools and school counselors.

At the center of college and career readiness in K-12 education are over 280,000 school counselors (School and Career Counselors, 2012-2013). School counselors provide highly unique and underutilized contributions to school systems as they prepare students and gathering the necessary knowledge needed for the transition from high school to higher education and success upon arrival. Patricia McDonough (2006) explicitly states in her report *Counseling and College Counseling in America's High Schools* that "no profession is more important to improving college enrollments than counselors" (p. 2). When counselors are consistently and frequently available to provide services to students and families, they can have a positive effect on student aspirations, achievements and the general knowledge needed to succeed (Barton &

Coley, 2011; Bridgeland & Bruce, 2011a; Bryan, et al., 2009; Bryan, et al., 2011; McDonough, 2006; Stephan, 2010).

Although school counselors are in a position to have a positive impact on student educational outcomes, often school counselors' responsibilities and roles are not clearly defined, which prevent them from properly supporting students in specific areas correlated with postsecondary outcomes (Barton & Coley, 2011; Bridgeland & Bruce, 2011b; Bryan, et al., 2009; Gewertz, 2011; Stephan, 2010). School counselors and comprehensive school counseling programs play an essential role in "ensuring students know what will be expected of them in college and in the workforce and provide a link between high school and the world at large for students" (Partnership for 21st Century Skills, 2011). While teachers and families have an undeniable impact on the overall education of students, it is also likely that no other single profession has as profound of an impact on improving students' knowledge about college than school counseling (Barton & Coley, 2011; Bryan, et al., 2011; McDonough, 2006); however, some counselors have called to question whether the school system within which they work is preparing students to not only get into college but also prepare students to succeed once they get there (Bridgeland & Bruce, 2011a). Even when secondary schools identify preparing students for higher education as primary goal, schools are often only evaluated based on their ability to get students to the doorstep of colleges, not necessarily the through completion of postsecondary studies. Many school systems advertise college-going rates of district alumni, but few follow their graduates through to degree completion.

In addition to school counseling's status as a profession that lacks a solidified and clear role in the development of students, other primary concerns include a lack of proper training, high counselor to student ratios and blurred responsibilities (Bridgeland & Bruce, 2011b; Bryan,

et al., 2011). Moreover, I believe that there is a need for school counselors to be key players in assisting students in obtaining a larger amount of *knowledge for college* in order to maximize student success in not only entry into higher education but in degree persistence and eventual degree completion.

### 2.3.1 Professional School Counseling

Historically, school counseling has been a profession with an evolving identity (Schimmel, 2008). From vocational counselors, to guidance counselors, to comprehensive services and the National Model for School Counseling, today's school counselors have an expanded role. More than ever before, school counselors are taking an active role in areas such as school improvement, promoting student achievement, mental health counseling, assessment, career education and work standards, and modeling school counseling program initiatives. While many teachers are focused more directly on specific content areas and administrators are focused on the functionality of the school system and performance on school and district indicators, counselors possess a unique perspective in secondary school systems which allows them to see the overarching goals of graduating students who are college and career ready (Barton & Coley, 2011; Bridgeland & Bruce, 2011a, 2011b).

Bridgeland and Bruce (2011a) report that more than eight in ten school counselors felt that a top mission of their schools should be to ensure that students complete secondary studies ready to succeed in college and careers. However, preparing students to be college and career ready is not always a top focus or a core mission of school districts. While exceptionally high numbers of counselors feel that essential priorities of their districts should be providing access to a high quality education and assuring that they graduate college and career ready, only four out

of 10 felt their schools had those same priorities in place (Gewertz, 2011). There is a large gap in the perception of school counselors about their actual schools and their ideal schools as it relates to college and career readiness (Bridgeland & Bruce, 2011a).

Christine Schimmel's (2008) history of the profession also acknowledges other political and cultural influences that have further molded the profession into its current state, including the School-to-Work Opportunities Act in 1994, the Elementary School Counseling Demonstration Act of 1995, the 2003 Transforming School Counseling Initiative and most recently the National Model for School Counseling. Across the nation, 36 states currently have comprehensive school counseling programs in place and the growth of professional organizations such as the American School Counselors Association have provided increasing structure and guidance to a profession with a previously unclear mission and focus (Bridgeland & Bruce, 2011b).

Beyond broadly defined roles of school counselors and changing national agendas, a primary barrier has been counselor to student ratios. As of 2008 the average student to counselor ratio was 457:1. This is steadily down from 506:1 in 1998 (J. Lee, et al., 2011). Pennsylvania has stayed well below national averages with a 396:1 ratio. Even with slowly declining ratios, having 400-500 students per counselor is largely ineffective for the type of services needed to help students become more successful (Bridgeland & Bruce, 2011a; Gewertz, 2011). Among high schools with exceptionally high college-going rates (90%+) the average counselor caseload is only 276. Among high schools with the lowest college-going rates (<60%) the average caseload is 393 (Bridgeland & Bruce, 2011a). Although this relationship between counselor caseloads and college-going behaviors could be explained through a number of factors including

community demographics, school academic and individual student factors, the impact of lower school counselor to student ratios remains a noteworthy correlation to college-going rates.

### 2.3.2 School Counselor Preparation

School counselors play a vital role in promoting postsecondary readiness, making it necessary to look at the training and preparation programs in place that lend themselves to assist counselors in this professional capacity. With increasing frequency over the last decade, school counseling, as well as counselor education programs, has begun to better reflect the overarching national education movements, whereas historically the field of counseling was disjointed from educational movements (Perusse & Goodnough, 2005; Schimmel, 2008). From my own experience as a former school counselor, and also supported in the literature, school counselor preparatory programs are not aligned with the current or desired professional responsibilities and are generally geared toward mental health counseling and non-academic or college/career counseling (Bridgeland & Bruce, 2011a; McDonough, 2006).

Throughout this misalignment, professional school counselors are prepared in a similar fashion to other counselors yet they work in a school setting and within an educational climate (Bridgeland & Bruce, 2011b; Gewertz, 2011; Perusse & Goodnough, 2005). Given the common overlap between school counselor and community counselor education programs, school counselors tend to be trained and utilized more for the personal/emotional counseling domains than for academic/career counseling components. Counselor education programs do not necessarily provide all the training necessary, specifically to meet the needs of American School Counselor Association's (ASCA) model programs, including the use of data, advocating effective use of counselors to stakeholders and effecting school wide change (Perusse &

Goodnough, 2005). In fact, only 16% of counselors rate their training as "highly effective" (Gewertz, 2011), and 28% of counselors do not feel that their training prepared them for the work they do (Bridgeland & Bruce, 2011a).

At the center for school counselors' training is a focus on counseling techniques, group counseling, crisis management and child development (Gewertz, 2011). In many counselor education programs, the division between counselors bound for roles as community based counselors have significant overlap with school counselors, better preparing the school counselors for what becomes only a small portion of their roles within the school setting. Gewertz (2011) articulates this in stating that programs "are stronger at preparing counselors for their roles as personal and emotional supports to students than they are for their work helping students plan for college and careers" (p. 2). While there is minimal separation in their formal education to become counselors, community and school counselors' roles vary greatly including the need for college and career counseling in schools.

McDonough (2006) argues that when counselors are consistently and frequently available to provide services to families, they can have a positive effect on student aspirations, achievements and financial aid knowledge. Financial aid and postsecondary planning are areas that school counselors report some of the greatest disparity in preparation and knowledge compared to professional responsibilities. Yet, it is a vital aspect to a student's knowledge development for continued studies (Bridgeland & Bruce, 2011b; McDonough, 2006). While administrators and teachers state a preference for counselors with teaching experience, fewer states require teaching experience for school counselors. Research findings shows that they are satisfied equally with those with teaching backgrounds as those without (Stein & DeBerard, 2010). This makes logical sense to many practitioners as the professional responsibilities of

school counselors are less dependent on classrooms and large group instruction as they are on a background strong in postsecondary studies and financial aid awareness.

Perusse and Goodnough (2005) assembled 24 content areas that are commonly part of counselor education programs from five sources: CACREP Standards, Hollies (2000), Perusse, Goodnough and Noel (2001), Sisson and Bullis (1992), and results from their review of literature. The 24 identified graduate-level course content areas for school counselors are shown in the Table 2.

**Table 2. Course Content Areas for School Counselor Preparation**

| | |
|---|---|
| Assessment Techniques | Legal/Ethical Issues |
| Case Management of Student Progress | Multicultural Counseling |
| Career Development | Parent Education |
| Play Therapy | Program Evaluation/Development |
| Classroom Guidance Curriculum | Psychopathology/DSM-IV/Diagnosis |
| Computer and Related Technology | Public Relations |
| Consultation w/ Parents and Teachers | School Law |
| Coordination between Teachers/Parents/Community | Small Group Counseling |
| Couple/Family Counseling | Special Education |
| Curriculum and Instruction | Theories in Counseling |
| Drug and Alcohol Abuse | Understanding Child Growth/Development |
| Individual Counseling | Writing/Research/Grant Proposals |

(Perusse and Goodnough, 2005)

Among these content areas, both elementary and secondary counselors prioritize the same top counselor education preparatory courses (Individual Counseling, Small Group Counseling, Consultation with Parents/Teachers, Child Growth and Development, Legal/Ethical Issues in Counseling). Both groups also had four of the five lowest courses in common (Psychopathology/DSM-IV/Diagnosis, Couple and Family counseling, Curriculum and Instruction, Writing/Research/Grant Proposals). It should be noted that in Perusse and Goodnough's (2005) 24 identified counselor education course content areas, only "career education" is directly related to a focus on the role of school counselors as it relates to postsecondary outcomes beyond personal/social domains. One could argue that "coordination

between teachers, parents community" and "parent education" could also be loosely associated with postsecondary planning. On the surface, if the above 24 content areas serve as the primary grounds for school counselor education, it becomes easier to justify the argument that there is a misalignment between counselor education and professional responsibilities.

### 2.3.3 School Counselor Utilization

Similar to counselor preparation, there is also a divide between the types of tasks that many school counselors perform regularly and those that are considered effective uses of school counselor time for the postsecondary success for their students. As Bridgeland and Bruce (2011b) indicate, the profession is marked by high counselor-to-student ratios and unclear responsibilities. Because of this, counselors are also spending less time on postsecondary admissions (J. Lee, et al., 2011), and they are, in many ways, limited in their ability to communicate financial aid information to students and families (Bryan, et al., 2009; McDonough & Calderone, 2006). School counselors are frequently pulled in the direction of psychological development, testing, administrative support, and personal counseling needs. Time for working with students on their *knowledge for college* is in opposition with these as well as mental health roles, social skills interventions, bullying and anti-violence, general welfare, and family/community outreach among other non-academic roles (Bridgeland & Bruce, 2011b). The poorly defined mission and unclear responsibilities of school counselors are strongly reflected in counselor utilization in schools as counselors' job responsibilities are saturated with administrative responsibilities, not academic/career objectives (Barton & Coley, 2011; Bridgeland & Bruce, 2011a; Gewertz, 2011). In general, school counselors are stretched too thin

to perform the necessary role needed to move students toward higher rates of college and career readiness as they are overburdened with administrative, testing and other responsibilities.

Bridgeland and Bruce's (2011a) national survey of school counselors reported that 75% of secondary counselors would like to spend more time promoting student career counseling and exploration. Also, 87% of high school counselors would like to spend more time building a college-going culture. Likewise, approximately two-thirds of counselors reported spending too much time on administrative tasks such as test administration and building school schedules. Nearly half of all the counselors who participated in a national survey reported wanting more time to help students navigate college application/financial aid processes, and 95% of counselors wanted more time, support and empowerment to give students what they need for college. Many school counselors (65%) also supported data collection and dissemination on high school graduate career and college success. Incredibly, only 78% of public school counselors reported they are focused on college counseling (Bridgeland & Bruce, 2011a).

In addition to high counselors-to-student ratios being a barrier to the students effectively transitioning from secondary to postsecondary studies, the traditional model of school counselor, where students come to address questions and concerns to school counselors, is not particularly effective to bridging the secondary to postsecondary gaps. Many students, including disadvantaged populations, benefit from a proactive approach from counselors in helping student gain social capital surrounding higher education (Bryan, et al., 2011; Stephan, 2010). Many students are not comfortable or do not know how to seek out the information related to college knowledge, so effective counseling programs must take a proactive approach.

School counselors from larger schools, or schools with higher ratios of school counselors to students, are known to have less contact with students related to college information than other

schools (Bryan, et al., 2009; Bryan, et al., 2011). Within all schools there exist variations regarding how resources are shared with students. They focus on career exploration and readiness, college application processes, financial aid and planning and general academic success in school. In many instances counselor caseloads are too heavy to support significant direct student contact. Based on combined findings from other studies, McDonough (2006) calculates that school counselors spend an average of only 38 minutes per year on each student for college counseling. "Although 9 out of 10 students feel their counselor is knowledgeable about college they report not getting the assistance they need from counselors," found McDonough (2006, p. 17). Even if considered knowledgeable and able to communicate that with their students, 38 minutes per student per year is not enough time to fully inform students regarding the wealth of postsecondary information. Many school counselors resort to large group programs to disseminate information and to work with their students and families, but eventually individual student planning and intervention is necessary when working with students.

In addition to their role as child advocates, school counselors carry an additional responsibility, serving as gatekeepers to college and career information and opportunities (Bridgeland & Bruce, 2011b; Bryan, et al., 2011; McDonough & Calderone, 2006; Stephan, 2010; Tierney, 2009). Fostering the concept of a college-going culture is enhanced if counselors have reasonable caseloads and are held accountable for sharing *knowledge for college.* Also it is important to have adequate college counseling training (Bangser, 2008a). In an earlier section, Adelman's (1999) concept of opportunity-to-learn applies equally well to school counselors as it does other education professionals. One of his key arguments is that once student demographics and home circumstances were the primary determinants of student outcomes (Coleman, 1966), but now it is most important for all students to have the opportunity to learn. He defines this as

access to rigorous curriculum and academic intensity. This concept transfers to college knowledge and giving students access to the information and resources needed to understand and successfully navigate the college going and graduation processes.

Through models such as the National Office for School Counselor Advocacy's Eight Components for College and Career Readiness Counseling, school counselors are able to implement comprehensive programs that fully meet the needs of college bound populations (V. Lee & Bell, 2011). Looking into the components of counseling students toward college and career readiness, Lee and Bell (2011) identify many attributes. These include 1) College Aspirations, which are essentially establishing a college going culture and a message that continuing education is for all students and also linking academic performance and habits of learners to meeting career goals. Guiding programs of study that lead to college readiness and working to integrate college and career information into the curriculum are also components of College Aspirations. 2) Academic Planning for College and Career Readiness to develop the specific individual pathways to postsecondary access. This not only requires a deep understanding of postsecondary requirements and expectations but also understanding how high school course taking and achievement lend themselves to readiness. 3) Enrichment and Extracurricular Engagement which serve the primary purpose of fostering leadership skills and building engagement with education and the school system. These can also benefit student development in teaching time management and organizational skills. 4) College and Career Exploration and Selection Process through providing early and ongoing exposure to information that leads to informed decisions. Similar to pathways to postsecondary access, this also requires long-term planning and helping students understand the connections between secondary education, postsecondary education and eventual career acquisition. 5) College and Career

Assessments such as the PSATs and SATSs that include an overall awareness of exams and the purpose of taking various exams. 6) College Affordability Planning which educates students on college costs, financial aid, Free Application for Federal Student Aid (FAFSA) and other applications, as well as the short and long term benefits of college planning. 7) College and Career Admission Processes which in many schools is the only active component of current counselor programming. 8) Transition from HS Graduation to College Enrollment planning, which fosters the transition where many students are lost between graduation and college matriculation. This eighth attribute is unique to most models of college and career readiness, because it addresses concerns surrounding the summer melt, as defined by Castleman and Page (2014). Similar to the findings above, Tierney (2009) also outlines five core recommendations for secondary schools to increase postsecondary access for students, which include academic recommendations, college aspirations and expectations, as well as steps for college entry.

In addition to training and the adequate distribution of resources, it is also essential that schools and school counselors value the importance of early and ongoing counseling for students and their families to share information about college costs, financing options, and courses required for college admission. Many schools are known to wait to disseminate this information until late in a student's K-12 education (Bangser, 2008a; Bryan, et al., 2009; V. Lee & Bell, 2011). School counselors and districts can establish the college-going culture and early planning through a variety of means, but regardless of the avenues pursued, school, college and student relationships must be forged. Many schools facilitate this process through college/career fairs, visits, tours, information sessions, credit-based transitions programs such as Dual Enrollment, financial aid planning, and individual and group counseling sessions (Bridgeland & Bruce, 2011b; Conley, 2008; Martinez & Klopot, 2005). Some also believe that a necessary component

of a successful program is to have every student meet annually to review their program of study planning, career planning, job shadowing in a career field, college selection and engaging with mentors (Bottoms, et al., 2009). The environment must be a balance of the information provided, a culture supporting college attendance and the foundations of academic opportunity and achievement. Lori Hill (2008) states that, "what schools do to help students navigate the college-linking process makes a difference for postsecondary educational outcomes" (p. 66). In reforming the ways that school counselors spend their time and how they are utilized could have a substantial impact on their ability to influence secondary school's overall development of college ready graduates. Unfortunately, with all of the national focus on reform K-12 education and developing Common Core State Standards with college and career readiness in mind, the school counseling profession has not been an essential component of educational reform (Barton & Coley, 2011).

### 2.3.4 Providing Knowledge for College

Entwined with the role of school counselors to help students become successful in their postsecondary studies is the concept of *knowledge for college*. *Knowledge for college* is separate from the core academic skills and financial preparedness, focusing instead on building informed consumers of higher education. This concept is more about the contextual skills and awareness needed to support the other forms college preparation, such as essential cognitive abilities, content knowledge and other academic behaviors. Some authors define aspects of k*nowledge for college* as social capital (Bryan, et al., 2011; Engberg & Wolniak, 2010; Perna & Titus, 2005; Stephan, 2010). This is an area of essential influence by school counselors that not all students have inherent access to and could be defined as the soft skills of awareness surrounding the

systems of higher education: informed decision-making around labor markets, college culture and programming, financial aid management, and admissions processes.

David Conley (2011) refers to this generally as College Knowledge, and he later identifies it in specific terms as Key Transition Knowledge and Skills (KTKS) (Conley, 2013). The general lack of *knowledge for college* among student populations can be more alarming than the divide between secondary academic preparation and college freshman academic expectations. *Knowledge for college* is a form of social capital that allows students to be able to access higher education. This concept is distinct in that it references the skills and experiences that students, and their families, need to obtain regarding higher education that must be combined with academic preparedness.

While school counselors play an important role as agents in both developing a healthy college-going school culture and sharing essential *knowledge for college* with students. Knowing the contributing factors of postsecondary performance are important in the profession of school counseling; however, relaying that information to students and parents is an indispensable component of working with secondary student populations. Bestowing knowledge about college requirements and costs in the minds of students and their families remains as an important component of future high school reform initiatives designed to increase college access and success (Martinez & Klopot, 2005; Tierney, 2009). In some situations a student's family or peer network constructs these skills, whereas many students do not receive this education unless it is systematically provided by the school system or, more specifically, the school counseling program. Building not only the academic skills, but also helping to establish informed students and families is an area of expertise that stretches beyond the classroom teacher and is a central goal for comprehensive school counseling programs. From my experiences as a novice school

counselor, college-bound high school seniors with adequate academic preparation frequently did not understand the differences between an associate, bachelor or master degree. They also lacked an understanding of the variation in types of postsecondary institutions (public versus private, two-year versus four-year). One day a bright and talented high school senior produced an admissions application to a local university for a master degree program because that was the field he wanted to study. This was the first instance I began to wonder how effective our schools were at providing secondary students with postsecondary *knowledge for college*.

Lisbeth Goble (2010) and Bryan et al. (2011) finds that school counselors are particularly valuable in providing a positive impact on low-SES students in college planning. They fill a void in facilitating their access to information about college where more affluent students may receive from family and peer groups. College-going decisions depend upon a variety of factors that not all students receive without the influence of school counseling programs including encouragement, directed plans of study, access to information about college and costs, and perceived costs and benefits of college (Cabrera & La Nasa, 2001). While most academic content knowledge is centered on certified educators, the area of *knowledge for college* crosses content areas, leaving this expertise primarily in the hands of school counselors who are only partially trained for the experience. For many students this starts with simply accessing school counselors for college going information, which is affected by a student's perception of their school counselor as well as the number of counselors and the size of the school (Bryan, et al., 2009).

The counseling of students for the readiness skills needed for postsecondary success should be straightforward and direct (Akst, 2008). Bryan et al. (2009) reports that students in high poverty, large schools, and schools with fewer counselors all have a reduced amount of

school counselor contact in terms of college-going information. Another key factor is the parent to counselor contact for college going aspirations and transitions. Counseling for students and families surrounding college information on costs, financing and admission has been found to be most effective when it is introduced early and in an ongoing fashion, as opposed to waiting until near high school graduation for information sharing (Bangser, 2008a; V. Lee & Bell, 2011). In addition to beginning to reach students on these topics early, Castleman and Page (2014) also suggest that extending postsecondary counseling beyond high school graduation to bridge the summer gap to college matriculation. Students are left without the high school or collegiate support services during this critical time of registration, housing determination, academic placement testing and closing the gaps between financial aid packages and first-year higher education expenses (Castleman & Page, 2014).

As gatekeepers to college knowledge, school counselors could consider recommending a community college pathway to students in need of remedial coursework who wish to seek a bachelor's degree. This option graduates more bachelor's degrees than direct enrollment in four-year schools, based on the premise that community colleges are more equipped to support those students (Alfonso, 2006). A counselor's perceptions of financial aid resources and how they communicate financial aid information with students and families are important to the student's financial awareness (McDonough & Calderone, 2006).

Overall the concept of *knowledge for college* takes what is known about the effective transition of students from secondary to postsecondary studies and helps to communicate that information to students and parents. This knowledge includes, but is not limited to, an awareness of labor and education trends, effective secondary academic preparation, social and cultural attitudes, and the fundamental knowledge of processes surrounding college admissions, financial

aid and degree completion. With regard to school counselors, the need for more college and career readiness comes amid strained school district budgets, high remediation rates, low degree completion rates and rising higher education costs. At this juncture schools need to become more deliberate and effective with their use of school counseling resources (Bridgeland & Bruce, 2011a). With a more effective use of school counselors much of the disparity in college-going and college completion rates based on academic and demographic variables can be reduced or eliminated (Cabrera & La Nasa, 2001; Plank & Jordan, 2001). More effective use will likely require better counselor preparation intently directed at school counselors' role as a gatekeeper to postsecondary success, more effective utilization of school counselors' time as a professional resource dedicated to college and career readiness, greater student access to properly trained school counselors, and lower counselor to student ratios.

# 3.0 METHODS

## 3.1 DESCRIPTION OF THE STUDY

One purpose of secondary school systems is to prepare students to continue their studies at a postsecondary institution. However, secondary schools infrequently study their own influence on student postsecondary success rates. The literature reviewed in the previous chapter outlines both the variables influencing student postsecondary outcomes and the components of secondary education that impact college and career readiness.

This study is designed as practitioner inquiry into a problem of practice (Carnegie Project on the Education Doctorate, 2014). The study is a detailed exploration into the perceived experiences and education of Shenango Area School District graduates of 2006 through 2009 as they relate to their acquisition and application of *knowledge for college*. In addition, this study builds a deeper understanding of the immediate impact Shenango High School had on student readiness and outcomes through the lens of *knowledge for college.* Specifically, this investigation gathered data on postsecondary enrollment, persistence and degree completion of the district graduates, and compared those statistics with self-reported survey data on 1) their perceived preparedness in *knowledge for college* and 2) the sources that assisted them in obtaining these components.

