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Investigating West Virginia Students' Perceptions of the Factors Affecting Their Educational Aspirations

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INVESTIGATING WEST VIRGINIA STUDENTS' PERCEPTIONS
OF THE FACTORS AFFECTING THEIR EDUCATIONAL ASPIRATIONS

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ABSTRACT

Investigating West Virginia Students' Perceptions
of the Factors Affecting Their Educational Aspirations

The purpose of this study was to investigate the perceptions of West Virginia students about factors affecting their educational aspirations and to determine whether these factors differed significantly over time, by gender, or by parents' college history. Research questions included: (1) To what extent will constructs emerging from West Virginia student data parallel the eight constructs identified as supporting student aspirations by the University of Maine's National Center for Student Aspirations? (2) To what extent do students' perceptions of these factors differ over time, from seventh to ninth grade? (3) To what extent do students' perceptions of these factors differ by gender? (4) To what extent do students' perceptions of these factors differ by parents' college history? (5) What are the interactions among the independent variables of time, gender, and parents' college history?

This study utilized extant survey data from 664 students who completed surveys in the seventh and ninth grades for the West Virginia Department of Education GEAR UP project. In addition to gender and parents' college history, 28 survey items originating from the University of Maine's "Students Speak" survey were used. These 28 items are purported to comprise eight conditions that support students' aspirations.

Factor analysis resulted in five factors with Eigenvalues above 1.0: Teacher Centric, Self-Efficacy, Curriculum, Self-Responsibility, and Connectedness. MANOVA analysis revealed statistically significant differences by time, gender, and parents' college history; no significant interactions were found. Follow-up ANOVA analyses revealed that mean scores for all scales except Curriculum decreased significantly from seventh to ninth grade; that mean scores for all five scales were significantly higher for females than males; and that students with at least one parent with college experience scored significantly higher on Self-Efficacy than students whose parents had no college experience.

In conclusion, none of the original eight conditions emerged as exact replicas, but all were represented to some degree within the five factors. Findings support the literature in terms of a decrease in students' perceptions from middle to high school, gender differences, and the positive influence of parental college experience. The study emphasizes the importance of the school environment on students' aspirations.

DEDICATION

This is dedicated to the two men I lost during my doctoral program. My dad, Jackie L. Cowley, who passed away in 2006. During one of our last conversations, he told me to be sure to finish my education. Miss you, dad, but I made it!

And, Dr. Merrill L. Meehan, colleague, supervisor, and friend, who passed away in 2007—my professional mentor for so many years. I never would have made it without his support—he believed in me long before I believed in myself. Miss you, Big Guy!

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

CHAPTER ONE: INTRODUCTION

Students must successfully navigate a labyrinth of educational choices throughout their middle/junior high and high school experiences just to be in a position to be eligible for the postsecondary options of their choosing. In 2003-2004, more than two thirds of high school seniors expected to attain a bachelor's degree or higher (U.S. Department of Education, 2006). In 1989, Schneider and Stevenson began a national longitudinal study of eighth-grade students in America, in which they found "very high ambitions of middle school students" (Schneider & Stevenson, 1999, p. ix), with many expecting to become college graduates. However, even though students may report fairly high levels of aspirations, many are not adequately prepared and fail to reach those desired educational goals.

Esveld (2004) found in a study of rural high school students that seniors still were "not knowledgeable about choosing, gaining entrance to, and paying for a postsecondary option suited to their needs and interests" (p. ix). Hu (2003) found that rural students fared worse than their suburban or urban counterparts in actualizing their educational aspirations. Not only did a lower percentage of rural students aspire to a two-year college, a four-year college, or graduate studies (73% rural, 89% each for urban and suburban), but a disproportionate number of rural students (44% compared to 36% each for urban and suburban) were not enrolled in postsecondary institutions two years after high school graduation.

First-generation college-going students (those whose parents have had no postsecondary experience) traditionally are less likely to be academically prepared for college and to have less access to financial, informational, and social resources (Saenz,

Hurtado, Barrera, Wolf, & Yeung, 2007). Gunnin (2003) notes that many first-generation college students face a cultural "margin" between their family and the college community. Rural students are more likely to be first-generation college goers. And yet as a society we believe that improving access to and success in higher education helps our citizenry "to improve their circumstances in life, including the prospect for lifelong employment and higher earning power" (Gunnin, 2003, p. iv).

Despite loans, grants, and work-study, families of lower socioeconomic status (SES) are 32% less likely than families with higher incomes to send their children to college (Advisory Committee on Student Financial Assistance, 2001). Hanson (1994) reports that lower SES youth were more than twice as likely as higher SES youth "to have educational expectations that fell short of their educational aspirations" (p. 180). The 2004 median income for West Virginia was $33,993, compared to the national median of $44,334 (U.S. Census Bureau, 2007). Almost half (49%) of West Virginia students in 2005-06 were eligible for either free (39%) or reduced-price (10%) lunch compared to 39% nationally (32% free, 7% reduced-price) (U.S. Department of Education, 2005-2006).

According to the U.S. Census Bureau (2005), 27% of people 25 years and over have completed a bachelor's degree nationwide. However, in West Virginia, that number decreases to only 17%. Similarly, a higher percentage of West Virginians have less than a high school diploma or equivalent (19%) compared to 14% nationwide (National Center for Public Policy and Higher Education, 2006).

The 2005 college-going rate was 59% for the state (West Virginia Higher Education Policy Commission, 2006), which is lower than the national rate of 69% (U.S.

Department of Education, 2007). Further, the six-year graduation rate at any four-year public college or university for any degree is 48% for the state (West Virginia Higher Education Policy Commission, 2006), compared to 63% nationally for any four-year institution (Carey, 2004). Also, while 77% of high-income students graduate within six years, only 54% of their low-income counterparts graduate within that same timeframe.

The National Center for Public Policy and Higher Education prepares a report card on higher education for each state. The 2006 report cards cover six categories: preparation, participation, affordability, completion, benefits, and learning. Compared to other states, West Virginia received four mediocre grades, a failing grade, and an incomplete. See Table 1 for more information on the categories and West Virginia's grades.

Table 1

2006 West Virginia Report Card on Higher Education

Category and Description	WV Grade	Key Weakness
Preparation: How adequately does the state prepare students for education and training beyond high school?	C-	Only 20% of 8th graders take algebra.
Participation: Do state residents have sufficient opportunities to enroll in education and training beyond high school?	C-	Only 38% of high school students enter college by age 19.
Affordability: How affordable is higher education for students and their families?	F	Families spend a third of annual income for public, 4-year university.
Completion: Do students make progress toward and complete their certificates or degrees in a timely manner?	C+	Only 43% of first-time, full-time students complete a bachelor's degree within 6 years of college.
Benefits: What benefits does the state receive from having a highly educated population?	D+	Nineteen percent of adults did not complete high school; 18% of adults have a bachelor's degree or higher.
Learning: What is known about student learning as a result of education and training beyond high school?	I	Insufficient data available for state-by-state comparisons.

