

EXAMINING THE INCLINATION OF STUDENTS TO APPLY TO A
POSTSECONDARY INSTITUTION IN THEIR SENIOR YEAR
OF HIGH SCHOOL

By

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To my late maternal grandmother, Marie T. Kilgore, for paving the way

and

To my wonderful husband, Tony, for his undying love and support

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CHAPTER I

INTRODUCTION

Purpose and Research Question

The process by which a student chooses to enroll in a postsecondary institution has generated such interest that scholars have created a body of literature focused solely on the college choice (Freeman, 1997, 2005; Hossler, Braxton, & Coopersmith, 1989; Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999; McDonough, 1997; McDonough, Antonio, & Trent, 1997). Theories have been tested, models have been developed, studies have been conducted all to further understand this transition from high school to college. College choice literature examines not only which and what type of college a student chooses but also when and how students even develop the desire to attend a postsecondary institution (Freeman, 1997, 2005; Hossler, Braxton, & Coopersmith, 1989; Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999; McDonough, 1997; McDonough, Antonio, & Trent, 1997). Thus, the college choice literature extends beyond just whether a high school senior chooses college A or college B. The college choice process can actually begin as early as middle school (Hossler, Braxton, & Coopersmith, 1989). The complexity of the transition from developing aspirations to enrolling in a college has fueled the continuing growth of this body of research.

Within the college choice literature, scholars have traditionally focused on uncovering the predictors of a student's actual enrollment in a postsecondary institution

(Freeman, 1997; Hearn, 1984, 1991; McDonough, 1997). While such research is important and has truly become foundational in higher education policy research, this study approaches the issue of college access at a more fundamental level. The purpose of this study is to examine the inclinations of high school seniors to apply to at least one postsecondary institution in light of their earlier intentions for college as tenth grade students. If students who claim to have postsecondary aspirations as tenth graders are really serious about higher education, it seems reasonable to assume that they would have applied to at least one institution by the spring semester of their senior year in high school. So even before measuring if students enroll in a school, are they taking the necessary steps to be ready to enroll the fall after high school graduation, meaning have they applied to any colleges or universities before leaving high school? If not, what is affecting this lack of action? This study pauses the period between aspirations and enrollment and looks deeper into what is happening before a student even leaves high school.

The Hossler and Gallagher (1987) model of college choice has been highly accepted and widely cited in providing a structure of stages to understand the process of this college choice (Freeman, 1997, 2005; Hossler, Braxton, & Coopersmith, 1989; Hossler, Schmit, & Vesper, 1999; McDonough, 1997; McDonough, Antonio, & Trent, 1997). Hossler and Gallagher (1987) classify the college choice model in three stages: Predisposition, Search, and Choice. The Predisposition stage refers to the development of educational goals, the Search stage involves gathering information about colleges and developing a choice set, and in the Choice stage the student actually selects a college (Hossler & Gallagher, 1987). Hossler and Gallagher's model of college choice provides

an opportunity to examine the college choice process step by step. Specifically, the Predisposition stage acknowledges that there is a cognitive moment when students make a decision about what to do after high school graduation. Within the Predisposition stage, students are introduced to the idea of college. Keeping in line with Hossler and Gallagher's (1987) model, this study will use some of the factors shown to impact the development of aspirations in the Predisposition stage to examine the saliency of their aspirations in motivating application to college. While I am more interested in application than enrollment, the college choice literature provides a sturdy foundation upon which to build my theory of application to college. Therefore, I will use these already-established frameworks to examine their impact on classifying students according to their stated aspirations and actual application.

Hossler, Schmit, and Vesper (1999) examine the college choice process for high school students from developing aspirations to choosing a college. Yet even in their detailed analysis, the emphasis of their study is on the development of aspirations and the type of choice, not the factors that influence whether a student applies to a college. While their longitudinal study is important in understanding specifically the consistency of aspirations, it left open the door for additional analysis in regards to applying to college. Hossler, Schmit, and Vesper (1999) acknowledge that the majority of students with college aspirations as ninth graders maintain those aspirations as twelfth graders. In fact, almost 75% of their sample was consistent in their college plans from ninth grade to twelfth grade. This large number is encouraging, yet one cannot help but wonder about the remaining twenty-five percent. One-quarter of that sample changed their minds about continuing their education. This twenty-five percent does not just represent those who no

longer had aspirations for college. Also included are the students who changed their minds in the opposite direction—they did not aspire to go to college early on but did desire to attend college by their senior year of high school. However, one limitation of their study is that their survey was administered in November of the senior year. At that time, only six-percent of their sample had applied to a school (Hossler, Schmit, & Vesper, 1999). So while their study is helpful in confirming the consistency of aspirations, it does not identify the students that had applied to college in the spring semester of their senior year. Another limitation of their study is that their data focused solely on students in the state of Indiana (Hossler, Schmit, & Vesper, 1999). This study uses national data.

The early work of Lewis and Morrison (1975) did indicate when high school seniors were actually applying to college. The majority of their sample was the most serious about their search and choice between October and April of their senior year. More specifically, fifty-percent applied to college between early November and early January, ten-percent applied in October, and forty-percent applied by the first part of April. My study is significant because students were surveyed in the spring of their senior year. Therefore, in line with this earlier Lewis and Morrison (1975) study, students who are really serious about attending college immediately after high school would most likely have applied to a college by the time they were sampled in the spring of their senior year.

This study will examine the differences among students based on their aspirations and application. In the tenth grade, did they plan to attend college right after high school? In the twelfth grade, had they applied to at least one postsecondary institution?

Pending their response to these two questions, there are four possible categories of students: 1) students with tenth grade aspirations but no application in the twelfth grade, 2) students with no aspirations in tenth grade yet do apply in twelfth grade, 3) students with aspirations and with application, and 4) students with no aspirations and no application. The final group will not be included in this study. Students with aspirations do not apply, students with no aspirations do apply, and some students keep their commitment as originally stated. Therefore, I will examine students who are classified according to these groups. I will examine the variables that distinguish the overall differences among all three groups. Meaning, which variables are contributing most to the variation between the groups? In addition, I will examine the variables that increase or decrease the odds of applying to college based on their tenth grade aspirations. What are the strongest predictors in increasing the likelihood of applying to college?

The students who did plan to attend college immediately after high school as a tenth grader yet did not apply as a twelfth grader make up the first group. This group, which I will label the shifters, has changed their minds or shifted in their plans from tenth grade to twelfth grade. At some point in this two-year period of time, their aspirations have been lowered. The data analysis for this study will signify which variables maximize the differences among the three groups. For this first group of shifters, I believe the structure of the school represents the dominant area of influence. As will be explained in the next chapter, structure in this study is the social context for high school students that can impact one's choices (McDonough, 1997). The members of this group have shifted in their plans because of the impact of the external factors within and among

their high school. Therefore, I hypothesize that it is the structure of the high school that has the strongest influence in the classification of the shifters.

The second group I have created can too be thought of as shifters, yet they have shifted in the opposite direction. This second group of students did not plan to attend a postsecondary institution immediately after high school, yet these students had applied to a postsecondary institution by their senior year of high school. Someone or something, or a combination of some ones or some things, have impacted the students so strongly that they not only reconsidered college but also took the action steps to apply before leaving high school. For this second group of students, I propose that they have had someone, which I label a sponsor, whose influence has propelled them to action. This group of students will be known as the sponsored. The influence of a sponsor is an idea of sponsored mobility (Turner, 1960), which is detailed in Chapter 2. For these students, having that influence from someone else, whether a parent, teacher, guidance counselor, or peer, has had the greatest impact in classification in this group. Together these people and their influence represent forms of capital, which I call personal capital, that propel the student to apply. Therefore, I hypothesize that it is the influence of the personal capital that distinguishes the sponsored from the other groups. For these students to change their minds to act and apply, someone else played an important role in their decision. Thus, the personal capital variables have the most influence in classifying students as sponsored.

Finally, there is one more group I will examine. Unlike the shifters and the sponsored, these students have not wavered in their plans. This third group of students will be known as the focused. As tenth graders, they planned to attend college right after

high school, and as twelfth graders they had applied to at least one college. I propose that it is the personal agency of these students that has kept them on track. These students have done all of the “right” things in high school, which have kept them focused on their ultimate goal. Personal agency refers to the characteristics of the students themselves, such as their achievement, commitment, and involvement, which have together classified them in this group. As will be examined in Chapter 2, these personal agency variables coincide with traditional models of college choice (Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999). For this third and final group, the focused, I hypothesize that the personal agency variables are the most representative of this group.

Hypotheses

The purpose of this study is to identify why some students apply to college and why others do not, given their earlier stated aspirations of whether to attend college immediately after high school. I will use two approaches to examine this issue. The first approach will identify which variables maximize the differences among the three groups. This first approach provides a context by which to understand which variables contribute the most to the variation among the groups. These results will present a stronger understanding of why the groups are different. The second approach extends this further by examining the individual factors that affect the odds of applying to college. Using these two approaches together will provide clarity in not only understanding why these groups are different but also which variables are the stronger predictors specifically for defining each of the three groups. Therefore, between the tenth and twelfth grades,

which variables are the most significant in classifying these students as shifters, sponsored, and focused? My hypotheses are:

- Shifters: Students who planned to attend college while in the tenth grade but did not apply in the twelfth grade have been affected most by the structure of the high school.
- Sponsored: Tenth grade students who originally did not intend to go to college and yet did apply in the twelfth grade have been most influenced by personal capital.
- Focused: The students in the final group with initial aspirations in the tenth grade who did apply in the twelfth grade have been most affected by their own personal agency.

While there are influences that overlap within the three groups, I hypothesize that each group has a dominant area of influence, or set of predictors, that contributes most to distinguishing them in their respective group.

Significance of the Study

What continues to puzzle scholars is why students who develop aspirations for college never actualize on those plans (Bateman & Hossler, 1996; Freeman, 1997, 2005; Hamrick & Stage, 1998; Hossler & Gallagher, 1987). Issues of policy implications, academic preparation, social influences, and family expectations have all been suggested as playing a role in this process of aspirations to actualization. By focusing on college enrollment as the outcome variable, we may be missing an important step in this process. This study is significant because nested within this transition is the decision to apply to a

higher education institution. Now it may seem irrelevant to focus on the influences on applying to college, for one must apply to then enroll. Yet understanding the influences of even applying to college may provide more clarity to understanding why students are not enrolling. Likewise, identifying how these three distinct groups of students, who all at one point had college in their plans, differ will provide direct relevance in targeting issues that may prevent students from applying to college.

This study is also significant by bridging various bodies of literature together that have yet to be connected for understanding college application. As aforementioned, scholars have examined the development of postsecondary aspirations, the process of the search, and the type of college choice (Hossler & Gallagher, 1987; Hossler, Schmit, and Vesper; McDonough, 1997; McDonough, Antonio, & Trent, 1997). What remains to be examined and what this study attempts to do is understand what distinguishes the differences between students who apply to college and students who do not. By classifying students into three groups based on tenth grade aspirations and twelfth grade application, this study will establish a new discussion on college choice in light of application. We know a lot about developing aspirations, but we do not know what is distinguishing the differences between those who apply and those who do not apply. There is a disconnection between what some students say they plan to do and what they actually do before they even leave high school. This study takes a fresh look at the highly researched topic of college choice.

Overview of Remaining Chapters

This first chapter introduces the study and projects the hypotheses for the study. Chapter two serves double-duty: I will review the literature on college choice and introduce how that literature provides a foundation for my theoretical framework. In chapter two, I will present general explanations of the three main areas of influence, as they all three could have an impact on whether a student has applied to college. Yet in chapter three, I will outline my theoretical framework in light of my stated hypotheses in chapter one. Chapter three begins with crafting my framework given which area of influence I hypothesize aligns with each of the three groups. Chapter three outlines the theoretical framework and methodology with a full description of all of the variables of interest along with the analytic strategies. In chapter four, I explain the results of the data analysis. The final chapter is chapter five, which includes discussion of the results, implications of the results, and suggestions for future research.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter serves two purposes. I will review the literature to support and frame this study. The review of the literature also provides a context and foundation to build my theoretical framework in Chapter 3. Given previous research on college choice, there are three areas of research that can impact if students apply to college. While no one has looked at this topic and thus organized the literature as such, I will speak of each of the three areas, and in Chapter 3, I will then explain how the three areas relate to my hypotheses. Individually, these three areas have provided much insight into theories of educational attainment. Generally, I will focus on the structure of high schools (Davies & Guppy, 1997; Gamoran, 1987, 1992; Hallinan, 1994; Hossler, Braxton, & Coopersmith, 1989; Freeman, 2005; Hossler, Schmit, & Vesper, 1999; McDonough, 1997), the personal capital students gain from other people (Bateman, 1990; Bourdieu, 1977; Bourdieu & Passeron, 1977; Coleman, 1988, 1990; Collins, 1979; Falsey & Haynes, 1984; Hearn, 1984; Hossler, Braxton, & Coopersmith, 1989; Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999; Hossler & Stage, 1992; Manski & Wise, 1983; McDonough, 1997; Paulsen, 1990; Russell, 1980; Sewell & Shah, 1978; Sheppard, Schmit, & Pugh, 1992; Stage & Hossler, 1989; Tillery, 1973; Trent & Medsker, 1967; Yang, 1981), and the student's own determination and initiative, or personal agency (Bishop, 1977; Choy, Horn, Nunez, & Chen, 2000; Coleman, 1966; Hossler, Braxton, &

Coopersmith, 1989; Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999; Hossler & Stage, 1987; Jackson, 1978; McDonough, 1997; Sharp, Johnson, Kurotsuchi, & Waltman, 1996; Tuttle, 1981; Weiss, 1990). Since the literature has traditionally focused on the development of college aspirations or the predictors of college enrollment, I will reference the literature on developing postsecondary aspirations as my framework for understanding the inclination to apply to a higher education institution in the senior year of high school. In addition, I will also reference recent research (Rosenbaum, Diel-Amen, & Person, 2006) on changing aspirations in community colleges and align that framework with corresponding changes in high school. While the foundational research on college choice frames this study, the more recent research on college access in community colleges extends and supports my theoretical framework.

The Structure of High Schools

The structure of high school refers to the social context of the school the student attends. Understanding the larger context in which the student interacts provides insight into a student's choices (Perna and Titus, 2005). Bourdieu (Bourdieu and Wacquant, 1992) and Lin (2001) believe that you can only understand one's choices within the social context where one is making those choices (Perna and Titus, 2005). In fact, Bourdieu's idea of *habitus* is an example of the impact of one's environment. McDonough (1997) acknowledged that one's *habitus* is not only a reflection of the family and the family's values but also a reflection of the school environment. She referred to this as organizational *habitus* (McDonough, 1997). This is how I define structure. The school context creates an environment by which the student makes

decisions, which specifically for this study is the decision to apply to college. Through the *habitus*, people determine what is possible for them to do. As the *habitus* reflects the structure of the school, the structure can influence one's aspirations for college. Therefore, the structure of the school may be related to whether a student applies to college before leaving high school.

Curriculum Tracking

Scholars who study the sociology of education have been intentional about framing issues of educational attainment within the social stratification literature (Davies & Guppy, 1997; Gamoran, 1987). Specifically for education, stratification is typically discussed within the social structures of the education system from elementary to postsecondary (Gamoran, 1987). Schools are structured in such a way so that students can be directed towards certain outcomes. How are social structures impacting this tendency for students to be proactive in their own postsecondary outcomes? Curriculum tracking and course-taking patterns are examples of how schools stratify students within the education system (Gamoran, 1987, 1992; Hallinan, 1994). Curriculum tracking typically refers to the academic program that a student is enrolled in, for instance general high school track, college preparatory track, or vocational track. Tracking is part of a larger phenomenon called channeling, which Freeman (2005) defined as “the environmental forces (whether individuals, institutions, or circumstances) that influence the direction of students’ postsecondary choices” (p. 60). Therefore, tracking sheds light into how those institutional forces, namely schools’ academic programs, are impacting postsecondary destinations for students. Even though the K-12 education system and the

higher education system function independently of each other, tracking is an example of one aspect of K-12 education that specifically attempts to prepare students for postsecondary education. While tracking initially referred solely to the academic program in which one was enrolled (Hallinan, 1994), scholars have extended the definition of tracking to include ability-grouping and course-taking patterns (Gamoran, 1987; Hallinan, 1994). This study will define tracking as both the student's academic program and course-taking patterns. By the tenth grade, students are most likely already placed in their academic track, and they are already on a course-taking trajectory. So in this case, tracking is a contextual variable that I will use to examine how influential one's academic track is on his or her decision to apply. Nonetheless, tracking is a tangible construct that demonstrates how students are stratified within the school. It is important to examine how influential these already-assigned placements are in the student's steps towards postsecondary education. The way in which the student is stratified within the academic structure of the school could impact his or her decision to apply to a college.

School Demographics

The type of school a student attends can also have an impact on future plans (Falsey & Heynes, 1984; McDonough, 1997; Persell, Catsambis, & Cookson, 1992). For instance, a rural, public school may not have the same climate of expectations for its students as a private, suburban school (McDonough, 1997). McDonough's (1997) study shows first hand how the structure and context of the high school can greatly influence the type of postsecondary institution a student desires. Just the same, the structure of the high school can create a climate of expectation for postsecondary education or not.

While all of the students in McDonough's study were choosing higher education, the distinction between the choices of students from public schools and students from private schools leads one to conclude that this difference can be seen in the decision to apply to college as well.

In addition to the type of school, meaning public or private, I will also examine the location of the school within the city (urban/suburban or rural). Whether a student chooses to apply to college before leaving high school may differ pending if the school is classified as rural, suburban, and urban. Suburban students have a push towards higher education (Morrison, 2006). Traditionally, middle-class families live in the suburbs and traditionally middle-class families have someone with college experience or a college degree in the family (Morrison, 2006). Therefore, the climate in the school is to direct students towards higher education. McDonough's (1998) organizational habitus refers to this climate as well. Students who attend rural schools may be encouraged to work or pursue other fields besides higher education. This climate may not only be a reflection of the school but also the community at large (Morrison, 2006). Being in a rural school may cool-out one's aspirations for college because the focus of the curriculum is preparing students to enter the work force (Huang, Weng, Zhang & Cohen, 1997). People in rural communities have lived there for many years—some for their entire lives. Yet more importantly, the curriculum within rural high schools most often focuses on vocational skills (Huang, Weng, Zhang & Cohen, 1997) rather than liberal arts, which we could classify as a college preparatory type curriculum. For many rural communities, high school education is the main formal education one receives before entering the work force in that local community. These skills are imperative to maintain the economy in

these smaller communities (Klerman & Karoly, 1995; Muraskin, 1993; Vandegrift & Danzig, 1993).

Bidwell and Kasarda (1980) made an important distinction in educational research among studies about schools and studies about schooling. When one does research about “schools,” one is referring to the actual organization of the school itself. Yet the term “schooling” refers to the experiences of an individual student while in the school. However, whether termed schools or schooling, both contribute to the structure that can influence students’ choices. The way that a school is organized, such as the type of school, the demographics of the school, even the available resources within the school are all a part of its structure. Likewise, the curriculum track and course-taking patterns, which Bidwell and Kasarda (1980) would label as schooling, are still significant in the impact of the structure of the school. I will examine the how the influence of both schools and schooling can impact if a student applies to a college before leaving high school. Therefore, the structure of the high school refers to the larger context that could impact a student’s decisions. While these concepts are not new to research on educational attainment or college choice, few people have looked at these areas in light of their influence on application to college.

Personal Capital

Personal capital refers to the impact and influence of the personal connections the students have with other people. These people are parents, peers, teachers, and guidance counselors. In this section of the chapter, I will introduce the concepts within personal

capital that can impact whether a student will apply to a postsecondary institution before leaving high school.