The use of archival data review and survey research are important to this study because they offered the best means of retrieving the desired information. By implementing this study as an extension of the school system, I was able to reach the first goal of the study, gathering factual postsecondary outcomes. Like many secondary school systems, Shenango relied upon self-reported twelfth grade data to estimate intended postsecondary plans, but as a district, it did not follow up with graduates to measure their actual postsecondary outcomes. Through the retrieval and review of archival data, I identified factual postsecondary enrollment, persistence, transfers and degree completion information.

The subsequent goals of this research are based on alumni levels of *knowledge for college* and how they obtained these skills and information. A Graduate Questionnaire, which collected self-reported perception data, was sent out to district graduates and focused on obtaining information on the experiences and/or people who influenced them. Also, the survey gathered information on the degree to which graduates obtained information related to their postsecondary preparation. At the conclusion of the study, school personnel intend to use the findings to evaluate the effectiveness of recent and current programming, make recommendations for improving college-linking opportunities, and improve the support students need for their further studies.

### 3.1.1 Problem Statement

The Carnegie Project on the Education Doctorate (CPED) (2014) defines a problem of practice as, "a persistent, contextualized, and specific issue embedded in the work of a professional practitioner, the addressing of which has the potential to result in improved understanding, experience, and outcomes." The literature makes it clear that while significant research has and

continues to take place surrounding student postsecondary outcomes and their nexus to secondary educational institutions, there is a need to further understand how secondary schools can help in this process (Johnson, 2008; Wolniak & Engberg, 2010). Given the overall impact a secondary educational institution has on student readiness for higher education (Adelman, 1999, 2006; Bangser, 2008b; Conley, 2008, 2011; Dickson, 2011; Engberg & Wolniak, 2010; L. D. Hill, 2008; Martinez & Klopot, 2005; Plank & Jordan, 2001; Stephan, 2010; Tierney, 2009; Wolniak & Engberg, 2010) and the growing political and cultural focus on college and career readiness (J. Lee, et al., 2011), the divide between college enrollment and degree completion is this study's primary concern. At the center of the investigation is the role of how a secondary school prepares its students for the transition from high school into higher education and whether or not they earn a degree. Since college readiness is a complex topic, this investigation focused specifically on *knowledge for college* as a key concept of postsecondary preparedness.

Shenango High School, like many secondary institutions, maintained an intense focus on intended postsecondary enrollment as a key indicator of college success, but it had not addressed actual postsecondary enrollment or completion rates that compare to national trends. One place this is seen is on the reporting of intended postsecondary enrollment of graduating classes on the school profile. Our school profile contains misleading information based on senior class self-reporting of postsecondary plans. These percentages are in stark contrast to what we know about actual postsecondary enrollment (Castleman & Page, 2014), and more importantly postsecondary progression through degree completion. While the numbers may look good to higher education institutions making admissions decisions and families considering moving into the district, those percentages are not an accurate representation of its graduates' actual postsecondary pathways.

In 2006 I contracted with the National Student Clearinghouse (NSC) and collected data on graduates' actual postsecondary enrollments, persistence and degree completions. These data showed that Shenango graduates' postsecondary outcomes paralleled the national trends. Notably, just over 50% of graduates pursuing bachelor degrees completed their postsecondary programs within six years of enrollment. The senior self-reported data showed a significantly higher percentage of students intending to enroll and pursue degrees in higher education than the NSC Data indicated as having happened. The growing rate of students pursuing higher education, and the continued low rates at which students are completing their degrees nationally, served as motivation to further understand how high school programming and personnel influence students' postsecondary outcomes.

Through the review of literature, many aspects of a student's development influences his/her preparation for higher education, but as school practitioners the key variable most within our control is the role of the school system to develop strong *knowledge for college* and academic preparedness. While the school district has an abundance of data related to the academic preparedness and performance of students, little to nothing was known about their readiness in *knowledge for college.* Even with the release of the Pennsylvania School Performance Profile[2], the college and career readiness of a school system is measured simply based on the percentage of the student body participating in PSAT Testing. This measure does little to indicate the actual college readiness of graduating students. *Knowledge for college* skills

[2] The Pennsylvania School Performance Profile (SPP) was made public in the fall of 2013 and serves as a system to help measure and communicate school performance. Additional information can be found on the Pennsylvania Department of Education Website at www.pde.state.pa.us or at http://paschoolperformance.org/.

and experiences are important for postsecondary success and this study looked to investigate if and how graduates had obtained *knowledge for college* and how that correlated with their postsecondary outcomes. This study served to inform and guide district leadership in better meeting the needs of current and future students and to increase the effectiveness of programming and personnel in sharing *knowledge for college* with student populations.

### 3.1.2 Research Questions

In order to understand how to improve the impact of the secondary school system on current and future students, this research first gathered data on the postsecondary outcomes of the selected graduate population (question one). This study also surveyed graduates to gather data on their awareness of the components of *knowledge for college* (question two) and how they believe they obtained this knowledge (question three). Finally, data collected and analyzed from the research questions are designed to serve as a foundation for school personnel to make recommendations regarding programs and student opportunities. Question one situated district alumni within the context of postsecondary outcomes, while questions two and three provided for a deeper understanding of the role of Shenango High School and the development of *knowledge for college* among graduates. Data were collected on and from a specific group of district graduates, analyzed and used for future decision making based on the following questions:

Question One: What are the rates of postsecondary enrollment, persistence and degree completion among district graduates?

Question Two: What do responding graduates know about the various components of *knowledge for college*?

Question Three: What sources have assisted responding graduates in obtaining *knowledge for college*?

The first question used an archival dataset to detail graduate outcomes surrounding the rates of enrollment, persistence and graduation. The second dataset, survey data, were conceptualized around the components of *knowledge for college* and structured closely to the conceptual framework established by Conley's (2013) notion of Key Transition Knowledge and Skills.

## 3.2 CONCEPTUAL FRAMEWORK

Trends in higher education point us toward closing the gap between going to college and completing college. This research addressed the disparity to better understand the impact secondary institutions have on student postsecondary outcomes. While ignoring what is beyond the control of K-12 institutions (student demographics) and focusing intensely upon what is within the control of K-12 institutions (academic preparedness and *knowledge for college*), this research sought to better understand the variables associated with varying postsecondary student outcomes.

The literature establishes that secondary schools do have a substantial impact on student readiness for postsecondary success; however, defining the ways schools influence graduates and reflecting upon the effectiveness of specific practices is an area for further study and growth. School programming and personnel, specifically school counselors, are essential aspects of students' overall development of college readiness. To be highly effective, schools need to not only provide a rigorous and supportive academic curriculum, but also provide opportunities to

help students understand and navigate the complexities of higher education. When school counselors and other school personnel address gaps in the social/cultural capital, acquired by students through school programming and college-linking behaviors, they can increase the likelihood of postsecondary enrollment and success.

Within the literature on college and career readiness and school variables affecting postsecondary outcomes, Patricia McDonough (2006) and David Conley (2013) are effective in organizing the components of college readiness in a manner that supports the conceptual framework of this research. McDonough (2006) exemplifies the merging of academics with *knowledge for college* when she provides four recommendations to effectively prepare students to continue their studies beyond high school. Her recommendations include a college preparatory curriculum, a college-going culture with high expectations, personnel committed to the curriculum and culture, and lastly, resources to counsel and advise college-bound students.

The factors established by McDonough resurface in greater detail in the work of Conley (2013) on conceptualizing college and career readiness. Conley has identified the components of college readiness, including what I have generally referred to as *knowledge for college,* in different ways. His earlier work included Key Knowledge About Postsecondary Education (Conley, 2008) and later Contextual Skills and Awareness (Conley, 2011). Most recently, Key Transition Knowledge and Skills (KTKS) was established as one of four keys to college and career readiness (Conley, 2013). This most recent domain of KTKS speaks directly to *knowledge for college* and includes skills for postsecondary success surrounding role and identity, self-advocacy, postsecondary awareness, postsecondary costs, matriculation, and career awareness. All of these components serve as the composition of *knowledge for college* with the additions of academic content preparedness, exposure to postsecondary institutions,

understanding degree levels, and institution selection. Providing students with *knowledge for college* could be viewed as building students as informed consumers of higher education and career pathways. These skills in some situations are likely obtained as social or cultural capital, but as we know in secondary institutions, not all students obtain *knowledge for college* without the specific interventions of secondary institutions. These various components are also further discussed and supported in the broader body of literature on college readiness (Bottoms, et al., 2009; Bridgeland & Bruce, 2011b; Conley, 2008, 2011; Dickson, 2011; L. D. Hill, 2008; V. Lee & Bell, 2011; McDonough, 2006; Stephan, 2010).

*Knowledge for college* attempts to capture the aspects of college readiness that surround student preparation in the information, skills and attitudes that are important for students to obtain and build upon for college entry and subsequent success. The components, as they are constructed in this study, parallel the work of Conley (2013) and include: self-advocacy, role and identity, matriculation, career awareness, postsecondary+y awareness, postsecondary costs and academic knowledge. Part B of the Graduate Questionnaire (see Figure 5) used for this study covers the seven components list above within 27 items in Likert scale question blocks. Below is a comparison table that shows the connection between the components of *knowledge for college* and the questionnaire items (see Table 3).

**Table 3.** Graduate Questionnaire and *Knowledge for College*

| Component | Brief Description | Part B Items |
|---|---|---|
| Role and Identity | Maintaining a primary identity as a student-scholar and establishing appropriate role models that match postsecondary and career aspirations | 1, 9 |
| Self-Advocacy | Understanding how and when to access resources and navigate postsecondary systems | 10, 11, 12, 15 |
| Postsecondary Awareness | Understanding postsecondary norms and culture as well as how a student's aspirations and abilities align with goals | 16, 17, 18 |
| Postsecondary Costs | Tuition, expenses and financial aid awareness and attainment | 14, 19, 20 |
| Matriculation | Postsecondary eligibility, admissions processes and program selection | 3, 4, 5, 13 |
| Career Awareness | Exploration of career pathways including career options, requirements, benefits and readiness | 2, 6, 7, 8 |
| Academic Knowledge | Mastery of subject knowledge in core content areas such as Language Arts, Mathematics, Science, Social Studies and the Arts. | 21, 22, 23, 24, 25, 26, 27 |

As mentioned earlier, the literature on student preparedness for higher education can be separated into both the variables within a secondary school's control and the variables beyond their control. For the purposes of this research, this study focused directly on what is within a school's control. While the demographic variables students bring to the academic table are strongly correlated to student postsecondary outcomes, so are the aspects involving academic preparation and skills needed for developing *knowledge for college.* There is a primary difference. These variables remain within the influence of secondary schools.

Most importantly, variations in postsecondary outcomes that are frequently tied to socioeconomic status and academic achievement can be significantly influenced by high school and family actions. There is a dual need for academic preparation to be accompanied by the components of *knowledge for college,* both of which are in the immediate range of influence of secondary institutions. As a high school principal within the Shenango Area School District, the

methods outlined in this chapter are relevant to my school setting and were designed to address the issues of college and career readiness directly within the school system (Ferrance, 2000; Stringer, 2008). This systematic and purposeful inquiry was done through archival data (NSC Dataset) as well as survey data (Graduate Questionnaire Dataset) with the intent to inform and change practices within the school system in order to improve postsecondary student outcomes (Efron & Ravid, 2013).

These two datasets led to a deeper understanding of actual student postsecondary outcomes as they related to higher education enrollment and degree completion, and they established a better understanding of graduate readiness in the components of *knowledge for college.* Knowing the various perceived levels of readiness, along with how graduates acquired their knowledge, assists school personnel in better understanding their influence on students and the programs needing to be revised to build more informed consumers of higher education. In the following pages I further outline my view of this specific educational setting as a reflection of the greater issue of low college completion rates, followed by the collection of data through the NSC Dataset and Graduate Questionnaire, and the intended use of this information is to help guide and improve educational practices to the benefit of the Shenango student body.

## 3.3 RESEARCH DESIGN

This research happened in phases following IRB approval by the University of Pittsburgh (see Figure 8). The first phase established basic information for the sample population and created the system for reaching this target sample, including a brief review of internal data on student postsecondary plans and demographic information. Informal documentation came from the high

school's guidance office, which contained information on each student's self-reported postsecondary intentions. Also provided through the guidance office was publically available student directories with basic demographic information. Through the review of internal documents, I established a list of basic directory information (names and years of graduation) for the 396 district graduates between 2006 and 2009. This group was in turn the sample population for this study. Also as part of the first phase, the process of gathering updated contact information for graduates was initiated. Four different avenues of gathering current email addresses for the sample population were utilized.

With permission from the school district (see Figure 6), during the second phase I provided student names and graduating classes to the National Student Clearinghouse (NSC). All students recognized as graduates from the four graduating classes in the 2006 to 2009 window were included in the NSC data gathering. The NSC maintains and provides enrollment and degree completion data for postsecondary students from public and private institutions within the United States and reported back aggregate school and individual data on postsecondary enrollment, persistence and degree completion in electronic format (National Student Clearinghouse, 2014). This dataset included graduate postsecondary enrollment by institution, term and degree completion (research question one), and is further described in Section 3.4.

For the third phase of this research, and to support the line of inquiry established in research questions two and three, I developed and utilized the Graduate Questionnaire. Based on the conceptual framework established in Section 3.2, the Graduate Questionnaire was distributed electronically, where updated contact information permitted, to the portion of the sample population who had continued their formal education beyond high school. Using Qualtrics, the

questionnaire was sent to seek their perception data on preparedness in *knowledge for college* as well as what programs and personnel assisted them in acquiring their knowledge. This survey tool is further described in Sections 3.4 and 3.5.

Given that a purpose of this study was to better understand what leads to graduates' postsecondary degree outcomes, only graduates identified in the NSC dataset who had continued their education beyond high school received invitations to complete the Graduate Questionnaire. In this way, the focus was on gathering information beyond enrollment in higher education and looking at prolonged enrollment through postsecondary degree completion (Bridgeland & Bruce, 2011a). Data gathered from the Graduate Questionnaire were intended to be combined with the NSC Dataset for responding graduates, so that comparisons could be made based on postsecondary degree outcomes. However, it was established after data collection that 96% of the graduates that responded to the Graduate Questionnaire were among those receiving a college degree. Since the survey data was almost exclusively representative of graduates who had completed postsecondary degrees, and only 4% had not earned a postsecondary degree, comparisons of graduates versus non-graduates were dropped from the analysis.

The final phase consisted of synthesizing and interpreting the data to determine the perceived levels of readiness in *knowledge for college* and the sources of *knowledge for college* among responding district graduates. Through the three research questions, these data were analyzed to identify key features of the components of *knowledge for college* being investigated and made communication back to school leadership possible for evaluating program performance and development moving forward (Efron & Ravid, 2013; Stringer, 2008).

### 3.3.1 Research Setting

Shenango Area School District is a public district serving students from kindergarten through 12th grade, in Shenango Township, Lawrence County, Pennsylvania. Two schools make up the district: Shenango Elementary School (K-6) and Shenango Junior/Senior High School (7-12), with a student population of 1,260 students and 89 teachers (National Center for Education Statistics, 2013). The district is relatively small, and while it is comparable in size to most surrounding districts, it is about half the size of the state average (National Center for Education Statistics, 2013). Furthermore, the Common Core of Data through the National Center for Education Statistics (2013) also reports that approximately 14% of students have IEPs and 23% of students received free or reduced price lunches. There is a predominantly white student population (98%). Beyond the teaching faculty, students are also supported by three school counselors and six administrators, which includes an elementary principal, a secondary principal (my role), a secondary assistant principal, a superintendent, a technology coordinator, and a coordinator of special services.

Like the school district, the township is also relatively small. According to the United States Census Bureau (2014), it has a population of 7,486 residents. The municipality neighbors the city of New Castle, Pennsylvania and is less than an hour from Pittsburgh, Pennsylvania. With a median household income of $50,371, 87.3% of residents have at least a high school diploma or its equivalent. Additionally, 22.8% of the population has a bachelor's degree or higher. Approximately 9.1% of families live in poverty. The median age of residents is 43 and, similar to the district, the majority of the population is white (97.6%) (U.S. Census Bureau, 2014).

During the time frame selected for this study, I characterized Shenango Area School District as marginal in its school performance. However, the school performance improved dramatically in the years since, likely based on a variety of reasons. In the past, performance indicators placed Shenango near or below the 50th percentile among public schools in Pennsylvania, but in recent years the district saw a significant increase in performance and in state rankings on key indicators. For instance, in 2008 the Shenango High School was in the 27th percentile in combined SAT scores in Pennsylvania, while as recently as 2012 the school climbed to the 65th percentile in combined SAT scores (Bennett, 2013).

Similarly, Pennsylvania System of School Performance (PSSA), defined as the percent of students proficient or above in reading and math, placed Shenango High School in the 43rd and 48th percentiles in math and reading respectively in 2002. That performance measure climbed considerably, reaching the 94th and 81st percentile in math and reading in 2008 (Pennsylvania Department of Education, 2013b). Under the new means of evaluating school performance, Shenango High School received a score of 91 on the published 2013 Pennsylvania School Performance Profile (Pennsylvania Department of Education, 2013a). This ranking makes Shenango one of only 47 high schools in the state to score at or above 90 on the measure. It was the highest secondary score in Lawrence County and the second highest secondary score within the Midwestern Intermediate Unit 4, which consists of 27 school districts. Also in 2013, Shenango High School was awarded a Silver Award by *US News and World Report* for being ranked 60th out of nearly 700 high schools in the state (2013).

The recent accolades are levels of achievement that the district had not previously attained, but the specific reasons behind the growth are difficult to isolate. Even given the recent high academic performance, district enrollment and the community population continue to

decline, like most districts in the region. In addition to an intense focus on academic achievement and a nearly all-new administrative team, the change within the district, I believe, that had the most positive impact on student achievement is an unwavering belief in "hiring the best." Previously, there was an informal culture that supported hiring the local candidate when possible. This shift was brought on by the research of a member of the administration that focused on effective school board practices.

During this same period of growth, there was significant development in the guidance, counseling and career services offered in the district. From my experiences in serving first as one of two secondary school counselors (2005-2010) and subsequently building principal (2010-present) there has been an expansion of services offered to focus on preparing students to graduate as more informed citizens about postsecondary opportunities. The graduates selected for this survey completed their secondary studies across four graduating classes and received substantially different guidance services.

In general, Shenango is a school system that, in recent years, has become known for its high academic achievement. As a school administrator in the district, an area I wanted to know more about is the extent to which the district is preparing students with the knowledge and skills needed to succeed in postsecondary studies. While we have taken, and continue to take, additional steps toward building *knowledge for college* in the areas of increased postsecondary exposure, financial aid, admissions, postsecondary culture, degree pathways, and distinctions in learning environments, little was known about the strengths and weakness of the programs and services in place for students and their families.

### 3.3.2 Research Participants

Starting with the Shenango Area High School graduating Class of 2006, graduates were included based on their positive approximation to current and developing school practices and personnel. The depth and quality of alumni data available through the National Student Clearinghouse has strengthened in recent years, with a growing percentage of higher education institutions including their data since the late 1990s. Also, closing the graduate population with the graduating Class of 2009 allowed for a minimum of five years between high school graduation and the end of the most recent academic year. This provided a window for adequate postsecondary enrollment data, persistence data, and limited graduation data. Based on a review of internal school documentation, the identified alumni group consisted of 396 Shenango High School graduates. As shown in Table 1, prior to graduation the intended postsecondary plans of this graduate group included 54% (n=212) planned to go to four-year colleges or universities, 12% (n=46) planned to go to two-year technical/trade/certification schools/programs, 18% (n=70) planned to go to community colleges, 6% (n=4) planned to go to the military and 7% (n=27) planned to enter the workforce directly. The postsecondary plans of 4% (n=17) of the selected graduate group were unknown upon high school graduation.

**Table 4.** Intended Postsecondary Plans of Cohort Graduates

| **Graduates** | | **Intended Plans** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Class** | **Size** | **4 Yr** | | **2 Yr/Tech** | | **Com Coll** | | **Military** | | **Work** | | **Unknown** | |
| | | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % |
| 2006 | 89 | 55 | 62% | 12 | 13% | 6 | 7% | 5 | 6% | 4 | 4% | 7 | 8% |
| 2007 | 90 | 51 | 57% | 11 | 12% | 17 | 19% | 6 | 7% | 3 | 3% | 2 | 2% |
| 2008 | 115 | 54 | 47% | 11 | 10% | 26 | 23% | 7 | 6% | 13 | 11% | 4 | 3% |
| 2009 | 102 | 52 | 51% | 12 | 12% | 21 | 21% | 6 | 6% | 7 | 7% | 4 | 4% |
| **Total** | **396** | **212** | **54%** | **46** | **12%** | **70** | **18%** | **24** | **6%** | **27** | **7%** | **17** | **4%** |

*(Data based on archival district records)*

Prior to the distribution of the questionnaire, time was spent updating graduate contact information and obtaining accurate mailing and/or email addresses for graduates that continued their education after high school. While the district maintains records of their graduates' home address, phone number and, in some cases, email addresses, this contact information had not been updated since the time of their graduation. Four strategies were used to update this information. The first included the creation of an Alumni Directory for the school district. This initiative met an identified need of the district to establish and maintain communication with its alumni network and also provided an avenue to access and contact graduate populations for research purposes. The Alumni Directory netted contact information for over 200 graduates in the first few months it was made available. This included 28 graduates from the sample population for this study.

The second avenue pursued was seeking updated information through the staff at Shenango. This resulted in updated contact information for 10 additional graduates from the sample population. The third means, and most effective, was through Facebook. By searching online with Facebook, many students were found and 85 graduates responded affirmatively to a message request for their email address. Lastly, a postcard was mailed to all remaining graduates' last known address, who had not recently provided updated information. The postcard requested their updated information for the purpose of inviting them to complete the Graduate Questionnaire. This strategy resulted in three additional contacts. In total, 125 graduates from the sample population of 396 had updated email addresses at the time of survey distribution.

### 3.3.3 Researcher's Role

It is important to note my dual relationship in this research as both the primary investigator and a practitioner in the research setting, otherwise known as a scholarly practitioner (Carnegie Project on the Education Doctorate, 2014). As previously mentioned, I served as a secondary school counselor at Shenango High School during the high school education of the students being studied (graduating classes of 2006-2009). As a major component of my professional responsibilities, I was involved with several aspects of the school system that I attempted to investigate within this research. The district, for many years, has employed two secondary school counselors. One school counselor serves the junior high population (grades 7-9) and one serves senior high students (grades 10-12). While the two individuals have separate student populations, they both work out of the same office suite, share a guidance secretary, and regularly interact/overlap in their professional responsibilities. My time serving as a school counselor at Shenango ranged from July 2005 to June 2010. Therefore, I interacted with the sample population of this study starting with the Class of 2006's senior year of high school until past the time the Class of 2009 completed their secondary studies. As part of those professional responsibilities, I was a key contributor in working with other school personnel to bolster the college-linking opportunities and the individual/group/classroom counseling and programming aimed at college and career planning provided to students.