These indicators are of particular interest for the state of West Virginia, with its rural geography, high proportion of students eligible for free or reduced-price lunch, and low percent of parent postsecondary education. Twenty-nine of the 55 counties in West Virginia (53%) are classified as rural using the urban-centric classification system used by the U.S. Department of Education (n.d.b). Further, all 55 counties are classified as Appalachian according to the Appalachian Regional Commission (n.d.). The following section provides context for the impact a rural setting may have on students' educational aspirations.

Rural Context

Decades of research on development of aspirations (Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999; McClelland, 1961; Plucker, 1998; Quaglia, 1989, 2000; Quaglia & Cobb, 1996) and rural education (Cobb, McIntire, & Pratt, 1989; Howley, 2006; Howley, Harmon, & Leopold, 1996) document the importance of "place" as one of the variables influencing students' choices about their lives after high school. No consistent definition of "rural" has emerged from the literature. In fact, the Rural Information Center notes that the definition of rural can be as esoteric as a "subjective state of mind" or as empirical as an "objective quantitative measure" (2005, ¶1). Federal agencies do not always agree on what constitutes rural, hence the different classification systems formerly used by the White House Office of Management and Budget, the Department of Agriculture's Economic Research Service, the Department of Commerce's Bureau of the Census, and the Department of Education's National Center for Education Statistics (NCES)—i.e., Beale codes, Metro Status codes, and Metro-centric locale codes.

In 2006, NCES worked with these agencies to create a new locale classification system that relies less on population size and more on proximity of an address to an urbanized area. Referred to as "urban-centric" system, the new schema includes four major locale categories: city, suburban, town, and rural (U.S. Department of Education, n.d.d). Each category is further subdivided into three additional categories. City and suburb areas fall into small, midsize, and large categories; town and rural areas fall into fringe, distant, and remote categories based on their proximity to larger urban areas. Rural areas are designated as those areas that do not lie inside an urbanized area (core populations with 50,000 or more) or urban cluster (populations between 25,000 and 50,000). With this new classification system, rural schools and districts in relatively remote areas can be distinguished from those that are located just outside an urban center.

For the state of West Virginia, this new classification system means that the percentage of the 55 county public school districts classified as rural has changed from 84% in 2003-04 (U.S. Department of Education, n.d.b) under the previous metro-centric system to 53% in 2005-06 using the new urban-centric system (U.S. Department of Education, n.d.c); the United States percentage of rural districts changed from 52% to 57%. Under this new system, the percentage of rural public schools in West Virginia in 2005-06 is 49%, compared to 19% nationally (U.S. Department of Education, n.d.c).

Further compounding the difficulty in defining rural is the degree to which characteristics of rural communities vary across and within regions (Esveld, 2004). Within West Virginia's 29 counties now classified as rural (U.S. Department of Education, n.d.a), consider the continuum depicted in Table 2 between McDowell and Jefferson counties (U.S. Census Bureau, 2007).

Table 2

Characteristic Differences between McDowell and Jefferson Counties, WV

Characteristics	McDowell County	Jefferson County
2004 Percent of Persons Living Below Poverty	33	9
2004 Median Household Income	19,090	51,930
1999 Per Capita Money Income	10,174	20,441

Johnson and Strange (2007) describe research by The Rural School and Community Trust on the importance of rural education in each state. The biennial report uses five gauges comprised of 23 indicators to "call attention to the urgency with which policymakers in each state should address rural education issues" (p. 1). The five gauges include the importance of rural education, the level of socioeconomic challenges serving as barriers for rural schools, the level of student diversity among rural students, the rural educational policy context, and the educational outcomes of rural students. Gauge rankings are combined to provide an overall ranking (the Rural Education Priority Gauge) that prioritizes states by the overall status of rural education.

The authors describe West Virginia's rural areas as some of the most impoverished in the nation (Johnson & Strange, 2007). West Virginia received a Rural Education Priority Gauge ranking of 17, indicating it is in the top 20 states—those with the most pressing rural education issues. By far, West Virginia received its highest or most urgent rating in the area of socioeconomic challenges. More than half (55%) of its rural students are eligible for free or reduced-price meals, 20% of its rural families are below the federal poverty line, the rural median household income is less than $35,000,

the rural adult unemployment rate is 7%, and nearly a fourth (23%) of rural adults have less than a high school diploma. Other compelling statistics include West Virginia has the nation's second largest percent of rural special education students, the nation's highest ratio of instructional dollars to transportation costs, and the nation's sixth and eighth lowest rural NAEP math and reading scores.

Provasnik et al. (2007) report that in 2004 college enrollment rates for 18- to 29-year-olds were lower in rural areas (27%) than in towns (32%), suburbs (37%), or cities (37%). The percentage of adults achieving a bachelor's degree was also lower in rural areas (13%) than nationally (17%). Finally, the percentage of rural students whose mother or father had achieved no higher than a high school diploma (33% and 36% respectively) was higher than their counterparts in cities (26%, 24%), suburbs (25%, 24%), and towns (31%, 32%).

The education literature reveals a number of studies that pinpoint differences in rural students' education. In general, rural students are less likely to aspire to postsecondary education (Cobb et al., 1989; Gandara, Gutierrez, & O'Hara, 2001; Kampits, 1996). More specifically, they are more likely to aspire to low levels of education (high school or vocational school) and less likely to aspire to any college-level degree (Hansen & McIntire, 1989).

Cobb et al. (1989) analyzed data from the NCES High School and Beyond Study and found 10 differences in rural students' aspiration levels compared to students in suburban and urban areas. Rural students

1. value academics less and jobs more than their suburban and urban counterparts

2. place more value on friendships and less on making lots of money than their urban peers

3. see themselves less often correcting social and economic inequities than urban students

4. have lower postsecondary aspirations than do urban and suburban students

5. are not as confident in their ability to complete college as their suburban and urban peers

6. expect to be done with their full-time education at an earlier age than urban and suburban students

7. have parents who are less supportive of full-time college, and more supportive of other options (jobs, trade schools, military) than urban parents

8. are more likely than urban students to perceive that school staff are not supportive of their postsecondary plans

9. more often expect to be in lower level positions and less often in higher level positions than their urban peers

10. were more willing than urban students to move for a job they wanted

Hu (2003) analyzed data from the 1988 National Educational Longitudinal Study sponsored by NCES. Findings revealed that, compared to urban and suburban youth, more rural students aspired to high school or below and two-year postsecondary education and fewer aspired to four-year or graduate school levels. In terms of access, smaller percentages of rural students were enrolled in postsecondary education two years after high school graduation.

Young (1998) found significant differences between rural and urban students in terms of their aspirations (both expected education and expected occupation) and their academic achievement (math and science). Van Hook (1993) reported findings from a national survey of high school students in 1977, 1983, and 1989. She found rural students' educational aspirations increased over this time period, but not to the extent of their more urban peers. By 1989, rural students had the lowest rates of definite plans for future education (58%) compared to small towns (70%) or larger communities (77%). Similarly, parents of rural students had the lowest levels of education. Finally, rural students reported lower levels of self-confidence.