Sponsored Mobility

Sponsored mobility (Turner, 1960) asserts that someone intervenes on the person's behalf in elevating his or her educational attainment. Meaning, in order for a student to achieve higher levels of education, that student had someone (a sponsor) who aided him or her in the process. Traditionally, theories of sponsored mobility are focused on the advancements of the elite (Turner, 1960). However, the idea that someone was a helper in promoting one's educational attainment applies to all levels of people. This sponsor can be any influential person in a student's life—a parent or other family member, a teacher, a guidance counselor, or even a peer. All of these people can collectively have an impact or there could be just one person who motivates a student to strive for more education. Traditional theories of college choice have not included sponsored mobility as a way to explain how students may shift in their plans. The idea of sponsored mobility asserts that the influence of another person can aid one's educational attainment. Although theories of cultural capital and social capital are separate concepts, they too point to the impact of other people on one's advancement. In attempts to understand the impact of the sponsor, I will examine family variables, the peer effect, and the expectation of teachers and counselors as extensions of the constructs cultural and social capital.

Cultural Capital—Overview

Bourdieu (1977) first introduced this idea of cultural capital as the transmission of intergenerational class status and privilege from parents to children (McDonough, 1997). Cultural capital refers to widely-accepted norms of society, which can be used to further one's own prestige and advancement. Parents must have an understanding of societal expectations and appropriate behaviors well enough to pass those standards on to their children. As McDonough (1997) says, the utility of cultural capital comes in “using, manipulating, and investing it for socially valued and difficult to secure purposes and resources” (p. 9). Cultural capital is class-based, yet sociologists and educators have used this term to refer to differences in educational attainment. While theories of cultural capital have flaws of their own, scholars have proposed that a student's cultural capital influences his or her college choice process (Bourdieu & Passeron, 1977; Coleman, 1988, 1990; Collins, 1979; Hossler, Braxton, & Coopersmith, 1989). McDonough (1997) states that, “a student's cultural capital will affect the level and quality of college education that the student intends to acquire” (p. 8). Cultural capital is pertinent in understanding the enrollment patterns of students (Perna, 2000), which starts with the development of aspirations and the initiative to apply. As Perna (2000) summarizes, students who do not possess the appropriate cultural capital may (a) lower their postsecondary aspirations; (b) over-perform to make up for the differences from not having the dominant cultural capital; or (c) ultimately not receive as many rewards for their investment in education (Bourdieu & Passeron, 1977; Lamont & Lareau, 1988).

Cultural capital is comprised of resources within the family that promotes the student's educational attainment. Traditionally, cultural capital referred to high status

cultural events, but scholars have expanded the conceptualization of cultural capital to include access to educational resources, parental education level, and even income (Perna, 2000; Perna & Titus, 2005). Cultural capital in itself is not a sponsor for the student directly. Yet as parents can be a sponsor and are a personal connection for the student, cultural capital is the larger construct that represents the facets by which the parent can be influential in a student's postsecondary plans. Research confirms the importance of elements of cultural capital—income, education, and resources—as very influential in a student's initial aspirations for college (Hossler, Schmit, & Vesper, 1999). Likewise, cultural capital can impact what type of school a student chooses to attend (McDonough, 1997). Therefore, for this study, it is important to examine the influence of the parent within the context of the parents' impact via cultural capital. More specifically, in this study cultural capital refers to access to resources such as computers and books within the home, exposure to cultural events, and advantages provided through one's parents, such as education and income.

Cultural Capital—Family Income

Studies have consistently shown that parents are an important influence in the college choice process (Falsey & Haynes, 1984; Hearn, 1984; Hossler, Schmit, & Vesper, 1999; Hossler & Stage, 1992; Manski & Wise, 1983; McDonough, 1997; Sewell & Shah, 1978; Stage & Hossler, 1989; Tillery, 1973; Trent & Medsker, 1967; Yang, 1981). Family background refers mainly to the socioeconomic status of the family (Hossler & Gallagher, 1987). When family income was measured by socioeconomic status (SES), Hossler & Gallagher (1987) initially found that the higher the socioeconomic level, the

more likely the student will plan to attend college. However, since that time, researchers have not found consistent results to conclude the impact of family income as its own variable on postsecondary aspirations (Bateman, 1990; Hossler, Braxton, & Coopersmith, 1989; Hossler & Stage, 1992; Paulsen, 1990; Stage & Hossler, 1989). Yet when Hossler, Schmit, and Vesper (1999) focused on the early stages of college aspirations, they found that family income did have an impact on the development of aspirations. Because socioeconomic status is often comprised of an index including income and parental education level, I have chosen to use income and parental education level as separate variables of choice in this study. Family income can have an impact on the placement of students within the three groups. Family income is an extension of personal capital because of it being an aspect of the parents' influence.

Cultural Capital—Family Education

Research suggests that parent's education level has a positive effect on the development of aspirations. The higher the parent's education level, the more likely the student will desire to attend college (Hossler & Stage, 1992; Stage & Hossler, 1989; Manski & Wise, 1983; Trent & Medsker, 1967; Yang, 1981). While this finding is not surprising, it does lead to an important distinction. Parents who have been to college are obviously more familiar with the college preparation and admissions process and thus share this information with their children. These parents guide their children to take the appropriate classes and maintain a high grade point average (McDonough, 1997). This information that is transmitted to the student represents a form of capital possessed by some parents that influences their child's plans (Bourdieu, 1977; Bourdieu & Passeron,

1977; Coleman, 1988, 1990; Collins, 1979; Hossler, Braxton, & Coopersmith, 1989). Therefore, parents' education level as an aspect of cultural capital could also impact a student's likelihood to apply to a postsecondary institution.

Social Capital—Overview

Social capital as defined by Coleman (1988) refers to the social networks among families that encourage educational attainment. In addition, Portes (1998) stated that one acquires social capital from relationships and interactions with others, namely membership in social groups or networks. Social capital is used to communicate the norms and expectations of society. For this study, social capital will be measured by impact of peers and school personnel. While other parent variables are included in cultural capital, parent communication will be introduced as a form of social capital.

Social Capital—Parental Communication

Hossler, Schmit, and Vesper (1999) found that parental encouragement is one of the strongest predictors of having postsecondary aspirations. This builds upon previous research that indicates that parental encouragement is the best predictor of desiring to go to college (Falsey & Haynes, 1984; Hearn, 1984; Hossler & Stage, 1992; Sewell & Shah, 1978; Stage & Hossler, 1989; Tillery, 1973). Hossler, Schmit, and Vesper (1999) define parental encouragement as the frequency with which parents and students discuss parents' expectations of the student's educational attainment. As Hossler, Schmit, and Vesper (1999) operationalize parental encouragement, there is an underlying assumption that parents and students have a fairly open line of communication. It seems worthy to

examine the frequency of all types of communication between parents and students. For if parents are truly a major influence in postsecondary plans and enrollment (Falsey & Haynes, 1984; Hearn, 1984; Hossler, Schmit, & Vesper, 1999; Hossler & Stage, 1992; Manski & Wise, 1983; McDonough, 1997; Sewell & Shah, 1978; Stage & Hossler, 1989; Tillery, 1973, Trent & Medsker, 1967; Yang, 1981), one would assume the frequency of conversations about college or high school activities would impact the decision to apply to college. Therefore, the impact of this communication variable will be examined.

Social Capital—Peers' Influence

Peers have an impact on the development of postsecondary plans (Hossler, Braxton, & Coopersmith, 1989; Sheppard, Schmit, & Pugh, 1992). In the same way, Hossler, Schmit, and Vesper (1999) found a positive relationship with students whose friends plan to attend college also planning to attend college. In essence, the more students are around other students with college aspirations, the more likely they are to develop college aspirations of their own (Coleman, 1966; Falsey & Haynes, 1984; Russell, 1980; Tillery, 1973). Therefore, I will examine the priority that a student's close friends place on postsecondary education as well as the number of friends who plan to go to college.

Social Capital—Teachers' and Counselors' Influence

In terms of school leaders, Hossler, Schmit, and Vesper (1999) did not find a significant teacher or guidance counselor effect on the development of postsecondary plans. Yet McDonough's qualitative study of college choice (1997) did find a variant

impact from guidance counselors on postsecondary plans pending the size and type of the school. Nonetheless, teachers and counselors can be that influential sponsor whose expectation prompts the student to consider higher education. Their expectation of the student can have an impact on the student's initiative in executing postsecondary plans. Teachers and counselors can be the sole form of information for college entrance requirements. The expectation of these school leaders will be examined.

Personal capital as defined by social and cultural capital is not a new topic in regards to college choice. Yet no one has approached understanding the differences between students who apply and those who do not apply using these concepts.

Personal Agency

Personal agency refers to qualities or characteristics of the students themselves. Within this section, I will review the literature on the effect of academic achievement and extracurricular activities. Both of these indicate how connected students are to the education system.

Academic Achievement

Academic achievement is usually measured by the student's grade point average, which is found to be highly correlated with socioeconomic status (Hossler & Gallagher, 1987). Research has consistently shown that student's academic achievement is one of the strongest predictors of college plans (Bishop, 1977; Hossler, Schmit, & Vesper, 1999; Jackson, 1978; Sharp, Johnson, Kurotsuchi, & Waltman, 1996; Tuttle, 1981). In fact, when students receive good grades, they receive more encouragement from parents,

teachers, peers, and siblings to attend college (Hossler, Schmit, & Vesper, 1999; McDonough, 1997; Weiss, 1990). While no one characteristic is an adequate predictor for postsecondary plans (Hossler, Schmit, & Vesper, 1999), a student's academic achievement has proven to be a reliable indicator. For this study, academic achievement will also be represented by the importance the student places on academics as well as the amount of time the student spends on homework both inside and outside of school.

High School Activities

Students who spend more time in extracurricular activities will be more likely to desire to continue their education after high school graduation (Choy, Horn, Nunez, & Chen, 2000). However, many times this effect is very small (Hossler, Schmit, & Vesper, 1999). One could conclude that students who are more involved in high school activities are more motivated than students who are not involved in extracurricular activities, yet this conclusion is just speculative (Hossler, Schmit, & Vesper, 1999). Nonetheless, involvement in additional activities outside of coursework may keep students engaged in the education system as a whole. Extracurricular involvement is a facet of one's personal agency that can contribute to the differences among the groups.

Personal agency as a mechanism of motivating students to apply to a college has not been directly addressed in the literature. Traditionally, psychologists define personal agency as an extension of self-efficacy, meaning people believe in their ability to do something and to control how it is done (Bandura, Barbaranelli, Caprara & Pastorelli, 1996). Personal agency does impact one's aspirations and goals. Yet understanding the impact of academic achievement and involvement that in turn can influence one's

commitment is all a part of personal agency. Therefore, attitudes about one's capabilities are manifested in what one plans to do and actually does in light of their abilities.

The Cooling-Out and Warming Up of Aspirations

The literature cited thus far has supported the traditional methods of students developing aspirations for college and thus enrolling in college. Yet as mentioned in chapter one, this study also will examine the students who change their minds. The shifters had aspirations for college in the tenth grade but they did not apply in the twelfth grade. The sponsored did not have aspirations in the tenth grade but did apply in the twelfth grade. The traditional literature of college choice does not address these "movers," the students who changed their mind in either direction. In this section of the review of the literature, I will introduce work focused on the changing of aspirations whether cooling-out aspirations or warming up aspirations.

Cooling-Out Aspirations

Burton Clark (1960) used the term "cooling-out" to explain what was happening in the community college system in the 1960s. Students were entering a community college with plans to transfer later to a four-year institution, yet many never actualized on those plans. He concluded that the structure of community colleges functioned as a holding ground only to cool-out those aspirations. He acknowledged that there was a structure or a philosophy larger than the student's choice that was actually affecting a student's future plans. So even if the student had intentions of continuing his or her education, there were forces beyond the student's control that were actually more

influential than realized. It is this same vein of reasoning that I approach this section of my theoretical framework. However, in this context, I will be speaking of the function of high schools, not community colleges, in cooling-out students' aspirations for postsecondary education.

Cooling-out as outlined by Clark (1960) was an intentional effort by community college guidance counselors to push students away from aspiring towards a four-year degree. Others have agreed that schools actually create institutional road blocks to keep students from moving forward with initial plans (Alba & Lavin, 1981; Anderson, 1981, 1984; Astin, 1972, 1977; Crook & Lavin, 1989; Dougherty, 1992, 1994; Karabel, 1972; Monk-Turner, 1983; Nunley & Breneman, 1988; Richardson, Fisk & Okum, 1983; Velez, 1985). These road blocks are quietly but surely deterring students from pursuing four-year degrees. Cooling-out also means that students are convinced to lower their aspirations because of their poor academic performance (Karabel, 1977). Stratification is reinforced as students begin to separate themselves into those who will transfer and those who will not transfer. If students do not pursue guidance, then they will most likely be pushed out of not only desiring a four-year degree but also remaining in higher education at all (Karabel, 1977).

Rosenbaum, Diel-Amen, and Person (2006) acknowledge one shortcoming of earlier cooling-out research is that only the guidance counselor was mentioned as the influential person in a student's decision to no longer pursue higher levels of education. Norton Grubb (1996) agrees that guidance counselors no longer have that much power or influence over students. Therefore, other people in students' lives—parents, teachers, and peers—should be considered.

Warming Up Aspirations

Another lens by which to understand why students may change in their plans for college is to highlight the work of Rosenbaum, Diel-Amen, and Person (2006). Similar to Clark, their work focused on changing aspirations within community colleges. Yet even with the sample in community colleges, they still create a framework by which to understand how students' plans are influenced by being a part of an educational institution. Rosenbaum et al. (2006) acknowledge the work of Clark as foundational to understanding community colleges, yet they believe that work is incomplete. Clark saw the change in aspirations as going from high to low. But just as aspirations can be cooled-out, they can also be warmed up. Warming up refers to increased or higher aspirations than originally intended. Rosenbaum et al. (2006) state, "Warming up is the raising of students' initial aspirations after they enroll in a college" (p. 41). For example, a student who entered a community college with no plans to transfer to a four-year institution develops a desire to transfer after being a part of the community college. Contrary to Clark's work, being a part of a community college can increase one's initial educational goals. This change in aspirations is not specific to what is happening in community colleges. What is common to all levels of education is that within the interaction of being in an educational environment, one can be greatly influenced—to the point of changing plans—by others in that environment.

Warming up is not an independent process and does not necessarily happen on its own. Rosenbaum et al. (2006) describe warming up as the result of having positive interactions with others, namely faculty members. Rosenbaum et al. (2006) did extensive qualitative analyses of several community colleges in addition to quantitative analyses.

In their study, themes emerged among those students whose aspirations had “warmed up.” Rosenbaum et al. (2006) concluded that the process of warming up involves three steps. First, students who had a positive change in aspirations initially had no confidence in themselves and their academic ability (Rosenbaum et al., 2006). They did not believe that college was the place for them. Likewise, they had a weak commitment to college. They were barely in college and disengaged in the education as a whole (Rosenbaum et al., 2006).

At first glance, these students look more like candidates for cooling-out. One could even agree that at this stage, students could either have aspirations cooled-out or warmed up. Yet the key to warming up lay in the next two steps. Second, the faculty at the community college provided support to these disengaged students, which helped boost their confidence (Rosenbaum et al., 2006). Students could tell that the faculty members were supportive of their effort, which helped the student stay engaged and connected. Beyond that, the third step was that the faculty members were intentional about encouraging students to consider transferring to a four-year institution (Rosenbaum et al., 2006). Many faculty members actively created this environment by expecting all students to transfer to a four-year institution. The students in their study who had support and encouragement from the faculty were the ones whose aspirations were warming up.

Cooling-out and warming up are concepts that provide another level of clarity for understanding students’ application to college, namely those students who change their plans before even leaving high school. In the next chapter, I will explain my theoretical framework in light of this literature.

CHAPTER III

THEORETICAL FRAMEWORK AND METHODOLOGY

Theoretical Framework

My theoretical framework is based on the three main areas of research cited in Chapter 2—the structure of high schools, personal capital, and personal agency. Likewise, the recent work of Rosenbaum et al. (2006) provides another layer for the foundation of my theoretical framework. Cooling-out and warming up are both concepts used to describe changes in plans at the community college level (Rosenbaum et al., 2006). Yet these concepts can also apply to the high school level. Specifically, shifters are so because of cooling-out and sponsored are such because of warming-up. The level of education may be different, but the idea is still the same. As mentioned in chapter one, there are four possible groups of students: 1) students with tenth grade aspirations who do not apply, 2) students with no tenth grade aspirations who do apply, 3) students with aspirations who do apply, and 4) students who do not have aspirations and who do not apply. I have chosen not to examine the fourth group of students, who are the students who never had tenth grade aspirations and who did not apply to college in the twelfth grade. However, this last group and the focused both were consistent in their plans. In my theoretical framework, I will explain why the shifters are not the focused and why the sponsored are not the “never” group that I did not include in this study. I propose that there are factors that halt the shifters’ plans and propel the plans of the sponsored. I will begin with describing the focused, then the shifters, and finally the sponsored.

In this chapter, I will explain how my hypotheses align with and flow out of these major areas of research. The three groups—focused, shifters, and sponsored—will be reintroduced in this section with their corresponding proposed dominant area of influence. Also included in this section is the explanation of the methodology for this study.

The Focused

The majority of students who initially plan to attend college right after high school do apply to at least one school before they leave high school. This group serves as the comparison, for these students had an “ideal” path. These students have remained focused on their goal and have taken the necessary steps to be ready to enroll the fall after high school graduation. I refer to this group of students as the focused. This group of students aligns nicely with some of the traditional theories of college choice (Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999). The purpose of previous models was to understand which college a student chooses, and this study is more foundational in determining whether a student applies at all. Nonetheless, for this group of more traditional students following the traditional path, the Hossler and Gallagher (1997) model as well as additional research by Hossler, Schmit, and Vesper (1999) provide a framework for understanding how these students stay on track.

For this group of students who follow through with their plans, I hypothesize that personal agency variables are the strongest predictors in application to college. Hossler and Gallagher (1987) believe that students’ family background, academic achievement, peer relationships, and high school activities all influence their postsecondary plans.

Hossler, Schmit, and Vesper (1999) later found that parental encouragement and expectations have the strongest effect on the development of postsecondary aspirations. In fact, students in that longitudinal study reported that parental support and encouragement were the deciding factors in developing college aspirations (Hossler, Schmit, & Vesper, 1999). However, they focused on student's academic achievement and academic commitment in understanding how students develop postsecondary aspirations. While parents play a major role in developing aspirations, academic achievement may become more of a factor when it comes time actually to apply to school. For even if your parents have always encouraged you to attend college yet you do not have the grades to go to school, academic achievement becomes the stronger indicator. So technically, one would think that these focused students have done all of the "right" things. Students in all three groups could have had similar experiences, but this group of students had something from the beginning that helped develop the desire, something during high school to help sustain that desire, and something during their senior year to propel them to act upon that desire.

The focused have managed to follow-through with their aforementioned plans. The focused not only are successful in academic achievement but they are also committed to academics. These students have also prepared for higher education by taking the ACT or SAT and even taking preparation classes or using other instructional tools to prepare for college entrance exams.

Students who place high priority on academics, are involved in extracurricular activities, and are committed to education have prepared themselves to be ready to apply to a postsecondary institution before leaving high school. The focused have personally

worked hard and their efforts have motivated them to continue their education. For my hypothesis to be supported, the strongest predictors for students to be classified as focused are the personal agency variables. They truly believe in the importance of education in high school and the importance of education in college so much that they have stayed focused on their goals. Whether directly or indirectly they know how what happens in high school works together to prepare you for college. Therefore, the students who had aspirations in the tenth grade and applied by the twelfth grade have been most influenced by their own personal agency.

The Shifters

I propose that students who initially planned to attend college immediately after high school but did not apply in the twelfth grade have been most influenced by the structure of the high school. I refer to this group of students as the shifters. As tenth grade students, the shifters were like the focused—they both had plans to attend college immediately after high school. However, somewhere along the way, this group of shifters has changed their minds and has chosen not to apply to college. I propose that the structure of the high school is the most dominant area of influence because of the “cooling-out” effect. The concept of cooling-out refers to the lowering of aspirations. Clark and others believed that the cooling-out of aspirations was a function of the community college through the influence of guidance counselors. However, cooling-out as a representation of the lowering of aspirations exists in high schools as well. Students may have had high aspirations at one point in time but then lowered their aspirations before leaving high school, and thus their aspirations have been cooled-out.