My transition into administration following the 2009-2010 school year continued in the same capacity, where I serve as the principal for the same school. In this capacity I oversee the school counseling services and the current school counselors. During the overall timeframe, both the junior high school counseling position and the senior high school counseling positions have been filled by two different individuals. Also during this timeframe the guidance services

have undergone significant transformations in attempts to better serve and meet the needs of student populations. Specific to college and career planning, several programs have undergone significant renovations including Advanced Placement (AP) program growth, Dual Enrollment revisions, increased job shadowing requirements, expanded graduation credit requirements, access to College Fairs for underclassmen, and increased 1:1 postsecondary planning with the school counselor. In addition to revised programming, there have also been significant programming additions including: the use of Career Cruising services, a Financial Aid Night, a Free Application for Federal Student Aid (FAFSA) Completion Night, Career Café guest speakers and several layers of additional postsecondary and career planning in classrooms. Many of the existing services that were once part of the senior high curriculum have been moved into the junior high curriculum and replaced with more age appropriate activities in the upper grades.

As principal it is my full intention to use this research to guide planning and decision-making, and to use the research to address the designated problem of practice (Carnegie Project on the Education Doctorate, 2014). The NSC Data helped us to better understand how graduates performed after high school and compared those enrollment and graduation rates with national trends. The Graduate Questionnaire data helped us better understand the impact our previous personnel and programming were having on students as they acquired the *knowledge for college*, as well as what people and programs specifically had the most influence. Using these data, we are able to reflect on what changes have happened since the graduates being studied have completed their studies at Shenango and also identify areas where the programming needs to be bolstered.

## 3.4 DATA SOURCES

There were two primary data sources used within this research. The first data source was the Archival Data, generally described as the National Student Clearinghouse (NSC) Dataset. The NSC is a non-profit organization that maintains and provides enrollment and degree completion data for over 98% of all postsecondary students in public and private institutions within the United States (2014). Upon contracting with the NSC, I used their StudentTracker Program in addition to district-provided directory information (student names and graduating classes). The student information was uploaded to a secure website provided by the NSC. The NSC, in return, made electronically available aggregate school and individual data on postsecondary enrollment, persistence and degree completion in downloadable formats.

These dataset included percentages of students enrolled immediately following graduation, after one year and after two years, and by type of postsecondary institutions. Summary aggregate NSC data were provided in chart format as well as in raw data format (see Figure 1). The NSC data provided aggregate and individual data indicating degree persistence, degree completion and time until degree completion. The raw NSC data was used to compare intended postsecondary plans from internal district documents with actual postsecondary outcomes along the components of enrollment, persistence, transfers and degree completion (research question one). These data allowed me to identify which graduates have, at some point, continued their education beyond high school. This information identified the graduates for distributing the second data source, the Graduate Questionnaire.

The Graduate Questionnaire was constructed from the conceptual framework of David Conley (2013) and the synthesis of other literature on college and career readiness as a means to measure graduates' acquisition and levels of *knowledge for college* (see Section 3.2). This

survey instrument was developed and revised over the course of several months. In addition to having the survey instrument critically evaluated by both doctoral study group colleagues and colleagues in a graduate survey methods course at the University of Pittsburgh, it was also piloted with a small group of recent high school graduates. All three of these groups provided valuable and detailed feedback on the survey design, layout, item construction, and conceptual framework. The final result was the Graduate Questionnaire, which consists of four parts, including educational experiences, preparedness in *knowledge for college,* acquisition of *knowledge for college* and alumni information (see Figure 5).

The survey instrument was comprised of primarily Likert-scale responses with some yes/no, ordered, and checklist responses. Open-ended questions were utilized in a limited fashion. Part A of the Graduate Questionnaire sought basic updated educational information surrounding respondents' year of high school graduation, if they continued their formal education, and if they completed their intended postsecondary degree programs. This basic information was used to ensure they were eligible members of the desired sample population.

Part B of the Graduate Questionnaire sought detailed information in their perceived preparation in *knowledge for college* (research question two). Using a series of 27 Likert-scaled items across three questions, data were gathered on how strongly the respondents agreed or disagreed with their level of preparedness on the items. Likert-scale questions were on a five-point scale of strongly agree, agree, neutral, disagree and strongly disagree. The use of a neutral option was applied to help account for the fact that respondents were up to eight and a half years removed from high school graduation and further removed from some of the programming experiences being surveyed. Given this gap it is likely that some respondents will not recall the influence of specific people and programs on their skills acquisition. These data provided

graduate perception data across the predetermined components of *knowledge for college* which are role and identity, self-advocacy, postsecondary awareness, postsecondary costs, matriculation, career awareness, and academic knowledge.

Part C sought to gather data on the respondents' perceived acquisition of *knowledge for college* (research question three) and also used Likert-scaled questions. These sources were divided across two questions based on whether they were personnel or programs/experiences. The two sources of *knowledge for college* are operationalized on Table 5 provided below.

**Table 5.** Sources of *Knowledge for College*

| Personnel | Programming |
|---|---|
| Peer(s) | Teachers' Classroom Lessons/Assignments |
| Parent(s) | Guest Speakers |
| Sibling(s) | School Counselor Classroom Lessons |
| Teacher(s) | Individual Meetings with School Counselor |
| School Counselor(s) | Financial Aid Night |
| Coach(es) | FAFSA Completion Night |
| Extra-Curricular Advisor(s) | Attending a College/Career Fair |
| Employer(s) | Attending a College Visit |
| Other Source: | Meeting with a College Representative |
| | Job Shadowing |
| | Completing an Interest Inventory |
| | Completing a College/Career Search |
| | Advanced Placement Coursework |
| | Dual Enrollment Coursework |
| | Other Source: |

The final section of the Graduate Questionnaire, Part D, sought further graduate information related to components of *knowledge for college* that may have been missed in the survey instrument by using open-ended questioning. This section also sought basic graduate contact information for potential future correspondence.

## 3.5 DATA COLLECTION

This research produced two datasets, the NSC dataset and the dataset generated from the Graduate Questionnaire. The collection of data happened in three phases. The first phase included gathering internal data regarding student demographic information and updating contact information of cohort graduates. In order to move into the second phase of data collection, a file was created that included the following information on district graduates from the classes of 2006 to 2009: first name, last name, date of birth, graduation date, diploma type, and that each student had attended Shenango High School. This file was uploaded to the National Student Clearinghouse (NSC). All data exchanges between the school district and the National Student Clearinghouse were completed through a secure FTP to safely and securely transact, store, and manage sensitive graduate information between the district and the NSC. All files received by the NSC are securely stored using FIPS 140-2 validated AES encryption, the U.S. federal encryption standard (National Student Clearinghouse, 2014).

The updating of the sample population's contact information continued throughout phase two of data collection and concluded during the beginning of phase three. As was detailed in Section 3.3.2, updated contact information for the sample population was gathered through an alumni directory, inquiring with the current high school staff, searching and contacting graduates on Facebook and through a postcard mailing. These four strategies resulted in updated email addresses for 125 of the 320 graduates that were enrolled at some point in higher education.

The second phase of data collection began within a few weeks of uploading the file of student information to the NSC. According to the "who we are" section of the NSC website, the NSC collects postsecondary data from, "more than 3,300 colleges and universities, enrolling over 96% of all students in public and private U.S. institutions, participate in the Clearinghouse"

(National Student Clearinghouse, 2014). The NSC maintains and provides enrollment and degree completion data for nearly all postsecondary students in public and private institutions within the United States and reported back aggregate school and individual data on postsecondary enrollment, persistence and degree completion in electronic format (National Student Clearinghouse, 2014). These data include graduate postsecondary enrollment by institution, term and degree completion by student and by term (research question one). These dataset files were received in PDF and Microsoft Excel formats (.xls or .csv) and were downloaded from their secure portal and stored securely.

In the third phase of data collection, the Graduate Questionnaire (see Figure 5) was distributed to graduates identified from the NSC dataset as having continued their formal education beyond high school (n=320), where updated contact information was available (n=125). The Graduate Questionnaire was electronically distributed in waves using Qualtrics as the updated email addresses were identified and included a recruitment script (see Figure 7). Qualtrics is a web-based surveying service used to create, collect and store data securely. The University of Pittsburgh has a site license for the Qualtrics Survey Service, which is available to Pitt faculty, students, and staff at all campuses and at no cost. Graduate responses were collected and stored in the Qualtrics system throughout data collection. Each eligible graduate was contacted up to three times during data collection. The first contact was the initial survey distribution and two reminders were used at later dates for non-responding graduates.

Starting with the initial raw dataset reports from both sources, I stored files on a server on the school district's internal network. The network is protected from outside access by a Sophos UTM 425 firewall. As the data were analyzed, each subsequent version of the files were saved to the same secure server with a unique file name and the date last edited (i.e. NSCdataset 12-15-

14.xls). Data files were backed up on internal server storage that was archived nightly and only available to myself and the district network administrator. At the conclusion of the research project, all final files will also be duplicated and stored on a flash drive in a locked and fireproof security box for permanent storage.

## 3.6 DATA ANALYSIS

Initial datasets from both sources contained individually identifying information, including names, which were kept confidential throughout data analysis and reporting. Only aggregate or summary reports that have been fully stripped of individually identifying information were or will be shared with others. In order to condense and analyze the datasets, each student was referenced with a unique identifying respondent number, not their name or other identifying information. A secured electronic listing connecting individual identifying student information with the uniquely identifying respondent number will be saved in a separate secure location that, as the primary investigator, only I will access. As a result, identity is not apparent without consulting the secured sheet. The aggregate and reportable findings that will be used for ongoing program review, school improvement, and shared with district leadership or others will not contain any individually identifying information.

Analysis was completed through aggregate school reports and descriptive statistics to summarize the raw student postsecondary data, immediate enrollment and subsequent enrollment by type of postsecondary institution and for each graduating class. Since data were reported from the NSC by student by term, most graduates had numerous lines of information related to their postsecondary studies. Time was dedicated to condensing the numerous entries down to a

single encompassing entry per graduate. The condensing of raw data resulted in the creation of additional data fields, including total number of schools attended, school sequences, total terms, total stop-outs, highest degree earned, current enrollment status, and first year persistence. It also included the deletion of some raw data that was relevant to this study. In particular, one of the first tasks completed was to separate undergraduate program data from graduate program data. For the purposes of this research, postsecondary graduate school information was not included in the analysis, only information from undergraduate studies was utilized. Also removed was data related to enrollment during summer sessions, which was not counted as a "semester" for these research purposes. Also excluded was brief enrollment in a second institution while a graduate maintained full time enrollment at the primary institution of study. This happened on a few occasions when it was apparent that a graduate was maintaining enrollment at a four-year college or university and would simultaneous enroll, or enroll for a summer session, at a second institution. The second institution was generally a local community college and the purpose was likely to pick up a general elective course.

The NSC data resulted in frequency tables on enrollment, degree persistence, degree completion and time until degree completion. Overall, these archival data were analyzed along the trends established in the review of literature, which were organized around the rates of postsecondary enrollment, trends in persistence, rates of transferring between intuitions, and ultimately degree completion.

Next, the Graduate Questionnaire dataset was analyzed based on the predetermined components of *knowledge for college,* which included role and identity, self-advocacy, postsecondary awareness, postsecondary costs, matriculation, career awareness, and academic knowledge. This analysis was completed for these components both in terms of how they were

acquired (research question three) and the strength to which respondents felt they were prepared (research question two). Both descriptive statistics and frequency distribution tables were key elements of this data analysis (Babbie, 2013; Creswell, 2009; Mertens, 2010). Descriptive data were also provided to describe the Graduate Questionnaire respondents.

Synthesizing and interpreting these data was essential to progressing forward in reviewing and adjusting educational practices that support students in these areas. Descriptive summaries are provided through text and figures to depict the self-reported perceived readiness and acquisition across the *knowledge for college* components (Babbie, 2013). The findings from the two datasets were intended to be cross-tabulated with subpopulations in the NSC dataset (non-graduates versus graduates), however the Graduate Questionnaire respondents were overwhelming postsecondary graduates (96%) with very few non-graduates responding (4%). Comparisons were not made between these two groups, because respondents were clearly only representative of college graduates.

## 3.7 LIMITATIONS

The primary limitation of this research is not being able to generalize the findings to a broader secondary audience. Where the strength of this research lies is in the direct and immediate impact on district practices. Ideally, findings related to the effective practices in educating students about *knowledge for college* could be replicated in other secondary school settings, but in no way is it assumed that other schools' practices and programming as they relate to *knowledge for college* are the same as this district's.

Also, this research process and the implementation of the findings are informed by my role as an active participant in the education setting. In this case, I am not only the researcher but a key contributor to the programming and experiences of this graduate population while they were enrolled at Shenango. As the secondary school counselor during the window for 2006-2009, I was responsible for developing *knowledge for college.* Therefore, during the Graduate Questionnaire when students indicated the level of impact their school counselor had on their development of *knowledge for college*, they could have been referencing me, in part, as both a former school counselor and the primary investigator of the study. In addition, the changing personnel involved with various graduate's education experiences, the programming and college-linking opportunities were constantly evolving. For example, early graduates expected to participate in this study did not have access to an in-house FAFSA Completion Night, which was not coordinated by school counselors until around 2009. It was also discussed in Section 3.3.1 that the school district has seen a substantial rise in performance indicators since these graduates were educated. It will be difficult in some cases to separate what has already been changed about the school system from what still needs to be addressed.

Lastly, this study was limited by the number of graduates whose current contact information was located, the graduate demographic response rates, and the ability of graduates to recall what people and experiences assisted them in acquiring *knowledge for college* while being several years removed from their high school education. In many cases respondents may not accurately recall with detailed their specific experiences from so many years ago. In addition, the Graduate Questionnaire findings were mostly restricted to the feedback of college graduates, given the low response rate of postsecondary non-degree completers.

## 3.8 SUMMARY

Through the collection and analysis of archival data and survey data surrounding key high school experiences, specific school-based programs and/or experiences that had a lasting impact on the students' acquisition of *knowledge for college* were identified. These findings are leading to reflective practices as well as consideration by a school leadership committee that will review the findings. The specific aspects of recent and current programming are being taken into consideration and may be altered or enhanced to better support students' development of *knowledge for college.* Given the methodological approach used within this study, these findings serve as a beginning of program review/revision. School leadership, which includes members of administration and school counselors in this case, are responsible for taking the findings and perception data of graduates and tying those findings to the specific personnel and programming offered by the district. This research assisted with identifying deficiencies for graduates along their secondary to postsecondary pathways with the end goal of improving postsecondary degree completion rates among district graduates.

# 4.0 FINDINGS AND ANALYSIS OF POSTSECONDARY PROGRESS

The first research question asked, "What are the rates of postsecondary enrollment, persistence and degree completion among district graduates?" This question addresses the rates of postsecondary enrollment, persistence and degree completion among the 396 district graduates in the graduating classes of 2006-2009. These findings are based on archival data from the National Student Clearinghouse (NSC) and the school district being studied.

This group (n=396) was identified using district archival records. Using their basic demographic information (name, date of birth, high school and graduation date) a file was uploaded to the NSC. Nearly all postsecondary students in public and private institutions within the United States are included the NSC database, which in return reports postsecondary information about the identified graduates. The cohort enrolled in 88 different colleges and universities between the fall of 2006 and the most recent semester, the spring semester of 2014, where data were gathered.

From the review of literature and for this research question, the trends in post-secondary going behaviors are described across the three core areas of enrollment, persistence and degree completion. The district graduates' postsecondary outcomes are compared with national trends and district archival data where possible.

## 4.1 ENROLLMENT

### 4.1.1 Immediate Enrollment

During the spring of their senior year of high school, graduating students were asked to self-report their intended postsecondary plans. Among the selected population, 83% (n=328) indicated that they intended to continue their formal education in some type of program following high school graduation. However, results from the NSC Dataset indicate that only 68% (n=268) graduates were immediately enrolled following high school graduation (see Table 6).

**Table 6.** Immediate Postsecondary Enrollment of Cohort Following High School Graduation

| Cohort Graduates | | Postsecondary Enrollment | | | | | |
|---|---|---|---|---|---|---|---|
| Year | Class Size | Intended | | **Actual** | | Difference | |
| | | *n* | % | ***n*** | **%** | *n* | % |
| 2006 | 89 | 73 | 82% | **52** | **58%** | -21 | -24% |
| 2007 | 90 | 79 | 88% | **66** | **73%** | -13 | -15% |
| 2008 | 115 | 91 | 79% | **81** | **70%** | -10 | - 9% |
| 2009 | 102 | 85 | 83% | **69** | **68%** | -16 | -15% |
| Total | 396 | 328 | 83% | **268** | **68%** | -60 | -15% |

*(Drawn from the NSC dataset and district archival records)*

These results show that on an aggregate level, the graduating seniors over-estimated their intentions or abilities to continue their formal education immediately following high school graduation. Of the total graduate population, 15% (n=60) of the students did not immediately matriculate. Those 60 students represent 18% of graduates who intended to enroll in some level of postsecondary education. This rate parallels a larger comparison group, of over 2,800 Boston public school students, from the same time period using NSC data, that showed approximately

18% of college-intending students failed to matriculate in the fall after high school completion (Castleman & Page, 2014).

Table 7 shows that among those who planned to continue their formal education, 54% of the graduates in this study reported that they intended to continue at a four-year university or college and another 29% intended to continue at a two-year college, technical school or community college. The remaining 17% of students intended to enter the military, work force or had unknown postsecondary intentions. However, the actual percentage of students entering four-year programs was 49% (n=193) and two-year programs was 19% (n=75).

**Table 7.** Immediate Postsecondary Enrollment of Cohort by Program Type

| Program Type | Postsecondary Enrollment | | | | Difference | |
|---|---|---|---|---|---|---|
| | Intended | | **Actual** | | | |
| | *n* | % | ***n*** | **%** | *n* | % |
| **4 Year** | 212 | 54% | **193** | **49%** | -19 | -5% |
| **2 Year** | 116 | 29% | **75** | **19%** | -41 | -10% |
| **Not Enrolled** | 68 | 17% | **128** | **32%** | 60 | 15% |

*(Drawn from the NSC dataset and district archival records)*

NSC data show that the graduates over projected their college rates of enrollment in four-year programs and two-year programs by 5% and 10%, respectively. This drop in actual enrollment could be attributed to a variety of factors including the procedure of asking high school seniors to self-report, inadequate financial aid planning or unforeseen financial complications, and changing postsecondary or career plans between the time of self-reporting in early spring and fall enrollment. Castleman and Page (2014) further suggest that important tasks need to be finalized during the summer months, including funding the gap between financial aid packages and first semester expenses, course registration, housing forms and academic placement tests.

When comparing these data with national trends in immediate postsecondary enrollment, graduates from the local group attended four-year institutions at a higher rate and two-year institutions at a lower rate than national averages for the same timeframe (see Table 8). This supports that while a similar total percentage of graduates enrolled immediately in postsecondary studies (68%) at both the local and national levels, some combination of variables at the local level increased the likelihood of graduates pursuing four-year degree programs as opposed to two-year degree programs when compared with national trends.

**Table 8.** Comparison of Cohort and National High School Graduates Immediate Postsecondary Enrollment

| Year of Graduation | 4 Year Programs | | 2 Year Programs | |
|---|---|---|---|---|
| | **Cohort** | **National** | **Cohort** | **National** |
| 2006 | 51% | 41% | 8% | 25% |
| 2007 | 51% | 43% | 22% | 24% |
| 2008 | 46% | 41% | 24% | 28% |
| 2009 | 48% | 42% | 20% | 28% |
| **Average** | **49%** | **42%** | **19%** | **26%** |

*Source of National Averages: U.S. Department of Education, National Center for Education Statistics (2013), Table 234: Recent high school completers and their enrollment in 2-year and 4-year colleges, by sex: 1960 through 2011. In U.S. Department of Education, National Center for Education Statistics (Ed.), Digest of Education Statistic (2012 ed.). Cohort data drawn from the NSC dataset*

### 4.1.2 Enrollment within Two Years

Beyond immediate enrollment following graduation from high school, the data in Table 9 also show the trends in enrollment continued within two years of high school completion. Total enrollment within two years of high school completion rose to 76% (n=302) of the graduates, an 8% (n=34) increase over the percentage immediately enrolled. This rate of enrollment more accurately reflects the original intentions of the selected graduate population, 83% (n=328). These results show that on an aggregate level, even after having two years to become enrolled in

continued studies, graduates had slightly over-reported their collective intentions or abilities to continue their formal education.

**Table 9.** Postsecondary Enrollment of Cohort within 2 Years of High School Graduation

| Cohort Graduates | | Postsecondary Enrollment | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Class Size | Intended | | Immediate | | **2 Years** | | Difference | |
| | | *n* | % | *n* | % | ***n*** | **%** | *n* | % |
| 2006 | 89 | 73 | 82% | 52 | 58% | **61** | **69%** | -12 | -13% |
| 2007 | 90 | 79 | 88% | 66 | 73% | **74** | **82%** | -05 | -06% |
| 2008 | 115 | 91 | 79% | 81 | 70% | **87** | **76%** | -04 | -03% |
| 2009 | 102 | 85 | 83% | 69 | 68% | **80** | **78%** | -05 | -05% |
| Total | 396 | 328 | 83% | 268 | 68% | **302** | **76%** | -26 | -07% |

*(Drawn from the NSC dataset and district archival records)*

Similar trends are found across the degree levels of higher education with an additional 3% of graduates enrolling in four-year institutions and 5% in two-year institutions between the fall immediately after graduation and two years later. The percentages of graduates entering within two years by program type were 52% (n=206) in four-year programs and 24% (n=96) in two-year programs (see Table 10). Even after two years following high school graduation, the enrollment of the graduate cohort in both four-year and two-year programs continued to lag behind their self-reported senior year intentions.

**Table 10.** Postsecondary Enrollment of Cohort by Program Type with 2 Years

| | Postsecondary Enrollment | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Program Type | Intended | | Immediate | | **2 Years** | | Difference | |
| | *n* | % | *n* | % | ***n*** | **%** | *n* | % |
| 4 Year | 212 | 54% | 193 | 49% | **206** | **52%** | -6 | -2% |
| 2 Year | 116 | 29% | 75 | 19% | **96** | **24%** | -20 | -5% |
| Not Enrolled | 68 | 17% | 128 | 32% | **94** | **24%** | -26 | -7% |

*(Drawn from the NSC dataset and district archival records)*

### 4.1.3 Enrollment through Spring 2014

Through the spring of 2014, when the class of 2006 had eight years to enroll and the most recent class had five years to enroll, 81% (n=320) have enrolled at some point between high school graduation and the spring term of 2014. The other 19% (n=76) of the students have never enrolled in any institution. This total enrollment still falls 2% (n=8), short of their intended enrollment during the spring of their senior year of high school throughout the time frame studied (see Table 11).

**Table 11.** Total Postsecondary Enrollment of Cohort

| Year | Class Size | Intended | | Immediate | | 2 Years | | **Through Present** | |
|---|---|---|---|---|---|---|---|---|---|
| | | *n* | % | *n* | % | *n* | % | ***n*** | **%** |
| 2006 | 89 | 73 | 82% | 52 | 58% | 61 | 69% | **69** | **78%** |
| 2007 | 90 | 79 | 88% | 66 | 73% | 74 | 82% | **78** | **87%** |
| 2008 | 115 | 91 | 79% | 81 | 70% | 87 | 76% | **89** | **77%** |
| 2009 | 102 | 85 | 83% | 69 | 68% | 80 | 78% | **84** | **75%** |
| **Total** | **396** | **328** | **83%** | **268** | **68%** | **302** | **76%** | **320** | **81%** |

*(Drawn from the NSC dataset and district archival records)*

### 4.1.4 Key Findings

Overall, these data indicate several findings associated with the cohort of graduates. First, as high school seniors, they inaccurately reported their anticipated enrollment following high school by 15%, which can be viewed as either an inaccurate form of seniors self-reporting their intentions or an indication that there are significant barriers to the graduates becoming enrolled as they intended. Second, while the cohort's overall immediate enrollment (68%) is consistent with national trends, they enrolled in four-year institutions at a much higher rate than two-year

institutions compared to the national sample. Lastly, the cohort's eventual enrollment (81%) in higher education nearly reaches their intended plans (83%) when given five or more years to matriculate.