Esveld (2004) summarized the supports that bolster small rural schools, as well as the barriers that such schools encounter. Key supports were low student/teacher ratios; safe and orderly learning environments; low dropout, absenteeism, and disciplinary rates; high parental involvement; and individualized instruction. Key barriers included low socioeconomic status, few role models for higher education attainment, limited curriculum and extracurricular offerings, less qualified teaching staff with higher turnover, lower parent education levels, and a lack of realistic information about postsecondary education options.

Haller and Virkler (1993) suggest that the difference in educational aspirations between rural and nonrural youth is minimal. They add that about half of that difference is due to socioeconomic status and that much of the other half is due to disparate occupational aspirations. And, that these disparities can be traced to rural areas having "more narrowly specialized economies than urban places" (p. 171).

In a more recent study, Howley (2006) investigated rural students' educational aspirations. Her findings shed further light on differences between rural youth and their nonrural counterparts. At first glance, the same general pattern was found in slightly higher percentages of rural than nonrural students aspiring to lower educational levels (less than high school, high school graduation, two-year community college) and slightly higher percentages of nonrural students than rural students aspiring to graduate from vocational school or attend a four-year college. However, more startling differences occurred at the four-year college rate (37% nonrural vs. 49% rural) and at the graduate level (31% nonrural vs. 16% rural). It appears that many more rural youth are aspiring to achieve a four-year degree, but their nonrural peers are aiming even higher, for postgraduate education. She posits that such postgraduate education is more often required in "the professions" (p. 70), and that such jobs are rarer in rural communities.

The same patterns hold true for their educational expectations, with slight differences up to the four-year college degree. At this point, 38% of nonrural expected this degree, compared to 44% rural (Howley, 2006). At the postgraduate level, nearly half as many nonrural youth expected this educational achievement (22%), compared to 13% of the rural youth. Her research has revealed a nuance that may have been missed in earlier studies, in that rural students' educational aspirations and expectations may only differ at the advanced postsecondary level. Howley suggests that rurality "structures children's worlds in such a way as to limit both their aspirations and expectations to obtain high levels of education" (p. 72).

Chenoweth and Galliher (2004) found academic preparation to be the most influential factor on rural West Virginia students' college aspirations. This included both

objective measures such as grade point average and college prep courses taken, as well as more subjective measures such as students' perceptions of their intelligence and preparedness for college. Other important predictors were parent education levels and parent occupations.

Background

"Aspirations can be defined *as a student's ability to identify and set goals for the future, while inspired in the present to work toward these goals*" (Quaglia & Cobb, 1996, p. 130). In their theory of student aspirations, which integrates aspirations, achievement motivation, and social comparison theory, Quaglia and Cobb suggest that aspirations include both inspiration and ambitions. "Ambitions represent an individual's ability to look ahead and invest in the future. Inspiration can be described as the individual's ability to invest the time, energy, and effort presently to reach their ambitions" (Quaglia & Perry, 1993, p. 2). Students' educational aspirations are affected by numerous factors including, but not limited to, school conditions. Quaglia and Cobb (1996) ask: "How does the school climate influence student aspirations? What conditions, if any, appear to affect changes in the way students view the work they do in school and the goals they set for the future?" (p. 131).

Quaglia, Cobb, and other researchers at the University of Maine's National Center for Student Aspirations (NCSA) have identified eight conditions that support high levels of aspirations in youth (University of Maine, 1994). The eight conditions include belonging, heroes, sense of accomplishment, fun and excitement, spirit of adventure, curiosity and creativity, leadership and responsibility, and confidence to take action. These conditions "provide an interpretative template that frames . . . how schools can

positively support . . . the development of student aspirations" (Plucker & Quaglia, 1998, p. 253). Research on these conditions via the "Students Speak" survey was conducted at the high school and middle school levels (University of Maine, 1999a; 1999b). While not an exhaustive list, the eight conditions are a "fundamental core for schools that want students who are ambitious, inspired, and goal-directed" (University of Maine, 1999a, p. 2).

Problem Statement

Schools across the nation are struggling to find ways to improve student achievement and increase students' educational aspirations. Students must feel they have the necessary support within their school environment as they begin exploring, investigating, and planning their educational choices post-high school.

Research on student aspirations through the University of Maine's NCSA during the 1980s and 1990s identified eight conditions that support students' aspirations. Later research at the University of Maine began reshaping the theory to highlight three main constructs: social supports, intrinsic motivation, and self-efficacy (University of Maine, 2006). It is unknown whether such conditions are generalizable to student populations in other geographic locations in the United States. Specifically, it is unclear whether West Virginia students' perceptions align with this theory of aspirations. Nor is it known whether differences might exist in West Virginia students' perceptions of these factors over time or by individual characteristics.

The role of the school and the school environment in developing and supporting aspirations needs further exploration. Robertson (2000) found "very little data and literature on student aspirations" in general and specifically "on the conditions affecting aspirations . . . in relation to gender" (p. 68). Before additional state- or school-level

practices, programs, and/or policies are put into effect, research on West Virginia students' educational aspirations is needed to inform decision-making.

Purpose of Study

The purpose of this study was twofold. First, the study empirically investigated the perceptions of West Virginia students about factors affecting their educational aspirations. Second, the study investigated whether these factors differed significantly over time (from seventh to ninth grade), by gender, or by parents' college history.

Theoretical Framework

This study used the NCSA theory of student aspirations (Quaglia & Cobb, 1996) to frame the investigation of students' perceptions of the factors affecting their educational aspirations. They define aspirations "as a student's ability to identify and set goals for the future, while being inspired in the present to work toward those goals" (p. 130). Aspirations, they posit, are composed of inspiration and ambitions. Quaglia and Perry (1993) note that inspiration is an "individual's ability to invest the time, energy, and effort presently to reach their ambitions" and ambitions "represent an individual's ability to look ahead and invest in the future" (p. 2). This theory emphasizes the need for grounding students' dreams for the future in the reality of what they are doing now.

Research Questions

This study proposed five research questions. The answers to the first question served as the dependent variables for the following three questions (each of which was an independent variable). The last question addressed the interaction among the independent variables.

1. To what extent will constructs emerging from West Virginia student data parallel the eight constructs identified as supporting student aspirations by the University of Maine's National Center for Student Aspirations?

2. To what extent do students' perceptions of these factors differ over time, from seventh to ninth grade?

3. To what extent do students' perceptions of these factors differ by gender?

4. To what extent do students' perceptions of these factors differ by parents' college history?

5. What are the interactions among the independent variables of time, gender, and parents' college history?

Significance

Today's economy is moving toward a high-skilled labor market that requires postsecondary education. Globalization and telecommunications advances have contributed to outsourcing white-collar jobs to other countries, decreasing the number of jobs available for adults with even moderate educational attainment. And, not only has America's upward mobility lessened over the past 20 years, but America now has less movement among economic classes than most other developed countries (Haycock, 2006).

Schools must support students in their educational explorations and decision making—and the middle school/junior high years are when such supports must be in place. Gaining insights into what students perceive regarding their school supports can help educators and policy makers create and implement specific policies and practices aimed at helping students first identify and vocalize their educational aspirations, and then work toward preparing themselves to reach those aspirations. Such practices could

range from statewide guidance policies to actions taken within a particular school to help create an environment in which students flourish and grow. Research from this study can be used to help schools better understand students and their aspirations, as well as identify factors that may be serving as either supports that enhance students' educational aspirations or as barriers that suppress those aspirations.