The shifters have been influenced by institutional road blocks that have passively discouraged them from maintaining high aspirations (Alba & Lavin, 1981; Anderson, 1981, 1984; Astin, 1972, 1977; Crook & Lavin, 1989; Dougherty, 1992, 1994; Karabel, 1972; Monk-Turner, 1983; Nunley & Breneman, 1988; Richardson, Fisk & Okum, 1983; Velez, 1985). More importantly, institutional road blocks are part of the climate or structure of the school. Early research on cooling-out attributed guidance counselors with specifically creating institutional road blocks. Yet the comprehensive structure of the school can also create road blocks, pending the type of school and the curriculum tracks within the school. The comprehensive structure of the school, not necessarily one element but the whole part, is the major area of influence for students who no longer are pursuing a postsecondary education, the shifters. The comprehensive structure refers to the combination of all aspects of the structure considered together. Understanding the structure of the school, its organization and its processes aids one in understanding the experience for the student. Before measuring a student's involvement in school, it is important to know the context of the school, meaning the availability of programs or resources within the school. The availability of such resources or the lack thereof contributes to the school's climate and context. If there are limited resources within the school, then students are also limited in not only the type of information that they are exposed to but also the knowledge they receive to be prepared adequately for higher education. Specifically, students in non-college preparatory tracks can have their aspirations cooled-out by being in a general or vocational track. In addition, students who are taking only minimal course requirements have their aspirations cooled-out as well. If one attends a private school, one is more likely to apply to a postsecondary

institution. Therefore, attending a public school can cool-out one's aspirations. In addition, rural high schools attempt to prepare their graduates to enter their working community, so, the structure or climate of the rural school is keeping students from wanting to pursue higher education and is cooling-out college aspirations. Therefore, together the comprehensive structure of the high school as described above has cooled-out the student's aspiration for college.

Freeman (2005) refers to channeling as the way schools are subtly directing students towards specific choices through academic track and other curriculum choices. McDonough (1998) refers to the organizational habitus that creates a climate of possibility pending the type of school one attends. While people are a function of the environment, I propose that it is the essence of the environment, or in this case the comprehensive structure of the high school, that impacts students' choices. For the shifters who may have other challenges with the lack of support from others or below average academic ability, the impact of the structure is all the more powerful. The shifters may not have some of the attributes of the other groups, yet it is not just the lack of sponsorship or academic ability that is keeping them from applying. The shifters would have been the focused; they would have maintained their aspirations to the point of applying to college, yet the structure of the high school had such a strong influence that the shifters did not apply. The shifters could have stayed on track had they not been in a rural, public school with limited resources. If the shifters would have taken the right courses and been in a college preparatory track, they could have maintained their aspirations to the point of application. Therefore, I propose that beyond just the lack of attributes that researchers show keeps students from enrolling in college, I believe that

what keeps students with initial aspirations specifically from even taking the steps to apply to college before leaving high school is the structure of the high school. Before one can look to other typical reasons as to why students do not enroll in college, my theoretical framework suggests that to understand the process of application to college, the structure of the high school takes a more prominent role. I believe that for the shifters the influence of the structure is the reason why their aspirations have been cooled-out.

The Sponsored

During the period from tenth grade to twelfth grade, there are students who change their minds in the opposite direction. Tenth grade students who did not plan to attend a postsecondary institution yet do apply to one in the twelfth grade make up this group of students. For these students, their desires were stirred-up so that they became interested in postsecondary education to the point of actually applying to one. What happened that made them change their plans? I propose that these students were most influenced by personal capital. More specifically, these students had a sponsor who encouraged them either directly or indirectly to consider postsecondary education. It could be an individual sponsor, a group of sponsors, or the aspects about the sponsor that are so influential. Regardless, having the influence of someone else helped push them towards higher education and gave them the encouragement they needed to apply. I refer to this group of students as the sponsored.

Rosenbaum et al. (2006) emphasized specifically how faculty members were influential in warming up students' aspirations. Meaning, if it were not for faculty support, encouragement, and expectation, students would most likely have remained in

their disengaged state. The students that they studied attributed their warmed up aspirations directly to faculty support and encouragement. Clark (1960) supported the impact of guidance counselors, Rosenbaum et al. (2006) focused on the impact of faculty, and Hossler, Vesper, and Schmit (1999) show how influential parents and peers are in a students' plans. Therefore, the sponsored have changed their plans because of their association with one or all of these groups.

The sponsored would not have applied to a college before leaving high school had it not been for the influence of the sponsor. Both the students who never had aspirations and did not apply and the sponsored students were on the same path as tenth grade students. However, the sponsored had the influence of the sponsor that prompted them to take the necessary steps to apply to a postsecondary institution before even leaving high school. The sponsored group is classified as such because of the impact from personal capital. Having parents who are educated with moderate income, having frequent conversations with parents, having peers, parents and school leaders expect for you to attend college together can impact a student's application to college. For my hypothesis to be supported, the personal capital variables must be the strongest predictors within the model for being classified as the sponsored group.

Sampling Plan

For this study, the unit of analysis is students. More specifically, I will focus on the first and second wave of data collection, which represents high school sophomores and high school seniors in their spring semester, respectively. The National Center of Education Statistics is collecting data on another national longitudinal study called the

Education Longitudinal Study of 2002 (ELS: 2002). The base year was tenth grade and the first follow-up of twelfth grade students was released in December 2005. In the ELS: 2002 database, students were randomly selected, which constitutes a probability sample. There were two stages to the sampling plan. The probability of school selection was proportional to school size, using rosters from the Common Core of Data (CCD) and Private School Survey (PSS). Schools were stratified by region, urbancity (rural, urban, or suburban), and school control (public, private, or Catholic). The final sample of schools had 752 respondents, with 580 public schools and 172 private schools. The non-public schools were sampled at a higher rate so that there could be adequate comparison with the large number of public schools. The second stage to the sampling plan was student selection. Of the 752 selected schools, approximately twenty-six students from each school were randomly selected from the school rosters. In order for the ELS: 2002 to be a true representation of high school students, the sample was “freshened” in 2004 so that high school seniors who were not sampled as sophomores were given a chance to be selected as high school seniors. The sample is representative of the population (Wirt, n.d.). The ELS: 2002 dataset represents survey data of students, parents, administrators, and teachers. One parent was self-selected for each student along with two teachers (one in mathematics and one in English/language arts), the principal of the school, and the school librarian. In addition to being the most recent data of a national dataset, I have chosen to use this data because it allows me to address the issue within the context of technology of the twenty-first century. More specifically, students within this dataset have had access to information via the internet and have benefited from state and federal policies that may help college appear more feasible.

The number of subjects in this sample 10,386. According to their respective groups, the number of subjects in the shifters group is 1,477. The number of subjects in the sponsored group is 1,387. And the number of subjects in the focused group is 7,522. Students who did not desire college in tenth grade and did not apply in twelfth grade are completely removed from the dataset. The sample was weighted using the panel weight for the base year and the first follow-up year (tenth grade and twelfth grade). The first follow-up panel weight has been adjusted after imputation and non-respondents. This panel weight follows the same students as sophomores and seniors. The panel weight is zero if the student did not have both base year and first follow-up data (National Center for Education Statistics).

Analytic Strategies

I have two analytic strategies for this study—multiple discriminant analysis and logistic regression. Both will be explained in this section.

Multiple Discriminant Analysis

Discriminant analysis uses independent variables to predict membership in a categorical dependent variable, usually a dichotomy. In the case of this study, there are three different groups—the shifters, the focused, and the sponsored—so, I will use multiple discriminant analysis (MDA). Multiple discriminant analysis allows a categorical dependent variable with more than 2 groups. Using tenth and twelfth grade variables, multiple discriminant analysis will show which variables maximize the differences among the three groups to find what really separates the three groups. This

study has a single grouping variable with three levels. Students are the single grouping variable, yet they are divided among three groups—the shifters, the sponsored, and the focused. The unit of analysis, students, can be a part of only one of the three groups (Huberty & Lowman, 1998). The classification table of correct and incorrect estimates will yield a high percentage correct if the multiple discriminant analysis was indeed an effective strategy for predicting membership using the selected group of variables.

Multiple discriminant analysis uses an F test to test if the whole discriminant model is significant. Then if the F test yields a significant p-value, one can examine the individual independent variables to assess which variables differ significantly in mean by group, which are used to predict membership in the dependent variable. Multiple discriminant analysis yields discriminant functions, which indicate the variables that contribute to the differences among the groups (Poulson & French, 2003). The number of discriminant functions is $g-1$, where g is the number of groups in the dependent variable. For this study, I have two discriminant functions. The first function will capture the most variation between the groups (Poulsen & French, 2003). The second function is orthogonal to the first and captures the remaining variation among the groups. If the functions are significant, one can then examine the impact of the individual independent variables on each function. The standardized canonical discriminant function coefficients indicate the independent variables that contribute the most to the discrimination between the groups. The structure coefficients signify which independent variables are the most correlated with the discriminant function. Finally, the functions at group centroids show where each of the groups differ between the two functions. The

territorial plot of the individual scores and the functions show where the groups differ on each function using the group centroids (Poulsen & French, 2003).

Multiple discriminant analysis has a dependent variable with two or more groups and independent variables measured as binary, interval, or continuous variables. MDA assumes normal distribution of all the independent variables. For this study, there are some dichotomous independent variables. Because the non-normality is not due to outliers, violating the normality assumption is not detrimental (Tabachnick & Fidell, 1996). Likewise, having a large sample size helps alleviate any assumption violations. MDA is also sensitive to multicollinearity. Therefore, as will be discussed in the methodology, some variables that were strongly correlated with other variables were removed.

Logistic Regression

Logistic regression allows one to examine the odds of an event occurring. In this case, the event is applying to college. The research questions are best answered using logistic regression because of the dichotomous outcome variable (1 college application, 0 no college application) with both continuous and discrete independent variables. Logistic regression uses odds ratios, probabilities, or logits to determine the likelihood of an event occurring (Garson, 2008b). In this case, the odds of applying to college will be examined and also some predicted probabilities. Logistic regression is optimal because it does not assume a linear relationship among dependent and independent variables as linear regression does (Garson, 2008b). Logistic regression does not require the dependent variable to be normally distributed and assumes non-normally distributed error terms

(Garson, 2008b). In addition, error terms are independent, and logistic regression assumes there is a large sample. The logistic regression models produce a Wald statistic. The Wald statistic divides the beta coefficient by its standard error and then that number is squared. The Wald has a chi-squared distribution with $df=1$ and a p-value that shows the significance level of each variable after testing for independence between the dependent and independent variables. The Hosmer and Lemeshow Test is a chi-squared goodness of fit for the model. It tests if the model overall is a good fit. If the Hosmer and Lemeshow p-value is not significant, the model is a good fit. The Cox & Snell R^2 is vaguely similar to the R^2 in linear regression that shows the proportion of explained variance of the dependent variable by the independent variables. The Classification Table gives the Percent Correct Predictions, which shows the accuracy of the model predicting the event, which is applying to college (Garson, 2008b).

Variable Description

The dependent variable using multiple discriminant analysis will be measured in three groups. The first group is the shifters, the students who desired college in the tenth grade but did not apply in the twelfth grade. The second group is the sponsored, who are the students who did not aspire college in the tenth grade yet did apply in the twelfth grade. And the third group is the focused, who are the students who did aspire to go to college while in the tenth grade and did actually apply during the twelfth grade. Each of these groups will be constructed by selecting cases from the data set. I will create a new variable (named groups) to represent each of the groups from two variables—the variable that signifies if a student had applied to at least one school in the twelfth grade and the

variable that signified if the student had planned to attend college right after high school in the tenth grade. The dependent variable using logistic regression is just if a student has applied to any school (1=yes, 0=no). I will select cases based on if they had tenth grade aspirations and run two separate models. The same set of independent variables will be used for logistic regression and multiple discriminant analysis. See Table 1 for an outline of how all variables are measured.

The independent variables have been categorized within broad areas of personal agency, personal capital, and structure. The indicators within personal agency include: academic commitment, academic achievement, academic effort, college entrance exams, test preparation strategies, how much a student likes school, the student's interest in education, and extracurricular activities. Academic commitment is measured from the variable "How important are good grades to you?" and the scale is from not important, somewhat important, important, to very important. I scale that variable from 1 (not important) to 4 (very important). Academic achievement is constructed as a composite score of the student's standardized reading and math score. It is a continuous variable that will remain as such for this study. Academic effort is a subset of academic commitment, and it is measured by how many hours a week inside and outside of school the student spends on homework. Ranging from zero hours to more than twenty hours, I scale this variable from one to eight, so that one represents zero hours and eight represents more than twenty hours. For the college entrance exams variable, students were asked if they had taken or if they planned to take the SAT or the ACT. This variable is recoded so that zero (0) represents that they had not taken it and one (1) will represent if they had taken it or if they planned on taking it. Test preparation strategies

variable refers to any pre-test help or study aid for the ACT or SAT. The variable are combined together so that zero (0) signifies that the student has not had any formal test preparation and one (1) represents if the student had done anything on the list. The test preparation strategies in the dataset are take a course at high school, take a course offered by commercial preparation program, receive private one-on-one tutoring, study from test preparation books, use a test preparation video tape, and use a test preparation computer program. How much a student likes school is coded as an ordinal variable as not at all (1), somewhat (2), or a great deal (3). Interest in education is recoded reverse so that four is strongly agree, three is agree, two is disagree, and one is strongly disagree. This is a composite variable of three questions: Classes are interesting and challenging; I am satisfied with doing what is expected in class; Education is important to get a job. The reliability test produced a Cronbach alpha of .70. Finally, extracurricular activities variable is measured by how many hours a week a student spends on extracurricular activities. This is coded from 1 to 7 with one for zero hours to seven for twenty-five or more hours a week.

The indicators within the personal capital construct are subdivided into cultural capital and social capital. The cultural capital variables include: parental education, parental expectation of student, family income, family resources, and cultural events with parent. The social capital variables are parental communication with student, guidance counselor expectation, favorite teacher expectation, peer expectation, peer postsecondary plans, and importance of education to peers.

Parental education is a measure of the highest education level reached by either parent. This is scaled from one (1) being did not finish high school to eight (8) being

completed Ph.D., M.D., or advanced degree. Family income is measured as an ordinal variable from none (0) to \$200,001 or more (12). Parental expectation is a student-reported measure of what mother or father thinks is most important for the student to do right after high school. If the expectation is college, it is coded as one (1), and any other response is coded as zero (0). Because mother and father expectations are strongly correlated ($r=.79$ for 10th grade, and $r=.60$ for 12th grade), I only include the mother expectation variable for both tenth and twelfth grades. The family resources variable indicates if the family has a daily newspaper, a regularly received magazine, a computer, access to the Internet, or more than 50 books in the home. I am using a scale with a Cronbach alpha equal to .60 to represent overall availability of resources in the home. The variable cultural events with parents identifies the frequency of parent and child attending concerts, plays, or movies outside of school. It is measured as an ordinal variable from 1 being never to 4 being frequently or every day.

For the social capital variables, parent communication is measured by the frequency of conversations the student has with parents regarding school courses, school activities, things studied, grades, preparation for ACT/SAT, and going to college. With a Cronbach alpha of .84 for tenth grade variables and .80 for twelfth grade variables, I created new scales representing the average of all parental communication in tenth grade and parental communication in twelfth grade. Each is coded as never (1), sometimes (2), and often (3). The guidance counselor expectation variable, the favorite teacher variable, and the peer expectation variable signify what the student believed each thought was most important for him or her to do right after high school. College is coded as one (1), and any other response is coded as zero (0). How many friends plan to attend college is

measured in the peer postsecondary plans variable. This scale begins at one (1) for none to five (5) for all. The peer priority variable is a composite variable created to summarize measures of the importance friends place on various academic matters—studying, getting good grades, finishing high school, and continuing education past high school. With a Cronbach alpha of .84, this scale ranges from 1 being not important to 3 being very important.

Within the structure construct, the indicators include: course-taking patterns, academic track, type of school, location of school, school resources, instructional technology availability, and computer access within the school. By totaling the number of years the student has taken math courses and the number of the years the student has taken science courses, I measure course-taking patterns. These variables are coded as 1 equals none or less than half a year, 2 equals half a year, 3 for one year, and 4 for more than one year. Academic track is coded as a dichotomy with college preparatory as one (1) and general education and vocational as zero (0). The location of the school (urban, suburban, or rural) is coded as one for rural and zero for non-rural (suburban and urban). The control of the school is either public or private. Public school is coded as a one and private schools as a zero. The school resources variable represents if the schools has a library media/resource center. This is coded as one equals yes and zero equals no. The remaining variables in the structure category are coded in a similar way. Instructional technology is a scale of variables that represents teachers' access to various forms of technology in the classroom. Using a scale with a Cronbach alpha of .50, a value of one equals yes and zero equals no to having access. Computer access also signifies if there is computer access in the classrooms, library media center, or a separate computer lab—one

equals yes and zero equals no. I created a scale (with a Cronbach alpha of .54) to have one variable representing having any computer access in the school. I also include race and sex in my analysis. Race is coded as one for white and zero for nonwhite. Likewise, male is coded as one and female is coded as zero. (See Table 1).

To identify which specific variables maximize the overall differences between the groups, I will examine the standardized canonical discriminant functions and the structure coefficients. The group centroids will show the means for each of the three groups for both discriminant functions. How each group centroid relates to each function will show which areas of influence are most important for each of the three groups. In order to support by hypotheses, the results for the multiple discriminant analysis must show that the dominant area of influence for the shifters is the structure of the high school. Likewise, the dominant area of influence for the sponsored should be the personal capital variables and for the focused should be the personal agency variables.

The results of logistic regression will also show which variables strongly increase the odds of applying to college. In addition, I will create the predicted probability of applying based on the results from the logistic regression analysis. As with the multiple discriminant analysis, in order to support my hypotheses, the results for the logistic regression must show that the corresponding groups of variables coincide with predicting application to college as hypothesized.

Table 1. Description of Variables.