## 4.2 PERSISTENCE

The NSC dataset helps identify the trends in postsecondary degree progress through persistence data. For the purpose of this study, persistence refers to students who return for a second year of higher education after being enrolled at any time during their first year in higher education. Second year persistence can be considered using two different methods. The first is looking at *individual* persistence, which takes into consideration a student being enrolled in any institution, not just at the original institution of study (includes transfers). The second method looks simply at *institutional* persistence, which only takes into account students who remain enrolled at the same institution for the start of the second year (excludes transfers).

### 4.2.1 Individual Persistence

At any point during the first year after high school graduation, 71% (n=282) of the study's population had enrolled in higher education. The *individual* persistence of that group was 91% (n=257) returning for a second year of higher education at any institution. This represents 65% of the total cohort. The trends were consistent across the graduating classes with between 88% and 94% persisting to year two either at their original institution or another institution (see Table

12). Students who enrolled in four-year institutions fared slightly better in persisting to year two than students who enrolled in two-year institutions, 95% to 81% respectively.

**Table 12.** Second Year Individual Persistence of Cohort Students who Enrolled in Higher Education

| Class | Year 1 Enrollment | **Year 2 Persistence** | | Year 2 Not Enrolled | |
|---|---|---|---|---|---|
| | | ***n*** | **%** | *n* | % |
| 2006 | 56 | **51** | **91%** | 5 | 9% |
| 2007 | 70 | **64** | **91%** | 6 | 9% |
| 2008 | 82 | **77** | **94%** | 5 | 6% |
| 2009 | 74 | **65** | **88%** | 9 | 12% |
| **Total** | **282** | **257** | **91%** | **25** | **9%** |

*(Drawn from the NSC dataset)*

### 4.2.2 Institutional Persistence

In the review of literature, it was established that nationally only 77% of full time students who entered four-year institutions in 2008 returned in 2009 to the same institution and that two-year institutions showed even lower rates of individual student retention with only 61% of full time students returning a year later (Aud, et al., 2011). When looking at this graduate cohort on the basis of *institutional* persistence, it was found that a similar percentage, 78% (n=219), of students persisted to year two at the same institution (see Table 13). This means that students from this graduation cohort are persisting at a slightly higher institutional rate of 78% than both the 77% rate at four-year institutions and 61% rate at two-year institutions on a national scale.

**Table 13.** Second Year Institutional Persistence of Cohort Students who Enrolled

| Class | Year 1 | Year 2 | | | | | |
|---|---|---|---|---|---|---|---|
| | Enrollment | **Same Institution** | | Different Institution | | Not Enrolled | |
| | | *n* | % | *n* | % | *n* | % |
| 2006 | 56 | 43 | 77% | 8 | 14% | 5 | 9% |
| 2007 | 70 | 54 | 77% | 10 | 14% | 6 | 9% |
| 2008 | 82 | 65 | 79% | 12 | 15% | 5 | 6% |
| 2009 | 74 | 57 | 77% | 8 | 11% | 9 | 12% |
| **Total** | **282** | **219** | **78%** | **38** | **13%** | **25** | **9%** |

*(Drawn from the NSC dataset)*

Among the 13% (n=38) of graduates who maintained enrollment into their second year but changed institutions, six of the graduates progressed after the first year from a local community college to a four-year institution. In at least some of these cases it is likely that this was their intended progression in pursuit of a four-year degree when they enrolled at the community college. This degree path is preferred in some scenarios to assist in lowering the cost of higher education expenses and/or allowing for degree and career exploration at a local and more affordable community college institution.

### 4.2.3 Stopping-Out versus Continuous Enrollment

Throughout the literature, the two processes that are intertwined with persistence are stopping out from studies and transferring between institutions. Stopping out, as opposed to dropping out, represents a large portion of postsecondary populations who leave and later return to their studies (Adelman, 2006; Akst, 2008; DesJardins et al., 2002). Table 14 shows that in the graduate cohort 15% (n=49) of the 320 students who enrolled in higher education stopped out for at least one semester and later returned to their studies.

**Table 14.** Cohort Students who Stop-Out verses Continuous Enrollment

| Year | Enrolled | Stop Out | | Continuous* | |
|---|---|---|---|---|---|
| | | *n* | % | *n* | % |
| 2006 | 69 | 12 | 17% | 57 | 83% |
| 2007 | 78 | 14 | 18% | 64 | 82% |
| 2008 | 89 | 13 | 15% | 76 | 85% |
| 2009 | 84 | 10 | 12% | 74 | 88% |
| **Total** | **320** | **49** | **15%** | **271** | **85%** |

**Until graduation or withdrawal*
*(Drawn from the NSC dataset)*

In total, 15% of students in this study stopped out of their studies, which is well below the 40% who stopped out and returned in the over 3,000 students studied by DesJardins et al (2002). Akst (2008) referenced the "kiss of death" as stopping out for more than a semester of higher education, which is one of the strongest correlations with not persisting through to graduation. Within the NSC dataset, eventual graduates stopped-out at a significantly lower rate than non-graduates. Of the students who stopped out, 29% (n=14) went on to complete degrees in higher education, while 71% (n=35) were non-graduates (see Table 15).

**Table 15.** Comparison of Stopping Out between eventual Graduates and Non-Graduates

| Year | Stop Out | Graduates | | Non-Graduates | |
|---|---|---|---|---|---|
| | | *n* | % | *n* | % |
| 2006 | 12 | 4 | 33% | 8 | 67% |
| 2007 | 14 | 5 | 36% | 9 | 64% |
| 2008 | 13 | 4 | 31% | 9 | 69% |
| 2009 | 10 | 1 | 10% | 9 | 90% |
| **Total** | **49** | **14** | **29%** | **35** | **71%** |

*(Drawn from the NSC dataset)*

### 4.2.4 Transferring

In a national sample of students, Adelman (2006) found the rate of undergraduate students enrolled in more than one institution to be 60% of the college population. In the cohort for this study, the district graduates were well below the national trend with 33% of high school graduates who enrolled in higher education transferring from their original institution to one or more postsecondary institutions (see Table 16).

**Table 16.** Cohort Rates of Transferring between Institutions

| Year | Enrolled | One Institution | | Transferred | |
|---|---|---|---|---|---|
| | | *n* | % | *n* | % |
| 2006 | 69 | 47 | 68% | 22 | 32% |
| 2007 | 78 | 51 | 65% | 27 | 35% |
| 2008 | 89 | 56 | 63% | 33 | 37% |
| 2009 | 84 | 60 | 71% | 24 | 29% |
| **Total** | **320** | **214** | **67%** | **106** | **33%** |

*(Drawn from the NSC dataset)*

It is also possible that the rate of transferring in the cohort is lower because the most recent graduating class is only five years removed from high school. It is likely that at least some of these students will continue their studies or re-enroll in another institution moving forward. Graduates who transferred were frequently not limited to just one transition as 17 attended a third institution, seven transferred to a fourth institution and one student is currently attending his/her fifth undergraduate institution.

### 4.2.5 Key Findings

Overall, when compared with broader trends in postsecondary persistence, it appears that district graduates from the cohort persist to a second year of studies at a slightly better rate. They also stopped out of their studies and transferred at lower rates than have been established with other groups of students. Given the negative relationship between stopping out and transferring with graduation, these lower rates should benefit the overarching progress toward degree completion for the student population being studied.

## 4.3 GRADUATION

Graduation rates can be considered through a variety of lenses including institutional graduation rates (one place of study) and individual student graduation rates (include transferring). The window of time used to measure graduation is also important to define given that the existing literature inconsistently looks at two-year program graduation rates after two or three years and four-year programs across four, six and eight year windows. This section also looks at associate degree graduation rates for individual students, followed by bachelor degree individual graduation rates at four years, six years and open-ended intervals.

### 4.3.1 Two-Year Program Graduation

Within the graduate cohort being studied, 28% (n=113) of the students began their postsecondary studies at two-year institutions. Among those students, 20% (n=23) earned an associate degree

and another 37% (n=42) transferred to four-year institutions after starting their postsecondary education at one or more two-year institutions (see Table 17).

**Table 17.** Two-year Program Degree Outcomes for Cohort Students Enrolled

| | # of Students | Percentage |
|---|---|---|
| **Graduated** | 23 | 20% |
| **4-yr Transfer** | 42 | 37% |
| **Dropped Out** | 39 | 35% |
| **Still Enrolled** | 9 | 8% |
| **Total Enrolled** | **113** | **100%** |

*(Drawn from the NSC dataset)*

The two subsets, graduates and four-year transfers, combine to show 58% (n=65) of the two-year students either completing their associate degree or advancing on to a bachelor degree program at a four-year institution. As mentioned in the previous section, many of the students beginning higher education at a two-year institution, specifically community colleges, do so with the intention of transferring to a bachelor degree program after general education credits and/or exploring programs of study. From the data collected for this study, there is no way to determine the specific intentions of the individual high school graduates when they initially enrolled at a two-year institution.

Students earning an associate degree (n=23) were enrolled for an average of 6.3 semesters. The majority of full-time associate degree programs are designed for standard completion in four terms. Among students who started at two-year institutions, 6% (n=7) completed their associate degree in four or fewer terms, while the other 14% (n=16) of graduates took between 5 and 11 terms to complete their degrees. Aud et al. (2011) reported that at two-year institutions, approximately 27% of students beginning in the fall of 2002 had completed an associate degree or certification program within a window of 150% of the designed length of the program, which is considered "timely" degree completion. Based on the assumption that most

two-year programs are designed to be four terms, 150% of time would equate to six terms. Within this district cohort, 10% (n=11) of two-year students completed within the 150% time frame for enrollment. The other 11% (n=12) of graduates finished beyond 6 semesters of study. While a rather small sample size, it appears that timely completion of two-year degrees is lower (10%) among these district graduates when compared to the national sample (27%) of 2002 enrollees (Aud, et al., 2011).

### 4.3.2 Four-Year Program Graduation in ≤ Four Years

Similar to associate degrees, bachelor degree attainment can be examined by institutions or by individuals, and across several different timeframes for graduation. For the purpose of this analysis, the focus is on aggregate individual student graduation rates as opposed to institutional graduation rates. The individual postsecondary degree outcomes are the primary concern within this study, although institutional degree completion rates are provided as a means to make comparisons with larger or national groups. The district cohort enrolled across 88 different colleges and universities during their postsecondary studies. A variety of time frames for measuring graduation rates are included to consider both timely bachelor degree completion and bachelor degree completion at any point leading up to and including the spring semester of 2014.

From the 396 students in the cohort being studied, Table 18 shows that 63% (n=249) attended a four-year institution at some point during their postsecondary studies. Within this group, 32% (n=80) of students earned their bachelor degree within four years (eight terms) of initial enrollment. This outcome across the four graduating classes had some variation with the lowest four-year graduation rate of 25% (2008) and the highest of 38% (2009).

**Table 18.** Graduation Rate of Cohort Students within 4 Years of Enrollment

| | Enrolled | Graduated ≤ 4 years | |
|---|---|---|---|
| | | ***n*** | **%** |
| 2006 | 59 | **20** | **34%** |
| 2007 | 63 | **20** | **32%** |
| 2008 | 63 | **16** | **25%** |
| 2009 | 64 | **24** | **38%** |
| Total | 249 | **80** | **32%** |

*(Drawn from the NSC dataset)*

Within the graduate cohort who enrolled in four-year programs (n=249), 28% (n=70) graduated from their original institution of higher education, compared to the four-year individual graduation rate of 32% (n=80). This finding means that 10 students were able to graduate in four years even though they transferred between two institutions. DesJardins et al. (2002) found about 39% and Adelman (2006) about 33% of graduates are considered timely graduates. However, both of these studies looked at institutional graduation rates, not individual graduation rates. Given that the school district's cohort graduation calculations of 32% are based on individual student tracking across institutions, it would be expected that the rate should be higher, not lower, than a large national sample. Regardless, these data show that district graduates from these classes are completing bachelor degrees at slightly lower rates than a similar national sample.

### 4.3.3 Four-Year Program Graduation in ≤ Six Years

When extending bachelor degree completion out to six years following initial enrollment, the degree completion rate more than doubles to 65% (n=120). This calculation only takes into consideration the high school graduating classes of 2006-2008 since the class of 2009 has not

had the opportunity to be enrolled for a sixth year as of the spring semester of 2014 (see Table 19).

**Table 19.** Graduation Rate of Cohort Students within 6 Years

| | Enrolled | **Graduated ≤ 6 years** | |
|---|---|---|---|
| | | ***n*** | **%** |
| 2006 | 59 | **34** | **58%** |
| 2007 | 63 | **45** | **71%** |
| 2008 | 63 | **41** | **65%** |
| Total | 249 | **120** | **65%** |

*(Drawn from the NSC dataset)*

As a national comparison group, Kena et al. (2014) reports that 59% of first-time college freshman in bachelor degree programs who began in the fall of 2006 completed their degree within six years at the same institution. Within this cohort, by restricting the number of graduates to their first institution of study, the graduation rate lowers from 65% (n=120) to 45% (n=84). This leaves out the 36 graduates who transferred between two (n=32), three (n=2) and four (n=2) different institutions. In this case, the four-year program completion rate within six years is lower for the cohort (45%) than for the national comparison group (57%).

Given that this study is looking primarily at individual graduation rates compared to institutional graduation rates, it is interesting that the four-year graduation rate of 32% was similar but trailed the national trend of 33%, while the six-year graduation rate was higher than the national trend, 65% to 59%. This indicates that given 150% time to bachelor degree completion, the district graduates completed their degrees at a higher rate than a national sample, although the use of individual degree completion compared to institutional degree completion significantly favors the cohort.

### 4.3.4 Four-Year Program Graduation at any Point

When opening up the window of opportunity for degree completion to the maximum amount of time for the graduating classes, the rates increase to 61% (n=36) for the class of 2006 and to 73% (n=46) of the class of 2007. This is a slight increase of 2% (n=3) over the 6 year graduation window for those two graduating classes. In total, 63% (n=157) of the full cohort has completed their bachelor degree or higher through the spring term of 2014 (see Table 20).

**Table 20.** Total Bachelor Degree Completion of Cohort Students

| | **Enrolled** | **4 Years** | | **6 Years** | | **Through Spring '14** | |
|---|---|---|---|---|---|---|---|
| | | *n* | % | *n* | % | *n* | % |
| 2006 | 59 | 20 | 34% | 34 | 58% | 36 | 61% |
| 2007 | 63 | 20 | 32% | 45 | 71% | 46 | 73% |
| 2008 | 63 | 16 | 25% | 41 | 65% | 41 | 65%** |
| 2009 | 64 | 24 | 38% | 34 | 53%* | 34 | 53%* |
| **Total** | **249** | **80** | **32%** | **154** | **62%** | **157** | **63%** |

**Only five years removed from high school graduation*
***Only six years removed from high school graduation*
*(Drawn from the NSC dataset)*

The 157 graduates with bachelor degrees are likely to be joined by additional students who are still enrolled in postsecondary studies or possibly by other students returning to school after delaying their entry or stopping out, especially students from the class of 2009. At the end of the spring 2014 term there were 14% (n=34) of the four-year institution students currently enrolled in higher education, including 15 from the class of 2009, which is only five years removed from high school completion (see Table 21). Wirt et al. (2004) found that the rate of students still being enrolled after five years was 17%. In the case of this cohort class of 2009, 23% (n=15) of those who attended a four-year institution were still enrolled after five years. The average amount of time until the completion of the bachelor degree for students in the cohort was

just shy of 9 semesters or 4.5 years of study, however this average is likely to increase as more students complete their degrees over time.

**Table 21.** Average Semesters until Bachelor Degree Completion for Cohort Students

| | Graduates | Average # of Semesters |
|---|---|---|
| 2006 | 36 | **9.1** |
| 2007 | 46 | **9.1** |
| 2008 | 41 | **9.0** |
| 2009 | 34 | **8.4*** |
| **Total** | **157** | **8.9** |

**Only 10 possible semesters*
*(Drawn from the NSC dataset)*

### 4.3.5 Key Findings

The rates of degree completion were lower for each of the groups when compared to larger or national comparison groups. Timely two-year program completion was 17% lower for the cohort than for a national sample. Cohort students' completion of degrees at four-year programs all trailed national trends after four years (28% compared to 33%) and after six years (45% compared to 59%). While lacking a larger comparison group, degree completion was higher after six years when students were tracked across institutions, with 65% having earned at least a bachelor degree.

## 4.4 INTERPRETATION OF DEGREE PROGRESS

Overall, the National Student Clearinghouse dataset indicates that the high school seniors overestimated their anticipated enrollment following high school, even more so for two-year programs than for four-year programs. These predictions made during the high school senior

year parallel similar trends across other school districts (Castleman & Page, 2014). Within the graduate cohort, eventually the number of high school graduates enrolling in higher education reached their self-reported senior year intentions.

However, those who did enroll in higher education were able to persist to their second year of studies at a slightly better rate than most college students (Aud, et al., 2011). In total, 91% of students persisted from their first year of studies to a second year of studies, although many switched institutions. Within the cohort far less students stopped out and returned (DesJardins, et al., 2002) and less transferred (Adelman, 2006) than in comparison groups.

Subsequently, this group of district graduates completed associate degree programs at a lower rate than national trends, but completed bachelor degree programs at a higher rate than national trends when given at least six years to complete their degrees across institutions. When considering the findings against comparison groups with institutional data, the cohort trailed in degree completion at both four and six year intervals (Adelman, 2006; Aud, et al., 2011; DesJardins, et al., 2002; Kena, et al., 2014).

Considering that the cohort of students being studied is relatively small and from a single school district, direct comparisons with the existing research are admittedly limited. In addition, the varying nature of comparing trends in persistence and graduation with national samples while following students in the cohort across multiple institutions makes drawing connections difficult. Those limitations aside, it appears that the district graduates included in this research have similar outcomes to those established in the literature.

Among the 396 students, 81% (n=320) found their way into higher education. Among enrolled students, only 7% (n=23) earned associate degrees and 49% (n=157) earned bachelor degrees. Not unlike other school districts, time and resources need to be dedicated to better

understanding what happens to the 15% of students who exit high school with postsecondary intentions but don't arrive in higher education just two months later. Specific to the district being studied, a question for a district leadership team should be, "why do so many more graduates pursue four-year degrees than two-year degrees compared to broader trends?"

Also for further consideration is the trend that district graduates appear to persist at higher rates, and stop-out and transfer at lower rates than national averages. Each of those should be a positive indication of higher degree completion rates, yet the district graduates had lower institutional graduation rates than comparison groups. The findings also suggest that district graduates need more than four years to complete four-year degree programs. Needing more time until graduation is possibly an indication that cohort students are needing to complete higher than average amounts of remedial coursework and extending their time needed to complete degree requirements (Chen, et al., 2010). Are there resources within the control of the school district to influence these outcomes such as the need for more dual enrollment credits, better academic preparation to avoid remediation courses in higher education, or better career/degree pathway and institution selection? The findings in the next two chapters are directly associated with some of these considerations as I examine *knowledge for college* acquisition and sources.

# 5.0 FINDINGS AND ANALYSIS ABOUT THE ACQUISITION OF *KNOWLEDGE FOR COLLEGE*

The second research question asks, "What do responding graduates know about the various components of *knowledge for college*?" Out of the 320 students in the district cohort who enrolled in postsecondary studies at some point following high school graduation, 29% (n=93) completed the Graduate Questionnaire which provided an opportunity to rate their preparedness for and awareness of the areas within *knowledge for college*. At the time the Graduate Questionnaire was distributed updated email addresses were available for 125 of the 320 graduates who had enrolled in higher education from the cohort. Subsequently the response rate for graduates who received an invitation to participate in the study was 74%. The respondents were evenly distributed across the four graduating classes (25, 24, 22, and 22 respectively).

Five additional district graduates started the survey but were exited because they did not meet one of two essential criteria for participation in the survey. Two of the five respondents graduated from the district outside of the 2006-2009 cohort window. In both cases the respondents accessed the survey by using a link sent to their respective sibling's email address. Since they were not the intended recipient, and outside of the cohort window, they were exited from the survey after providing their name and year of graduation. The other three respondents were exited from the survey because they self-reported that they did not continue their formal education beyond high school, contrary to the NSC dataset which indicated that they had

enrolled in higher education. In all three cases the respondents had, based on NSC data, enrolled briefly in higher education but had not progressed for long. It is assumed that these respondents did not identify themselves as having continued their formal education based on their response to the question, "Have you continued your formal education following high school?" In these cases they were also exited from the survey at that time and were not included for any questions associated with research questions two or three.

Within the analysis of research question two, the ratings are distributed across seven components structured closely to the conceptual framework established by Conley's (2013) notion of Key Transition Knowledge and Skills. Those seven components were further identified in this study as Role and Identity, Self-Advocacy, Postsecondary Awareness, Postsecondary Costs, Matriculation, Career Awareness, and Academic Knowledge. These findings were drawn from Part B of the Graduate Questionnaire (see Figure 5). The components were operationalized across 27 items within three Likert scale question blocks. Respondents were asked, on a five-point scale, to state their agreement with a variety of statements. Within the study design, the original intention was to also compare survey responses between college graduates and non-graduates. However, upon analysis of the data it was discovered that survey respondents were almost entirely college graduates (96%), with only a handful of non-graduates completing the survey. Subsequently comparisons between college graduates and non-graduates were removed from the analysis.

The following sections detail the findings for each of the seven components within *knowledge for college.* Overall respondents from the graduate cohort were in agreement that they were aware of and prepared for postsecondary studies. Their levels of agreement varied from 61% cumulative frequency of agreement (strongly agree + agree) for postsecondary costs

up to 75% cumulative agreement for matriculation. Respondents also frequently used the neutral rating (16%), which could be contributed to both indecisiveness on their levels of agreement and also given the length of time since their high school experiences and college entrance. While the cumulative levels of agreement in preparation for the seven components were within 15% of each other, the ratings across the 27 individual items varied more drastically. This ranged from 47% cumulative frequency of agreement in mathematics to 94% in English/language arts. Collectively, this indicates that between 60%-75% of cohort graduates reported that they felt prepared across the *knowledge for college* components; however the respondents were overly representative of college graduates. Students who enrolled in postsecondary studies and failed to complete a degree are likely to have felt less prepared in *knowledge for college* than classmates who completed degree programs.

## 5.1 ROLE AND IDENTITY

Within this component, the desired outcome is to graduate students who identify themselves as student-scholars and help them to recognize that other roles, such as athlete or musician, are secondary to their primary identity as a student. The establishment of positive and appropriate role models who match postsecondary and career aspirations are also valuable for the acquisition of social and cultural capital and for students' identity development (Bottoms, et al., 2009).

Responses to the two items associated with Role and Identity were positive with an average of 70% (n=131) cumulative level of agreement with the two statements and 13% (n=24) either Disagreeing or Strongly Disagreeing with the statements (see Table 22). The respondent ratings for the two statements within Role and Identity were in strong contrast with one another.

Out of the 27 statements associated with acquisition of *knowledge for college,* the statement associated with identifying as a student first and foremost had the second highest level of cumulative agreement (83%), while the statement associated with establishing relationships with role models was the fifth lowest (58%) cumulative agreement.