Limitations

This study focused specifically on West Virginia students from an eight-county region and therefore findings are not statistically generalizable to all West Virginia or American youth. However, recent research suggests that "Appalachian students are not significantly different from other students throughout the United States, in terms of factors associated with educational aspirations" (Chenoweth, 2003, p. 66), indicating that factors affecting these students should be fairly comparable to those of rural students elsewhere in West Virginia and the United States. Therefore, results should be of interest to West Virginia educators and rural educators across the nation.

Data were generated by students' voluntary self-reported ratings and responses to 28 University of Maine "Students Speak" survey items that comprise the eight conditions that support aspirations. These items were included in the West Virginia Department of Education Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) surveys, administered to seventh graders in 2000-2001 and again to ninth graders in 2002-2003 at participating schools in the region. The items used forced-choice responses (a 5-point Likert-type scale of *Strongly Disagree* to *Strongly Agree*) which prevented respondents from elaborating on or constructing their own responses.

Finally, this study was limited by the variables available in the extant GEAR UP database. Students were asked whether either parent had attended college or obtained a college degree. This variable was used as a proxy for parents' education level.

Assumptions

In conducting this study, it was assumed that students took adequate time and thought to answer the survey items honestly. It was also assumed that students understood the intended meaning of the survey items.

Delimitations

The researcher recognized that many factors are associated with students' educational aspirations, i.e., individual characteristics such as gender, ethnicity, motivation; family characteristics such as socioeconomic status, number of siblings, college history; community characteristics such as economic status, availability of postsecondary choices, occupational opportunities; and school characteristics such as climate, geographic locale, performance level. However, this study was bounded by the extant data; therefore, the scope of the research is limited to a subset of these variables.

Operational Definitions

The following four operational definitions emerged from the research questions. These definitions are ordered by their appearance in the questions.

West Virginia students. This term was operationalized for this study as those West Virginia students who responded to surveys as seventh and ninth graders in 2000-01 and 2002-03, respectively, as part of the eight-county West Virginia Department of Education GEAR UP project. These students were from predominantly rural areas of West Virginia, with median and per capita incomes that fall below state and national averages.

Educational aspirations. This term referred to a student's ability to identify and set educational goals for the future while being inspired in the present to work toward those future goals.

Gender. This term was used to indicate whether students are male or female.

Parents' college history. This term was used to indicate whether either of the student's parents had attended college or obtained a college degree.

Organization of Study

This study is organized in five chapters. Chapter One provides an introduction to the study, the rural context of the study, and a brief background, followed by the purpose of the study, the research questions, the significance of the study, the limitations of the study, assumptions related to the study, delimitations of the study, and operational definitions of key terms. Chapter Two presents a review of the relevant research and literature on aspirations, as well as factors affecting students' educational aspirations. Chapter Three describes the research design, the population and sample, instruments, data collection, and data analysis. Chapter Four presents the findings from the study. Chapter Five provides the conclusions and recommendations for future research.

CHAPTER TWO: REVIEW OF LITERATURE

History of Aspirations Research

Aspirations as a construct of study grew out of experimental research on "levels of aspirations" as early as the 1930s. Though adding to our knowledge about human behavior, this "laboratory-based" research was not directly connected to students or schools. The 1940s saw the emergence of social comparison theory and its premise of pressure toward uniformity within groups. This leads to the possibility of students' aspirations being influenced by school and/or peer standards. Finally, research on achievement motivation took precedence in the 1950s, suggesting that the motive to set and reach goals is an acquired trait, amenable to intervention. Hence, educators could positively impact students' aspirations.

Level of Aspiration

The origin of aspirations research came about in the early 1930s as part of the work of German psychologist Kurt Lewin and his graduate students at the University of Berlin (Collier, 1994). Lewin's "field theory," which he defined as a method of "*analyzing causal relations and of building scientific constructs*" (emphasis in original, Lewin, 1951, p. 45), stressed goal-directed behavior. Field theory posits that "All behavior (including action, thinking, wishing, striving, valuing, achieving, etc.) is considered as a change of some state of a field in a given unit of time" (Lewin, 1951, p. xi). DeRivera (1976) suggested that Lewin used experimental phenomenology to develop the conceptualization of field theory as "an attempt to describe the essential here-and-now situation (field) in which a person anticipates" (p. 3).

The term "level of aspiration" was first introduced by Tamara Dembo (1931/1976) in her research on the dynamics of anger. She found that the anger experienced when individuals could not achieve their goals was "based on the intensity of the drive rather than its importance" (Collier, 1994, p. 81). Dembo identified goal transformations, or a connection between old and new goals in which the new goal "is a natural preliminary step towards reaching the original goal" (Dembo, 1931/1976, p. 348). She noted, "The degree of expectation, the level of aspiration, as indicated by the real goal, has grown out of the given situation, as the situation changes" (p. 349). Gardner (1940) reiterated this "by-product" discovery was the intermediate goal or "momentary level of aspiration" (p. 59).

Sears (1940) hypothesized that an individual's past experience of success or failure in reading and math achievement would result in different levels of aspiration among middle school students. Her findings corroborated Jucknat's early work (1937), who found that good students showed high levels of aspiration, average students showed medium levels, and poor students showed either low or high aspirations. Sears found low positive discrepancy scores for the academically successful students, while those unsuccessful had high discrepancy scores, both positive and negative. Lewin pointed out that "Good students tend to keep their level of aspiration slightly above their past achievement, whereas poor students tend to show, relative to their ability, excessively high or excessively low levels of aspiration" (1951, p. 82).

Lewin later defined level of aspiration as "the degree of difficulty of the goal toward which a person is striving" (Lewin, 1951, p. 81). This level of aspiration is influenced by the ability of the individual given his or her past and present successes and

19

failures and by group standards. Just as success and failure will raise and lower the level of aspirations, so too will knowledge of one's own or others' group standards, depending on the degree to which the standards are accepted.

Ferdinand Hoppe followed up on Dembo's research on factors influencing goal-setting behaviors by measuring effects of "success and failure on individuals' decisions to raise or lower their level of aspiration" (Quaglia & Cobb, 1996, p. 128). Hoppe observed that for a successful experience, the level of aspiration was lower than or equal to the level of achievement; conversely, for a failure experience, the level of aspiration was higher (Hoppe, 1930/1976). The level of aspiration typically increases after a success experience (performance level exceeded aspiration) and decreases after a failure experience (performance level failed to reach aspiration). Gardner (1940) reintroduced the topic of intermediate goals, noting that a success experience depended on whether the intermediate goal was achieved. DeRivera (1976) stated that "the studies of Hoppe and Dembo demonstrate how situational factors such as success, failure, and frustration can affect a person's activity. But it is also true that a person's active choice may affect the situation he is in" (p. 494).