Construct	Variable	Scale
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Dependent Variables

Applying to College FIS50	Have you applied to any schools?	No (0), Yes (1)
Educational Aspirations BYS57 (10 th grade)	Do you plan to continue education right after high school?	No (0), Yes (1)

Personal Agency

Academic Commitment BYS37	How important are good grades to you	Not important (1), Somewhat important (2), Important (3), Very important (4)
Academic Achievement BYTXCSTD	Standardized test composite score—math and reading	Continuous
Academic Effort effortby effortfl	Hours a week spent on homework inside and outside school combined	None or less than one (1), one to three (2), four to six (3), seven to nine (4), ten to twelve (5), thirteen to fifteen (6), sixteen to twenty (7), more than twenty (8)
College entrance exams BYS55B (10 th grade) FIS21C (12 th grade)	Have you taken or do you plan to take the following: SAT or ACT	No (0), Yes (1)
Test Preparation Strategies testhelp	To prepare for the SAT or ACT, did you do any of the following: take a course at high school, take a course offered by commercial preparation program, receive private one-on-one tutoring, study from test preparation books, use a test preparation video tape, use a test preparation computer program	No (0), Yes (1)
Likes School BYS28	How much student likes school	Not at all (1), somewhat (2), a great deal (3)
Interest in Education interest	Classes are interesting and challenging; Satisfied by doing what expected in class; Education is important to get a job later.	Strongly agree (4), agree (3), disagree (2), strongly disagree (1)
Extracurricular Activities extraby fextra	Hours per week spent on extracurricular activities	None or less than one (1), one to four (2), five to nine (3), ten to fourteen (4), fifteen to nineteen (5), twenty to twenty-four (6), twenty-five or more (7)

Personal Capital

<i>Cultural Capital</i>		
Parental Education BYPARED	Highest education level reached by either parent	Did not finish high school (1), graduated from high school or GED (2), attended two-year

		with no degree (3), graduated from two-year (4), attended four-year with no degree (5), graduated from four-year (6), completed master's or equivalent, completed Ph.D., M.D. or advanced degree
Income BYINCOME	All family income in 2001	None, less than \$1,000, \$1,001-5,000, \$5,001-10,000, \$10,001-15,000, \$15,001-20,000, \$20,001-25,000, \$25,001-35,000, \$35,001-50,000, \$50,001-75,000, \$75,001-100,000, \$100,001-200,000, \$200,001 or more
Parental Expectation mother10 mother12	What mother thinks is most important for you to do right after high school (student reported)	Other (0), College (1)
Family Resources resource	Does your family have the following in your home: a daily newspaper, a regularly received magazine, a computer, access to the Internet, more than 50 books	No (0), Yes (1)
Cultural Events with parents BYP57C	How often did you and your tenth grader attend concerts, plays, or movies outside of school?	Never (1), Rarely (2), Sometimes (3), Frequently (4)
<i>Social Capital</i>		
Parental Communication parcom10 parcom12	How often you discuss with your parents or guardians: school courses, school activities, things studied with parents, grades, preparation for ACT/SAT, going to college (student reported)	Never (1), Sometimes (2), Often (3)
Guidance Counselor Expectation couns10 (10 th grade) couns12 (12 th grade)	What guidance counselor thinks is most important for you to do right after high school	College/Other
Favorite Teacher Expectation teach10 (10 th grade) teach12 (12 th grade)	What favorite teacher thinks is most important for you to do right after high school	College/Other
Peer Expectation peerex10 (10 th grade) peerex12 (12 th grade)	What best friend thinks is most important for you to do right after high school	College/Other
Peer Postsecondary Plans peercoll	How many of friends plan to attend college	None (1), Few (2), Some (3), Most (4), All (5)
Peer Priority priority	Important to friends to attend classes regularly; Important to friends to study; Important to friends to get good grades; Important to friends to finish high school; Important to friends to continue education past high school	Not important (1), Somewhat important (2), Very important (3)

Structure

Science Course-Taking Patterns (Twelfth Grade) science	Years of Science Coursework	None or less than half a year, half a year, one year, more than one year
Math Course-Taking Patterns (Twelfth Grade) math	Years of Math Coursework	None or less than half a year, half a year, one year, more than one year
Academic Track track	High school program reported by the student	General Education, College Preparatory—Academic, Vocational—Technical/Business
Location of School rural2	Location of school within state	Non-rural (0), Rural (1)
School control control	Public/Private	Private (0), Public (1)
School Resources BYSS0	School has a library media/resource center	No (0), Yes (1)
Instructional Technology instech	Teachers have access to the following for instructional use: cable TV, CCTV, VCR/DVD, video camera, digital camera, scanner, laptop computer, Internet, computer printer	No (0), Yes (1)
Computer Access compute	Location of computers in high school: classrooms, library media center, separate computer lab	No (0), Yes (1)

Racial Identity

Race race2	Student Race/Ethnicity	Non-white (0), white (1)
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Sex

Sex sex	Sex of student	Female (0), Male (1)
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CHAPTER IV

RESULTS

Introduction

The results from the multiple discriminant analysis and logistic regression analyses will be presented in this section. Multiple discriminant analysis identifies which variables maximize the differences among the groups. I hypothesize that there are specific sets of variables for each of the groups that are the most dominant in classifying group membership. For the shifters, who are the students in the tenth grade with aspirations for college but did not apply in the twelfth grade, I hypothesize that the variables that will classify group membership are the structure variables. For the sponsored, who are the students who did not desire college in the tenth grade but did apply to a college in the twelfth grade, I propose that the variables that will classify group membership are the personal capital variables. Finally, for the focused group, who are the students who stayed on track by applying to college in the twelfth grade as they stated they would when in the tenth grade, I hypothesize that the variables that will the most strongly classify group membership are the personal agency variables.

Following the explanation of the results of the multiple discriminant analysis, I will present the results from the logistic regression analyses. Logistic regression identifies which specific variables have the strongest impact on the odds of students applying to college. I will use both the results from the multiple discriminant analysis and logistic regression to determine if my hypotheses are supported.

Multiple Discriminant Analysis

Descriptives

The descriptive statistics are shown in Table 3. Multiple discriminant analysis will remove cases from the model that have at least one missing discriminating variable. Therefore, the original sample size of 10,386 is reduced to 2,026 cases actually examined in the model. The sizes of the three groups are now smaller as well (n=172 for the shifters, n=167 for the sponsored, and n=1,687 for the focused). There were a number of questions I chose for this study that not all students answered. If students did not know how to answer or if they refused to answer, that response was coded as missing. With such a large population originally, losing cases to missing data still left me with an adequate sample to analyze. Nonetheless, I compared the means of the demographics of my full sample before the reduction of the sample size with the means of the demographics of the selected sample of 2,026. Table 2 compares the proportion of the population that is a part of the sample based on sex, race, family income, control of school (public or private), and the location of school (rural or non-rural). As seen in the table, the differences between the two are minimal.

Table 2. Difference in Means with Missing Values

	Income	White=1, Nonwhite=0	Male=1, Female=0	Rural=1, Non-rural=0	Public=1, Private=0
Full Sample	9	.65	.45	.20	.90
Selected Sample	9.94	.80	.40	.21	.88

From this table of descriptive statistics, one can see that the focused group led the way with the largest mean on the majority of the variables. However, the shifters had the

largest mean for how many of friends planned to attend college (mean=3.17, mean_{sponsored}=3.15, and mean_{focused}=3.10). While the means do not tell us which variables are the most discriminating between the groups, we can see the variation in the characteristics of the group. For instance, the third group of the focused had the most students in private schools (mean=.872), the most in college preparatory track (mean=.740), the largest number of white students (mean=.814), and the most female students (mean=.392) of all three groups. The shifters had the largest group of public school students (mean=.954) and the most male students (mean=.435), while the sponsored group had the largest number of students in rural schools (mean=.269).

Table 3. Group Means.

	Group Means/S.D.		
	Shifters	Sponsored	Focused
Academic commitment	3.45 (.625)	3.41 (.635)	3.67 (.552)
Academic achievement	49.63 (8.44)	53.74 (8.32)	57.35 (8.17)
Academic effort (10 th grade)	4.45 (2.13)	4.49 (2.05)	4.82 (2.00)
Academic effort (12 th grade)	2.89 (1.32)	3.22 (1.43)	3.73 (1.68)
College entrance exams (10 th grade) (yes=1, no=0)	.830 (.376)	.794 (.405)	.902 (.298)
College entrance exams (12 th grade) (yes=1, no=0)	.848 (.359)	.907 (.291)	.975 (.157)
Test preparation strategies	.505 (.500)	.668 (.471)	.742 (.437)
Likes school	2.22 (.553)	2.16 (.444)	2.28 (.538)
Interest in education	2.73 (.655)	2.70 (.549)	2.77 (.582)
Extracurricular activities (10 th grade)	2.58 (1.43)	2.49 (1.51)	3.09 (1.40)
Extracurricular activities (12 th grade)	2.83 (1.82)	2.74 (1.55)	3.17 (1.57)
Parental education	4.27 (1.86)	4.60 (2.05)	5.29 (1.90)
Income	9.25 (1.88)	9.40 (2.04)	10.09 (1.92)
Parental expectation (10 th grade) (college=1, other=0)	.880 (.325)	.814 (.389)	.886 (.318)
Parental expectation (12 th grade) (college=1, other=0)	.717 (.450)	.825 (.380)	.873 (.333)
Parental communication (10 th grade)	2.26 (.471)	2.26 (.477)	2.38 (.441)
Parental communication (12 th grade)	2.22 (.443)	2.29 (.428)	2.41 (.413)
Family resources	.829 (.241)	.834 (.214)	.897 (.163)
Cultural events	2.83 (.983)	2.94 (.976)	2.96 (.967)
Guidance counselor expectation (10 th grade) (college=1, other=0)	.897 (.303)	.835 (.371)	.902 (.297)
Guidance counselor expectation (12 th grade) (college=1, other=0)	.817 (.386)	.823 (.382)	.916 (.278)
Teacher expectation (10 th grade) (college=1, other=0)	.873 (.333)	.838 (.368)	.894 (.308)
Teacher expectation (12 th grade) (college=1, other=0)	.745 (.436)	.825 (.380)	.906 (.292)
Peer expectation (10 th grade) (college=1, other=0)	.658 (.474)	.546 (.498)	.685 (.464)
Peer expectation (12 th grade) (college=1, other=0)	.541 (.498)	.599 (.490)	.735 (.441)
Peer postsecondary plans	3.17 (.574)	3.15 (.481)	3.10 (.429)
Peer priority	2.62 (.386)	2.48 (.427)	2.65 (.351)
Years of science	1.79 (.264)	1.88 (.335)	1.85 (.261)
Years of math	1.61 (.222)	1.64 (.305)	1.67 (.231)
Academic track (college prep=1, other=0)	.599 (.490)	.570 (.495)	.740 (.439)
Location of school (rural=1, non-rural=0)	.202 (.401)	.269 (.444)	.207 (.405)
Control of school (public=1, private=0)	.954 (.209)	.920 (.271)	.872 (.334)
School resources	.965 (.183)	.960 (.195)	.980 (.140)
Instructional technology	.878 (.133)	.860 (.160)	.883 (.127)
Computer access	.969 (.143)	.964 (.150)	.982 (.091)
Race (white=1, nonwhite=0)	.734 (.442)	.784 (.411)	.814 (.389)
Sex (male=1, female=0)	.435 (.496)	.425 (.494)	.392 (.488)
<i>n</i>	172	167	1687

There are a few more patterns of note within the descriptive statistics. For the shifters, between the 10th grade and 12th grade, the mean for planning to take or have taken the ACT or SAT did not change much (mean=.830 in tenth grade and mean=.848 in

twelfth grade, with one (1) equal to have taken or plan to take the ACT or SAT). Even in the spring of their senior year, the shifters either had taken the ACT or SAT or were still planning to take it, which coincides with their stated desire to attend college. While for the sponsored group, the story is different. In the 10th grade, the mean for have taken or planning to take the ACT or SAT was .794, yet in the 12th grade, the mean for the same variable increased to .907. By the very nature of the definition of this group, the increase in this mean is expected. As tenth grade students, the sponsored did not plan to attend college immediately after high school, yet they had applied by the twelfth grade. Therefore, they had taken the necessary steps by the 12th grade in taking the college entrance exam needed for enrollment. The sponsored also gathered more support from parents and friends. The means for expectation from parent and peer increased from tenth grade to twelfth grade ($parent_{10}=.814$ to $parent_{12}=.845$; $peer_{10}=.546$ to $peer_{12}=.599$). Likewise, the sponsored group had a slight increase in the frequency of conversations with their parents about academic matters ($mean_{10}=2.26$ to $mean_{12}=2.29$).

The shifters had plans for college in the tenth grade yet had not applied in the twelfth grade. We see a series of means that have decreased from tenth grade to the twelfth grade, and all of them are personal capital variables. All of these variables are measured one for college and zero for other, so the closer the number is to one, the more likely college was the expectation. What the parent thinks is most important after high school ($mean=.880$ for the tenth grade to $mean=.717$ for the twelfth grade), what the guidance counselor thinks is most important after high school ($mean_{10}=.897$ to $mean_{12}=.817$), what the favorite teacher thinks is most important after high school ($mean_{10}=.873$ to $mean_{12}=.745$), and what the best friend thinks is most important after

high school ($\text{mean}_{10}=.659$ to $\text{mean}_{12}=.541$) all support this group of shifters change in plans from college plans in the tenth grade to no application in the twelfth grade. The shifters have not applied to college just as the average expectation of college from those around them has also decreased. The observed differences in the means provide first glance in understanding the differences between the groups. Following, I discuss which variables specifically provide the most differences between the three groups.

Test of Model Significance

To test the significance of the model as a whole, the Wilks' Lambda yields a significant p-value at $\alpha=.05$ level. This significant p-value supports that one can reject the null that the groups have the same mean. Therefore, I conclude that the model is discriminating. The F-score for the Wilks' Lambda test is .788 ($p=.000$) for the first function and .954 ($p=.000$) for the second function. Since these figures are significant, I will further examine the individual variables to determine where the distinction is between the groups for each function.

Table 4. Wilks' Lambda.

Test of Functions	Wilks' Lambda	Chi-Square	df	Sig.
1 through 2	.788	104523.219	74	.000
2	.954	20866.386	36	.000

The Tests of Equality of Group Means tests if there are some independent variables that are not significant to the discriminant function. This is an ANOVA table that shows the smaller the Wilks' Lambda, the more important the independent variable

is to the discriminant function. All variables were significant at the .05 level, so each variable in this model is contributing something to the differences between the groups.

Therefore, I will keep all variables in the model.

Table 5. Tests of Equality of Group Means.

	Wilks' Lambda	F	df1	df2	Sig.
Academic commitment	.972	6236.925	2	438487	.000
Academic achievement	.922	18654.706	2	438487	.000
Academic effort (10 th grade)	.995	1036.166	2	438487	.000
Academic effort (12 th grade)	.972	6305.756	2	438487	.000
College entrance exams (10 th grade)	.987	2820.204	2	438487	.000
College entrance exams (12 th grade)	.961	8873.548	2	438487	.000
Test preparation strategies	.975	5510.105	2	438487	.000
Likes school	.995	1182.422	2	438487	.000
Interest in education	.999	277.180	2	438487	.000
Extracurricular activities (10 th grade)	.976	5292.783	2	438487	.000
Extracurricular activities (12 th grade)	.991	2034.394	2	438487	.000
Parental education	.969	7044.856	2	438487	.000
Income	.976	5382.902	2	438487	.000
Parental expectation (10 th grade)	.996	903.090	2	438487	.000
Parental expectation (12 th grade)	.983	3835.791	2	438487	.000
Parental communication (10 th grade)	.989	2467.432	2	438487	.000
Parental communication (12 th grade)	.978	4867.353	2	438487	.000
Family resources	.979	4632.823	2	438487	.000
Cultural events	.998	390.800	2	438487	.000
Guidance counselor expectation (10 th grade)	.996	887.530	2	438487	.000
Guidance counselor expectation (12 th grade)	.985	3407.980	2	438487	.000
Teacher expectation (10 th grade)	.997	624.363	2	438487	.000
Teacher expectation (12 th grade)	.975	5528.510	2	438487	.000
Peer expectation (10 th grade)	.993	1645.371	2	438487	.000
Peer expectation (12 th grade)	.979	4640.752	2	438487	.000
Peer postsecondary plans	.997	601.799	2	438487	.000
Peer priority	.982	3942.560	2	438487	.000
Years of science	.994	1276.087	2	438487	.000
Years of math	.993	1474.911	2	438487	.000
Academic track (college prep=1, other=0)	.982	4096.419	2	438487	.000
Location of school (rural=1, nonrural=0)	.998	447.166	2	438487	.000
Control of school (public=1, private=0)	.993	1541.515	2	438487	.000
School resources	.998	454.606	2	438487	.000
Instructional technology	.997	579.829	2	438487	.000
Computer access	.997	750.556	2	438487	.000
Race (white=1, nonwhite=0)	.996	827.407	2	438487	.000
Sex (male=1, female=0)	.999	209.940	2	438487	.000

The Eigenvalues produce a percentage of how much of the variance in the groups is accounted for by each of the functions. For the first function, 81.2% of the variance in the groups is accounted for by this function. Therefore, the first function captured a lot of the key variables that represent the differences between the groups. Yet the Canonical Correlation (R^*) is only .417. The Canonical Correlation shows the usefulness of the function in distinguishing differences between the groups. Similar to a Pearson-product moment correlation, the strength of the relationship is determined by the closer the value is to 1.0 (Klecka, 1980). So while the first function does carry a lot of the variance in the groups, the function is moderately useful in actually determining how and why these groups are different. Already we see that even though the first function carries the majority of the variance between the groups, the strength of the relationship between the groups and the function is only moderate. The variance in the groups accounted for by the second function is only 18.8%, so the first function is the more important of the two. The Canonical Correlation of the second function (.216) shows a weak correlation between the groups and the second function. Even though the Wilks' Lambda showed that this second function is significant, the relative importance of the second function to explain the differences between the groups is small.

Table 6. Summary of Canonical Discriminant Functions.

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.210	81.2	81.2	.417
2	.049	18.8	100.0	.216

Individual Prediction Results

Multiple discriminant analysis produces a structure matrix that shows the correlations of each variable with each discriminant function (Poulsen & French, 2003). The variables are ranked in the order of greatest absolute correlation for each function. The structure coefficients are simple correlations between the variable and the function. Therefore, the closer the correlation is to absolute one, the stronger the association with the function (Garson, 2008a). The top five correlations for the first function are academic achievement (.631), college entrance exam in the 12th grade (.438), parents' highest education level (.391), academic effort in the 12th grade (.370), and academic commitment (.345). All but one of these variables (parents' highest education level) is a personal agency variable. The control of the school, whether the school is private or public, is correlated with the first function (-.183). However, as a negative number, the association is with private schools. Multiple discriminant analysis ranks these variables in the order of importance in terms of their correlation with the function (Garson, 2008a). The first twelve variables in this first function all are personal agency or personal capital variables. (See Table 7). Therefore, the difference between the groups is most telling from the personal capital and personal agency variables. All of the personal agency variables, except college entrance exam in the 10th grade, interest in education, and how much a student likes school, are loading on the first function. These are all are tenth grade variables.

The structure matrix also organizes the variables so that you can name the functions according to the variables loading highest on each function. The first function has a large proportion of personal agency and personal capital variables, so I will name

this function personal agency-capital. The positive end of the function is towards personal agency-capital and the other direction is towards structure.

The second function represents many of the variables from the tenth grade. This function captures what is the variation in the differences among students based on early aspirations for college. The top five correlations on the second function are priority peers place on academics (.484), years of science coursework (-.317), peer expectation in the 10th grade (.309), parental expectation in the 10th grade (.247), and guidance counselor expectation in the 10th grade (.247). All but years of science coursework are personal capital variables. The second function represents many of the variables from the tenth grade. The majority of the variance between the groups is captured in the first function. What is happening in the second function represents the variables that are not the most discriminating between the groups. Because these are mainly 10th grade variables, this suggests that it is not as important what you do in the 10th grade. Meaning, the shifters had fairly high means in the 10th grade and thus all the right things pointing them towards college. But when it was time to act, they chose not to apply as 12th grade students. So it does not matter as much if you have that desire early, it matters if you act upon it. It seems that the sponsored are “better off” even if they decided on college later in the game. What are really separating these three groups of students are the personal agency-capital variables, mainly from the 12th grade as seen in the first function.

The second function actually represents the differences between the shifters and the sponsored as 10th grade students. I label this function aspirations: early aspirations is positive and later aspirations is negative. I will examine the individual contribution of

each variable in light of the functions at group centroids, which are explained in the next section.

Table 7. Structure Matrix.