**Table 22.** Role and Identity Acquisition of Respondents

| During high school I… | Strongly Agree | | Agree | | Neutral | | Disagree | | Strongly Disagree | | **Cumulative Agreement (SA+A)** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % | ***n*** | **%** |
| … identified myself first and foremost as a student (as opposed to an athlete, employee, musician) | 40 | 43% | 37 | 40% | 13 | 14% | 3 | 3% | 0 | 0% | **77** | **83%** |
| … was able to establish relationships with role models who had successfully made postsecondary or career transitions similar to my own goals | 21 | 23% | 33 | 35% | 18 | 19% | 19 | 20% | 2 | 2% | **54** | **58%** |
| **Role and Identity Totals** | **61** | **33%** | **70** | **38%** | **31** | **17%** | **22** | **12%** | **2** | **1%** | **131** | **70%** |

*(Drawn from Part B Items 1 and 9 of the Graduate Questionnaire)*

Feedback from the district graduates on this component of *knowledge for college* indicates that, while a large percentage value themselves first and foremost as a student compared to their other identity roles, there is significant room for improving the systems of networking students with professionals and mentors in their potential degree programs and/or fields of study. Since this cohort of students have completed their high school studies in the district, some additional layers of college-linking supports have been added for more recent students that begin to address this component. These include increased job shadowing requirements for seniors prior to graduation and the establishment of an alumni network.

## 5.2 SELF-ADVOCACY

The acquisition of self-advocacy skills is gathered through the use of four items related to knowing how to access academic support, mental health/counseling services, medical services, and registration/courses services as students transition into their postsecondary studies. For some students, these skills can be obtained through the experiences of having had a sibling or relative navigate the college network of services while others may have an experienced family or social support network that helps them navigate these resources. For other students, this awareness may only be acquired through high school programming and personnel (Bryan, et al., 2011; Stephan, 2010).

Not all students may need access to academic support, mental health, or medical services during postsecondary studies, but for many, this will be the first time they need to access these services away from the comfort of a guardian's home or direct supervision. The last attribute, assistance with postsecondary class registration, is something that nearly all postsecondary students need to understand in order to persist successfully in higher education. This process is likely to be very different from course registration and access that they experienced during their K-12 education.

As shown in Table 23, survey respondents rated the items in this component consistently high, with the cumulative level of agreement between Strongly Agree and Agree combining for 60% to 78% of responses. The overall average agreement for the component was 70% (n=157) and disagreement of 10% (n=37). The lowest rated item was associated with understanding the registration process in higher education. This is an area that could be considered very weak among the various aspects of knowledge for college, given that for most students it does not come into play until after high school graduation, with the exception of dual enrollment students.

The highest item was associated with accessing medical services. Collectively, the components of Self-Advocacy received the second highest cumulative percentage of agreement (70%) of the seven areas within *knowledge for college* and also the lowest cumulative percentage of disagreement (10%).

**Table 23.** Self-Advocacy Acquisition of Respondents

| Upon high school graduation I knew how to… | Strongly Agree | | Agree | | Neutral | | Disagree | | Strongly Disagree | | **Cumulative Agreement (SA+A)** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % | ***n*** | **%** |
| … access academic support, such as tutoring, if I needed it | 25 | 27% | 41 | 45% | 19 | 21% | 5 | 5% | 2 | 2% | **66** | **72%** |
| … access mental health support, such as counseling services, if I needed them | 24 | 26% | 40 | 43% | 16 | 17% | 9 | 10% | 3 | 3% | **64** | **70%** |
| … access medical services if I needed them | 36 | 39% | 36 | 39% | 17 | 18% | 2 | 2% | 1 | 1% | **72** | **78%** |
| … get assistance with postsecondary class registration issues if I needed it | 18 | 20% | 37 | 40% | 22 | 24% | 14 | 15% | 1 | 1% | **55** | **60%** |
| **Self-Advocacy Totals** | **103** | **28%** | **154** | **42%** | **74** | **20%** | **30** | **8%** | **7** | **2%** | **257** | **70%** |

*(Drawn from Part B Items 10, 11, 12 and 15 of the Graduate Questionnaire)*

Feedback on this component most clearly communicates a need to ensure that high school graduates are aware of and prepared to navigate the registrar systems of higher education. Respondent skills associated with accessing other services, including academic support, mental health and medical services, were consistently rated high on the scales. While they could be reinforced to potentially reach a broader collection of graduates, they were fundamentally positive. Since little has changed within the high school programming related to helping

students understand postsecondary course registration process, this is likely an identified area of needed development for the school system.

## 5.3 POSTSECONDARY AWARENESS

The acquisition of skills in the area of Postsecondary Awareness seek to gather an understanding around higher education norms and culture, as well as how a student's aspirations and abilities align with goals, postsecondary academic expectations, and rigor. Students who are experienced in postsecondary education tend to understand there are differences in academic, social and personal expectations compared to high school. Class structures, course requirements, degree progressions, credit structures, study habits, cultural expectations and social opportunities tend to be novel experiences to first time postsecondary students. Respondent levels of acquisition of these skills were assessed through the use of three items.

While still generally positive, respondents reported some of the lowest levels of preparation for this component of *knowledge for college.* The average percentage of cumulative levels of agreement were 65% (n=180), and 18% (n=50) of responding students cumulatively disagreed with the statements provided. Among respondents, 73% (n=67) were most comfortable with the academic expectations at their postsecondary institutions and 60% (n=55) were least prepared for what it would be like to be a college freshman (see Table 24). The collective percentage of agreement for Postsecondary Awareness (65%) was sixth of the seven components. Although still a positive score, 18% (n=50) of respondents were in disagreement with the component, which was among the highest cumulative levels of disagreement.

**Table 24.** Postsecondary Awareness Acquisition of Respondents

| Upon high school graduation I was aware of … | Strongly Agree | | Agree | | Neutral | | Disagree | | Strongly Disagree | | **Cumulative Agreement (SA+A)** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % | ***n*** | **%** |
| … of what it would be like to be a freshman again during postsecondary studies | 14 | 15% | 41 | 45% | 14 | 15% | 17 | 18% | 6 | 7% | **55** | **60%** |
| … the academic expectations of the postsecondary institution that I planned to attend | 22 | 24% | 45 | 49% | 12 | 13% | 9 | 10% | 4 | 4% | **67** | **73%** |
| … what it would be like to go to school in a new setting | 19 | 21% | 39 | 42% | 20 | 22% | 13 | 14% | 1 | 1% | **58** | **63%** |
| **Postsecondary Awareness Totals** | **55** | **20%** | **125** | **45%** | **46** | **17%** | **39** | **14%** | **11** | **4%** | **180** | **65%** |

*(Drawn from Part B Items 16, 17 and 18 of the Graduate Questionnaire)*

Understanding what it would be like to be a college freshman was reported among the lowest of items, and combined with only a moderate awareness of what it would be like to go to school in a college setting, causes some level of concern given the respondent ratings. These two generalized items represent an important difference between the nature of studying at a secondary level and at a postsecondary level. Similar to the other components, while some students may acquire this information through other networks, it is important for secondary schools to help build readiness in this area among high school graduates (Plank & Jordan, 2001; Stephan, 2010). Strategies to develop deeper *knowledge for college* in this domain could include the need for more postsecondary exposure during high school in the form of college visits or attempts to supplement this information through classroom guidance lessons and connections with an alumni network.

## 5.4 POSTSECONDARY COSTS

Readiness surrounding Postsecondary Costs is structured on acquiring knowledge and familiarity of financial aid systems, tuition and other cost structures, and searching/applying for financial aid. This information is completely novel for many high school graduates and especially first generation college students. This component is also known to be complex and a major barrier for college access and completion (Baum & Payea, 2011; Martinez & Klopot, 2005; Tierney, 2009). More recently, many secondary school systems, including the district being studied, have begun to make concerted efforts to support students and families in preparing for the cost of higher education and navigating financial aid systems, including holding financial aid seminars and FAFSA completion nights.

Respondents to the graduate survey maintained relatively positive experiences related to Postsecondary Costs, but rated it as the lowest component of *knowledge for college.* Survey results showed that 61% (n=169) of respondents were in cumulative levels of agreement. This was the lowest rate of agreement from the seven overall components. Respondents also combined with 22% (n=62) cumulative levels of disagreement (see Table 25). Although most students responded that they agreed with the statements and had acquired the necessary information, this component had both the lowest rate of agreement and the highest rate of disagreement among the areas assessed. Two of the items, assistance with financial aid and finding/applying for financial aid, were the 24$^{th}$ and 26$^{th}$ ranked items out of the 27 based on cumulative levels of agreement.

**Table 25.** Postsecondary Costs Acquisition of Respondents

| Upon high school graduation I … | Strongly Agree | | Agree | | Neutral | | Disagree | | Strongly Disagree | | **Cumulative Agreement (SA+A)** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % | ***n*** | **%** |
| … knew how to get assistance with postsecondary financial aid issues if I needed it | 17 | 18% | 33 | 35% | 23 | 25% | 14 | 15% | 6 | 7% | **50** | **54%** |
| … was aware of tuition rates and other costs associated with the postsecondary institutions that interested me | 25 | 27% | 41 | 45% | 9 | 10% | 10 | 11% | 7 | 4% | **66** | **72%** |
| … was aware of how to find and apply for financial aid such as scholarships, grants and loans | 18 | 20% | 35 | 38% | 14 | 15% | 19 | 21% | 6 | 1% | **53** | **58%** |
| **Postsecondary Costs Totals** | **60** | **22%** | **109** | **39%** | **46** | **17%** | **43** | **16%** | **19** | **4%** | **169** | **61%** |

*(Drawn from Part B Items 14, 19 and 20 of the Graduate Questionnaire)*

On a more positive note, 72% (n=66) of respondents reported that they cumulatively either Agreed or Strongly Agreed that they were aware of tuition and other costs associated with their postsecondary institutions of interest. These findings indicate that while graduates were aware of the potential costs, many felt underprepared knowing where and how to obtain financial aid.

These results also indicate a definitive need to review changes that have taken place since the cohort graduated and consider ways to supplement and bolster the education and experiences that students are receiving around financial aid and postsecondary costs. One possible factor to consider is that Financial Aid Nights and FAFSA Completion Nights tend to be attended by parents and guardians but not by students at the district being studied. In this regard, it is possible the overall programming provided to students, through their parents, is appropriate and valuable in supplementing the acquisition of this *knowledge for college* but this method of

surveying graduates, instead of parents, does not demonstrate this information. It is also important to note with this analysis that these specific programs were added during the years that this cohort was still attending high school. Many of the students surveyed would not have had the opportunity to attend a district-held Financial Aid Night and none of the students would have had access to a district-held FAFSA Completion Night. These two programs were added and expanded based on an early awareness of student struggles with financial aid, although attendance at these events in 2015 remains low for the district.

## 5.5 MATRICULATION

Matriculation was assessed through four items and incorporates postsecondary eligibility, admissions processes and program selection. Desired skills for students are identifying institutions of interest and then understanding their admission requirements, application processes, and program/degree options. These career planning services are essential to the initial matriculation of high school graduates into higher education, often precede students' understanding of financial aid systems and are essential for institution selection (Cabrera & La Nasa, 2001; Martinez & Klopot, 2005; Tierney, 2009).

Respondents felt more prepared in the area of Matriculation than any of the other components. Across the four associated items 75% (n=280) Agreed or Strongly Agreed with the statements compared to 11% (n=40) who either Disagreed or Strongly Disagreed. This cumulative level of agreement was 5% higher than the second rated component of Self-Advocacy. Within the component, the highest rated items were associated with understanding admissions requirements and how to apply for admission, 85% and 78% in agreement

respectively (see Table 26). No students out of the 93 responded with Strongly Disagreed to either of the two statements. Those two statements along with awareness around program and degree options were three of the top 10 rated items on the survey base on percentages of cumulative agreement.

**Table 26.** Matriculation Acquisition of Respondents

| During high school I…/Upon high school graduation I… | Strongly Agree | | Agree | | Neutral | | Disagree | | Strongly Disagree | | **Cumulative Agreement (SA+A)** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % | ***n*** | **%** |
| … was aware of the necessary admissions and eligibility requirements for the postsecondary programs and schools I was interested in | 35 | 38% | 44 | 47% | 6 | 6% | 8 | 9% | 0 | 0% | **79** | **85%** |
| … was aware of how and when to apply to the postsecondary programs I was interested in | 33 | 35% | 40 | 43% | 10 | 11% | 10 | 11% | 0 | 0% | **73** | **78%** |
| … was aware of the various types of postsecondary programs and degree options that were available | 25 | 27% | 42 | 45% | 16 | 17% | 9 | 10% | 1 | 1% | **67** | **72%** |
| … knew how to get assistance with postsecondary admissions issues if I needed it | 24 | 26% | 37 | 40% | 19 | 21% | 10 | 11% | 2 | 2% | **61** | **66%** |
| **Matriculation Totals** | **117** | **32%** | **163** | **44%** | **51** | **14%** | **37** | **10%** | **3** | **1%** | **280** | **75%** |

*(Drawn from Part B Items 3, 4, 5 and 13 of the Graduate Questionnaire)*

These results indicate that among the components of *knowledge for college* respondents from the graduate cohort felt the most prepared when it comes to institution selection, application and enrollment. This is also likely the component that received the most attention from the studied school's secondary school counseling programming, including individual postsecondary planning and classroom guidance lessons on career planning. Students also

generally show more interest in this component compared to other aspects such as financial aid planning.

## 5.6 CAREER AWARENESS

The acquisition of skills surrounding Career Awareness includes a variety of topics related to the exploration of career pathways, career options, benefits and personal readiness for those pathways. This component was measured through the use of four items. These included knowing about career options, the associated education and pay structures, academic and personal skills for success on a pathway, and the establishment of career goals that were aligned with their individual skills, interests and abilities. These attributes require a mixture of both self-awareness about the student's skills and abilities as well as an awareness of potential career options and pathways. Knowing pay, benefits and working conditions of potential careers in conjunction with how career expectations match personal abilities are essential to this component (Baum, et al., 2010). Given the vast array of career pathways and information, it is important for students to know how to access and navigate the information to assist with their decision making and planning. In my experiences, secondary school counselors work to expand student awareness of career attributes beyond salary to include other important characteristics associated with educational requirements and working conditions that can be overlooked and undervalued.

The survey results show relatively high rates of student acquisition among respondents. Matriculation component totals indicated that 68% (n=254) cumulative agreement with the associated survey items, while 12% (n=46) either disagreed or strongly disagreed. The items within this component saw a wide variety of agreement. The highest of the four, establishing

goals after high school that were aligned with skills, interests and abilities, had an 83% (n=77) agreement rate. This is in contrast with the lowest item, awareness of various career options and workplaces that matched skills and interests, with only 55% (n=51) in agreement (see Table 27). The polarity of the items in this component is evident in that Career Awareness has the 5th and 8th highest items as well as the 19th and 25th rated items out of 27 based on levels of agreement.

**Table 27.** Career Awareness Acquisition of Respondents

| During high school I … | Strongly Agree | | Agree | | Neutral | | Disagree | | Strongly Disagree | | **Cumulative Agreement (SA+A)** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % | ***n*** | **%** |
| … had established specific goals for after high school that were aligned with my skills, interests, and abilities at the time | 35 | 38% | 42 | 45% | 11 | 12% | 4 | 4% | 1 | 1% | **77** | **83%** |
| … was aware of various career options and workplaces that matched my skills and interests at the time | 18 | 19% | 33 | 35% | 26 | 28% | 15 | 16% | 1 | 1% | **51** | **55%** |
| … was aware of the various educational requirements, pay grade, benefits and working conditions among career options | 19 | 20% | 39 | 42% | 17 | 18% | 16 | 17% | 2 | 2% | **58** | **62%** |
| … was aware of the academic and personal skills I would need to be successful in my desired career pathways | 28 | 30% | 40 | 43% | 18 | 19% | 7 | 8% | 0 | 0% | **68** | **73%** |
| **Career Awareness Totals** | **100** | **27%** | **154** | **41%** | **72** | **19%** | **42** | **11%** | **4** | **1%** | **254** | **68%** |

*(Drawn from Part B Items 2, 6, 7 and 8 of the Graduate Questionnaire)*

In total, it appears that respondents were more comfortable with knowing how their skills, interests and abilities meshed with goals and career pathways, yet they were not nearly as informed about the variety of career options or corresponding education, pay, benefits and working conditions. In a component that encompasses a wide array of career options and

information, an important strategy is to ensure that students know how to at least access and explore the available information. The separation between respondents perceived high preparation in understanding postsecondary institution options in Matriculation and their perceived moderate preparation in Career Awareness is a notable separation given that these two components tend to be closely associated with each other in school-based career readiness initiatives. This is an indication that school selection is not necessarily viewed as a stepping block to career selection for most students. This is supported by my personal experiences in working with high school populations where students tend to make postsecondary institution selections based on housing options, social/peer networks, and institution reputations rather than on academic or career related factors.

These skills can be further developed through school counselor classroom guidance lessons, teacher led lessons and other programs. One initiative that has been added since this cohort completed their studies is pushing career exploration into earlier grades through elementary career days and Career Café (speakers) at the junior high level. While some programming exists related to this component, sporadic levels of respondent agreement indicates a need to reevaluate what is being done and seek means to expand career awareness of pathway options.

## 5.7 ACADEMIC KNOWLEDGE

The final component of *knowledge for college* identified in this study is Academic Knowledge. This component is designed to address the mastery of subject knowledge in the various academic content areas which is commonly associated with college readiness (Baum & Payea, 2011;

Bottoms, et al., 2009; McDonough, 2006). The seven items associated with Academic Knowledge were intended to address the content areas of English/Language Arts, Math, Science, History/Social Studies, Arts, Writing and Technology. The academic readiness of students is often studied through a variety of means, including state and national standardized testing, however this study was a unique opportunity for the school district to gather perceptions about academic preparedness directly from recent graduates who have continued their studies in higher education.

Respondents were asked to rate their perceived academic readiness in the content areas and reported extreme variations in their preparation across academic areas. Overall 70% (n=458) of responses were in cumulative agreement that they felt academically prepared for postsecondary studies, compared to the 15% (n=100) who Disagreed or Strongly Disagreed. This component included both the lowest and highest rated items across all of the *knowledge for college* items. Respondents rated English/Language Arts (ELA) very high with 94% (n=87) in agreement. Only 3% (n=3) of respondents disagreed that they were prepared for postsecondary ELA studies and 0% strongly disagreed. Writing, which is closely associated and could have been included with Language Arts, also received high ratings. The cumulative level of agreement was 86% (n=80) and only 8% (n=7) were in cumulative disagreement for Writing. On the opposite end of the spectrum respondents rated Mathematics as the lowest Academic Knowledge area and overall item in acquired *knowledge for college* with 47% (n=44) cumulative level of agreement and 34% (n=32) in disagreement. The Academic Knowledge content area statements are provided in Table 28 ranked in order from highest to lowest levels of preparation base on cumulative levels of agreement.

**Table 28.** Academic Knowledge Acquisition of Respondents

| Upon high school graduation I felt academically prepared for postsecondary studies in… | Strongly Agree | | Agree | | Neutral | | Disagree | | Strongly Disagree | | **Cumulative Agreement (SA+A)** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % | ***n*** | **%** |
| English/Language Arts | 42 | 45% | 45 | 48% | 3 | 3% | 3 | 3% | 0 | 0% | **87** | **94%** |
| Writing | 39 | 42% | 41 | 44% | 6 | 6% | 6 | 6% | 1 | 1% | **80** | **86%** |
| Science | 23 | 25% | 44 | 47% | 11 | 12% | 12 | 13% | 3 | 3% | **67** | **72%** |
| History/Social Studies | 25 | 27% | 41 | 44% | 18 | 19% | 9 | 10% | 0 | 0% | **66** | **71%** |
| Technology | 22 | 24% | 37 | 40% | 18 | 19% | 14 | 15% | 2 | 2% | **59** | **63%** |
| Arts | 19 | 20% | 36 | 39% | 19 | 20% | 17 | 18% | 1 | 1% | **55** | **59%** |
| Mathematics | 17 | 18% | 27 | 29% | 16 | 17% | 21 | 23% | 11 | 12% | **44** | **47%** |
| **Academic Knowledge Totals** | 187 | 29% | 271 | 42% | 91 | 19% | 82 | 13% | 18 | 3% | **458** | **70%** |

*(Drawn from Part B Items 21, 22, 23, 24, 25, 26 and 27 of the Graduate Questionnaire)*

Respondents from the cohort clearly communicated that they felt the most prepared in the areas of English and writing upon continuing their postsecondary education. They also clearly indicated feeling unprepared in the area of mathematics. These items provide quality informative for district leadership. It is important when considering change at the district level to take into account what changes have happened since the last class from this cohort completed their studies in 2009. Some of the positive changes in Academic Knowledge are likely reflected in the increased school performance indicators discussed in detail in Section 3.3.1.

Informal feedback from graduates during this time also largely supports these findings, with the majority of alumni concerns surrounding mathematics readiness. However, since this cohort graduated, significant changes have taken place related to mathematics. Specifically, the district provides a new honors course sequence capstoned by AP Calculus which increased the amount of informal positive feedback as well as AP test scores. Removing advanced math

students from courses closely aligned to the state's previous PSSA assessment anchors, and allowing them to take honors coursework with increased rigor and content, resulted in increased AP Calculus performance.

During an open-ended question following the Academic Content question block, 48 students provided feedback. Within those open-ended responses, 17 graduates included a reference to feeling unprepared in mathematics. One respondent included comments regarding the fact that no students at the time were earning passing scores on the AP Calculus exam. His claim is supported by the fact that no students had scored above the minimum (scores range from 1 to 5) on the exam during a several year period including the cohort graduating classes of 2006-2009. Since then, the changes in math course content and offerings have resulted in the average AP Calculus score rising from 1.38 in 2010 to 4.55 in 2014. While no student had earned a five prior to 2010, seven out of the 11 students taking the exam in 2014 scored a five. Informal feedback from more recent alumni indicates that the honors math track left them highly prepared for postsecondary studies, while the general academic math track still does not provide enough college readiness for students.

In contrast to mathematics, respondents reported very high readiness in English (94%) and writing (86%). However, since the respondents have completed high school, there have been several changes in the ELA department. This includes replacing two ELA teachers at the senior high level. Other content areas have also had varying levels of change since the cohort students completed high school. Science and Social Studies/History courses offerings have expanded to include additional AP course offerings and readiness has likely increased as a result. The areas of Technology and Arts have been relative neutral, with some growth in student

achievement in the areas of Digital Media/Graphic Design and Music, but stagnant course offerings on other areas of Technology and Art.

## 5.8 INTERPRETATION AND KEY FINDINGS OF *KNOWLEDGE FOR COLLEGE* COMPONENTS

Across the seven components and 27 items, respondents were overall positive about their preparedness in *knowledge for college.* All items had higher cumulative percentages of agreement than disagreement, with an average difference of +55%, meaning that on all survey items the number of respondents Agreeing or Strongly Agreeing exceeded the number of respondents Disagreeing or Strongly Disagreeing. Items receiving the highest rates of agreement included preparation in English, identifying oneself first and foremost as a student, writing ability, establishing career goals aligned with skills/abilities, and knowing admissions requirements. Items receiving the lowest levels of agreement included mathematics, finding and applying for financial aid, accessing assistance with financial aid, understanding postsecondary culture, and connecting with mentors in their chosen fields of study.