In related experiments, Jucknat (1937) found that success in one activity raised the level of aspiration for similar activities yet failure did not lower the level of aspirations for similar activities. According to Gardner (1940), the level of aspiration obtained in Jucknat's research differed from Hoppe's in that Hoppe referred "to the individual's true inner aims and expectations" (p. 62) and Jucknat created situations where individuals' aspirations were automatically revealed, so that social factors altered

the picture. He claimed, "Individuals commonly 'edit' those aspects of their behavior, verbal or non-verbal, which are open to public inspection" (p. 62).

Building on the work of Hoppe and Jucknat, Jerome Frank continued investigating "individual differences in the behaviour of the level of aspiration" (Frank, 1938, p. 463). Frank defined level of aspiration as "the level of performance in a familiar task which an individual explicitly undertakes to reach" (p. 465). He used subjects' explicit statements of the height of level of aspiration rather than relying solely on success/failure experiences (height being the difference between level of aspiration and the immediately preceding level of performance, [Frank, 1941]). He showed that the average difference between aspiration level and performance level depended mainly on the interaction of three factors: "(1) the desire to make the level of aspiration approximate the level of performance as closely as possible; (2) the desire to keep the level of aspiration high in relation to the level of performance; and (3) the desire to avoid failure, that is, a level of performance below the level of aspiration" (pp. 466-467).

In another article, Frank defined level of aspiration as "the level of future performance in a familiar task which an individual, knowing his level of past performance in that task, explicitly undertakes to reach" (Frank, 1935a, p. 119). He claimed the relative strength of these three desires (or needs) is dependent on environmental factors as well as individual factors. Frank concluded that certain personality traits are largely independent of the situation, i.e., that "certain forms of behavior of the level of aspiration depend upon consistent and general traits of the personality" (1935a, p. 128). In 1941, he described level of aspiration as "the final integration of complex and constantly shifting personal and situational factors" (p. 223).

Lewin, Dembo, Festinger, and Sears (1944) presented the terms "goal discrepancy" and "attainment discrepancy." Goal discrepancy is the difference between level of past performance and level of action goal. This discrepancy is positive if the goal level is above past performance and negative if it is below past performance. The attainment or performance score is the level of the new performance. The difference between the level of action goal and the performance score is the "attainment discrepancy"—positive if attainment is higher than the goal and negative if lower. Subsequent reactions (feelings of success or failure) are related to the differences between goal and actual performance.

Festinger (1942/1989) found more realistic levels of aspiration that were better aligned with performance levels when subjects vocalized their *expected* aspiration level, with more unrealistic (inflated) aspiration levels when subjects vocalized their *desired* aspiration level, resulting in higher discrepancy scores. Research by Frank (1935b), Sears (1940), and Festinger (1942/1989) suggested that more realistic attitudes result in smaller discrepancy scores with aspiration levels that are responsive to changes in performance. Unrealistic attitudes produce larger discrepancy scores that are unresponsive to reality influence. Lewin et al. (1944) and Frank (1941) identified a number of factors related to goal discrepancies and level of aspirations: past experience (both recency and success/failure results), goal structure, wish/fear/expectations, group standards, realism, individual background characteristics, gender, academic standing, avoidance of failure, and social and cultural factors. Frank (1938) noted that Hoppe's research also identified personality differences in terms of ambition, caution, courage, self-confidence, fear of inferiority, security of self-confidence, and courage to face reality.

Aspirations research on success and failure also illuminated "self-handicapping" strategies, or ways to protect against failure—by purposefully failing. DeRivera (1976) describes John Holt's hypothesis that in order to protect against loss of self-worth resulting from failure, an individual takes "control over the meaning of the situation" (p. 505). No longer is the failure due to lack of ability, because the person meant to fail. Holt (1964) suggests that purposeful incompetence not only reduces "what others expect and demand of you, it reduces what you expect or even hope for yourself" (p. 59). Collier (1994) suggested that self-handicapping "is probably one of the most important reasons people fail to develop their true potential" and that the most common strategy "is to simply not try at all" (p. 97). Individuals most likely to employ such techniques are those who have experienced a mix of success and failure and who are unsure about their ability. Collier (1994) noted research by Brodt and Zimbardo (1981) suggesting use of such self-handicapping strategies could sometimes improve performance by reducing anxiety.

Holt (1964) offers two other premises explaining why children fail. In addition to the fear of failure itself, he claims that boredom and/or confusion also lead to failure. In order to arouse in children "a high degree of attention, interest, concentration, [and] involvement," classrooms and class work should be exciting and interesting "so that children in school will act intelligently and get into *the habit* of acting intelligently" (p. 159).

According to Lewin et al. (1944), most of the results related to level of aspiration can be linked to three factors: seeking of success, avoiding of failure, and cognitive factor of a probability judgment. The strength of these factors depends on "many aspects of the life space of the individual at that time [Lewin's field theory], particularly on the way he

sees his past experience and on the scales of reference which are characteristic for his culture and his personality" (p. 376).

Social Comparison

Lewin et al. (1944) suggested that level of aspiration is impacted not only by individual performance but also by group membership. They cited research by Anderson and Brandt (1939), Chapman and Volkmann (1939), and Gould and Lewis (1940) that offers corroborative evidence for the influence of group standards. Hertzman and Festinger (1940) found evidence of conformance to group performance, and weaker conformance to group aspirations. Collier (1994) also noted that level of achievement is determined in part by reference groups and the people with whom individuals identify. He suggested that "the level of aspiration can improve performance if the group sets high but realistic standards, but it can also lower performance when the standards are extremely low," leaving individuals conflicted between a desire to achieve and the threat of social isolation (p. 81). Quaglia and Cobb (1996) pointed out that the "tendency toward uniformity is more pronounced the more isolated the culture" (p. 130), suggesting more rigid group boundaries for more isolated rural youth.

Collier (1994) described how Lewin's earlier research on level of aspiration led to social or group dynamics. Leon Festinger's social comparison theory is closely associated with level of aspiration, and it espouses nine formal hypotheses integrating group dynamics, communication, and cohesion. See Appendix A for a summary of Festinger's original wording of the nine hypotheses (1954), along with Collier's synthesis of the first seven (1994).

Although Festinger's theory of social comparison focused on within-group processes, it also applies to between-group differences—in particular, to explain individual differences in level of aspirations. According to Collier (1994), individuals use as a source of social comparison those who are similar or who have similar levels of aspirations. Further, the threat of ostracism restricts the performance of those individuals with high ability, since performance levels typically cluster around the mean. Such anchoring helps explain some of the differences in academic performance among subgroups of individuals, i.e., by gender or ethnicity.

Achievement Motivation and Risk-Taking

Achievement motivation is "the conscious or unconscious drive to do well in an achievement-oriented activity" (Quaglia & Cobb, 1996, p. 127). David McClelland and John Atkinson were major contributors to this theory. McClelland concentrated "on social origins of achievement motivation and its role in economic development" (Quaglia & Cobb, 1996, p. 129) while Atkinson focused on models for predicting "behavior in success and failure situations" (Quaglia & Cobb, 1996, p. 129). McClelland (1961) suggested the crucial period for acquiring the need for achievement "probably lies somewhere between the ages of 5 and 10" (p. 415), but that achievement motivation can be increased even with adults (McClelland, 1978).