	Function	
	1	2
Academic achievement	.631*	-.165
College entrance exams (12 th grade)	.428*	-.060
Parental Education	.391*	.040
Academic effort (12 th grade)	.370*	-.003
Academic commitment	.345*	.265
Teacher expectation (12 th grade)	.345*	-.067
Income	.338*	.106
Test preparation strategies	.333*	-.191
Parental communication (12 th grade)	.325*	-.007
Extracurricular activities (10 th grade)	.318*	.240
Peer expectation (12 th grade)	.317*	.042
Family resources	.309*	.145
Academic Track	.279*	.218
Parental expectation (12 th grade)	.278*	-.161
Guidance counselor expectation (12 th grade)	.265*	.126
Parental communication (10 th grade)	.225*	.112
Extracurricular activities (12 th grade)	.195*	.163
Control of school	-.183*	.010
Years of math	.179*	-.017
Academic effort (10 th grade)	.147*	.058
Race	.131*	-.058
Computer access	.116*	.111
Peer postsecondary plans	-.113*	-.029
School resources	.091*	.082
Cultural events	.085*	-.075
Sex	-.067*	-.016
Peer priority	.176	.484*
Years of science	.067	-.317*
Peer expectation (10 th grade)	.116	.309*
Parental expectation (10 th grade)	.073	.247*
Guidance counselor expectation (10 th grade)	.072	.247*
College entrance exam (10 th grade)	.220	.236*
Location of school	-.038	-.189*
Instructional technology	.071	.180*
Likes school	.136	.175*
Parental communication (10 th grade)	.088	.159*
Interest in education	.064	.091*

While the structure matrix coefficients are used to label the functions, the standardized canonical discriminant function coefficients compare the relative

importance of the independent variables in predicting the differences in the dependent variable in each function (Garson, 2008a). Standardized discriminant coefficients are similar to beta weights in regression. They signify the partial correlation of each independent variable with each function, controlling for other variables (Garson, 2008a). The larger the coefficient, the more contribution that particular variable is making to the difference between the groups (Poulsen & French, 2003). Since the relative percentage shows the first function to be more important in explaining the variation between the groups, these individual variables on the first function assess the unique contribution to the majority of the differences in the groups. (See Table 8). The standardized canonical discriminant function coefficients of note in the first function are academic commitment (.233), academic achievement (.504), extracurricular activities in the 10th grade (.206), teacher expectation in the twelfth grade (.229), test preparation strategies (.201), college entrance exams in the twelfth grade (.202), and academic effort in the 12th grade (.194). All of these variables are important in predicting differences in the first function, controlling for other variables. Academic achievement, academic commitment, test preparation strategies, extracurricular activities in the 10th grade, academic effort in the 12th grade, and college entrance exams in the 12th grade are all personal agency variables. These variables all have a positive impact on the discriminant function. However, other personal agency variables such as, academic effort in the 10th grade (-.061), college entrance exams in the 10th grade (-.076), likes schools (.031), interest in education (-.151), extracurricular activities in the 12th grade (-.077) all have little impact on contributing to the variation in the function. In fact, all but how much the student likes school has a negative effect. There are personal capital and structure variables that are

also important to explain the differences in the dependent variable on the first function. The control of the school (public or private) has a negative impact on the first function (-.123). Because of how this variable is coded (public=1 and private=0), the correlation is actually with private schools. This is a structure variable. Likewise, parental expectation in the 12th grade (.118), peer expectation in the twelfth grade (.154), frequency of communication with parent in the 12th grade (.145), and family resources in the home (.132) are all personal capital variables. The first function captures the majority of the variance in the variables. Therefore, differences between the groups can be accounted for by academic achievement, academic commitment, academic effort in the twelfth grade, college entrance exams in the 12th grade, test preparation strategies, parental expectation in the 12th grade, parental communication in the 12th grade, teacher expectation in the 12th grade, peer expectation in the 12th grade, family resources in the home, and control of school, controlling for other variables.

For the second function, college entrance exams in the 10th grade (.245), guidance counselor expectation in the 12th grade (.314), and the priority peers plan on academics (.413) are all some of the more important variables in predicting differences on the second function, controlling for other variables. However, because we have three groups and two functions, the standardized discriminant coefficients do not reveal between which groups the variable is most or least discriminating. I will examine the group centroids to discuss those differences.

Table 8. Standardized Canonical Discriminant Function Coefficients

	Function	
	1	2
Academic commitment	.233	.139
Academic achievement	.504	-.424
Academic effort (10 th grade)	-.061	-.013
Academic effort (12 th grade)	.194	-.054
College entrance exams (10 th grade)	-.076	.245
College entrance exams (12 th grade)	.202	-.010
Test preparation strategies	.201	-.237
Likes school	.031	.156
Interest in education	-.151	-.105
Extracurricular activities (10 th grade)	.206	.160
Extracurricular activities (12 th grade)	-.077	.066
Parental education	.084	.005
Income	.016	.126
Parental expectation (10 th grade)	-.030	.163
Parental expectation (12 th grade)	.118	-.251
Parental communication (10 th grade)	-.014	-.048
Parental communication (12 th grade)	.145	-.095
Family resources	.132	.165
Cultural events	.032	-.096
Guidance counselor expectation (10 th grade)	-.011	.168
Guidance counselor expectation (12 th grade)	-.062	.314
Teacher expectation (10 th grade)	-.057	-.028
Teacher expectation (12 th grade)	.229	-.251
Peer expectation (10 th grade)	.088	.143
Peer expectation (12 th grade)	.154	.019
Peer postsecondary plans	-.093	-.049
Peer priority	.047	.413
Years of science	-.104	-.396
Years of math	.100	.193
Academic track	.049	.240
Location of school	.073	-.196
Control of school	-.123	.066
School resources	.040	.123
Instructional technology	.038	.141
Computer access	.081	.108
Race	-.012	-.051
Sex	-.065	-.002

Functions at Group Centroids

The first function holds most of the variation in the groups explained by the independent variables. Because this study is concerned with the differences among the groups, I will focus on this first function. The functions at group centroids show the

mean for each of the three groups for each function (See Table 9). It is desirable that the group centroids are far apart to signify the differences between the three groups (Garson, 2008a). For this study, the group centroids for the first function are $Y_1 = -1.185$, $Y_2 = -.647$ and $Y_3 = .214$. The territorial plot of the canonical discriminant functions confirms that group three differs more from groups 1 and 2 on the first function (See Figure 1). Therefore, the group centroids show that on the first function, the focused differ more from the shifters and the sponsored. These variables represent the variation among those who stay on track (the focused) and those who change their minds (the shifters and the sponsored). This first function, labeled personal agency-capital, represents a spectrum of personal agency-capital variables on one side and structure on the other side. The group centroids show the focused moving towards personal agency-capital and the shifters and sponsored towards structure. Therefore, on the first function, the focused are the most impacted by the personal agency-capital variables and the shifters and sponsored are most impacted by the structure.

Table 9. Functions at Group Centroids.

Groups	Function 1	Function 2
Shifters (1)	-1.185	.371
Sponsored (2)	-.647	-.610
Focused (3)	.214	.027

According to the structure matrix, the personal agency variables that are showing the most correlation with the first function are academic achievement (.631), college

entrance exam in 12th grade (.438), academic effort in 12th grade (.370), academic commitment (.345), test preparation strategies (.333), extracurricular activities in the 10th grade (.318), and extracurricular activities in the 12th grade (.195). The focused are different from the shifters and sponsored because they are doing the right things, particularly in the twelfth grade. The personal capital variables that have a strong correlation with the first function are parental education (.391), teacher expectation in the 12th grade (.345), income (.338), parental communication in the 12th grade (.325), peer expectation in the 12th grade (.317), family resources (.309), parental expectation in the 12th grade (.278), guidance counselor expectation in the 12th grade (.265), and parental communication in the 10th grade (.225). All of the expectation variables in the twelfth grade load on this first function in addition to parental communication in the 12th grade. It is not just that the personal capital variables are important to this first function, but specifically it is the personal capital variables in the 12th grade (not the 10th grade) that are correlating the most with the first function. The peer postsecondary plans variable is correlated in a negative relationship (-.113), meaning the correlation with the function decreases as the number of friends who plan to go to college increases. Finally, the structure variables that are strongly correlated with the first function are academic track (.279), control of school (-.183), years of math courses (.179), availability of computers (.116), and school resources (.091). As seen with the standardized canonical discriminant function coefficients, the control of the school is the relationship with private schools because of the negative coefficient.

For the second function, the means are as follows: $Y_1 = .371$, $Y_2 = -.610$ and $Y_3 = .027$. For this second function, the plot (Figure 1) also shows that group 2 is the most

different from groups 1 and 3. Therefore, the sponsored group is more different from the focused and the shifters on the second function. The variables correlating with the second function indicate how the sponsored group differs from the other two groups on the remaining variation. Almost all of the tenth grade variables are loading on the second function. Because this group by definition did not aspire college in the tenth grade and the shifters and the focused did, it seems logical that the differences would be in the tenth grade variables. The shifters had early aspirations for college while the sponsored did not. This second function is labeled aspirations, so the shifters are placed towards early aspirations and the sponsored are placed towards later aspirations. The group centroid for the focused (.027) shows there was little or no impact on the aspirations function.

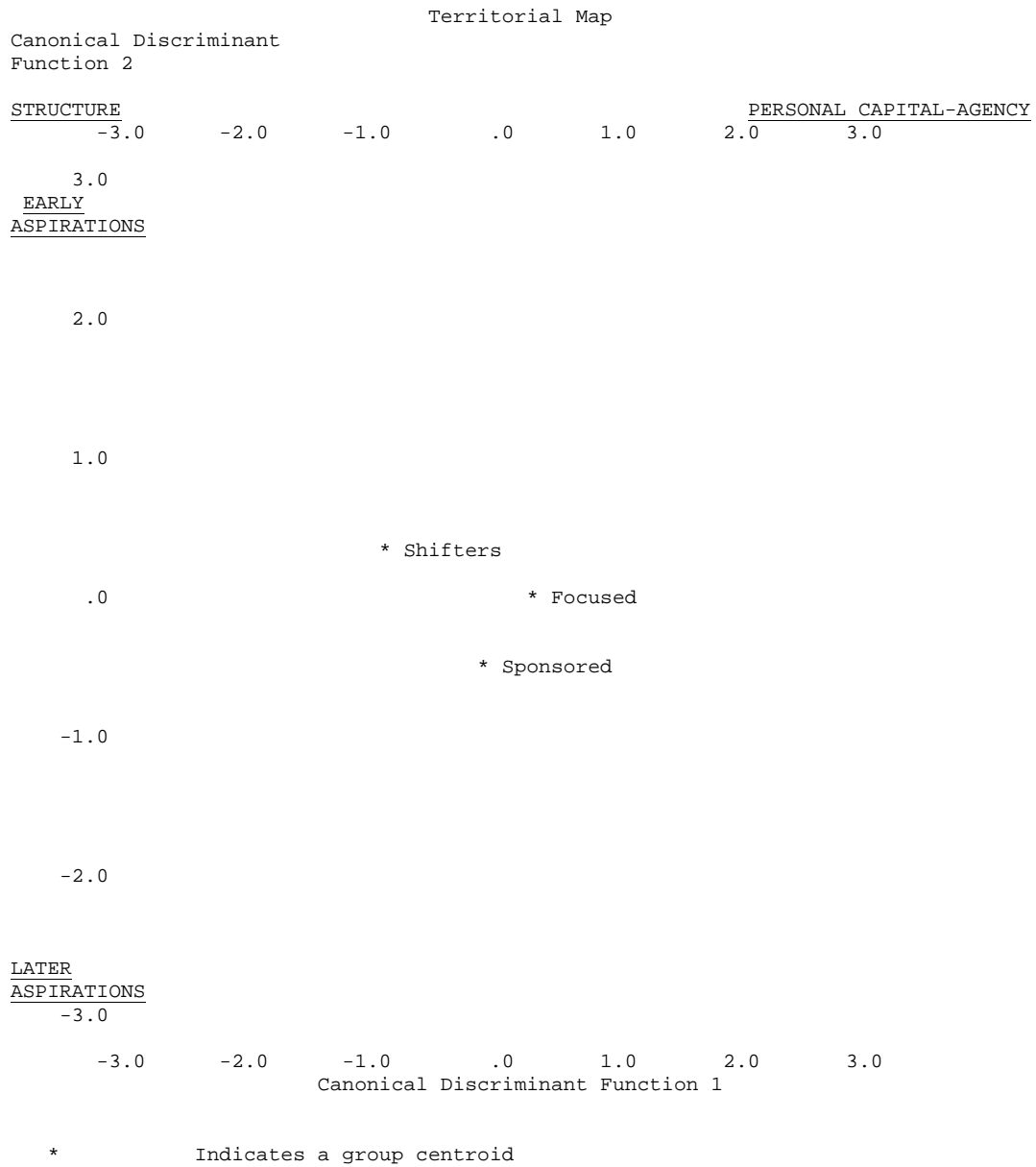


Figure 1. Territorial Plot.

Group Prediction Results

The classification table of hit rates gives the percentage of correctly classified cases in predicted group membership (Garson, 2008a). This percentage of cases correctly classified is called the hit rate. Nearly 82% of the original grouped cases were correctly classified. However, the majority of this accuracy is in the third group—the focused—of which 97.2% were correctly classified. This is most likely due to the fact that the third group was so much larger than the other two groups (Huberty & Lowman, 1998). Almost 21% percent of the shifters (group 1) were correctly classified, and only 10.7% of the sponsored (group 2) were correctly classified. Because the group sizes were uneven, the likelihood of placing more incorrectly in group three increased. Therefore, this data is not well-predicting membership in either the shifters or the sponsored group.

Table 10. Classification Table of Hit Rates for All Variables

		Predicted Group			
		1	2	3	Total
Actual Group	1	36 20.9	4	132	172
	2	14	18 10.7	135	167
	3	32	16	1639 97.2	1687
Total		82	38	1906	2026

81.8% of original grouped cases correctly classified

The prior probabilities of each of the three groups reflect this discrepancy among the percent accurate in each group. The prior probability was 9.5% for the shifters, 9.4% for the sponsored, and 81.1% for the focused. Using the prior probabilities and hit rates, I calculated what the hit rates would be if the groups were classified by chance to see if

using the model to classify was more effective than if by chance (Huberty & Lowman, 1998). I used the following formula (Huberty & Lowman, 1998):

$$z = \frac{n_{gg} - e_g}{\sqrt{e_g(n_g - e_g)/n_g}}$$

where n_{gg} = the number of students in group g , and

$e_g = q_g n_g$ = the prior probability for group g times the size of group g

For group 1, $n_{11} = 36$, $q_1 = .095$, $e_1 = (.095)(172) = 16.34$, and $z = 5.113$. The p -value is less than .001, which can be identified using a standard normal distribution table. Therefore, for the shifters, the model classified this group significantly better than if left to chance. How much better? I calculated the index using the following formula:

$$I = \frac{H_o - H_e}{100 - H_e}$$

where H_o = the observed hit rate (in percent), and

H_e = the expected hit rate (in percent)

For group 1 (shifters), the formula is

$$\begin{aligned} I &= \frac{20.9 - 9.5}{100 - 9.5} \\ &= .126 \end{aligned}$$

There are 12.6% fewer classification errors using the model for classifying the shifters than to leave classification to chance. This is not a large percentage, yet it is much better than the sponsored group. For the sponsored group, the z -statistic was not even significant. So we cannot say that this model classified the sponsored significantly

better than if left to chance. For the focused group, $n_{33} = 1639$, $q_3 = .811$, $e_3 = (.811)(1687) = 1368.157$, and $z = 16.843$, which is significant. After using the formula to calculate the index, there are 85.2% fewer classification errors using the model than leaving the focused group classification to chance. Therefore, using this set of variables one cannot adequately identify membership as a shifter and sponsored student. Yet the focused students can be well identified using these variables.

Consistent with previous research, this data is accurately predicting membership in the focused group. Students who had aspirations for college as tenth grade students and who apply for college as twelfth grade students have a lot of the similar characteristics that Hossler and others found in earlier research on college aspirations and enrollment. The goal of this study was not only to understand what constitutes membership in the focused group but also understand more the characteristics of the shifters and the sponsored group. Why shifters decide not to go and why sponsored decide to go is not fully explained in this model. As I have stated, we can see which areas of influence are more important for each of the groups, yet even so, the percentage classified correctly is not large for either of the shifters or sponsored. It may not be traditional measures of college aspirations and enrollment that are the determining factors for these students. This will be further discussed in the final chapter.

Logistic Regression

While multiple discriminant analysis does give insight into understanding which variables maximize the differences among the three groups, it does not provide more specifics about the students we know very little about—the sponsored and the shifters.

As aforementioned, the focused are already doing the things we would expect for them to do, so these findings support what previous research has already established. My plan for this section is to describe the results using a different methodology to better understand the odds of applying to college in light of earlier aspirations.

Logistic regression is a technique that allows one to predict the likelihood of an event happening. In this study, the event is applying to college. With logistic regression, I ran two separate analyses, yet both have the same set of variables. The only difference was in the selection of cases. For instance, the dependent variable was whether a twelfth grade student had applied to a postsecondary institution (0=no, 1=yes). For the first analysis, I selected only those students who had aspirations for college as tenth grade students. Therefore, this first analysis represents the shifters and the focused. What are the odds of applying to college given your earlier stated aspirations?

The second analysis again has the same group of variables, yet in this case, I have selected only those students who did not have aspirations for college as tenth grade students. Therefore, the sponsored are represented in this group. In this analysis, I will examine the odds of students who did not have aspirations for college actually applying to a college before leaving high school. Between these two analyses I will identify the variables that increase the odds of the shifters' and the sponsored's change in plans. What specific variables can help explain why students who did not have aspirations can then develop aspirations to the point of applying to a college before even leaving high school? In addition, the difference between the shifters and the focused is in a 12th grade decision. What are the variables that can explain the odds of the focused applying to a college and subsequently, the odds of why the shifters do not apply? For both the tenth

grade aspirations model (shifters and focused) and the no tenth grade aspirations model (sponsored), I ran the model again including twelfth grade aspirations. This variable represents if students in the twelfth grade still desired to attend a postsecondary institution after high school. Controlling for twelfth grade aspirations will even more clearly show the variables that increase the odds of applying to college. For all models, I will also calculate the predicted probability of applying to college, using gender and race to organize the differences.

Tenth-Grade Aspirations (Shifters and Focused)

The first logistic regression model represents students who did have aspirations for college as tenth grade students. Again, the dependent variable is a dichotomy of whether a student has applied to a college (1=yes, 0=no). The model shows which variables specifically increase or decrease the odds of a student with tenth grade aspirations applying to a college as a twelfth grade student. The number of cases in this first model is 1, 859. The missing values represent those who had legitimately skipped or refused to answer questions. Likewise, students who did not have tenth-grade aspirations are not included in this analysis.

The Hosmer and Lemeshow Test indicates if the overall model is a good fit of the data (Garson, 2008b). A non-significant p-value supports that the model is a good fit. For this model, the chi-square for the Hosmer and Lemeshow Test is 2106.065 and $p=.000$. This suggests that the model is not an overall good fit for the data. However, the Omnibus Tests of Model Coefficients also examines the fit of the model. More specifically, the Omnibus Tests of Model Coefficients indicate if having predictors in the

model is better than just using the intercept in the model (Garson, 2008b). The p-values for the tests show significance. Therefore, while the Hosmer and Lemeshow Test suggested lack of fit, the Omnibus Tests of Model Coefficients supports that there is at least one predictor in the model that is significantly related to the dependent variable (Garson, 2008b). The model is correctly classifying 90.1% of the cases, yet the Cox & Snell R^2 is only .152, which also suggests a weak fit of this model (see Table 10). I will examine the odds ratios and predicted probabilities in the larger categories of structure, personal capital, and personal agency.

Table 11. Logistic Regression—Dependent Variable: College Application, n=1,859
Selected cases with Tenth-Grade Aspirations

Variable	B (S.E.)	Wald	Exp(B)
Constant	-7.976 (.112)	5035.708	.000***
Academic commitment	.515 (.011)	2206.069	1.674***
Academic achievement	.104 (.001)	15315.822	1.024***
Academic effort (10 th grade)	-.046 (.003)	218.159	.900***
Academic effort (12 th grade)	.276 (.005)	2973.640	.955***
College entrance exams (10 th grade)	-.610 (.018)	1108.713	.543***
College entrance exams (12 th grade)	.306 (.023)	182.451	1.357***
Test preparation strategies	.650 (.013)	2331.202	1.915***
Likes school	.024 (.013)	3.263	1.024
Interest in education	-.333 (.012)	812.951	.717***
Extracurricular activities (10 th grade)	.174 (.005)	1259.948	1.190***
Extracurricular activities (12 th grade)	-.122 (.004)	795.517	.885***
Parental education	.052 (.003)	221.910	1.054***
Income	.021 (.003)	38.579	1.021***
Parental expectation (10 th grade)	-.306 (.024)	163.762	.736***
Parental expectation (12 th grade)	.622 (.017)	1348.824	1.863***
Parental communication (10 th grade)	.144 (.016)	84.028	1.155***
Parental communication (12 th grade)	.546 (.016)	1137.673	1.727***
Family resources	.584 (.032)	324.924	1.793***
Cultural events	.142 (.006)	494.584	1.153***
Guidance counselor expectation (10 th grade)	-.202 (.030)	44.216	.817***
Guidance counselor expectation (12 th grade)	-.497 (.023)	461.285	.609***
Teacher expectation (10 th grade)	-.456 (.029)	245.323	.634***
Teacher expectation (12 th grade)	.974 (.022)	2007.327	2.649***
Peer expectation (10 th grade)	.241 (.016)	241.198	1.273***
Peer expectation (12 th grade)	.437 (.015)	878.588	1.548***
Peer postsecondary plans	-.131 (.012)	128.115	.877***
Peer priority	-.147 (.018)	68.873	.863***
Years of science	.120 (.026)	20.886	1.127***
Years of math	.100 (.031)	10.449	1.105**
Academic track	-.082 (.013)	38.269	.921***
Location of school	.359 (.015)	553.529	1.432***
Control of school	-.974 (.027)	1287.535	.378***
School resources	.302 (.035)	76.740	1.353***
Instructional technology	-.167 (.050)	11.202	.846**
Computer access	.382 (.052)	53.418	1.466***
Race	-.044 (.016)	7.679	.957***
Sex	-.105 (.013)	67.140	.900***
Model Chi-Square [df]	65286.509 [37]***		
% Correct Predictions	90.1		
Cox & Snell R ²	.152		
-2LL	201701.643		
Hosmer & Lemeshow [df]	2106.065 [8]***		

NOTES: The Wald statistics are distributed chi-square with 1 degree of freedom

Standard errors in parentheses. Degrees of freedom in brackets.