Across the five Likert scale ratings available for all items 27.3% (n=683) cumulatively Strongly Agreed and 41.8% (n=1,046) Agreed, for a combined total of 69.1% agreement with statements. Neutral responses represented 16.4% (n=411) of all responses. Overall disagreement with the items was 14.4% (n=359) of responses, with 11.8% (n=295) coming from Disagree and the other 2.6% (n=64) Strongly Disagreeing. Given that nearly 7 out of 10 respondents felt they had acquired the skills, and only 2.6% were in strong disagreement, the

results demonstrate that the majority of students acquired most of the *knowledge for college* attributes.

Across the seven components, the range of agreement varied from 61% cumulative frequency percent of agreement for Postsecondary Costs up to 75% cumulative agreement for Matriculation (see Table 29). In a more detailed look, results show that across the 27 items levels of agreement ranged more dramatically from 47% cumulative frequency in mathematics to 94% in English/language arts (see Table 30).

**Table 29.** Cumulative *Knowledge for College* Components by Level of Agreement

| Component | Cumulative Agreement | | Cumulative Disagreement | |
|---|---|---|---|---|
| | Item Avg | % | Item Avg | % |
| Matriculation | 70 | 75% | 10 | 11% |
| Self-Advocacy | 64 | 70% | 9 | 10% |
| Role and Identity | 66 | 70% | 12 | 13% |
| Academic Knowledge | 65 | 71% | 14 | 15% |
| Career Awareness | 64 | 68% | 12 | 12% |
| Postsecondary Awareness | 60 | 65% | 17 | 18% |
| Postsecondary Costs | 56 | 61% | 21 | 22% |
| ***Knowledge for College*** **Totals** | 64 | 69% | 14 | 14% |

*(Drawn from Part B of the Graduate Questionnaire)*

**Table 30.** Cumulative *Knowledge for College* Items by Level of Agreement

| Item | Cumulative Agreement | | Cumulative Disagreement | |
|---|---|---|---|---|
| | ***n*** | **%** | ***n*** | **%** |
| English/Language Arts | 87 | 94% | 3 | 3% |
| Writing | 80 | 86% | 7 | 8% |
| Postsecondary Admissions/Eligibility Requirements | 79 | 85% | 8 | 9% |
| Identified Foremost as a Student | 77 | 83% | 3 | 3% |
| Setting Career Goals to Skills, Interests and Abilities | 77 | 83% | 5 | 5% |
| Applying to Postsecondary Programs | 73 | 78% | 10 | 11% |
| Accessing Medical Services | 72 | 78% | 3 | 3% |
| Academic and Personal Skills needed for Career | 68 | 73% | 7 | 8% |
| Academic Expectations in College | 67 | 73% | 13 | 14% |
| Postsecondary Degree Options and Programs | 67 | 72% | 10 | 11% |
| Science | 67 | 72% | 15 | 16% |
| Accessing Academic Support | 66 | 72% | 7 | 8% |
| Postsecondary Tuition and Costs | 66 | 72% | 17 | 18% |
| History/Social Studies | 66 | 71% | 9 | 10% |
| Accessing Mental Health Support | 64 | 70% | 12 | 13% |
| Addressing Admissions Issues | 61 | 66% | 12 | 13% |
| Technology | 59 | 63% | 16 | 17% |
| Attending College in a New Setting | 58 | 63% | 14 | 15% |
| Career Info (Education, Pay, Benefits, & Conditions) | 58 | 62% | 18 | 19% |
| Understanding Registration | 55 | 60% | 15 | 16% |
| Being a College Freshman | 55 | 60% | 23 | 25% |
| Arts | 55 | 59% | 18 | 19% |
| Connections with Role Model | 54 | 58% | 21 | 23% |
| Applying for Financial Aid | 53 | 58% | 25 | 27% |
| Careers Options Matched to Skills/Interests | 51 | 55% | 16 | 17% |
| Addressing Financial Aid Issues | 50 | 54% | 20 | 22% |
| Mathematics | 44 | 47% | 32 | 34% |

*(Drawn from Part B of the Graduate Questionnaire)*

The items containing the lowest levels of respondent preparedness represent a mixture of concerns, only some of which have been addressed in the years since the graduating classes included in the cohort completed high school. When viewing the lowest rated items it is beneficial to consider them not only by the *knowledge for college* component they are associated with, but also by the personnel and programs that are most likely to influence the acquisition of skills. By evaluating these outcomes in conjunction with the data gathered related to sources of *knowledge for college* acquisition (research question three), it becomes clear where gaps in programming exist to help students acquire skills. It is also important to remember that the respondents were overly representative of college graduates. Students who enrolled in postsecondary studies and failed to complete a degree are likely to have felt less prepared in *knowledge for college* than classmates who completed degree programs.

# 6.0 FINDINGS AND ANALYSIS OF SOURCES OF *KNOWLEDGE FOR COLLEGE*

The final research question asks, "What sources have assisted responding graduates in obtaining *knowledge for college*?" These data were gathered through the Graduate Questionnaire and across two questions. The first question block inquired about the influence that eight types of people may have had on skill acquisition. The second block questioned the influence of 14 various experiences and programs on their development. Respondents for this research question paralleled those included in research question two, which comprised of 93 graduates from the high school graduating classes of 2006-2009. Respondents had the opportunity to rate people and programming on a four-point scale of Highly Influential (1), Moderately Influential (2), Slightly Influential (3) and Not Influential (4). With Highly Influential coded as "1" and Not Influential coded as "4", the lower the average the more influential the person/program was for respondents. Respondents also had the option of selecting that a person or program was either Not Applicable to them or that they Did Not Recall the influence of a person or program.

## 6.1 INFLUENCE OF PEOPLE

The 93 respondents rated the influence of each of the following people on the four point scale: Peer(s), Parent(s), Sibling(s), Teacher(s), School Counselor(s), Coach(es), Extra-Curricular Advisor(s) and Employer(s). They also had the option of listing other influential people on their

acquisition of *knowledge for college*. Across the eight groups of people, Parents were rated as the most influential with an average of 1.59. Parents were rated as being highly influential by 62% (=58) of respondents, moderately influential by 17% (n=16), slightly influential by 14% (n=13), and only 4% (n=4) stated their parents were not influential. Parents were followed by Teachers (2.10) and School Counselors (2.24) with the highest average levels of influence. At the other end of the spectrum, Coaches (3.03) and Extra-Curricular Advisors (3.03) were rated as the least influential among respondents. Only 63 of the 93 respondents rated the "other" category and 83% (n=53) of them indicated that it was not applicable. Of the six respondents reporting that another person was highly or moderately influential, only one listed that person, an uncle.

Each of the categories of people are shown in Table 31 below and are listed from the highest average influence to the lowest level of influence.

**Table 31.** Influence of People by Category for Respondents

| | Highly Influential | | Moderately Influential | | Slightly Influential | | Not Influential | | **Average** | Do Not Recall | | Not Applicable | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | | *n* | % | *n* | % |
| Parents | 58 | 62% | 16 | 17% | 13 | 14% | 4 | 04% | **1.59** | 0 | 0% | 2 | 2% |
| Teachers | 30 | 32% | 35 | 38% | 17 | 18% | 11 | 12% | **2.10** | 0 | 0% | 0 | 0% |
| School Counselors | 24 | 26% | 34 | 37% | 18 | 19% | 14 | 15% | **2.24** | 3 | 3% | 0 | 0% |
| Peers | 21 | 23% | 27 | 27% | 31 | 31% | 14 | 14% | **2.41** | 0 | 0% | 0 | 0% |
| Siblings | 14 | 15% | 19 | 20% | 18 | 19% | 25 | 27% | **2.71** | 3 | 3% | 14 | 15% |
| Employers | 9 | 10% | 13 | 14% | 16 | 17% | 29 | 31% | **2.97** | 2 | 2% | 24 | 26% |
| Ex. Curr. Advisors | 5 | 5% | 15 | 16% | 23 | 25% | 27 | 29% | **3.03** | 3 | 3% | 20 | 26% |
| Coaches | 4 | 4% | 16 | 17% | 16 | 17% | 26 | 28% | **3.03** | 4 | 4% | 27 | 29% |

*(Drawn from Part C of the Graduate Questionnaire)*

Each of these groups are shown to have some level of influence on the responding graduates' acquisition of *knowledge for college* (Barton & Coley, 2011; Bridgeland & Bruce, 2011a; Bryan, et al., 2009; N. Hill & Wang, 2015; McDonough, 2006; Stephan, 2010). When combining the percentages of moderately and highly influential, there are three groups that influenced more than 50% of the respondents. These include Parents (79%, n=74), Teachers (70%, n=65), and School Counselors (63%, n=58). These findings should be encouraging to district personnel given that two of the top three influences, teachers and school counselors, are based in the school setting. It would also be interesting to understand more about why 12% (n=11) and 15% (n=14) of respondents rated their teachers and school counselors, respectively, as not having an influence on their skill development in this area.

## 6.2 INFLUENCE OF PROGRAMS AND EXPERIENCES

Fourteen programs and experiences were identified as college-linking opportunities. Respondents were asked to rate these experiences on the same Highly Influential (1), Moderately Influential (2), Slightly Influential (3) and Not Influential (4) scale that was used for evaluating the influence of groups of people. Again for these programs and experiences, lower averages equate to higher levels of influence. Respondents were also able to select that they Do Not Recall the experience or that the experience was Not Applicable to them. The option of listing "other" influential experiences on their acquisition of *knowledge for college* was available, but while some respondents rated "other" experiences, no respondents opted to share what those were.

The findings show a wide continuum of influence across the 14 experiences. The most influential experiences were identified as college visits (1.68), job shadowing (1.87) and meeting with college representatives (1.89). Colleges visits were rated as highly or moderately influential by 81% (n=74) of respondents and only 4% (n=4) found them non-influential. Among the respondents, 24% (n=22) reported that job shadowing was not applicable to them, but another 53% (n=50) found it to be highly or moderately influential. This means that for the students who completed job shadowing, it was a valuable and informative experience. Rated very closely with job shadowing, 60% of respondents found the experience of meeting with college representatives to be moderately influential or higher. The three most influential experiences were followed by two additional experiences where less than 10% of students found them non-influential. Classroom lessons/assignments were highly or moderately influential for 70% (n=65) of respondents and individual meetings with a school counselor were highly or moderately influential for 57% (n=53) of respondents.

The programs with the least influence were tied to financial aid planning. Financial Aid Night and FAFSA Completion Night were two programs that were in their infancy when this cohort of students graduated. Only a handful of students/families attended the events when offered initially and the district did not host a FAFSA Completion Night at the school until after the cohort had already graduated. It is possible that additional students attended similar regional or collegiate programs. Subsequently, 35% (n=33) of respondents do not recall FAFSA Completion and 34% (n=32) do not recall Financial Aid Nights. Another 28% (n=26) and 29% (n=27) also selected that the two programs were not applicable to them. These two rates represent 63% of both program's respondents. Likewise, only 16% (n=14) of FAFSA Completion Night and 15% (n=14) of Financial Aid Night respondents rated the programs as

moderately influential or higher. In Table 32 below, the 14 experiences are listed in order from the highest average rated level of influence to the lowest.

**Table 32.** Influence of Programs and Experiences for Respondents

| | Highly Influential | | Moderately Influential | | Slightly Influential | | Not Influential | | **Average** | Do Not Recall | | Not Applicable | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | | *n* | % | *n* | % |
| College Visit | 45 | 49% | 29 | 32% | 9 | 10% | 4 | 4% | **1.68** | 0 | 0% | 5 | 5% |
| Job Shadowing | 32 | 34% | 18 | 19% | 11 | 12% | 6 | 6% | **1.87** | 4 | 4% | 22 | 24% |
| College Representative Meeting | 31 | 33% | 25 | 27% | 15 | 16% | 4 | 4% | **1.89** | 5 | 5% | 13 | 14% |
| Classroom Lessons/ Assignments | 29 | 31% | 36 | 39% | 16 | 17% | 8 | 9% | **2.03** | 4 | 4% | 0 | 0% |
| School Counselor Individual Meetings | 22 | 24% | 31 | 33% | 25 | 27% | 5 | 5% | **2.16** | 5 | 5% | 5 | 5% |
| College/Career Searches | 22 | 24% | 21 | 23% | 31 | 33% | 7 | 8% | **2.28** | 2 | 2% | 10 | 11% |
| AP Coursework | 20 | 22% | 20 | 22% | 12 | 13% | 13 | 14% | **2.28** | 3 | 3% | 25 | 27% |
| Dual Enrollment | 9 | 10% | 8 | 9% | 6 | 7% | 10 | 11% | **2.52** | 8 | 9% | 51 | 55% |
| College/Career Fair | 14 | 15% | 21 | 23% | 28 | 30% | 13 | 14% | **2.53** | 5 | 5% | 12 | 13% |
| School Counselor Classroom Lessons | 11 | 12% | 24 | 26% | 26 | 28% | 13 | 14% | **2.55** | 15 | 16% | 4 | 4% |
| Outside Classroom Speakers | 10 | 11% | 25 | 27% | 28 | 30% | 13 | 14% | **2.58** | 14 | 15% | 3 | 3% |
| Interest Inventory | 10 | 11% | 11 | 12% | 19 | 20% | 14 | 15% | **2.69** | 9 | 10% | 30 | 32% |
| FAFSA Completion Night | 7 | 8% | 7 | 8% | 9 | 10% | 11 | 12% | **2.71** | 33 | 35% | 26 | 28% |
| Financial Aid Night | 8 | 9% | 6 | 6% | 7 | 8% | 13 | 14% | **2.74** | 32 | 34% | 27 | 29% |

*(Drawn from Part C of the Graduate Questionnaire)*

Each of these programs and experiences need to be considered with regard to the timeframe that the respondents completed high school. Some of the programs remain relatively unchanged from cohort graduations until this study, while other programs have seen significant

revision. College visits, for instance, are a major part of connecting high school students to college both then and now. Experiences such as job shadowing were recognized as influential experiences based on feedback from students at the time of graduation. Since these graduating classes have finished high school, progress has been made in making job shadowing a more prominent aspect of senior projects, and the required hours have continued to increase. Since respondents who were involved with job shadowing found it influential, hopefully by involving all students in job shadowing, that value will be present for more students. The most recent graduating class is now required to have at least 15 hours of job shadowing, while the respondents would have had only optional job shadowing requirements at their time of high school completion. Collectively these ratings provide a baseline to which future evaluation could be compared.

Advanced Placement (AP) coursework is another domain that has expanded to reach more students. AP scores have risen drastically between 2006 and the present. Archival district records show that in 2007, there were only six scores of three or higher on AP Exams which represented 17% of AP Students. Those scores have been steadily on the rise, culminating with 22 scores of three or higher in 2014, representing 69% of AP Students. This is likely an area that has been addressed in a positive way in recent years. Juxtaposed to AP coursework is dual enrollment. While it was rated similar to AP coursework, since these respondents have graduated high school the dual enrollment program has shrunk considerably with far less students accessing dual enrollment coursework. Eligible students between 2006 and 2009 benefited greatly from state grants that made dual enrollment credits nearly free through the district. State grant funding is no longer available for dual enrollment and students must now

pay going rates for the college credits. Some recent graduates continued to enroll in college while in high school, but at much lower participation rate than was present in 2006 to 2009.

FAFSA Completion and Financial Nights are still part of high school programming. At the time that respondents were graduating, these events were new or not offered in house. While attendance has risen gradually over the years, the rate of students turning out for these two programs continues to be low. District records show that less than 20% of students in a graduating class are represented at either of these opportunities. This is an area of concern considering that in Section 5.4 it was established that Postsecondary Costs are the *knowledge for college* component that graduates felt the least prepared. District leadership needs to consider making changes in order to better recruit student/parent participation or to offer better programming to prepare students for postsecondary costs.

The second component of *knowledge for college* that respondents reported the least amount of preparation for was in the area of Postsecondary Awareness, defined through awareness of being a college freshman, the academic environment of higher education and going to a school in a new setting. The precise experiences that would raise awareness in these areas is difficult to discern, but it is possible that some of the lesser influential experiences could bolster these skills. Specifically, experiences within classroom school counselor lessons and bringing in outside speakers into classroom settings. Some experiences that are already highly influential, such as going on college visits, could also be essential to the development of postsecondary awareness.

Lastly, another item which had lower reported levels of preparation was an understanding of the variety of career options with Career Awareness. In some ways this has been addressed in recent years through increased job shadowing and by pushing career exploration into younger

grades. A program that could be added to graduate surveys in the future is the Career Café program, which brings in speakers to have working lunches with current students. The program is designed to bolster student exposure to a wider variety of career pathways and connect them with mentors in the field. This was added over the last five years. Two of the experiences listed in Table 32 that I would expect to have had a positive influence on students knowing career options, were rated as having lower levels of influence. These two programs were school counselor classroom lessons and interest inventories, both of which lend themselves to the component of Career Awareness. However the Career Café program in conjunction with school counselor classroom lessons and interest inventors alone are not fully addressing the respondents' reported lack of preparedness in the variety of career pathways. Additional programming needs to be considered to expand the awareness of students in this area.

## 6.3 INTERPRETATION AND KEY FINDINGS OF SOURCES OF *KNOWLEDGE FOR COLLEGE*

Several themes begin to emerge from the findings on sources of *knowledge for college.* Beginning with the influence of people on the acquisition of skills, it is positive from the school-based perspective that two of the top three groups of people influencing graduates on college readiness are school-based. Respondents to the survey reported that both teachers and school counselors are essential to the acquisition of necessary skills. While rated high in their aggregate influence, it remains concerning that 12% of respondents reported that their teachers and 15% reported that their school counselors were non-influential in their acquisition of skills. Likewise, very few graduates found their coaches and advisers to be influential, which was surprising given

the time and emphasis dedicated to athletics and activities during high school. These findings should serve as a reminder to secondary educators that our influence goes beyond the acquisition of individual academic content. The overall development of a student toward college readiness is influenced through by courses, programming and interactions.

Additional themes emerge from reflecting upon the programs and experiences developed for students associated with college-linking. What schools do to provide college-linking opportunities for students can have a significant influence on their postsecondary pathways (Engberg & Wolniak, 2014; L. D. Hill, 2008; Plank & Jordan, 2001; Stephan, 2010; Wolniak & Engberg, 2010). To simplify the complexity and diversity of programs it is beneficial to cluster them into three groups based on their levels of influences. The first cluster of experiences with the highest levels of influence includes the top five (college visits, job shadowing, college representative meetings, classroom lessons, and individual school counselor consolations). While the findings show that programs are influential, consideration needs to be given to further emphasize the programs and ensuring that the experiences are accessible to all students. Do all students participate in these opportunities? Are the opportunities as plentiful and effective today as they were in 2006-2009?

The third cluster of experiences include the five experiences with the least levels of influence: school counselor classroom lessons, use of outside speakers, interest inventories, FAFSA completion nights, and financial aid nights. When you consider these programs, in conjunction with the skills measured in chapter five, one essential theme emerges - the skills that graduates lack are directly connected with the parallel programs that also failed to influence students. In the previous chapter, respondents reported that they felt unprepared for both obtaining financial aid and addressing financial aid issues. Subsequently, respondents felt that

the programs offered with direct connections to financial aid systems (Financial Aid Night and FAFSA Completion Night) were non-influential. For school leaders, this indicates that either access to this programs or the program offerings themselves need to change if they have not already done so. Similarly, understanding career options as they are connected to personal skills and interests was an item rated low for preparation. The ways that the school system attempts to develop these skills is largely through school counselor classroom lessons and through interest inventories. Both of these programs were in the bottom five of influence.

A tertiary theme that has emerged from these findings has to do with innate student interest. There are clear connections between the findings and what my experiences in working with secondary students tell me about their general levels of interest and excitement. When I think about the aspects of *knowledge for college* that students were most excited to discuss, they include college selection, college admissions and selecting a major. When I think about the aspects of *knowledge for college* that were challenging to engage students in conversations about, they include financial aid planning, eventual career options and connecting high school study habits with postsecondary expectations. These experiences play out in the findings on both skill acquisition and sources of development. What interests the majority of high school students is the thought of being in college. What does not interest them is the thought of how to pay for their education, how hard they will need to work while enrolled and obtaining a job upon graduation. I acknowledge that these observations are generalities and do not represent every high school student. However, it remains important for secondary schools to provide people and programs designed to address some of the difficult topics about higher education (postsecondary costs, school culture/rigor, and career outcomes) and to remove a lack of *knowledge for college* in these areas as a barrier to postsecondary degree completion.

# 7.0 IMPLICATIONS FOR FURTHER INQUIRY

This study gathered information on the postsecondary behaviors of Shenango Area School District's graduating classes of 2006 to 2009 through a review of their archival National Student Clearinghouse data. A portion of those district graduates also completed a Graduate Questionnaire which gathered data on their perceived readiness in the seven components of *knowledge for college* and how they obtained their *knowledge for college*. This study was designed as an inquiry into the professional practice of secondary education at a specific school district and to address the problem of practice surround college readiness and college completion rates (Carnegie Project on the Education Doctorate, 2014). Addressing these issues at Shenango, and in secondary education, have the potential to result in an improved understanding of the high school contexts that lend themselves to college readiness and to improved rates of college completion among populations enrolling in postsecondary studies. Across the previous three chapters, findings and analysis were provided on both of these datasets which lead to several key findings and overarching conclusions from this study.

## 7.1 SUMMARY FINDINGS

Across the three research questions the findings provide feedback to the researcher and school personnel about the postsecondary outcomes of district graduates from a specific time period, as

well as providing insight into how the personnel and programs offered by the school district affected the development of students' *knowledge for college*. The expectations for the rates of postsecondary success were not clear at the outset of this research, so conclusions regarding the effectiveness of the district in influencing student postsecondary outcomes are based on comparing the district cohort with larger comparison groups where research is available. It should be noted that many of the rates of postsecondary outcomes existing in the literature are considered unacceptable by many practitioners. While these rates provide a means for comparison, graduating only a third of bachelor degree students in four years and less than 60% in six years are not considered good enough in this research setting. Similarly, with acquiring *knowledge for college,* the ideal rates of student acquisition are unknown, but it is assumed in this conclusion that the majority of graduates who pursued postsecondary studies should have felt adequately prepared upon high school graduation. Regardless, this study can serve as baseline levels for skill acquisition and sources of development, so that similar research can be completed in future years with additional graduate cohorts.

### 7.1.1 What are the rates of postsecondary enrollment, persistence and degree completion among district graduates?

The findings of the first research question on postsecondary outcomes show a mixture of trailing, meeting and exceeding national trends depending on the aspect considered. Table 33 depicts key findings from this research question and if the outcomes are viewed as exceeding, meeting or below outside benchmarks from the review of literature.