Atkinson (1957) posited that achievement motive falls within the class of motives usually referred to as "appetites or approach tendencies" in which the aim is to "maximize satisfaction of some kind" (p. 360). Conversely, another class of motives aims to minimize pain, and is called "aversions, or avoidant tendencies" (p. 360). His risk-taking model implies that "performance level should be greatest when there is greatest

uncertainty about the outcome . . . but . . . that persons in whom the achievement motive is stronger should prefer intermediate risk, while persons in whom the motive to avoid failure is stronger should avoid intermediate risk, preferring instead either very easy and safe undertakings or extremely difficult and speculative undertakings" (p. 371).

Moulton (1965) reminded us that although "the most typical reaction to a success experience is a moderate rise in level of aspiration and that the usual reaction to failure is a moderate drop" (p. 399), there is a minority of subjects who occasionally react in an "apparently paradoxical manner" (p. 399). They respond to success by lowering their aspirations and conversely increase their aspirations when responding to failure. He claimed that Atkinson's risk-taking model (Atkinson, 1957) hypothesized that reactions to success and failure are predictable based on "knowledge of individual differences in the relative strength of motives to achieve success . . . and to avoid failure" (p. 399). His research confirmed Atkinson's predictions, with atypical shifts in level of aspiration occurring most often among avoidance-oriented than approach-oriented subjects.

Morris (1966) extended Atkinson's risk-taking model, theorizing that "an individual's preference for an intermediate degree of risk . . . varies directly as the strength of his achievement motivation and inversely as the strength of his avoidance motivation" (p. 328). He found that "individuals high in achievement-related motivation chose as if they were attempting an intermediate degree of risk" and that "those low in achievement-related motivation chose as if they were avoiding an intermediate degree of risk" (p. 328). Similarly, Mahone (1960) reported that individuals high in achievement motivation and low in achievement-related anxiety (fear of failure) were classified as

realistic in their vocational choices with respect to ability and interest, while individuals low in achievement motivation and high in achievement-related anxiety were unrealistic.

Kolb noted evidence in the research supporting a "small but positive significant relationship between achievement motivation and academic performance in high school" (1965, p. 783). He investigated the effects of an achievement motivation training program on underachieving high school boys' academic performance. Findings from a 1½ year follow-up suggest the training program promoted a more permanent improvement in academic performance than provided by a summer program without the addition of the training program. This was especially true for boys with high socioeconomic status, suggesting "achievement motivation is a product of the social environment" (Quaglia & Cobb, 1996, p. 129).

Current Theories of Aspirations

Two current theories are of value to this study: the Hossler and Gallagher three-phase model for student college choice and the University of Maine's NCSA theory of student aspirations. Each is described below.

Three-Phase Model for Student College Choice

Hossler, Braxton, and Coopersmith (1989) found that student aspirations are associated with students' predisposition for college attendance. Hossler and Gallagher's (1987) developmental model of college choice is organized into three stages of college preparation processes: predisposition, search, and choice. In the first stage, predisposition, students decide if they want to pursue postsecondary education. In the second stage, search, students seek information about postsecondary institution(s) of interest. In the third stage, choice, students prioritize their school choices and make a

final decision. The authors note that at each phase, "individual and organizational factors interact to produce outcomes . . . [that] influence the student college choice process" (Hossler & Gallagher, 1987, p. 208).

Student characteristics, parent and peer attitudes, and organizational factors (such as level of participation in curricular and extracurricular activities, quality of high school curricula, and geographic locale) play important roles in the predisposition stage. Hossler et al. (1999) suggest that most students formalize their educational plans between the eighth and tenth grades; therefore, intervention/outreach programs are most beneficial if they occur during the eighth or ninth grades. The middle school and junior high years are critical for students to begin exploring their educational aspirations, so that they have adequate time to properly prepare themselves to reach their desired goals. (See Appendix B for a depiction of the educational structure in the United States.)

A Theory of Student Aspirations

Researchers at the NCSA at the University of Maine began working in the 1980s on "an integrated schema for conceptualizing aspirations" that focused both on students' ability to set future goals and on their commitment to achieve those goals (Quaglia & Cobb, 1996, p. 127). They define these related concepts as inspiration and ambitions. This schema combines the present (inspiration) with the future (ambitions). Quaglia and Cobb suggest that this dual approach is so critical that "to neglect the present is to sabotage the future" (p. 131) and that to fully aspire, students must see the relevance of their current actions to their future.

This theory is strongly rooted in the origins of aspirations research and takes into account effects of students' environments on their aspirations. Their research focused on

identifying what school conditions affect students' inspirations and ambitions, and how achievement motivation and social comparison theories could serve as frameworks for improving school cultures and fostering healthy environments. Such environments ensure student responsibility and accountability within an atmosphere that promotes empowerment, belonging, healthy risk taking, and engaging activities. The theory posits eight conditions that support the development of inspiration and ambitions in students. These conditions include achievement, belonging, curiosity, empowerment, excitement, mentoring, risk-taking, and self-confidence.

Plucker (1996) and Plucker and Quaglia (1998) describe construct validity results from administrations of the Student Aspirations Survey with middle and high school students from four New England states. Cronbach's alpha reliability revealed coefficients in the .60s, to .80s. Confirmatory factor analysis of the items comprising the eight conditions scales revealed high correlations among items, resulting in a more holistic perception of school climate. Plucker's later research (1998) found students with high aspirations (inspiration and ambition) reported a more supportive climate than students with lower aspirations, especially with mentoring, self-confidence, and excitement conditions. Later research identified a revised set of eight conditions supporting aspirations (Quaglia, 2000; University of Maine, 1999a, 1999b). The eight conditions include:

1. *Belonging:* A relationship between individuals characterized by connection, support, and community.

2. *Heroes:* People admired and imitated because of their talents, who inspire others to excel.

29

3. *Sense of Accomplishment:* Recognition of effort, perseverance, and citizenship in addition to academic success.

4. *Fun and Excitement:* An interesting, enjoyable, exciting learning experience.

5. *Spirit of Adventure:* An ability to take on positive, healthy challenges.

6. *Curiosity and Creativity:* An encouragement of inquisitiveness, questioning, and exploration.

7. *Leadership and Responsibility:* Self-responsibility for actions and words, acceptance of consequences and/or rewards.

8. *Confidence to Take Action:* The extent to which children believe in themselves and have a positive outlook on life.

Meehan, Cowley, Wilson, and Wilson (2004) conducted research on these eight conditions with approximately 7,500 seventh-graders in a predominantly rural eight-county region of West Virginia. Their research focused on the original 28 items from the University of Maine "Students Speak" survey, along with 5 additional items developed to increase the reliability of two of those conditions (Cowley, Finch, & Blake, 2002; Howley & Cowley, 2001). Factor analysis revealed four rather than eight factors, two intrinsic and two extrinsic, which were labeled teacher centric, self-efficacy, leadership, and like school. The first factor (teacher centric) supports the importance of the relationship between high teacher expectations and student aspirations. Additional research by these authors found the relative strength of each these four factors differed by gender, although the factors themselves remained stable (Cowley, Meehan, Wilson, & Wilson, 2004; Wilson, Wilson, Cowley, Meehan, & O'Keefe, 2003/2004).