*p<0.05, two-tailed; **p<.01, two-tailed; ***p<.001, two-tailed.

The Structure of High Schools

As a student takes more science and math classes, the odds of him or her applying to a school increase by a factor of 1.127 and 1.105, respectively, controlling for other variables. Being in a rural school versus a non-rural school has its advantages in terms of applying to college. For students who apply, the odds of being in a rural school are 1.432 times greater than the odds of being in a non-rural school, controlling for other variables. Likewise, applying to college favors students who are in private schools rather than students who are in public schools. For students who apply, the odds of being in a private school are .378 times less the odds of being in a public school, controlling for other variables. Therefore, having tenth grade aspirations, private school students and students in rural areas are more likely to apply to college in the twelfth grade than public school students and students in non-rural areas.

In terms of academic track, students who aspire college as tenth graders may not necessarily apply just because they are in a college preparatory track. In fact, the odds decrease by a factor of .921 if you are in a college preparatory track, controlling for other variables. Yet when you control for twelfth grade aspirations, the odds favor students who are in a college track applying to college ($\text{Exp}(B)=1.032$). Having a library or media center in the school has a positive impact on students applying to college. For students who apply, the odds that there is a library in the school are 1.466 times greater than the odds that there is not a library in the school, controlling for other variables. The same positive effect happens with computer access. For students who apply, the odds that they have computer access in the school is 1.353 times greater than the odds that they do not have access to computers in the school, controlling for other variables. Yet for students

who apply, the odds of teachers' having instructional technology in the classroom are .846 times the odds that they do not have instructional technology in the classroom, controlling for other variables. Therefore, a teacher's access to technology does not positively impact applying to college.

If you have aspirations for college as a tenth grade student, race and sex have little impact on whether you follow through with those plans in 12th grade and apply to college. In fact, when controlling for 12th grade aspirations, race is no longer a significant variable. While race and sex are significant statistically in the tenth grade aspirations model, they are not significant practically as both standardized betas are near 1.000 (race=.957 and sex=.900). So there is a slight favor towards the odds of nonwhites and females applying to college over whites and males, respectively, yet the advantage is minimal. There are other factors in this model that show greater importance, controlling for other variables.

The predicted probabilities $[1/1 + e^{-\alpha+\beta x}]$ using the structure variables yield very small percentages. In fact, considering only the structure variables in the predicted probability of a student applying to college does not produce even a 1% chance for any student—white, nonwhite, male, or female. I had hypothesized that the structure variables would be the most important for the shifters, the students who had tenth grade aspirations but did not apply. In some ways because the probability of applying does not increase in regard of the structure variables, the probability not to apply might indeed be affected by these structure variables. The structure variables together do not give a strong predicted probability that you will apply, so the comprehensive structure as I have outlined it is in some ways hindering students from applying to college. When

controlling for other variables, there were some variables as noted that did increase the odds of applying, but when considering just the comprehensive structure there really are constraints that may hinder students from applying to college.

Personal Capital

Students with a teacher who expects college for them in the twelfth grade have 2.649 times greater odds of applying to college than students with a teacher who expects something other than college for them, controlling for other variables. Meaning, part of the reason why the focused can maintain their goal and apply to college is due to having their teacher also expect college for them in the 12th grade. Interestingly enough, having your teacher's expectation in the 10th grade has a negative impact on applying to college. The odds of your teacher expecting college for you in the 10th grade are .634 times the odds of your teacher expecting something other than college for you in the 10th grade, controlling for other variables. Only the twelfth grade teacher expectation increases the odds of applying to college ($\text{Exp}(B)=2.649$). The same pattern exists with parental expectation. Having your parent's expectation for college in the 12th grade increases the odds of applying to college by a factor of 1.862, controlling for other variables. Yet as with the teacher's expectation, the parental expectation in the 10th grade has a negative effect ($\text{Exp}(B)=.698$). These findings coincide with the results from MDA. What is happening in the 12th grade is actually more important in propelling students to apply to college rather than what is happening in the 10th grade.

Guidance counselor expectation in both the tenth grade and the twelfth grade have a negative impact on the odds of applying to college. More specifically, for students who

aspire college as tenth grade students the odds of the guidance counselor expecting college for them are .817 times less than the odds of the guidance counselor expecting something else for them in the tenth grade, controlling for other variables. A similar thing happens with guidance counselor expectation in the 12th grade—the odds of the guidance counselor expecting college decrease by a factor of .609, controlling for other variables. Is it possible that shifters have the confidence of the guidance counselor, as the shifters did not apply? Having your counselor expect college for you does not translate into actually applying to college.

Parental income and parental education have a moderate impact with the odds ratios close to 1.000. The odds of applying to college increase by a factor of 1.054 as the parents are more educated and 1.021 as the family income increases, controlling for other variables. The frequency of communication with parents has a positive impact. As students talk more with their parents about education in both the tenth and twelfth grades, the odds of applying are multiplied by a factor of 1.155 in the tenth grade and 1.727 in the twelfth grade, controlling for other variables. For students who apply to college, the odds of having family resources in the home are 1.793 times the odds of not having family resources in the home, controlling for other variables. And as parents attend more cultural events with their student, the odds of that student applying to a postsecondary institution increase by a factor of 1.153, controlling for other variables.

Peers have a split effect on increasing the odds of applying to college. For students who apply, the odds of their peers expecting them to go to college are 1.273 times greater in the tenth grade and 1.548 times greater in the twelfth grade than peers expecting something else for them, controlling for other variables. However, as more

friends plan to go to college, the odds of the student applying to college decrease by a factor of .877, controlling for other variables. Likewise, as peers place more of a priority on academics, the odds of the student applying to college decrease by a factor of .863, controlling for other variables.

The predicted probabilities using just the personal capital variables are just as small as the predicted probabilities using just the structure variables. Again, this suggests that possibly the personal capital variables are having a stronger impact on the shifters. Also, this may suggest that the focused are applying to college not because of a certain category of variables but because of a mixed of my prescribed categories. Following the discussion of personal agency variables, I will examine some of the predicted probabilities using a mixture of variables in this model.

Personal Agency

There was only one variable (and it is a personal agency variable) that was not significant at $\alpha=.05$ level in this model—how much a student likes school. For students who had aspirations for college in the tenth grade, the odds of them applying to college in the 12th grade are not significantly influenced by how much a student claims to like school, controlling for other variables. Only when controlling for twelfth grade aspirations does this variable have statistical significance (see Table 12). And even then, the odds of applying to college decrease as you claim to enjoy more of school. While the remaining variables have significant p-values, the direction of the effect (positive or negative) varies.

As students are more committed to their academics and good grades, the odds of them applying to college are multiplied by a factor of 1.674, controlling for other variables. Academic achievement also has a positive impact, but with an odds ratio close to 1.000, the impact is slight. As a student's academic achievement increases, the odds of them applying to college increase by a factor of 1.024, controlling for other variables. For students with tenth grade aspirations, the odds of applying are not increased by the amount of time students spend on homework inside and outside of school (academic effort) in neither the tenth nor twelfth grades. In fact, the odds decrease by a factor of .900 in the tenth grade and .955 in the twelfth grades. Yet again, with numbers close to one, the impact is not as strong as some of the other variables. Having an interest in education has a similar directional impact with an $\text{Exp}(B)$ of .717. Extracurricular involvement is more important in increasing the odds of applying in the tenth grade ($\text{Exp}(B)=1.190$) than in the twelfth grade ($\text{Exp}(B)=.885$).

Regarding the ACT or SAT, it is more important that the student has plans to take it or has already taken it by the twelfth grade ($\text{Exp}(B)=1.357$). In the tenth grade, the odds of applying decrease if they plan to take the ACT or SAT ($\text{Exp}(B)=.543$). Even still, for students who apply, the odds that they have participated in some type of test preparation strategy are 1.915 times greater than the odds of them not participating in a test preparation strategy, controlling for other variables.

Unlike the structure and personal capital variables, in this set of personal agency variables, the predicted probabilities produce numbers greater than .000. I am using race and gender as a way to categorize the impact on different types of people. All of the variables except for college entrance exams in the tenth and twelfth grades and test

preparation strategies were set to their means. These variables were coded one for yes and zero for no. Therefore, for a female, white student who has taken or plans to take the ACT or SAT in the tenth and twelfth grades, who has participated in a test preparation strategy, and who is average on the other personal agency variables, the predicted probability of her applying to college is .66. For a white, male with the same characteristics, the predicted probability is .64. The predicted probability is highest for a nonwhite, female at .67 with the predicted probability for a nonwhite, male at .65. Again, using this set of variables creates much better predicted probabilities for understanding the likelihood of applying to college, yet for this shifter/focused model, there must be a mixture of variables that can show higher probabilities of a student applying to college.

Using the same group of variables just described above, for a white, male just including the teacher's expectation in the 12th grade and their parent's expectation in the 12th grade increases the predicted probability to .90. So as seen in the multiple discriminant analysis, the combination of personal agency and personal capital variables is most important for the focused group. The focused may have done all of the right things in terms of their own personal agency, but having the expectation of others, namely parents and teachers, is what really increases the likelihood of them applying to college in the twelfth grade.

Tenth-Grade Aspirations (Shifters and Focused)—Controlling for Twelfth-Grade Aspirations

When taking into account twelfth grade aspirations, a few variables are no longer significant (school resources and computer access). Yet the variable that is no longer

significant of note is race. For students who have tenth grade aspirations, if they have twelfth grade aspirations, there is no significant difference between white students and nonwhite students.

Table 12. Logistic Regression—Dependent Variable: College Application, n=1,835

Controlling for Twelfth-Grade Aspirations
Selected Cases with Tenth-Grade Aspirations

Variable	B (S.E.)	Wald	Exp(B)
Constant	-8.360 (.121)	4780.206	.000***
Academic commitment	.564 (.012)	2361.010	1.757***
Academic achievement	.099 (.001)	12890.994	1.104***
Academic effort (10 th grade)	-.032 (.003)	97.643	.968***
Academic effort (12 th grade)	.230 (.005)	1969.024	1.258***
College entrance exams (10 th grade)	-.541 (.019)	816.218	.582***
College entrance exams (12 th grade)	.171 (.025)	211.966	.934***
Test preparation strategies	.577 (.014)	1631.685	1.780***
Likes school	-.028 (.014)	4.059	.973*
Interest in education	-.456 (.013)	1327.681	.634***
Extracurricular activities (10 th grade)	.089 (.005)	298.051	1.094***
Extracurricular activities (12 th grade)	-.068 (.005)	211.966	.934***
Parental education	.053 (.004)	206.888	1.054***
Income	-.015 (.004)	17.725	.985***
Parental expectation (10 th grade)	-.359 (.026)	193.176	.698***
Parental expectation (12 th grade)	.403 (.019)	462.941	1.496***
Parental communication (10 th grade)	.165 (.016)	101.786	1.180***
Parental communication (12 th grade)	.504 (.017)	878.559	1.656***
Family resources	1.170 (.034)	1218.167	3.220***
Cultural events	.170 (.007)	648.401	1.185***
Guidance counselor expectation (10 th grade)	-.667 (.034)	390.527	.513***
Guidance counselor expectation (12 th grade)	-.419 (.025)	287.133	.658***
Teacher expectation (10 th grade)	-.191 (.030)	39.861	.826***
Teacher expectation (12 th grade)	1.147 (.023)	2486.830	3.148***
Peer expectation (10 th grade)	.374 (.016)	519.573	1.453***
Peer expectation (12 th grade)	.119 (.016)	53.870	1.126***
Peer postsecondary plans	-.127 (.012)	110.433	.881***
Peer priority	-.168 (.019)	80.300	.846***
Years of science	.075 (.028)	7.342	1.077**
Years of math	.221 (.033)	45.343	1.247***
Academic track	.032 (.014)	5.366	1.032*
Location of school	.348 (.016)	453.106	1.416***
Control of school	-.900 (.028)	1030.358	.407***
School resources	.058 (.038)	2.358	1.059
Instructional technology	-.182 (.052)	12.011	.834**
Computer access	.100 (.058)	2.999	1.106
Race	.027 (.016)	2.785	1.028
Sex	-.088 (.014)	41.709	.916***
Twelfth Grade Aspirations	1.755 (.025)	5061.242	5.781***
Model Chi-Square [df]	64367.773 [38]***		
% Correct Predictions	76.5		
Cox & Snell R ²	.152		
-2LL	185298.955		
Hosmer & Lemeshow [df]	3581.792 [8]***		

NOTES: The Wald statistics are distributed chi-square with 1 degree of freedom

Standard errors in parentheses. Degrees of freedom in brackets.

*p<0.05, two-tailed; **p<.01, two-tailed; ***p<.001, two-tailed.

No Tenth-Grade Aspirations (The Sponsored)

In this section, I will examine the results of the second logistic regression analysis. I selected the students who did not have tenth grade aspirations. The sponsored are represented in this group.

For students who do not have tenth grade aspirations, the odds of them applying to college in the twelfth grade (being a sponsored student) vary a bit from the focused. The Hosmer and Lemeshow still had a significant p-value, but similar to the previous model, the Model Chi-Square suggests that there is a significant relationship between at least one variable and dependent variable. The percentage classified correctly is 81.8% and the Cox & Snell R^2 is .331, which is still not great but is stronger than the previous model. Again, I will examine these variables in the organization of my theoretical framework.

The Structure of High Schools

For students without tenth grade aspirations (sponsored), the odds of them applying are positively influenced by some of the structure variables. For every one unit increase in the amount of science a student takes, the odds of them applying to college are multiplied by a factor of 5.498, controlling for other variables. The influence of math is also positive, but not quite as strong. For every one unit increase in the amount of math a student takes, the odds of them applying to a college in the twelfth grade are multiplied by a factor of 1.815, controlling for other variables. The location of the school favors students who are in a rural school versus a non-rural school. More specifically, for the sponsored, the odds of students in a rural school applying are 1.393 times greater than

the odds of students in a non-rural school applying to a college, controlling for other variables. The odds of applying are also greater if teachers use various instructional technology than if they do not use instructional technology ($\text{Exp}(B)=1.930$). Yet having other school resources does not have that effect. For students who apply, the odds decrease if students have access to school resources, such as a library or media center, than if they do not have access to school resources. Likewise, for students who apply, the odds of having access to computers in the school are .108 less than the odds of not having access to computers in the school, controlling for other variables. Surprisingly, the academic track of the student slightly favors those who are in a non-college preparatory track. For students who apply, the odds of them being in a college preparatory track are .918 times the odds of them not being in a college preparatory track, controlling for other variables. Yet, as the number is close to 1.000, the impact of academic track is almost neutral.

The likelihood to apply favors students who are in rural schools ($\text{Exp}(B)=1.393$), students who are in private schools ($\text{Exp}(B)=.238$), white students ($\text{Exp}(B)=1.290$) and female students ($\text{Exp}(B)=.392$). Therefore, for students who do not have tenth grade aspirations, the likelihood for them to apply to a college in the twelfth grade is increased if they are in rural schools rather than non-rural schools, controlling for other variables. Likewise, being in private school rather than a public school can increase the odds of applying to a college. More white students than nonwhite students are more likely to apply to a college, even with no tenth grade aspirations, controlling for other variables. Just the same, the odds of females without tenth grade aspirations applying in the twelfth

grade are greater than the odds of males without tenth grade aspirations applying to a postsecondary institution, controlling for other variables.

Using just the structure variables to create predicted probabilities of the sponsored applying to college, there are differences by race and gender. The predicted probability of a white, female student with average years of math and science, in a college academic track, in a rural, private school, with a school library, instructional technology, and computer access applying to college is only .55. For a female, nonwhite student with the same characteristics, the predicted probability is .49. For both white and nonwhite male students, the predicted probability decreases to .33 and .28, respectively. So even though the structure variables do not give convincing evidence that they are greatly impacting the sponsored student to apply, the differences among race and gender suggest that the location of school, control of school, and amount of courses in science and math can impact if a nonwhite student or a male student applies. Unlike the shifter/focused model, race and sex have a stronger influence on the sponsored student. Therefore, even if a nonwhite, male student did not have aspirations for college, encouraging him to take more math and sciences courses could positively affect him applying to college. Yet these moderate predicted probabilities also suggest that there are other factors within the model that have a stronger impact. I hypothesized that the sponsored would be the most influenced by the personal capital variables. I will examine that set of variables next.

Personal Capital

With the exception of the guidance counselor expectation in the tenth and twelfth grades and the peer expectation in the tenth grade, all of the expectation variables have a

positive impact on increasing the odds of a sponsored student applying to college. As with the first regression of tenth grade aspirations, this second regression of no tenth grade aspirations also shows the importance of other people. More specifically, for students who apply, the odds of their parent also expecting college for them are 1.933 times greater than the odds of their parent expecting something else for them in the 10th grade and 2.495 times greater in the 12th grade, controlling for other variables. With no tenth grade aspirations, the odds of applying are increased by a factor of 2.495 if your parent expects college for you (compared to 1.727 if you have tenth grade aspirations). Yet what is specifically important in this group of sponsored students is that the odds of your parent desiring college in the 10th grade are 1.933 times the odds of your parent desiring something else, controlling for other variables. This tenth grade variable of parental expectation had a negative impact in the shifter/focused model. Therefore, the odds are greater that students whose parents desire college for them early on will apply to college. We see the same impact with the teacher expectation variable. Students with no aspirations as tenth graders who have teachers in the 12th grade who aspire college for them have 4.819 times greater odds of applying to college than students whose teachers desire something else for them besides college, controlling for other variables. The impact is not as strong with teacher expectation in the 10th grade ($\text{Exp}(B)=1.954$), but it is a positive effect as opposed to the shifter/focused model ($\text{Exp}(B)=.634$ for teacher expectation in the 10th grade). The guidance counselor impact is similar to the shifter/focused model. For the sponsored students, the odds of the guidance counselor expecting college for them in the 10th grade are .680 times the odds of the guidance counselor expecting something else for them, controlling for other variables. In the 12th

grade, these odds decrease even more to .261, controlling for other variables. Therefore, again the guidance counselor actually has a negative impact on the odds of students applying to college.

The peer impact on the odds of the sponsored applying to college varies. For students who apply, the odds of their peers expecting college for them are 1.246 times greater than their peers expecting something else for them in the 12th grade, controlling for other variables. But in the tenth grade, the odds favor peers expecting something else for them besides college ($\text{Exp}(B)=.631$). This is consistent with the sponsored not desiring college in the tenth grade, and perhaps their peers were aware of that fact and would not have expected them to go to college immediately after high school in the tenth grade. The priority peers place on academics was not a significant variable. Yet as more friends have plans to attend college, the odds of the student applying to college are multiplied by a factor of 1.454, controlling for other variables.

Parent's education level and income also increased the odds of a student applying to college by a factor of 1.029 and 1.026, respectively. However, with numbers so close to 1.000, their impact is positive but minimal. As parents talk more frequently with their student as tenth and twelfth graders, the odds of the student applying to college are increased ($\text{Exp}(B)=1.204$ in the tenth grade and $\text{Exp}(B)=1.538$ in the twelfth grade). For students who apply, the odds of them having family resources in the home are 2.254 times greater than not having family resources in the home, controlling for other variables. Attending cultural events with parents does not have a positive impact on the odds of applying to college. The odds decrease by a factor of .568 as the student attends more cultural events with the parents, controlling for other variables.