**Table 33.** Expectations and the Postsecondary Enrollment, Persistence and Degree Completion

| Area | Indicator | Benchmark Comparison | Outside Literature |
|---|---|---|---|
| Enrollment | Immediate postsecondary enrollment is 15% below senior year intentions | Meeting | Castleman and Page, (2014) |
| | 68% of graduates immediately enrolled in postsecondary studies following high school graduation | Meeting | Kena et al., (2014) |
| | Eventual postsecondary enrollment (81%) is close to senior year intentions (83%) | Meeting | N/A |
| Persistence | Individual persistence rate of 91% | Exceeding | N/A |
| | Institutional persistence rate of 78% | Meeting | Aud et al., (2012) |
| | 15% of enrolled graduates stop out of studies | Exceeding | DesJardins et al., (2002) |
| | 33% of enrolled graduates transfer between institutions | Exceeding | Adelman (2006) |
| Graduation | Two-year programs: 20% of students graduate and 37% progress to four-year programs | Meeting | N/A |
| | Two-year programs: 10% of students graduate within three years | Below | Aud et al., (2012) |
| | Four-year programs: 32% of students graduate within four years | Below | Adelman (2006) |
| | Four-year programs: 65% of students graduate within six years | Exceeding | Kena et al., (2014) |
| | Average length of enrollment until graduation is 8.9 semesters | Meeting | N/A |

*(Drawn from the NSC dataset in comparison to literature reviewed)*

The key findings for this research question indicate district graduates' enrollment trends are similar to those found across the nation. While a large number of students stray from their intended postsecondary plans in the summer between high school graduation and immediate college entrance, this is not an uncommon trend among high school graduates. The total percentage of graduates matriculating to higher education is similar to comparison groups, although district graduates enroll in four-year programs more frequently than in two-year programs. I would expect that since students persist at higher rates and transfer at lower rates than expected that graduation rates would be higher than expected. However, degree completion

at the intended intervals of two years for two-year programs and four years for four-year programs are below expectations. The graduate cohort does complete postsecondary degrees at higher than expected rates when given additional time (six years) to complete their studies.

### 7.1.2 What do responding graduates know about the various components of *knowledge for college*?

The findings of research question two show that overall respondents felt prepared for the postsecondary experiences within the components established for *knowledge for college.* It is also important to remember that these respondents were overly representative of graduates who completed their postsecondary degree programs. Variations existed across the seven components and within the 27 items upon which the components were constructed, but all of the components and items had a larger percentage of students agreeing or strongly agreeing that they were prepared than percentages of students disagreeing or strongly disagreeing. Table 34 illustrates findings from this research question and if the outcomes are viewed as exceeding, meeting or below expectations. For discussion purposes, when at least 75% of respondents either agreed or strongly agreed that they felt prepared for the item, it was considered to be exceeding expectations. If 60% to 75% of respondents agreed or strongly agreed with an item it was considered to be meeting expectations. Where less than 60% of respondents agreed or strongly agreed with an item it was considered below expectations. These ratings are arbitrary given the lack of normed benchmarks for comparison, however they will serve as baseline measures for future research on *knowledge for college* within the school district.

**Table 34.** Expectations and *Knowledge for College* Acquisition

| Component | Item | Benchmark |
|---|---|---|
| Role and Identity | Identified Foremost as a Student | Exceeding |
| | Connections with Role Model | Below |
| Self-Advocacy | Accessing Academic Support | Meeting |
| | Accessing Mental Health Support | Meeting |
| | Accessing Medical Services | Exceeding |
| | Understanding Registration | Meeting |
| Postsecondary Awareness | Being a College Freshman | Meeting |
| | Academic Expectations in College | Meeting |
| | Attending College in a New Setting | Meeting |
| Postsecondary Costs | Addressing Financial Aid Issues | Below |
| | Postsecondary Tuition and Costs | Meeting |
| | Applying for Financial Aid | Below |
| Matriculation | Postsecondary Admissions/Eligibility Requirements | Exceeding |
| | Applying to Postsecondary Programs | Exceeding |
| | Postsecondary Degree Options and Programs | Meeting |
| | Addressing Admissions Issues | Meeting |
| Career Awareness | Setting Career Goals to Skills, Interests and Abilities | Exceeding |
| | Careers Options Matched to Skills/Interests | Below |
| | Career Info (Education, Pay, Benefits, & Conditions) | Meeting |
| | Academic and Personal Skills needed for Career | Meeting |
| Academic Knowledge | English/Language Arts | Exceeding |
| | Mathematics | Below |
| | Science | Meeting |
| | History/Social Studies | Meeting |
| | Arts | Below |
| | Writing | Exceeding |
| | Technology | Meeting |

*(Drawn from Part B of the Graduate Questionnaire)*

*Exceeding = At least 75% of respondents agreed or strongly agreed they were prepared*
*Meeting = Between 60% and 75% of respondents agreed or strongly agreed they were prepared*
*Below = Less than 60% of respondents agreed or strongly agreed they were prepared*

### 7.1.3 What sources have assisted responding graduates in obtaining *knowledge for college*?

The findings of research question three help clarify the people and programs that have influenced the respondents' acquisition of *knowledge for college*. In looking at the influence of people, after parents, teachers and school counselors were the most influential on respondents. Extra-curricular advisors and coaches were found to be the least influential on respondents among the groups which also included peers, siblings and employers. As an educator, it was slightly startling that 12% and 15% of respondents reported that their teachers and school counselors, respectively, were non-influential in helping them obtain *knowledge for college*.

Investigating the effectiveness of a number of school based programs and experiences provided further insight on the acquisition of *knowledge for college*. Respondents found varying degrees of influence across the fourteen experiences. Table 35 illustrates the findings from this research question and if they are viewed as exceeding, meeting or below expectations. For discussion purposes, when at least 50% of respondents felt that the person, program or experience was either highly or moderately influential in their acquisition of skills it was considered to be exceeding expectations. If 25% to 50% of respondents reported the person, program or experience as highly or moderately influential it is considered to be meeting expectations. Less than 25% of respondents reporting highly or moderately influence was considered below expectations. Similar to the benchmarks used above, the following are established as baseline ratings for use in future research within the school district.

**Table 35.** Expectations and Sources of *Knowledge for College*

| Category | Item | Benchmark |
|---|---|---|
| People | Peers | Exceeding |
| | Parents | Exceeding |
| | Siblings | Meeting |
| | Teachers | Exceeding |
| | School Counselors | Exceeding |
| | Coaches | Below |
| | Extra-Curricular Advisors | Below |
| | Employers | Below |
| Programs and Experiences | Classroom Lessons/Assignments | Exceeding |
| | Outside Classroom Speakers | Meeting |
| | School Counselor Classroom Lessons | Meeting |
| | School Counselor Individual Meetings | Exceeding |
| | Financial Aid Night | Below |
| | FAFSA Completion Night | Below |
| | College/Career Fair | Meeting |
| | College Visit | Exceeding |
| | Meeting with a College Representative | Exceeding |
| | Job Shadowing | Exceeding |
| | Dual Enrollment | Below |
| | Advanced Placement Coursework | Meeting |
| | Interest Inventories | Below |
| | College/Career Searches | Meeting |

*(Drawn from Part C of the Graduate Questionnaire)*

*Exceeding = At least 50% of respondents rated the person/experience was moderately or highly influential*

*Meeting = Between 25% and 50% of respondents rated the person/experience was moderately or highly influential*

*Below = Less than 25% of respondents rate the person/experience was moderately or highly influential*

## 7.2 SUGGESTIONS FOR FURTHER INQUIRY

When considering the findings of the research and using them to move district practices toward increasing student achievement and skill acquisition, it is important to realize that these findings are based on Shenango School District's personnel and practices prior to 2009 for the most

recent graduates and prior to 2006 for earlier graduates. Considerable changes have taken place in the last decade, which were intended to address some of the areas that are meeting or below expectations, these changes are considered in better detail in the E. The growth of numerous academic performance indicators (see Section 3.3.1) for the district in recent years provide optimism that the overall student experience has improved since the cohort classes competed high school. It also important to acknowledge that the Graduate Questionnaire findings are entirely representative of graduates who continued their formal education after high school and largely representative of graduates who went on to complete a postsecondary degree program. This excludes two important groups of district graduates: those who never enrolled in higher education and those who enrolled in higher education but did not persist through degree completion.

Determining the factual postsecondary outcomes and the perceived readiness in *knowledge for college* for some graduates are only initial steps to enacting change based on this research. District stakeholders, myself included, must now consider how changes in personnel and programming since 2006 to 2009 may have already influenced students' postsecondary readiness and what areas still need to be addressed. In reviewing and interpreting the data, the following are a list of essential questions that serve as a starting point for dialogue among district stakeholders. From these initial questions, my intentions are to work in conjunction with these stakeholders to develop and enact action plans to address identified gaps in students' *knowledge for college* and subsequently improve the degree completion rates of district graduates.

Essential Questions:

- What supports can help bridge the gap between high school graduation and postsecondary enrollment?

- What can be done to increase the likelihood of graduating in a shorter timeframe?
- Job shadowing is known to be effective, how can it be expanded?
- How can every graduate connect with positive role models in his/her field of study?
- How can we graduate students with better postsecondary awareness, specifically in areas of attending school in a new setting and the expectations college freshman?
- Is the lack of financial aid awareness a result of poor programming or the result of not educating students/parents about the importance of attending these programs?
- How can students be exposed to and understand broader arrays of career information?
- Has enough been done to improve mathematics education?
- How have changes in arts education affected student readiness?
- Can the programs and experiences with the most positive influence be expanded to involve more students or broaden their areas of influence?
- What can be done to change or replace programs that are not influential?
- Are there college-linking behaviors that are effective at other institutions but not currently offered?

From an optimistic perspective it could be argued that district graduates from the cohort are performing at or close to rates that parallel national trends in college-going enrollment, persistence and graduation. The respondents also communicated that for each of the 27 items embedded within the definition of *knowledge for college,* there were more in agreement (69%, n=1,728) than in disagreement (15%, n=359) with their preparation. On the other hand, one could argue that these findings are only representative of students who enrolled in higher education and mostly representative of students who were able to complete postsecondary studies with a degree. The missing feedback from college non-graduates and those who did not

continue their education beyond high school would very likely be associated with a decline in the positive ratings associated with *knowledge for college* sources and acquisition. In addition, some specific areas within the broad findings indicate significant gaps in postsecondary preparation. Those include areas of financial aid and mathematics academic knowledge.

Collectively, perspectives on whether the outcomes outlined in previous pages are positive or negative are irrelevant to the education of current and future students in the district. What is most valuable is interpreting this information and making improvements to the preparation of students moving forward. The current programs and experiences leave room for improvement. Purposeful and informed attempts to raise *knowledge for college* are the next logical steps.

The findings of this research call attention to numerous other pathways to consider. One consideration is to routinely repeat a similar process using these findings as a benchmark and with the goal of improving the educational programming for current and future students based on the feedback of previous students. Only through this line of inquiry will it become possible to see if the changes made in the upcoming months have the desired effect on future student outcomes. Through a cyclical pattern of measuring the effectiveness of people and programs on student acquisition of *knowledge for college*, making adjustments to improve experiences, and then measuring outcomes again, this district will be able to continually monitor and improve the college readiness of graduates.

A second consideration is how this process and instruments for investigating *knowledge for college* could be implemented beyond this one specific school district. Findings could be more meaningful and more generalizable if the population being studied is not strictly associated

with one school district. In several cases it was difficult to make comparisons with the existing literature because the school district being studied is small and lacks diverse populations.

Another consideration for future research is more deeply exploring some of the findings from this research. One specific goal is to better understand the postsecondary enrollment, persistence and graduation patterns of district graduates within the various fields of study and career options. For instance, were students pursing postsecondary degrees in specific fields of study more successful in persisting and graduating than in other fields of study? Not all degree programs, or postsecondary institutions, are created equal. How do those differences impact students graduating from this school district? Similarly, significant research has been dedicated to how other variables influence postsecondary educational and career behaviors. Future research could investigate how maximizing opportunities to learn, secondary course selection, parent-education levels, socio-economic status, program utilization and others effect graduates in their postsecondary studies (Adelman, 2006; Akst, 2008; Chen, et al., 2010).

# 8.0 EPILOGUE

This study was limited to an analysis of data from 2006 to 2009. The district has taken numerous positive actions since 2009 that, we believe, have addressed some of the problems identified in this inquiry, notably helping to develop *knowledge for college* among students. As secondary education practitioners, our daily lives are consumed with tasks, decision-making, planning and evaluation surrounding students' preparation for life during and after high school graduation. Among the growing list of concerns of K-12 educators, I argue that the internal measures often used in secondary education are only contributory to a large, more distant outcome: student long term success. Are we preparing graduates to lead productive lives and become lifelong learners or not? Do high school graduates simply have *a* plan for after graduation, or do they have a *good* plan along with the necessary skills and information to see the plan through to fruition?

In the preceding chapters I used national trends and comparison groups to draw conclusions about the measured outcomes in this study. I believe that it is important to reiterate here that in most cases, those trends are not acceptable. An expectation that more than 10% of students will experience summer melt is not an acceptable outcome. An expectation that only a third of bachelor degree students graduate in four years or barely more than half earn their degree in six years are not good enough. Although matching with these national trends is a starting place for comparison purposes, the findings from this study would better serve as a baseline for

future research in the district. Low expectations are not appropriate expectations. Appropriate expectations will be to grow from where we have been as a school district. Lower rates of summer melt. Lower rates of non-purposeful transferring. Higher rates of graduation. Shorter lengths of enrollment until graduation. Higher rates of acquisition of *knowledge for college* components. Higher levels of positive influence by school personnel and school programming.

In the window of time since the graduates in this cohort completed high school, many changes have taken place with the intent of improving their *knowledge for college*. In many cases, these have been decisions informed only by informal feedback and by what we have learned about college readiness in our practice. Starting with the findings of this research we will be better able to incorporate formal data into considering the effectiveness of programming and measuring graduate readiness. Table 36 has been incorporated to capture changes that have already taken place and estimate the amount we feel we have addressed the areas of *knowledge for college* to date. It also includes what I believe to be some priorities within our capacity to consider moving forward prior to the next data collection.

**Table 36.** Status of Recent District Programming Initiatives Surrounding *Knowledge for College*

| Component | Initiatives Attempted | Priority for Further Change | Future Considerations |
|---|---|---|---|
| Role and Identity | ▪ Job Shadowing has become a graduation requirement and the hours have been consistently increased<br>▪ An Alumni Network has been established to connect students with professionals in intended fields of study<br>▪ A Career Café Program (guest speakers) has been created to expose students to career professionals and information<br>▪ Started tracking Senior Project service and shadowing opportunities to offer students a database of connections<br>▪ Strengthening the focus on academics coming before other school roles through stronger eligibility requirements and shifting school culture | Low | ▪ Focus on the quality of Job Shadowing<br>▪ Assurance that every graduate has connected with at least one positive mentor in their field of study |
| Self-Advocacy | ▪ Transition Meetings are now held for all students receiving special education services to connect them with available agencies and higher education services<br>▪ Increased focused on accessing SAT Testing Modifications and accessing Higher Education services for students with specific learning needs<br>▪ Increased school focus on accessing mental health services, including hosting on campus outpatient counseling services similar to postsecondary campuses | Low | ▪ Incorporate content on PS mental health, medical and academic support services in the Guidance Curriculum<br>▪ Provide Classroom Guidance Lessons on PS course registrations processes |
| Postsecondary Awareness | ▪ Expanded attendance opportunities for students to attend College Visits<br>▪ Networking opportunities through the establishment of the Alumni Network and through an AP Night to connect former students with current students<br>▪ Use of postsecondary institutions searches in group counseling services<br>▪ Opened access to College/Career Fairs for underclassman | Moderate | ▪ Facilitate College Visits<br>▪ Expand or add additional AP Night style opportunities<br>▪ Add programming that addresses PS cultural expectations of being a freshman and learning in a new setting |

**Table 36 (continued)**

| | | | |
|---|---|---|---|
| Postsecondary Costs | ▪ FAFSA Completion Night and 1:1 opportunities to complete Financial Aid Applications were added<br>▪ Financial Aid Night was expanded and added more advertising of the opportunity<br>▪ Expanded use of PHEAA resources and materials<br>▪ Annual Financial Aid Training for school counselors | High | ▪ Develop strategies to increase attendance at Financial Aid Programming<br>▪ Educate students on the importance of and processes of Financial Aid Planning<br>▪ Adopt a model Personal Finance Curriculum |
| Matriculation | ▪ Individual Counseling Sessions, minimum of 2x per year for seniors<br>▪ Classroom Guidance lessons design to connect secondary performance with postsecondary eligibility | Low | ▪ Consider Group or Individual Counseling on addressing admissions issues<br>▪ Expand student awareness of postsecondary degree options |
| Career Awareness | ▪ Began Career Café Program to expose students to career professionals and information at an earlier age<br>▪ Job Shadowing required and expanded<br>▪ Added a subscription to and use of careercruising.com<br>▪ Use of career searches and interest inventories updated | High | ▪ Consider adoption of Naviance career services<br>▪ Review of Guidance Curriculum to identify gaps in career awareness<br>▪ Focus on expanding student knowledge of career options and matching careers to skills, interests and abilities |
| Academic Knowledge | ▪ Added Honors Math Track for students, cap-stoned by AP Calculus<br>▪ Elimination of non-rigorous courses and increased graduation requirements in Mathematics, English Language Arts and Science<br>▪ Advanced Placement Expansion and Growth<br>▪ Expanded college preparatory courses in Math and Science<br>▪ Expanded use of Dual Enrollment and College within the High School opportunities<br>▪ Updated course offerings and student opportunities in the Arts<br>▪ Classroom Guidance Lessons on the connections of course taking and college readiness | High | ▪ Address any curricular and instructional gaps in college bound (non-honors) math course sequences<br>▪ Investigate rates of remedial coursework among graduates in higher education<br>▪ Review and update technology course offerings and content<br>▪ Educate and encourage higher student participation in advanced coursework |

*(Drawn from the researcher's experiences in the school district)*

In Table 36 I sought to capture what has happened since the departure of the graduate cohort that was studied and to consider our capacities moving forward. Significant progress has taken place in recently years, however, substantially increased action needs to be considered to more fully address gaps in student acquisition of *knowledge for college* and ultimately improve upon student postsecondary education outcomes. Findings from this research will provide a baseline to revisit these topics routinely and more thoroughly track the impact of programming and personnel initiatives.

# APPENDIX A

# SAMPLE NSC DATASET

| YOUR UNIQUE ID | FIRST NAME | MIDDLE NAME | LAST NAME | SUFFIX | REQUESTER RETURN FIELD | RECORD FOUND | HS CODE | HS GRAD DATE | COLLEGE CODE | COLLEGE NAME | COLLEGE STATE | 2/4 YEAR | PUBLIC/ PRIVATE | Period of Enrollment | | ENROLL STATUS | GRAD Y/N | GRAD DATE | DEGREE TITLE | MAJOR | COLLEGE SEQUENCE | PROGRAM CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 222222-00 | LOCAL COMMUNITY COLLEGE | VA | 2-year | Public | 20070823 | 20071217 | F | N | | | | 1 | |
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 222222-00 | LOCAL COMMUNITY COLLEGE | VA | 2-year | Public | 20080110 | 20080506 | F | N | | | | 1 | |
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 222222-00 | LOCAL COMMUNITY COLLEGE | VA | 2-year | Public | 20080822 | 20081216 | F | N | | | | 1 | |
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 222222-00 | LOCAL COMMUNITY COLLEGE | VA | 2-year | Public | 20090109 | 20090504 | F | N | | | | 1 | |
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 654321-00 | HOMETOWN UNIVERSITY | VA | 4-year | Public | 20090823 | 20091217 | F | N | | | | 2 | |
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 654321-00 | HOMETOWN UNIVERSITY | VA | 4-year | Public | 20100110 | 20100506 | F | N | | | | 2 | |
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 654321-00 | HOMETOWN UNIVERSITY | VA | 4-year | Public | 20100822 | 20101216 | F | N | | | | 2 | |
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 654321-00 | HOMETOWN UNIVERSITY | VA | 4-year | Public | 20110109 | 20110504 | F | N | | | | 2 | |
| 9876543210_ | SUSAN | M | SMART | | | Y | 100001 | 20070523 | 654321-00 | HOMETOWN UNIVERSITY | VA | 4-year | Public | | | | Y | 20110512 | BA | HISTORY | 2 | |
| 5675675675_ | NANCY | P | SMITH | | | Y | 100001 | 20080520 | 333333-01 | INSTITUTE OF TECH | MD | 2-year | Public | 20080823 | 20081217 | L | N | | | | 1 | GIFTED123 |
| 5675675675_ | NANCY | P | SMITH | | | Y | 100001 | 20080520 | 002554-00 | INSTITUTE OF TECH | MD | 2-year | Public | 20090110 | 20090314 | W | N | | | | 1 | GIFTED123 |
| 1234112234_ | FRANK | Z | JONES | JR | | N | 100001 | 20090517 | | | | | | | | | N | | | | | |

**The Detail Report**

The student detail report provides specific enrollment, graduation, and degree details for each student submitted in your graduates or request file.

Detailed information will not be shown for students who are not found in the Clearinghouse database or who elected to place a FERPA block on their enrollment records.

Please reference the Student Detail Report Layout, which can be found on our website, for details on data returned in each field.

Note: This report is delivered as a separate document from the aggregate reports.