Factors Affecting Educational Aspirations

A variety of factors play a role in shaping students' educational aspirations, such as family, personal, locale, and school characteristics. A primary family factor is parents' education level (Horn & Nunez, 2000; Kojaku & Nunez, 1998; Saenz et al., 2007; U.S. Department of Education, 2001). Personal characteristics such as gender also affect youth's educational aspirations; effects of time are encompassed within gender research (Dunne, Elliott, & Carlsen, 1981; Mau & Bikos, 2000; Mau, Hitchcock, & Calvert, 1998; Pipher, 1994; Pollack, 1998; Sadker & Sadker, 1994; Trusty, Robinson, Plata, & Ng, 2000). The following section focuses on these factors in more detail.

Gender and Time

As students approach their middle school years, effects of gender differences become more apparent. Boys and girls experience education differently, which impacts their educational aspirations. These impacts last long after students complete middle school—indeed, lasting through high school and postsecondary education.

Gender impact on aspirations. The literature is replete with evidence emphasizing the importance of elementary and middle school experiences on students' later educational aspirations, and that these experiences differ by gender. Pottorff, Phelps-Zientarski, and Skovera (1996) suggest that reading is predominantly viewed as a female activity. Trusty et al. (2000) report that gender influences educational choice. In their longitudinal study, they found that for women enrolled in postsecondary institutions, their eighth-grade academic performance in reading was the strongest predictor of their choice of major and the weakest predictor was their academic performance in eighth-grade mathematics. Conversely, for males, they found eighth-grade math as their strongest

predictor of choice of major, with eighth-grade reading the weakest predictor. Chenoweth (2003) found that the strongest predictors for college attendance for males were perceived intelligence, college plans of friends, and parent education level. For females, the strongest predictors were high school curriculum and perceived intelligence.

Mau et al. (1998) found that female students had significantly higher educational aspirations than male students at both the 10th and 12th grades. Similarly, Mau and Bikos (2000) reported higher educational aspirations for females not only at the 10th and 12th grades, but also at the postsecondary level. Female rural high school students were found to have higher educational aspirations than their male counterparts in a study conducted by Dunne et al. (1981).

In a study on the career development of gifted youth, Gassin and Kelly (1993) revealed that gifted females were surer of their talents and career plans at the elementary level, yet those differences faded by junior high school—perhaps indicating that as uncertainties increase, girls may be lowering their aspirations. On the other hand, gifted boys' career certainty remained relatively constant—perhaps indicative of stable objectives regardless of uncertainties.

In a study using data from the NCES High School and Beyond Study, Hanson (1994) describes lost talent as "the extent to which the United States has experienced a loss of talented youth in the education system, as well as the extent to which gender . . . played a role in this loss" (p. 159). Her study investigated educational expectations that fall short of educational aspirations, lowered educational expectations, and educational expectations that exceed later achievement. She found that women were more likely to aspire to but not expect a college degree and that men were more likely to have reduced

educational expectations and unrealized educational expectations. She concludes that men and women may be experiencing lost talent at different times—women experiencing earlier losses and men experiencing later losses.

Effects of school climate by gender. Sadker and Sadker (1994) caution that sexism in school culture is a "two-edged sword" that damages boys as well as girls. They suggest that "for every girl who succeeds, too many fail or live down to expectations or settle for second best" (p. xi) as a result of damage to their self-esteem, academic preparation, and career aspirations. In their view, girls "are turned into educational spectators instead of players" (p. 13). Similarly, the authors note that even though boys receive more teacher time and attention, are more often featured in textbooks, have higher standardized test scores, receive higher scholarship amounts, are accepted more often at prestigious colleges, and receive higher salaries, they pay a price for such gender bias—boys are more likely to fail a course or drop out of school. "Raised to be active, aggressive, and independent," boys must walk a "tightrope between compliance and rebellion" in schools that promote "quiet, passive, and conforming" behaviors (p. 198).

In looking at school structure, Pollack (1998) claims that schools have become "gender-blind" and meet the needs of neither girls nor boys. He espouses the need for "gender-informed schools, and a more gender-savvy society where both boys and girls are drawn out to be themselves" (p. 18).

How girls experience education. "Adolescence is an intense time of change" (Pipher, 1994)—and a time when self-esteem, academic preparation, and educational aspirations begin to differ between boys and girls. Pipher suggests that boys are more able to remain confident than girls, even after failure, because they attribute failure to

external factors and success to their own abilities. Girls, on the other hand, attribute success to good luck or hard work and failure to their lack of ability. Hence, with each failure, their confidence is further eroded. "Girls can't say why they ditch their dreams, they just 'mysteriously' lose interest" and "emerge from adolescence with a diminished sense of their worth as individuals" (p. 63).

The American Association of University Women (AAUW) 1990 poll revealed that self-esteem decreased from elementary to high school for boys and girls, yet girls' self-esteem decreased twice as much (AAUW, 1994). The AAUW report states that "Schools play a crucial role in challenging and changing gender role expectations that undermine the self-confidence and achievement of girls" (1992, p. 2).

Sadker and Sadker (1994) describe adolescence as a "tightening corset" for girls, who begin to "restrict their interests, confine their talents, pull back on their dreams" (p. 77). They also note that elementary to middle school transition may be the most harmful time for girls, when the already-present self-esteem gap between genders widens to "a vast gulf" (p. 78). The damage continues throughout high school to womanhood as girls are discouraged from taking academically challenging preparatory courses. Bell (1989) adds that, as a result, girls "drastically reduce their options for the future" (p. 119).

How boys experience education. Research has also revealed the difficulties encountered by boys in terms of their educational aspirations. In particular, Pollack (1998) champions the need to rescue boys. In addition to well-known facts such as higher rates of depression, violence, and suicide, he cautions "that many boys have remarkably fragile self-esteem" (p. i) and that boys fare worse in school now than in the past and in comparison to girls. According to Pollack, boys reside behind a mask that hides their

inner feelings; have to negotiate society's mixed expectations of being both "a man's man" (cool, tough, macho, stoic) and a "New Age" man (sensitive, vulnerable, open, respectful); and must endure a gender "straightjacket" that forces compliance and limits their emotional range and ability to think and behave freely and openly.

Boys often act out to cover their confusion, pain, or embarrassment. Teachers are more apt to punish the behavior than explore the reasons behind misconduct. Pollack describes observations he has made of elementary and high schools classrooms in which teachers rewarded boys for "behaving" (keeping quiet and docile)—hence making boys' real selves even more invisible and suppressed. Pollack (1998) cautions that teachers may indeed get a quieter classroom, but at what cost?

Challenging the AAUW findings (1994), Pollack (1998) suggests that boys' self-esteem may be artificially inflated on current measures, since they are more likely to answer questions the way they believe they are "supposed to" and because of their "tendency toward braggadocio" (p. 237) to hide a lack of confidence. He describes research by Purkey indicating that boys' self-esteem is more at risk than girls. Pollack's own research using Coopersmith's Self-Esteem Inventory found that many boys gave "false-positive" responses (i.e., items which indicate the respondent is not giving sincere responses), which increased with age, highlighting the increased pressure boys feel to conform to society's ideals. Pollack uses the analogy of boys who "whistle a happy tune" (p. 239), pretending everything is fine, when in fact the opposite may be true.