While there is a slight variation by gender and race in the predicted probabilities of applying to college, the major difference is with the expectation variables. I set several variables at their mean: parental education level, family income, parental communication in the 10th grade, parental communication in the 12th grade, frequency of attending cultural events with parents, and how many friends plan to attend college. Using these averages, for a white, male whose parents, teacher, guidance counselor and peers all expect college for them, and who has family resources in the home, the predicted probability of him applying to college is .94. Yet if this white, male student does not have the teacher's expectation in the twelfth grade, the predicted probability is only .76. Finally, if that same white, male student does not ever have his teacher's expectation or ever have his parent's expectation, the predicted probability is only .25. This confirms the current research of Rosenbaum et al. (2006) that attributes warming up to the impact of other people in the student's life. The same drop in predicted probability exists for white, female and nonwhite students, yet nonwhite males are the most impacted by not having parent's expectation or teacher's expectation with a predicted probability of only .21.

Table 13. Logistic Regression—Dependent Variable: College Application, n=235
Selected Cases with No Tenth-Grade Aspirations

Variable	B (S.E.)	Wald	Exp(B)
Constant	-.6322 (.240)	695.967	.002***
Academic commitment	.294 (.023)	160.500	1.342***
Academic achievement	.076 (.002)	1662.390	1.079***
Academic effort (10 th grade)	-.106 (.006)	327.623	.900***
Academic effort (12 th grade)	.023 (.010)	5.877	1.024*
College entrance exams (10 th grade)	1.005 (.030)	1089.283	2.731***
College entrance exams (12 th grade)	-1.545 (.047)	1072.895	.213***
Test preparation strategies	.067 (.028)	5.499	1.069*
Likes school	.790 (.032)	613.932	2.203***
Interest in education	-.422 (.030)	193.687	.656***
Extracurricular activities (10 th grade)	-.277 (.010)	757.413	.758***
Extracurricular activities (12 th grade)	.133 (.009)	201.764	1.142***
Parental education	.029 (.007)	17.083	1.029***
Income	.026 (.007)	13.186	1.026***
Parental expectation (10 th grade)	.659 (.037)	326.107	1.933***
Parental expectation (12 th grade)	.914 (.031)	853.008	2.495***
Parental communication (10 th grade)	.186 (.034)	29.736	1.204***
Parental communication (12 th grade)	.430 (.036)	138.981	1.538***
Family resources	.813 (.060)	185.304	2.254***
Cultural events	-.566 (.015)	1367.238	.568***
Guidance counselor expectation (10 th grade)	-.386 (.045)	72.872	.680***
Guidance counselor expectation (12 th grade)	-1.342 (.044)	926.533	.261***
Teacher expectation (10 th grade)	.670 (.041)	263.036	1.954***
Teacher expectation (12 th grade)	1.573 (.042)	1392.054	4.819***
Peer expectation (10 th grade)	-.460 (.030)	235.967	.631***
Peer expectation (12 th grade)	.220 (.035)	39.727	1.246***
Peer postsecondary plans	.375 (.025)	218.754	1.454***
Peer priority	-.022 (.032)	.476	.978
Years of science	1.704 (.053)	1037.804	5.498***
Years of math	.596 (.050)	141.952	1.815**
Academic track	-.086 (.028)	9.246	.918**
Location of school	.332 (.030)	123.362	1.393***
Control of school	-1.436 (.069)	430.782	.238***
School resources	-.767 (.076)	101.881	.464***
Instructional technology	.657 (.081)	65.378	1.930**
Computer access	-2.228 (.141)	250.869	.108***
Race	.254 (.032)	63.653	1.290***
Sex	-.936 (.027)	1175.356	.392***
Model Chi-Square [df]	23999.136 [37]***		
% Correct Predictions	81.8		
Cox & Snell R ²	.331		
-2LL	49622.583		
Hosmer & Lemeshow [df]	1750.227 [8]***		

NOTES: The Wald statistics are distributed chi-square with 1 degree of freedom

Standard errors in parentheses. Degrees of freedom in brackets.

*p<0.05, two-tailed; **p<.01, two-tailed; ***p<.001, two-tailed.

Personal Agency

For the sponsored student, the odds ratios of the personal agency variables show that the odds increase as students are committed to their academics ($\text{Exp}(B)=1.342$) and as students' academic achievement increases ($\text{Exp}(B)=1.079$). Being involved in extracurricular activities only has a positive impact in the 12th grade ($\text{Exp}(B)=1.142$) and has a negative impact in the 10th grade ($\text{Exp}(B)=.758$). The more a student likes school, the greater the odds of a student applying to a college in the twelfth grade ($\text{Exp}(B)=2.203$). Yet being interested in education decreases the odds of applying to a college by a factor of .656, controlling for other variables. Interestingly, the college entrance exam variable is only a positive variable in the tenth grade. For students who apply, the odds of them also have taken or plan to take the ACT or SAT in the tenth grade are 2.731 times greater than the odds of them not planning to take the ACT or SAT, controlling for other variables. In the twelfth grade, the odds of taking the ACT or SAT are .213 times the odds of them not taking the ACT or SAT, controlling for other variables. Yet if they have some type of test preparation strategies, the odds of applying are 1.069 times greater than the odds of them applying had they not had a test preparation strategy, controlling for other variables. Academic effort in the tenth grade and twelfth grade does not have a large impact with the odds slightly decreasing in 10th grade ($\text{Exp}(B)=.900$) and slightly increasing in the twelfth grade ($\text{Exp}(B)=1.024$).

For the sponsored student, the predicted probabilities of applying to college focusing solely on the personal agency variables do not differ much by gender or race. If a nonwhite, male has average academic commitment, academic achievement, academic effort in tenth and twelfth grades, has taken the ACT or plans to in the tenth and twelfth

grades, has a test preparation strategy, likes school, has the average interest in education, and has average extracurricular involvement in the tenth and twelfth grades, the predicted probability of him applying to college is .96. For a white, male the predicted probability increases to .97 and for both white and nonwhite females, the predicted probability of applying to college is over .98. Therefore, unlike the structure variables, just being average in the personal agency variables creates positive outcomes for the sponsored student, regardless of your gender or race. However, if that same nonwhite, male has all of the same characteristics listed above but he does not like school and does not think that good grades are important, the predicted probability of him applying to college decreases from .96 to .78. While still a moderately high probability, the logic confirms that students who just do not like school and are not commitment to good academics may be less likely to apply to a college.

No Tenth-Grade Aspirations (Sponsored)—Controlling for Twelfth-Grade Aspirations

Adding twelfth grade aspirations to the model only confirmed that the strongest predictor in applying to college is whether you still desire college in the twelfth grade ($\text{Exp}(B)=9.713$). Having twelfth grade aspirations makes such an impact that parental expectation in the twelfth grade is no longer significant. In terms of the theory of warming up, this creates a contingency that may acknowledge the importance of the parent's expectation initially but if the student actually desires college, no parent expectation in the twelfth grade will hinder him or her from applying to college. For the sponsored, the odds of having twelfth grade aspirations are 9.713 times greater than the odds of not having twelfth grade aspirations, controlling for other variables.

In this section, I have detailed the findings of both the multiple discriminant analysis and logistic regression analyses. In the fifth and final chapter, I will revisit these findings in light of my theoretical framework.

Table 14. Logistic Regression—Dependent Variable: College Application, n=220
 Controlling for Twelfth-Grade Aspirations
 Selected Cases with No Tenth-Grade Aspirations

Variable	B (S.E.)	Wald	Exp(B)
Constant	-10.786 (.275)	1534.374	.000***
Academic commitment	.821 (.027)	949.847	2.273***
Academic achievement	.094 (.002)	1777.386	1.099***
Academic effort (10 th grade)	-.073 (.007)	104.777	.929***
Academic effort (12 th grade)	-.035 (.011)	9.441	.966**
College entrance exams (10 th grade)	.248 (.036)	46.153	1.281***
College entrance exams (12 th grade)	-1.350 (.054)	620.151	.259***
Test preparation strategies	.040 (.033)	1.421	1.041
Likes school	.533 (.036)	219.318	1.704***
Interest in education	-.194 (.034)	32.400	.824***
Extracurricular activities (10 th grade)	-.160 (.011)	209.863	.852***
Extracurricular activities (12 th grade)	.134 (.011)	151.364	1.143***
Parental education	.124 (.008)	214.895	1.132***
Income	.032 (.008)	14.746	1.033***
Parental expectation (10 th grade)	.525 (.040)	170.237	1.690***
Parental expectation (12 th grade)	.052 (.040)	1.734	1.054
Parental communication (10 th grade)	.447 (.040)	127.125	1.563***
Parental communication (12 th grade)	.393 (.043)	84.748	1.482***
Family resources	-.248 (.071)	12.153	.780***
Cultural events	-.442 (.018)	635.781	.643***
Guidance counselor expectation (10 th grade)	-1.026 (.051)	409.435	.358***
Guidance counselor expectation (12 th grade)	-1.152 (.049)	561.543	.316***
Teacher expectation (10 th grade)	1.312 (.051)	660.878	3.715***
Teacher expectation (12 th grade)	1.282 (.047)	751.823	3.604***
Peer expectation (10 th grade)	-.801 (.035)	513.135	.449***
Peer expectation(12 th grade)	.188 (.042)	20.099	1.206***
Peer postsecondary plans	.538 (.028)	361.142	1.713***
Peer priority	-.242 (.038)	41.462	.785***
Years of science	1.169 (.061)	367.224	3.219***
Years of math	1.016 (.057)	318.976	2.762***
Academic track	-.701 (.033)	454.223	.496***
Location of school	.395 (.033)	143.912	1.484***
Control of school	-1.312 (.075)	308.608	.269***
School resources	-1.081 (.081)	180.246	.339***
Instructional technology	1.533 (.090)	292.994	4.631***
Computer access	-1.235 (.148)	69.132	.291***
Race	.338 (.036)	88.912	1.402***
Sex	-1.288 (.031)	1694.538	.276***
Twelfth Grade Aspirations	2.274 (.041)	1534.374	9.713***
Model Chi-Square [df]	25425.899 [38]***		
% Correct Predictions	84.9		
Cox & Snell R ²	.368		
-2LL	39750.532		
Hosmer & Lemeshow [df]	1517.401 [8]***		

NOTES: The Wald statistics are distributed chi-square with 1 degree of freedom

Standard errors in parentheses. Degrees of freedom in brackets.

*p<0.05, two-tailed; **p<.01, two-tailed; ***p<.001, two-tailed.

CHAPTER V

DISCUSSION, IMPLICATIONS, AND SUGGESTIONS FOR FUTURE RESEARCH

In this final chapter, I will discuss limitations within the study, implications from the findings, and ideas for future research. I will begin with noting some of the limitations of this study. Then I will discuss some implications from the results, which lead to revision to my theoretical framework. Finally, I will suggest ideas for future research in light of these findings.

Limitations

Using a national dataset created some limitations for this study. While the access to such a large dataset is helpful and gives a stronger understanding of the entire population, there are limitations to using quantitative, secondary data. One major advantage of the Rosenbaum et al. (2006) study was their extensive qualitative analyses of students in community colleges. Through such interactions, they created the framework of warming up through faculty support and encouragement from by the students' responses. Because of the secondary data, I had to infer similar encouragement and support from others from the expectation variables—what your parent, teacher, guidance counselor, or peer thinks is most important for you to do after high school. Therefore, I concluded that expectation from others was similar to support and encouragement from others to pursue higher levels of education. Even though I did not have access to ask probing questions of each student, I did have access to a very large

sample size. Likewise, the national sample was representative of the population, which allows me to make inferences to the larger population. As I will discuss in a later section, patterns or tendencies found in this study only prepare the way for future, in-depth analysis.

Additional limitations to the study regarding the dataset include the coding of variables. For instance, academic track may not be a consistent term among schools. College preparatory track may not exist at every school, and even so, it may look differently at each school. Therefore, in interpreting the results, one must always remember these small discrepancies that may exist as a function of using a national dataset.

Academic achievement was a major construct to the framework of this study. I used a standardized achievement score to represent academic achievement. Using a grade point average (GPA) instead could have produced a stronger measure. However, because the academic score was a standardized score, there was consistency across all student scores. Similar to academic track, GPA can be calculated or weighted differently across schools. A standardized academic score may have its challenges, but it does provide a consistent way to measure achievement for all students.

Since the original selected sample was over 10,000, the smaller selected sample size of 2,000 after casewise deletion is a limitation. Missing values were removed, which decreased the sample size. Students may have skipped answers, refused to answer, or the question may not have applied to them. Yet even with a smaller sample, comparing the demographics of the original sample and the selected sample confirms that there is not much difference between the two (See Table 2). The largest difference was based on

race, as a larger proportion of white students were in the selected sample. Race was not an extremely significant factor, yet there were some differences among the groups based on race. Therefore, one should take into account the slight less-representation of students of color in the selected sample. To address the issue of missing data, further analysis should include multiple imputation of the missing data. Currently, this study does not allow one to know much about the cases that were missing and therefore removed from the analysis. By doing multiple imputation of the missing data, one could then better compare the differences between the selected sample and the selected sample after casewise deletion. This study only examines students who completed every question. Multiple imputation will allow inferences of what the missing data would have been if the students had answered those questions. In addition to the issue of missing data, overall the models did not show a strong fit to the data, which could have been a result of the missing data. Yet when looking at individual variables, there were significant relationships that allowed me to still use the models and interpret the results in regards to college application. As I discuss my findings, one should keep in mind the stated limitations of this study.

Discussion

The purpose of this study was to examine the inclinations of students to apply to a postsecondary institution in light of their earlier stated intentions. I organized students into three groups based on two classifications: if they had aspirations for college in the tenth grade and if they had applied to an institution by their senior year of school. The shifters had aspirations in the tenth grade but did not apply in the twelfth grade. The

sponsored did not have aspirations in the tenth grade but did apply in the twelfth grade. Finally, the focused had aspirations in the tenth grade and did apply in the twelfth grade. I hypothesized that there were three main areas of concentration that were the most important for each of these three groups of students. More specifically, I categorized my theoretical framework so that specific areas of research could be attributed to why students belonged to their respective group. My hypotheses were:

- Shifters: Students who planned to attend college while in the tenth grade but did not apply in the twelfth grade have been affected most by the structure of the high school.
- Sponsored: Tenth grade students who originally did not intend to go to college and yet did apply in the twelfth grade have been most influenced by personal capital.
- Focused: The students in the final group with initial aspirations in the tenth grade who did apply in the twelfth grade have been most affected by their own personal agency.

I used two different analytic strategies to address my hypotheses. First, I ran multiple discriminant analysis to examine which variables maximize the differences among the three groups. Meaning, why are these three groups the most different? Second, I used logistic regression to examine more clearly which variables specifically had the most impact on increasing the odds of applying to a school in the twelfth grade, pending their tenth grade aspirations.

I will organize this section according to my theoretical framework. I will summarize my findings in the context of the shifters, sponsored, and the focused.

Following, I will discuss my revised theory, implications for policy, and directions for future research.

The Shifters

In the first logistic regression analysis, I selected only the students who had tenth grade aspirations. By definition, this analysis was examining both the shifters and the focused, who both had tenth grade aspirations. In order to determine which variables had an impact on the shifters who did not apply, I looked at the variables with a negative coefficient and an odds ratio less than 1.0. Therefore, as the logistic regression predicts which variables increase the odds of applying to college, the variables that decrease the odds of applying to college are the ones that are related to the shifters not applying to college. For the shifters, I hypothesized that they would be most influenced by the structure variables. I will discuss this set of variables specifically and then note other variables of interest that also could influence the shifters.

I defined the comprehensive structure of high schools as the social context of the school, which includes curriculum tracking and school demographics. I hypothesized that the structure of the school created a climate that would actually cool-out aspirations and that this cooling-out of aspirations had the most impact on the shifters, as they once aspired to attend college but had not applied to a college. The structure was conceptualized as the academic track of the student and the availability of resources in the school, which included having a library, computer access, and instructional technology in the classroom. The structure also referred to the control of the school, whether public or private, and the location of the school, whether rural or non-rural. In

my theoretical framework, I suggested that having limited resources in the school can be associated with cooling-out one's aspirations. Likewise, I believed that being in a non-college preparatory track would also be associated with cooling-out one's aspirations. If students were not taking many math or science courses, their aspirations could be more likely to be cooled-out. Finally, I hypothesized that being in a rural school and being in a public school created a context that can be associated with cooling-out aspirations for college. Therefore, together this comprehensive structure of the school was the main factor that was associated with cooling-out aspirations for the shifters.

I hypothesized that being in a non-college preparatory track would be associated with cooling-out aspirations. With an odds ratio of .921 (college track=1, other=0), the odds of being in a college track were .921 times less the odds of being in a non-college track for students who apply, controlling for other variables. Therefore, the structure in terms applying based on academic track favored those who were in a non-college preparatory track. Yet when I controlled for twelfth grade aspirations, the odds ratio increased to 1.032, which means that for students who apply the odds that they are in a college track are 1.032 times greater than the odds that they are in a non-college track, controlling for other variables. While the difference between the two odds ratios is not large, it partially supports my hypothesis. Being in a non-college preparatory track can lead to the possibility of cooled-out aspirations, yet only when taking into account twelfth-grade aspirations.

The resources within the school can also be related to cooled-out aspirations. I found that for students who apply, the odds are increased that they have a library in the school and computer access within the school. As these favor students who apply, the

odds show that students who do not apply may not have computer or library access ($\text{Exp}(B)=1.466_{\text{library}}$, and $\text{Exp}(B)=1.355_{\text{computer}}$). However, a teacher's access to technology does not necessarily cool-out aspirations ($\text{Exp}(B)=.846$), which suggests that for students who do not apply, the odds are that the teacher has access to technology in the classroom. Students who do not apply have not taken as many math and science courses. The odds of applying are increased as students take more math and science courses ($\text{Exp}(B)=1.105_{\text{math}}$ and $\text{Exp}(B) 1.127_{\text{science}}$). I hypothesized that students who shift in their plans and choose not to apply have not taken as many math and science courses. This finding supports that hypothesis.

I believed that being in a rural school would be related to cooling-out one's aspirations. Surprisingly, for students who apply, the odds of being in a rural school over a non-rural school are increased by a factor of 1.432, controlling for other variables. Therefore, students who do not apply are more likely to be in a non-rural school. As the non-rural category includes urban and suburban students, this finding may be the influence of having urban students included in this category. The group means (Table 3) showed that the shifters had the largest number of non-rural students (.202), which could also be why we see the effects of cooling-out with non-rural students.

Finally, I suggested that shifters were more likely to be in public schools. With the largest number of students in public schools (mean=.954), this finding was confirmed in the odds ratio. The odds ratio favored students applying being in private schools ($\text{Exp}(B)=.378$), which suggests the negative impact of being in a public school.

The results from the logistic regression analysis of students who had aspirations in the tenth grade confirm what the MDA suggested. When calculating the predicted

probability of applying to college using just the structure variables, the proportion was not even close to one-percent. Therefore, just using the structure variables to calculate the predicted probability of applying to school did not yield any substantial numbers for any students, regardless of race and gender. Because the structure variables as a whole did not have a positive impact on increasing the probability of applying to school, one could then suggest that it is indeed the structure variables as a whole that are cooling-out aspirations. The comprehensive structure is not increasing the probability of a student applying to school. Therefore, my hypothesis was partially supported.

Yet because the shifters differed from the focused in that twelfth grade decision, I also concluded that the shifters classification is also associated with not having the personal agency-capital variables that the focused did have. So it was not necessarily just the structure that was associated with hindering their pursuit of higher education, it was the combination of the structure and also the personal agency-capital variables that the focused did have that the shifters did not have. While I attempted to organize my framework in specific sections of variables, I found that in explaining why some students change their minds and some stay focused on their plans, one cannot just package explanations as neatly as I had suggested. There is a large amount of overlap. And while having my theory organized into sections is helpful to begin discussion, it is not the best way to explain the variations among these groups.

Although the MDA did not well-predict the shifters, it did suggest that the shifters classification was more associated with the structure variables as a whole than the personal agency-capital variables on the first function. The logistic regression analysis allowed us to look deeper into each individual structure variable. While we did find

support for some variables in cooling-out aspirations, the predicted probability using just the structure variables confirmed what the MDA already proved. The predicted probability of applying is not increased by just the structure variables and therefore, part of the explanation as to why the shifters are not applying.