**Figure 1.** Sample NSC Student Detail Report

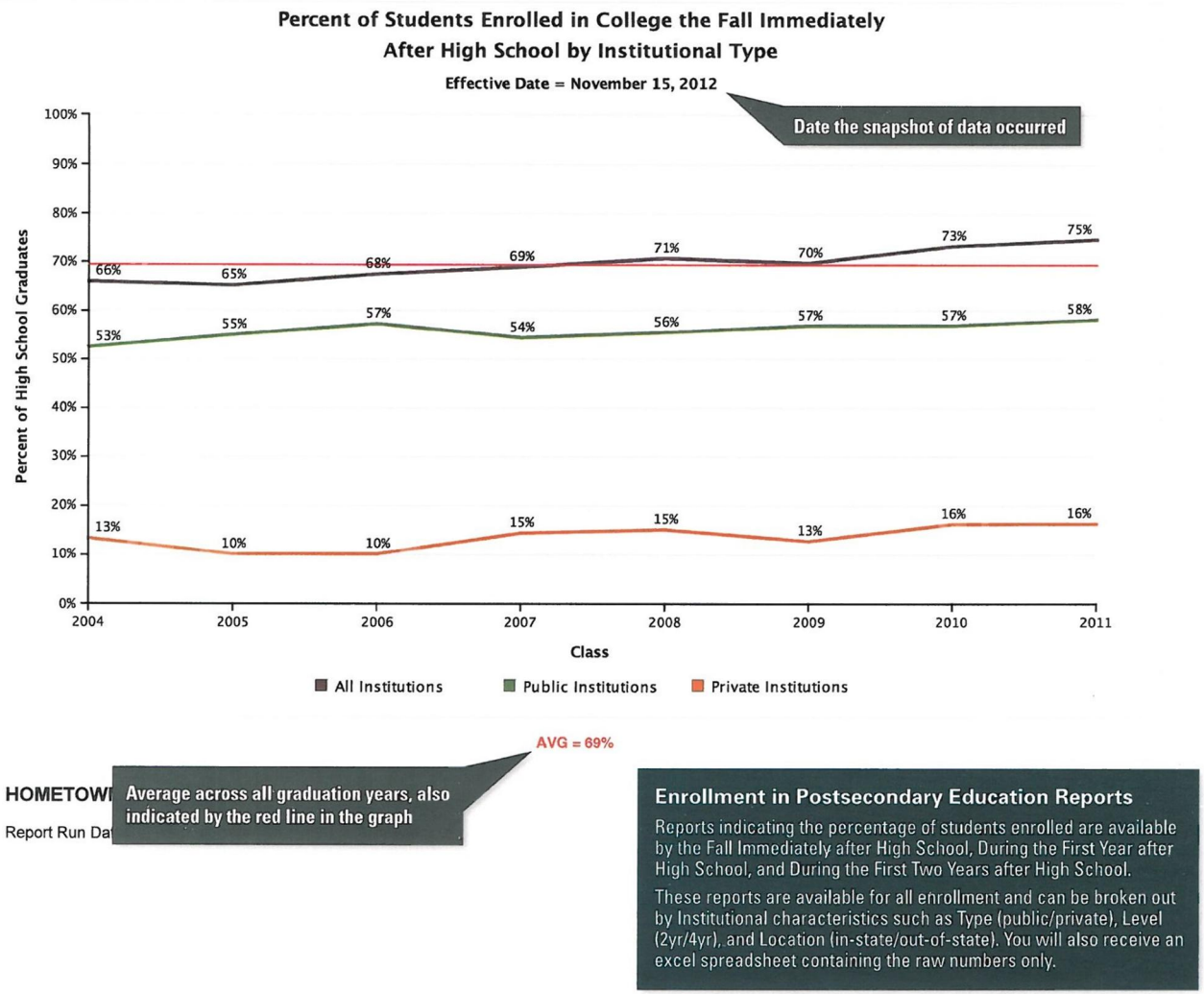


**Figure 2. Sample NSC Student Enrollment Report**

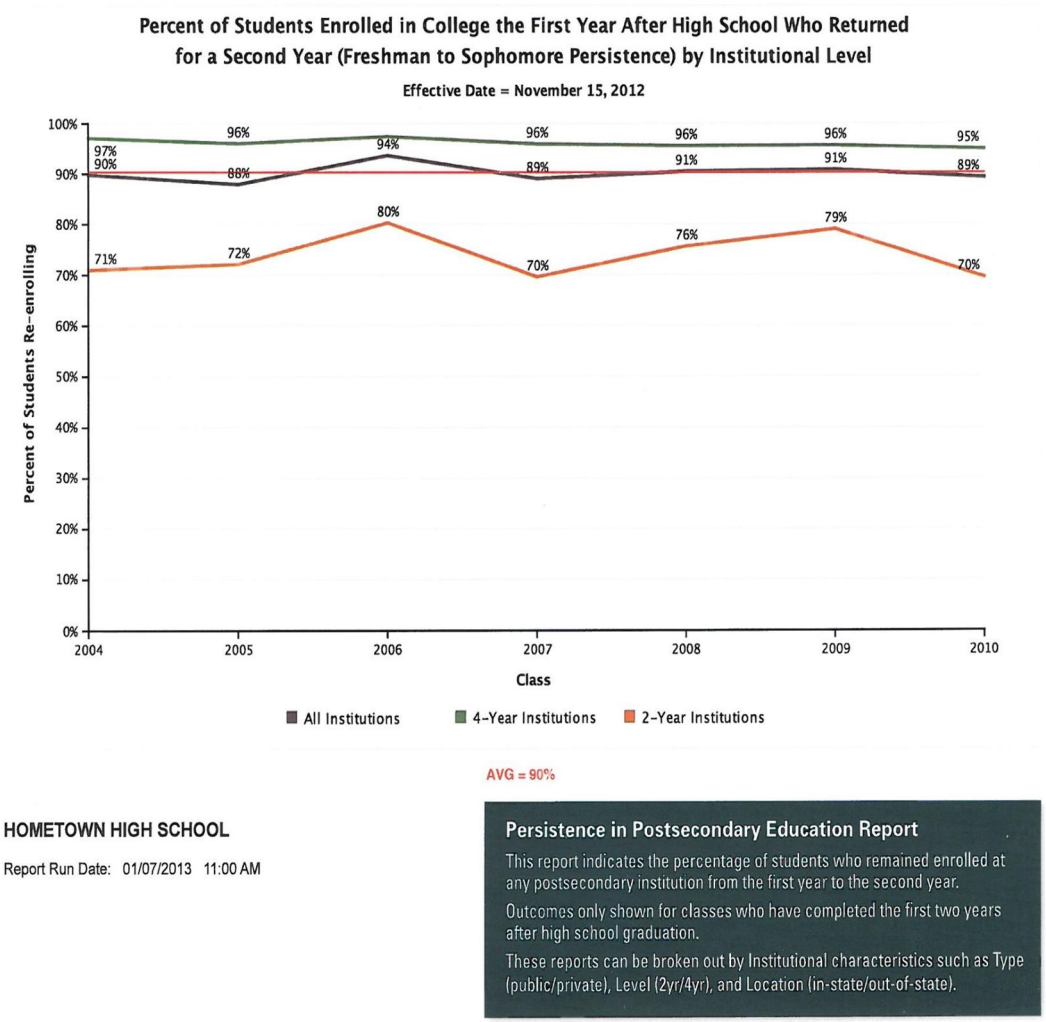


**Figure 3.** Sample NSC Student Persistence Report

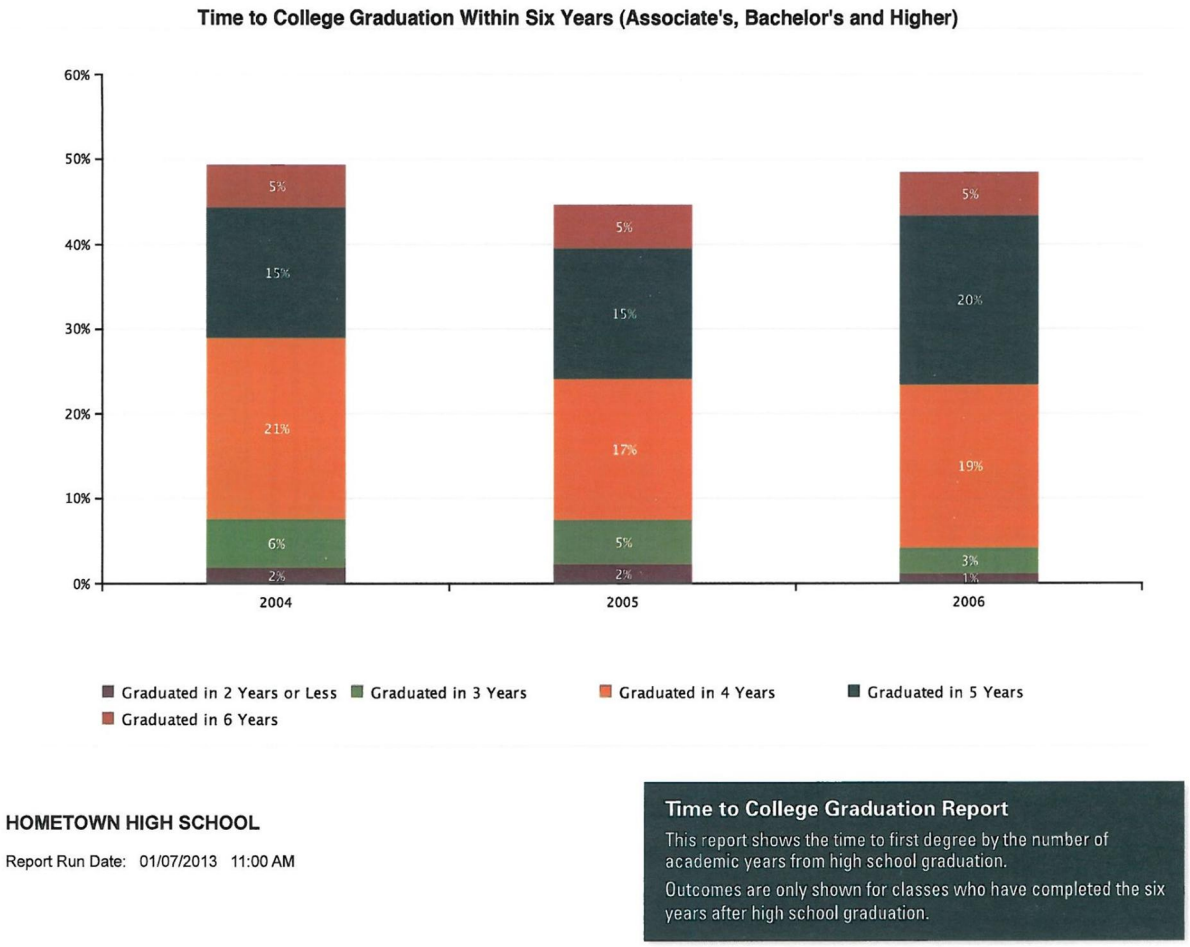


**Figure 4.** Sample NSC Student Graduation Report

# APPENDIX B

# GRADUATE QUESTIONNAIRE

**Shenango Graduate Questionnaire**

**Part A: Educational Experiences**

First Name:

Last Name:

Maiden Name (if applicable):

What was your year of High School Graduation?

- ○ 2006
- ○ 2007
- ○ 2008
- ○ 2009
- ○ Other:

This specific research study is focusing on a narrow window of Shenango graduates (2006-2009). Since you reported graduating outside of this window of graduates you will be exited from the survey at this time. I encourage you to contact me to provide feedback regarding your experiences at Shenango and your postsecondary readiness. I can be reached at jmccormick@shenango.k12.pa.us.

**Figure 5.** Graduate Questionnaire

Thank You!

---

Have you continued your formal education following high school?

- ○ Yes
- ○ No

---

Thank you for taking the time to complete the previous questions. The remaining questions were designed for graduates who have continued their education beyond high school.

Thank you!

---

What degrees/certifications have you earned following high school, if any?

| | |
|---|---|
| Degree/Certification (if applicable) | |
| Degree/Certification #2 (if applicable) | |
| Degree/Certification #3 (if applicable) | |
| Degree/Certification #4 (if applicable) | |

---

**Part B: Preparedness in *Knowledge for College***

Please respond to the questions below to help us better understand **how prepared you felt** with Knowledge for College.

*Knowledge for College* refers to skills and information that are beneficial for students to make a successful transition into and throughout higher education. This includes items such as career planning, college admissions, college entrance exams, financial aid and understanding the culture of higher education.

---

For each statement rate your level of agreement.

**Figure 5 continued. 1**

During High School I...

| | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| ...identified myself first and foremost as a student (as opposed to an athlete, employee, musician) | ○ | ○ | ○ | ○ | ○ |
| ...had established specific goals for after high school that were aligned with my skills, interests, and abilities at the time | ○ | ○ | ○ | ○ | ○ |
| ...I was aware of the necessary admissions and eligibility requirements for the postsecondary programs and schools I was interested in | ○ | ○ | ○ | ○ | ○ |
| ...was aware of how and when to apply to the postsecondary programs I was interested in | ○ | ○ | ○ | ○ | ○ |
| ...was aware of the various types of postsecondary programs and degree options that were available | ○ | ○ | ○ | ○ | ○ |
| ...was aware of various career options and workplaces that matched my skills and interests at the time | ○ | ○ | ○ | ○ | ○ |
| ...was aware of the various educational requirements, pay grade, benefits and working conditions among career options | ○ | ○ | ○ | ○ | ○ |
| ...was aware of the academic and personal skills I would need to be successful in my desired career pathways | ○ | ○ | ○ | ○ | ○ |
| ...was able to establish relationships with role models who had successfully made post-secondary or career transitions similar to my own goals | ○ | ○ | ○ | ○ | ○ |

For each statement rate your level of agreement.

Upon High School graduation I...

| | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| ...knew how to access academic support, such as tutoring, if I needed it | ○ | ○ | ○ | ○ | ○ |
| ...knew how to access mental health support, such as counseling services, if I needed them | ○ | ○ | ○ | ○ | ○ |
| ...knew how to access medical services if I needed them | ○ | ○ | ○ | ○ | ○ |
| ...knew how to get assistance with postsecondary admissions issues if I needed it | ○ | ○ | ○ | ○ | ○ |
| ...knew how to get assistance with postsecondary financial aid issues if I needed it | ○ | ○ | ○ | ○ | ○ |
| ...knew how to get assistance with postsecondary class registration issues if I needed it | ○ | ○ | ○ | ○ | ○ |
| ...was aware of what it would be like to be freshman again during postsecondary studies | ○ | ○ | ○ | ○ | ○ |
| ...was aware of the academic expectations of the postsecondary institution that I planned to attend | ○ | ○ | ○ | ○ | ○ |
| ...was aware of what it would be like to go to school in a new setting | ○ | ○ | ○ | ○ | ○ |
| ...was aware of tuition rates and other costs associated with the | | | | | |

**Figure 5 continued. 2**

| | | | | | |
|---|---|---|---|---|---|
| postsecondary institutions that interested me | ○ | ○ | ○ | ○ | ○ |
| ...was aware of how to find and apply for financial aid such as scholarships, grants and loans | ○ | ○ | ○ | ○ | ○ |

For each statement rate your level of agreement.

Upon High School graduation I felt academically prepared for...

| | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Not Applicable |
|---|---|---|---|---|---|---|
| ...postsecondary studies in English/Language Arts | ○ | ○ | ○ | ○ | ○ | ○ |
| ...postsecondary studies in Mathematics | ○ | ○ | ○ | ○ | ○ | ○ |
| ...postsecondary studies in Science | ○ | ○ | ○ | ○ | ○ | ○ |
| ...postsecondary studies in History/Social Studies | ○ | ○ | ○ | ○ | ○ | ○ |
| ...postsecondary studies in the Arts | ○ | ○ | ○ | ○ | ○ | ○ |
| ...postsecondary studies as they related to Writing | ○ | ○ | ○ | ○ | ○ | ○ |
| ...postsecondary studies as they related to Technology | ○ | ○ | ○ | ○ | ○ | ○ |

Are there any specific reasons why you rated the above academic areas the way you did?

## Part C: Acquisition of *Knowledge for College*

Please respond to the questions below to help us better understand **how you acquired** the various aspects of your Knowledge for College.

*Knowledge for College* refers to skills and information that are beneficial for students to make a successful transition into and throughout higher education. This includes items such as career planning, college admissions, college entrance exams, financial aid and understanding the culture of higher education.

Please rate how much of an influence the following people had on your overall acquisition

**Figure 5 continued. 3**

of Knowledge for College

| | Highly Influential | Moderately Influential | Slightly Influential | Not Influential | Do Not Recall | Not Applicable |
|---|---|---|---|---|---|---|
| Peer(s) | ○ | ○ | ○ | ○ | ○ | ○ |
| Parent(s) | ○ | ○ | ○ | ○ | ○ | ○ |
| Sibling(s) | ○ | ○ | ○ | ○ | ○ | ○ |
| Teacher(s) | ○ | ○ | ○ | ○ | ○ | ○ |
| School Counselor(s) | ○ | ○ | ○ | ○ | ○ | ○ |
| Coach(es) | ○ | ○ | ○ | ○ | ○ | ○ |
| Extra-Curricular Advisor(s) | ○ | ○ | ○ | ○ | ○ | ○ |
| Employer(s) | ○ | ○ | ○ | ○ | ○ | ○ |
| Other: | ○ | ○ | ○ | ○ | ○ | ○ |

Please rate how much of an influence the following experiences and programs had on your overall acquisition of Knowledge for College

| | Highly Influential | Moderately Influential | Slightly Influential | Not Influential | Do Not Recall | Not Applicable |
|---|---|---|---|---|---|---|
| Teachers' Classroom Lessons/Assignments | ○ | ○ | ○ | ○ | ○ | ○ |
| Teachers Bringing in Speakers | ○ | ○ | ○ | ○ | ○ | ○ |
| School Counselor Classroom Lessons | ○ | ○ | ○ | ○ | ○ | ○ |
| Individual meetings with School Counselor | ○ | ○ | ○ | ○ | ○ | ○ |
| Financial Aid Night | ○ | ○ | ○ | ○ | ○ | ○ |
| FAFSA Completion Night | ○ | ○ | ○ | ○ | ○ | ○ |
| Attending a College/Career Fair | ○ | ○ | ○ | ○ | ○ | ○ |
| Attending a College Visit | ○ | ○ | ○ | ○ | ○ | ○ |
| Meeting with a College Representative | ○ | ○ | ○ | ○ | ○ | ○ |
| Job Shadowing | ○ | ○ | ○ | ○ | ○ | ○ |
| Dual Enrollment | ○ | ○ | ○ | ○ | ○ | ○ |
| AP Coursework | ○ | ○ | ○ | ○ | ○ | ○ |
| Completing an Interest Inventory | ○ | ○ | ○ | ○ | ○ | ○ |
| Completing a College/Career Search | ○ | ○ | ○ | ○ | ○ | ○ |
| Other: | ○ | ○ | ○ | ○ | ○ | ○ |

**Figure 5 continued. 4**

**Part D: Alumni Information**

Are there any other specific areas not mentioned in this survey that you felt highly prepared for regarding your postsecondary studies?

Are there any other specific areas not mentioned in this survey that you felt completely unprepared for regarding your postsecondary studies?

What are some other specific people, programs or experiences not mentioned in this survey that you feel helped greatly in acquiring knowledge for college?

Contact Information
Your contact information is needed if you win the prize drawing ($200 Amazon Gift Card)

Email Address (or other preferred means for contact)

Thank you for participating in this survey!

I will randomly select one respondent, using the email address provided in the previous question (if provided), at the conclusion of survey collections. The respondent selected will be contacted by email to claim the prize ($200 Amazon Gift Card).

If you have any questions, concerns or would like to provide additional information please feel free to contact me at jmccormick@shenango.k12.pa.us.

**Figure 5 continued. 5**

# APPENDIX C

## SCHOOL DISTRICT PERMISSION LETTER

# SHENANGO AREA SCHOOL DISTRICT

Office of the Superintendent

2501 Old Pittsburgh Road
New Castle, PA 16101
Telephone 724- 658-7287

**School District Consent Form**

**Title:** Secondary to Postsecondary Nexus: An Investigation on the Impact of Secondary Education on Postsecondary Results

**Researcher:** Joseph McCormick
2405 Muzzy Drive
New Castle, PA 16101
Cell Phone: 724-355-7147 Email: mccormick3@gmail.com

**Faculty Advisor:** Dr. Cyntha Tananis, Associate Professor
University of Pittsburgh, School of Education
4314 Posvar Hall, 230 South Bouquet Street
Pittsburgh, PA 15260
Phone: 412-648-7171

**Research Purpose:** The purpose of this study is to investigate:
1) The postsecondary outcomes of Shenango Alumni from the classes of 2006-2009
2) Measure that alumni population's levels of knowledge for college as an aspect of college and career readiness
3) Measure how the school system and other factors influenced their acquisition of knowledge for college

**Duration:** This study will be conducted beginning in as early as April 2014 through approximately June 2105.

**Procedures:** This study will involve two phases of data collection. The first phase will use the National Student Clearinghouse to gather information on alumni postsecondary enrollment, persistence and graduation outcomes. The second phase will involve administering a survey to the student population listed above that will ask questions regarding their levels of knowledge for college and who they acquired those skills.

**Risks:** There are no known risks in participating.

**Benefits:** There will be no compensation for individuals participating, but there will be an incentive drawing for one randomly drawn respondent. Benefits to the school district will include a detailed review of the college-linking practices that have been utilized and their impact on students. Finding will drive future decision-making on how to better prepare graduates for postsecondary studies.

**Confidentiality:** Only the researcher will have access to identifiable information of the alumni. Reportable findings will be shared in summary and/or aggregate formats.

---

**I hereby provide permission and authorization for the researcher to conduct the study mentioned above within Shenango Area School District and using appropriate district information where necessary.**

Name (printed) Michael Schreck

Title Superintendent

Signature: Michael J. Schreck Date: 4/8/14

**Figure 6.** School District Permission Letter

# APPENDIX D

## SURVEY RECRUITMENT SCRIPT

Dear Shenango Graduates,

I hope this finds each of you doing well in your endeavors beyond high school.

The purpose of this email is to invite you to participate in a brief survey that will take approximately 10 minutes to complete. This survey serves two important purposes. First, this survey is part of a research project to help guide and inform my dissertation through the University of Pittsburgh. As a doctoral student, my area of research interest is understanding the impact high schools have on a student's preparation for higher education. I'm specifically looking at an area of college readiness I refer to as *Knowledge for College*. *Knowledge for College* refers to skills and information that are beneficial for students to make a successful transition into and throughout higher education. This includes items such as career planning, college admissions, college entrance exams, financial aid and understanding the culture of higher education.

Secondly, your feedback will help us, as a school district, better understand the impact we are having on students when they graduate from Shenango High School and continue their education. You will see that this survey specifically focuses on 1) how prepared you were in knowledge for college and 2) what people/programs were most influential in your preparation to continue your formal education after high school. Members of the Shenango faculty, myself included, will use your feedback to affirm effective practices and to guide us in developing new programming to better meet student needs.

The information collected in this survey will be linked with other data we have gathered regarding your post-secondary enrollment and degree progress through the National Student Clearinghouse. All of the information collected on this survey will be kept confidential. Summary and aggregate information, without individually identifying information, will be used to evaluate and inform our school practices. If you have any questions about this research or would like to provide any further information on these or similar topics, please feel free to contact me at your convenience at the high school office or via email.

As an incentive to participate in this survey, one respondent will be drawn at random at the conclusion of data collection to receive a **$200 Amazon Gift Card**. Thank you for taking a few minutes to complete this survey and please know that your participation in this research is completely voluntary. If you have any questions before, during or after the survey, please feel free to contact using the information provided below.

Please review the full Informed Consent for further information on participation in this research.

By clicking the link below you are voluntarily agreeing to participate in this research and verifying that you have reviewed and understand the Informed Consent.

**Click Here for the Survey:** Graduate Questionnaire

Thank you,
Joseph McCormick

Joseph McCormick, Principal
Shenango Area Jr/Sr High School
2550 Ellwood Road
New Castle, PA 16101
724.658.5537 ext 3520
jmccormick@shenango.k12.pa.us

Doctoral Committee Chairperson:
Dr. Cynthia Tananis, Associate Professor
University of Pittsburgh, School of Education
4314 Wesley W Posvar Hall
230 South Bouquet Street
Pittsburgh, PA 15260
412-648-171
tananis@pitt.edu

**Figure 7.** Survey Recruitment Scripts

# APPENDIX E

# IRB APPROVAL

**University of Pittsburgh**
***Institutional Review Board***

3500 Fifth Avenue
Pittsburgh, PA 15213
(412) 383-1480
(412) 383-1508 (fax)
http://www.irb.pitt.edu

**Memorandum**

To: Joseph McCormick

From: Christopher Ryan, PhD , Vice Chair

Date: 7/16/2014

IRB#: PRO14040509

Subject: Secondary to Postsecondary Nexus: An Exploration of the Impact of Secondary Education on Postsecondary Results through Knowledge for College

---

The University of Pittsburgh Institutional Review Board reviewed and approved the above referenced study by the expedited review procedure authorized under 45 CFR 46.110 and 21 CFR 56.110. Your research study was approved under: 45 CFR 46.110.(7)

The IRB has approved the waiver for the requirement to obtain a written informed consent.
The risk level designation is Minimal Risk.

Approval Date: 7/16/2014
Expiration Date: 7/15/2015

For studies being conducted in UPMC facilities, no clinical activities can be undertaken by investigators until they have received approval from the UPMC Fiscal Review Office.

Please note that it is the investigator's responsibility to report to the IRB any unanticipated problems involving risks to subjects or others [see 45 CFR 46.103(b)(5) and 21 CFR 56.108(b)]. Refer to the IRB Policy and Procedure Manual regarding the reporting requirements for unanticipated problems which include, but are not limited to, adverse events. If you have any questions about this process, please contact the Adverse Events Coordinator at 412-383-1480.

The protocol and consent forms, along with a brief progress report must be resubmitted at least one month prior to the renewal date noted above as required by FWA00006790 (University of Pittsburgh), FWA00006735 (University of Pittsburgh Medical Center), FWA00000600 (Children's Hospital of Pittsburgh), FWA00003567 (Magee-Womens Health Corporation), FWA00003338 (University of Pittsburgh Medical Center Cancer Institute).

**Please be advised that your research study may be audited periodically by the University of Pittsburgh Research Conduct and Compliance Office.**

**Figure 8.** IRB Approval

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