The Sponsored

I hypothesized that the sponsored would be most impacted by the personal capital variables. Personal capital was a combination of the influence from other people in the student's life, including parents, teachers, guidance counselors, and peers. The warming up literature pointed to the impact of faculty members as to why students can increase their educational aspirations. More specifically for this study, students who did not have aspirations for college in the tenth grade but who did apply to college in the twelfth grade have had their aspirations warmed up by the influence of others through personal capital. Sponsored students are such because they had a sponsor who encouraged them either directly or indirectly to consider higher education. The effect of this sponsor could be through the expectation of the sponsor or indirectly through the impact of having resources in the home or attending cultural events with their parents. Rosenbaum et al. (2006) focused on the impact of faculty members, Clark (1960) suggested the influence of the guidance counselor, and Hossler, Vesper, and Schmit (1999) emphasized the importance of parents and peers in encouraging educational pursuits. My theoretical framework included all of these groups as possible sponsors who had a hand in increasing the aspirations of these students to the point of applying to college.

I hypothesized that having parents who are educated with moderate income, having frequent conversations with parents, having peers, parents and school leaders expect for you to attend college together can be associated with a student's application to college. The logistic regression analysis of students who did not have tenth grade aspirations supported some of my hypotheses. One of the more surprising findings was the lack of association with the guidance counselor. For students who apply, the odds that their guidance counselor expects college for them are .680 times less in the tenth grade and .261 times less in the twelfth grade than the guidance counselor expecting something else for the student, controlling for other variables. Grubb (1996) believed that the guidance counselor no longer played a large role in students' postsecondary plans that Clark (1960) suggested, and this finding supports that. For students who apply, their guidance counselors are not necessarily expecting for them to attend college. So either the guidance counselor is out of touch or possibly the student does not have a relationship with the guidance counselor to know his or her expectation, as this variable was student-reported.

Nonetheless, for the sponsored student, the parent and the teacher have more of an impact on their postsecondary plans. For students who apply, the odds of the parent also expecting college for them are 1.933 times greater in the tenth grade and 2.495 times greater in the twelfth grade than the parent expecting something else for the student, controlling for other variables. Even in the tenth grade, when the sponsored were not thinking of college, their parents were expecting college for them. Therefore, having this consistency of expectation from the parent can be associated with these students applying to college. Even with the strong impact from the parent's expectation, the teacher

expectation is much more telling. For students who apply, the odds of the teacher also expecting college for them are 1.954 times greater in the tenth grade and an amazingly 4.819 times greater in the twelfth grade than the teacher expecting something else for the student, controlling for other variables. The sponsored do have the support of their faculty, as Rosenbaum et al. (2006) suggest being key to warming up aspirations. The support of parents, teachers and peers (Peer Expectation in the 12th grade $\text{Exp(B)}=1.246$) is playing a role in the sponsored applying to college. Likewise, as more of the sponsored friends desire college, the odds of the sponsored applying are increased by a factor of 1.454, controlling for other variables. Therefore, beyond just parents and teachers, peers can have a positive relationship as well.

As students have more conversations with their parents, the odds of them applying also increase in both the tenth and twelfth grades. As I have conceptualized my framework, I believed that it was not just the support and encouragement from a sponsor but also the influence of that sponsor in other ways that could increase the likelihood of the sponsored applying for school. In this instance, having conversations with parents is also a strong predictor of applying to college, regardless of parents' education, income, or even expectation of college. Therefore, it is possible that parents having conversations with their students about academic matters are even indirectly encourage their students to go from not anticipating college after high school to actually applying as a senior in high school.

Family resources and cultural events with parents are two other concepts that I hypothesized could be associated with the sponsored applying to college. Again, these are products of the sponsor, indirectly influencing the student. Yet only family resources

had a positive relationship. For students who apply, the odds of the student having family resources in the home are 2.254 times greater than the odds of the student not having family resources in the home, controlling for other variables. Yet for the cultural events with parents variable, the relationship is negative. As students attend more cultural events with their parents, the odds of applying to college actually decrease by a factor of .568, controlling for other variables. Therefore, just having books, magazines, and other resources in the home is more helpful in possibly directing the sponsored towards higher education than attending music concerts or plays with the parents. Family income and parental education both are positive coefficients, yet with odds ratios of 1.026 and 1.029, respectively, their relationship is not as strong as some of the other variables mentioned, controlling for other variables.

Therefore, for students who do not have aspirations for college in the tenth grade, the way to encourage them to consider college is truly through the influence of others. More specifically, if their parents and their teachers expect for them to go to college, the odds of them applying can increase. Even parents having more conversations with their students about academic matters can increase the odds of the student applying to a postsecondary institution before leaving high school. While my theory centered around the relationship between the sponsored and personal capital, there were other variables within the model that were also important to this group of students, who originally had no aspirations for college. As students take more science and math, the odds of them applying are multiplied by a factor of 5.498 and 1.815, respectively, controlling for other variables. Having more classes in these core courses can be helpful in changing students from not thinking of college to actually applying to college. Other variables of note

include if the student likes school ($\text{Exp}(B)=2.203$) and planning to take or have taken the ACT or SAT in the tenth grade ($\text{Exp}(B)=2.731$). It is interesting that even though these students claim that they do not plan to attend college immediately after high school, as tenth grade students they still planned to take the ACT or SAT, which is solely a college entrance exam. This suggests that these students may have had college in the back of their minds, even if they did not verbalize it. For students who apply, the odds that they took or planned to take the ACT or SAT in the tenth grade are 2.731 times greater than the odds of them not planning to take the ACT or SAT, controlling for other variables.

As the MDA results suggested, we see the relationship between the personal capital and the personal agency variables. In essence, these variables may not be separate entities as I have conceptualized them. Personal agency-capital may be its own set of variables that must include the impact of others but also the characteristics of the students themselves. The predicted probabilities using just the personal capital variables for the sponsored students suggest that personal capital could be enough to propel the sponsored students to apply. Meaning, just using the averages of parental education level, family income, parental communication, cultural events, and how many friends plan to attend college, for a white, male whose parents, teacher, guidance counselors, and peers all expect college for him, and who has family resources in the home, the predicted probability of him applying to college is .94. Using just the personal agency variables of average values also produced large predicted probability values. Therefore, personal agency-capital as grouped in the multiple discriminant analysis could be the most important variables in motivating students to apply, whether sponsored or focused. I will discuss the focused students next.

The Focused

The final group is the focused group. As aforementioned, the focused was the group analyzed that stayed consistent with their plans. They planned to attend college immediately after high school, and they had applied to a college by the spring of their senior year of high school. The findings of this study regarding the focused are consistent with earlier research. We already knew a lot about this group, and this study only extends what previous research had already laid out regarding this type of student. Yet what this study does show is specifically how certain groups of variables interact to keep students on track. Meaning, I have paused the period between aspirations and enrollment by centering the attention on application. Therefore, this study extends the literature by examining that unique period of time different from previous studies.

I hypothesized that the focused were most impacted by the personal agency variables. I believed that the focused had done all of the right things to keep themselves on track. Yet what both the MDA and logistic regression analyses suggest is that the triumph of the focused is not necessarily a solo effort. While the personal agency variables were important to the focused, equally so were the personal capital variables. Again, the MDA suggested that these variables were one concept of personal agency-capital as opposed to two separate groups of variables. For instance, the predicted probability of the focused applying was greatly increased when considering the expectation of teachers and the parent, which are personal capital variables. Not only are the focused doing the right things personally (personal agency) but they are also benefiting from the personal capital of parents, school leaders, and peers.

My theoretical framework was organized around the premise that the focused had everything going for them. More specifically, I hypothesized that the focused had taken the ACT or SAT, had strong academic achievement, liked school, was interested in education, spent significant time doing homework, believed in the importance of good grades, was involved in extracurricular activities, and even had taken steps to prepare for the ACT or SAT with different test taking strategies. The logistic regression analysis confirmed most of that to be true. How much the student likes school was not a significant factor in increasing the odds of a focused student applying to college. For students who apply, the odds that they have taken the ACT or SAT in the twelfth grade are 1.357 times greater than the odds that they have not taken the ACT or SAT in the twelfth grade, controlling for other variables. Substantively, this agrees with their intention to enroll in college soon. Extracurricular involvement only has a positive association in the tenth grade. As students are more involved in the tenth grade, the odds of them applying increase by a factor of 1.190, controlling for other variables. Yet in the twelfth grade, the odds decrease by a factor of .885, controlling for other variables. Therefore, being involved in high school in the early years is actually a positive thing, keeping students engaged in the educational process. However, by twelfth grade perhaps some students are too involved or burnt out of school because they were overcommitted to their extracurricular activities. These students may desire to take a break from school and not apply to college before leaving high school because they were too involved in high school. The students who apply are not necessarily the ones who spend extreme amounts of time on homework. The odds ratios were close to but less than 1.0 for academic effort ($\text{Exp}(B)=.900$ in the tenth grade, and $\text{Exp}(B)=.955$ in the twelfth grade),

which refers to the amount of time doing homework each week. Spending more time doing homework inside and outside of school during high school does not necessarily increase the odds that the student will apply to a school in the twelfth grade. The means from Table 3 showed that the focused already had the highest mean in academic achievement ($\text{mean}_{\text{focused}}=57.35$ compared to $\text{mean}_{\text{sponsored}}=53.74$ and $\text{mean}_{\text{shifters}}=49.63$). Perhaps the focused do not need to spend as much time doing homework because their academic ability is already high. Yet when controlling for twelfth grade aspirations, the academic effort in the twelfth grade variable does favor those who apply ($\text{Exp}(B)=1.258$). Therefore, as students exert more effort in their academics through homework, the odds of them applying are 1.258 times greater than not applying when taking in account twelfth grade aspirations, controlling for other variables. Students who aspire college in the twelfth grade may put more effort into their academics to get ready for college-level work.

When calculating the predicted probabilities, the personal agency variables for the focused are not as strong by themselves. Just considering the personal agency variables, the predicted probability of any student, regardless of race or gender, applying was moderate, ranging from .64 to .67. Yet when factoring in some of the personal capital variables, the predicted probability increased to .90 or higher for all students. Again, this supports the results of MDA combining personal agency and personal capital. It is not one set of variables over another that really differentiates these groups. The personal agency-capital variables considered as one are what really propel the focused and the sponsored as well to apply. Likewise, the lack of these variables is associated with why the shifters are not from applying.

The standardized canonical discriminant function coefficients from the multiple discriminant analysis compare the relative importance of the independent variables in predicting the differences in the dependent variable in each function (Garson, 2008a). The first function captured the majority of the variance among the groups, so I focused on explaining the first function to understand why these groups are different. The standardized canonical discriminant function coefficients represent the partial correlations of each independent variable with the function, controlling for other variables. The largest standardized canonical discriminant function coefficients were academic commitment (.233), academic achievement (.504), extracurricular activities in the 10th grade (.206), teacher expectation in the twelfth grade (.229), test preparation strategies (.201), college entrance exams in the twelfth grade (.202), and academic effort in the 12th grade (.194). The larger the coefficient, the more contribution that particular variable is making to the difference between the groups. These top coefficients are all personal agency and personal capital variables. Since MDA recognized these variables as individually contributing to the differences between the groups, I calculated the predicted probability using just these variables to see if they increased the probability of applying to college. For the shifter/focused model, the predicted probability of applying using the averages of academic commitment, academic achievement, academic effort in the twelfth grade, extracurricular activities in the tenth grade as well as college entrance exam in the twelfth grade, test preparation strategies, and teacher expectation in the twelfth grade was .97 for females and .96 for males. Using the sponsored model, the predicted probability ranged from .96 for nonwhite, males to .99 for white, females. Using both methodologies—multiple discriminant analysis and logistic regression—helps

create a new framework not only as to why these groups are different but also what can increase the probability of students applying to college, regardless if they had aspirations in the tenth grade.

Revision to the Theory

Understanding why students do or do not apply to college cannot be explained in a neat package. I initially hypothesized that there were specific groups of variables that would explain why students are either shifters, sponsored, or focused. However, I have found that postsecondary decisions cannot be that easily organized. There are some variables that are more significant for all three groups. In fact, multiple discriminant analysis and logistic regression both confirmed the importance of personal agency and personal capital. In this section, I will revise my theory of college application.

Based on tenth grade aspirations and twelfth grade application, there are four possible categories of students: 1) students with tenth grade aspirations but no application in the twelfth grade, 2) students with no aspirations in tenth grade yet do apply in twelfth grade, 3) students with aspirations and with application, and 4) students with no aspirations and no application. I chose not to examine the fourth group of students. This theory concerns students who at one time considered postsecondary education, stated either as a tenth grade aspiration or observed through twelfth grade application. This study has confirmed that there are differences between the three groups that I analyzed. In revising my theory, I believe that assigning groups of variables to being most important to each type of student is limiting and even unnecessary. I now support a theory that points to how to encourage all students to apply. The findings from the

shifters point to areas of caution, yet because the personal agency-capital variables were so dominant for all students, even students with more challenging characteristics as the shifters can still pursue higher education. If you have tenth grade aspirations or if you develop aspirations later in high school, there are some variables that can encourage maintaining those aspirations to the point of application.

Students who apply to college by their senior year of high school are committed to their academics. They believe that it is important to get good grades, which is also seen in their academic achievement. Even students who have just average academic ability can still pursue postsecondary education and should be encouraged to do so. Academic achievement is an important concept in propelling students to apply to college. There are a number of variables specifically in the twelfth grade that are significant in application to college. Students who apply are not only committed to their academics but also they are putting forth effort in their studies in the amount of time they spend on coursework inside and outside of school. This academic effort is more important in the twelfth grade than in the tenth grade. Yet when it comes to extracurricular involvement, students who apply tend to get involved in activities outside of the classroom early in high school. Getting connected through extracurricular activities in the early years of high school plays an important role in keeping students engaged and interested in the education process. As peers also play a role in motivating students to apply, these peer relationships may begin or be cultivated through some of these extracurricular activities as tenth grade students. As students prepare for postsecondary education later in high school, the amount of time they can devote to extracurricular activities may diminish. That time they used to spend in activities may then go to spending more time on

homework or preparing for a college entrance examination. Students who apply have taken the ACT or SAT by the twelfth grade. In conjunction with the extra effort they put in their academics, students who apply also put extra effort in preparing for the ACT or SAT. These students have taken some type of preparatory course or have read a test-taking book to prepare them for the ACT or SAT. These are all ways the students themselves can take the initiative and make choices that can increase the likelihood of them applying to college.

However, getting to the point of applying to college is not necessarily an isolated effort. The probability of applying increases greatly if students have the support of teachers, parents, and peers. Students who apply to college before leaving high school have other people in their lives who also expect for them to go to college. Having your teacher expect college for you has a stronger relationship to applying than even having your parents expect college for you. Obviously, not all parents are highly educated, and not all students even have parents in the home. Nonetheless, if the relationship with the teacher is strong enough that the student knows that the teacher believes that the student can and should pursue higher education, the likelihood that the student will apply is greatly increased. Parents still play a major role not only with their expectation but also with the frequency that they communicate with their student about academic matters. Parents do not have to know a lot about college or even what the student is studying in school. Parents who stay engaged and connected with their student's education through frequent conversations about academic matters are encouraging their student to apply to college before leaving high school, whether the parent is aware of this impact or not. Peers are also influential in encouraging students to apply. During the senior year of high

school, if students have peers that expect for them to attend college, the odds increase that the student will apply to college. The company that the student keeps has a relationship with whether they apply to college. Having a larger number of friends also plan to attend college does not have the same type of impact as just having the expectation of college from their friends. Therefore, students can have friends that do not plan to attend college and still apply to college before leaving high school if their friends expect that of them.

Race and sex are not strong determining factors. There is a slight advantage for women and white students to apply for college, yet there are many of the aforementioned factors that are much stronger indicators of a student applying to college. Students in private schools also have an advantage as well as students in rural schools. Yet again, these contextual variables are not as influential as some of the other factors. A black, male student in an urban, public school may face more challenges than a white, female student in a rural, private school that may hinder his application to college, yet having the support of the teacher and parents can eradicate any disadvantage his circumstances may have created.

The difference between the shifters, the sponsored, and the focused are these characteristics, which are personal agency-capital variables. The aspirations of the sponsored are warmed up, the aspirations of the focused are maintained, and the aspirations of the shifters are cooled-out because of these personal agency-capital variables. The sponsored and the focused have them and the shifters do not. In addition, the shifters are also sensitive to the influence of the comprehensive structure of the high school. When considered as a whole as I have conceptualized it, the comprehensive

structure of the school does hinder application for those who had aspirations for college as tenth grade students. Therefore, my hypotheses were partially supported. By combining personal agency and personal capital, both the sponsored and the focused are impacted by the same group of variables. The structure is impacting the shifters, but not as strongly as the lack of personal agency-capital variables is influencing the shifters. The same group of variables is influencing the shifters, the sponsored, and the focused, yet in a different way for the three groups.

Therefore, students who are committed to their academics, who have good academic achievement, who put forth effort in their studies, who are involved during the early years of high school, who prepare for and take the ACT or SAT by their senior year of high school, and who have the expectation of college from their teacher, parent, and fellow senior friends are likely to apply to college before leaving high school. This is how aspirations are warmed up and cooled-out as well. Students who do not have these characteristics are more likely to have their aspirations cooled-out by the senior year of high school. Having tenth grade aspirations are only important if you maintain the behavior to keep you on track to apply to college before leaving high school. Likewise, not having tenth grade aspirations is only a barrier if you do not begin behaviors that will propel you towards applying to college before leaving high school.

Implications for Policy and Directions for Future Research

As many of the important variables are personal agency-capital variables and therefore, in some ways unique to each individual student, there are still some commonalities that can be the center of policy efforts. The results from the multiple

discriminant analysis and the logistic regression analyses support not only taking the ACT or SAT by the twelfth grade but also participating in some type of test preparation strategy. Many high schools require students to take the ACT or SAT before graduating, which is a step in the right direction. Yet providing books, courses, and other instructional methods to prepare for the ACT or SAT would also be helpful. Community resources could partner with the school to provide vouchers to the expanding commercial industry of college entrance exam preparation. Having such resources available to students could help encourage them to then apply to college before leaving high school.

In addition to providing high quality instruction that motivates students to stay committed and focused to their academics, teachers must also be aware of the influence they have in their expectation of their students. For this study, the teacher expectation variable was a student-reported measure, so this strong relationship between teacher expectation and applying to college is based on the student's perception of the teacher's confidence in their ability and potential. Teachers should continue to be mindful of how they encourage their students and express that confidence in them. The key to warming up as Rosenbaum et al. (2006) explained it was not just the faculty but that the faculty made clear their higher expectations of their students. The faculty members were verbal in that expectation. So teachers should also verbalize that they believe their students should consider college, and therefore, that they expect for them to attend college after high school.

The findings of this study can be extended through a qualitative study or even a quantitative study with a specially crafted survey for this purpose. Seeing that the relationship with others, especially the teacher, is such an important factor, a different

survey or interviews would allow students to expand their thoughts on that relationship. In addition, there might be other reasons that students chose to apply or chose not to apply that were not addressed in this study. Further research can also expound on additional issues of finances, life changes, and loss of interest. While this study examined if a student had applied to a college, additional research can follow these students to see if they actually enrolled. Perhaps the focused apply but then choose not to attend for other reasons. The same can be said for the sponsored. Or maybe the shifters are still college-bound, but they just delay their plans for later years or are late in actually applying to a school. Following these students beyond their senior year of high school will frame a clearer picture in understanding aspirations to application to enrollment.

Conclusion

The purpose of this study was to examine the inclination of students to apply to a postsecondary institution in their senior year of high school in light of their stated earlier aspirations for college. Whether shifters, sponsored, or focused, all students' classification is associated with the personal agency-capital variables. The results of this study suggest that regardless of when a student has aspirations for college, having the combination of personal initiative to take the right steps towards college and the expectation of others to support and encourage higher education can be related to what propels students to apply to college before leaving high school. Teachers and parents especially should be aware of how important their expectation of the student is in motivating students to apply to college before leaving high school. Likewise, the

students themselves should be disciplined to stay focused on their academics, be involved in high school, and prepare to take a college entrance exam by the twelfth grade.

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