Parents' Education Level

Enrollment rates for college vary considerably depending on parents' educational attainment. In 1995, 47% of all beginning postsecondary students were first-generation,

or those whose parents had no postsecondary experience (U.S. Department of Education, 2001). In 1999, 82% of students whose parents had at least a bachelor's degree enrolled in college immediately after high school, compared to 54% whose parents had completed high school, and 36% percent whose parents had less than a high school diploma (U.S. Department of Education, 2001). By 2005, the percentage of students transitioning to college had increased, yet the same patterns continued: 89% of students whose parents had at least a bachelor's degree, 62% who parents had completed high school, and 43% whose parents had less than a high school diploma (U.S. Department of Education, 2007).

First-generation students traditionally have poorer academic preparation than those students with a family background of college, and face "significant obstacles in their path to retention and academic success" (Saenz et al., 2007, p. 1; U.S. Department of Education, 2001). Only 15% of students whose parents had a bachelor's degree or higher were marginally or not qualified for admission to college, compared to 49% of students whose parents had a high school diploma or less. Similarly, only 7% of first-generation students were highly qualified, compared to 28% of students with more educated parents (U.S. Department of Education, 2001).

Obstacles include a lack of academic preparation, a lack of family support, and limited information about making appropriate choices and navigating the college environment. Students with more educated parents have more access to financial, informational, and social resources—in effect, having "greater social and/or cultural capital" (Saenz et al., 2007, p. 3). Even more alarming, for first-generation students who overcome these obstacles and enroll in postsecondary education, they remain at a

disadvantage in terms of persistence (staying enrolled) and attainment (obtaining a degree) (Kojaku & Nunez, 1998; U.S. Department of Education, 2001).

Camblin (2003) reports that first-generation students are taught different curricula with less rigor, experience cultural stereotyping, take fewer rigorous or college prep courses, receive less counseling, and have teachers who use less effective instructional strategies and who have lower expectations for them. Rural youth are more disadvantaged than their peers in that first-generation students are more likely to have attended high schools in small towns or rural communities (Saenz et al., 2007). Horn and Nunez (2000) found first-generation students were more likely to be low-income or to be Hispanic or African American.

First-generation students spent less time studying in high school; have lower grades; have lower perceptions of their math, writing, and leadership abilities; and lower perceptions of their academic and social self-confidence (Saenz et al., 2007). Saenz et al. reports differences between these two groups ranging from 3 to 13 percentage points (social self-confidence and writing ability, respectively). Kojaku and Nunez (1998) add that first-generation students starting postsecondary education are less likely to take the SAT or ACT, enroll in 4-year institutions, attend full time, and return after leaving; and are more likely to drop out and earn a lower GPA. This pattern continues, even after three years of postsecondary education—first-generation students are still less likely at this point to remain enrolled and obtain a bachelor's degree; after five years, they are less likely to have stayed enrolled and attained a degree.

Berkner and Chavez (1997) describe five sequential steps students take on the path to college enrollment: (1) deciding whether to pursue postsecondary education,

(2) preparing academically, (3) taking appropriate entrance examinations, (4) applying to institutions of choice, and (5) making financial and other arrangements after acceptance. Looking at the percentage of 1992 high school graduates who progressed through each of these five steps toward enrollment in a 4-year institution, by parents' level of education, reveals a wide gap at each step, as shown in Table 3.

Table 3

Differences in College Enrollment Rates by Parent Education Level

Steps toward college enrollment	Parents with less than or a high school diploma	Parents with at least a bachelor's degree
Step 1: Bachelor's degree aspiration at 10th grade	46%	85%
Step 2: At least minimal academic preparation	33%	79%
Step 3: Took ACT or SAT	29%	78%
Step 4: Applied to a 4-year institution	25%	73%
Step 5: Enrolled by 1994	21%	65%

Not only are first-generation students less likely to aspire to and attend college (Bueschel, 2004), they are more likely than other college students to limit their postsecondary educational aspirations to less advanced degrees (Higher Education Research Institute, 2007; Pratt & Skaggs, 1989). Bueschel notes that only about a third (36%) of first-generation students expect to earn a 4-year degree or higher, compared to more than three-fourths (78%) of those students whose parents had at least a bachelor's degree. First-generation students are much less likely to attain college examination scores needed for acceptance by elite institutions of higher education (Bowen, Kurzweil, &

Tobin, 2005; Bueschel, 2004). Suarez (1997) found that first-generation students are also less likely to obtain more advanced graduate-level education.

A study by the Higher Education Research Institute (HERI), "First in My Family," profiled first-generation college students at 4-year institutions over the past 35 years. This study included data from the Cooperative Institutional Research Program (CIRP) Freshman Survey, administered by the HERI at UCLA. Researchers found that first-generation students in 2005 were more likely than their peers to cite parental encouragement "as a very important reason for going to college" (HERI, 2007, p. 2). This reverses the trend shown from 1971 to 1991. First-generation youth were more likely to work at least 20 hours per week during high school, believe they would get a job to pay for college expenses, and attend colleges within 50 miles or less of their homes.

Horn and Nunez (2000) report both negative and positive findings in the 2000 NCES report on first-generation students. They found that first-generation students were less likely to participate in academic programs that prepare them for college, even after controlling for such variables as academic achievement, family income, and number of parents in the home. However, they also found that students who completed math courses beyond Algebra II "substantially increased their chances of enrolling in a 4-year college," regardless of parents' education level or student achievement (p. iii).

Mathematics is considered a "gateway" for college. More than three-fourths (76%) of 1992 high school graduates who took advanced math in high school had enrolled in a 4-year institution by 1994. And, math course taking is related to parent education level: only 14% of first-generation students took algebra in the eighth grade, compared to 34% of students whose parents had college degrees (Horn & Nunez, 2000).

Of the 1992 high school graduates with the highest mathematics proficiency in eighth grade, only 63% whose parents had a high school diploma or less took advanced math in high school, compared to 83% of students whose parents had a bachelor's degree or higher. But, for this population, that gap narrowed substantially if students took algebra in the eighth grade—83% of first-generation students compared to 95% of their fellow students (U.S. Department of Education, 2001).

Horn and Nunez (2000) caution that strong academic preparation does not necessarily lead to college enrollment. Two years after high school graduation, about a fourth of "highly-qualified" first-generation students had not enrolled at the 4-year level. An additional 13% did not enroll in any postsecondary institution—compared to only 1% of highly qualified students with at least one parent with a bachelor's degree.

Eighth-grade students were most likely to rely on their mothers' help in planning their high school curriculum, regardless of parental education level, yet first-generation students were less likely to turn to their fathers for such guidance (Horn & Nunez, 2000). At the high school level, first-generation students were less likely to seek parental input when choosing their educational program (34% versus 48%). Not only did these students receive less assistance from their parents, they received no more assistance from school staff, other than increased assistance in applying for financial aid and choosing a 12th grade math class—both of which occurred late in the high school period.

Summary

Based on current aspirations research, it is clear that rural students, first-generation college students, and/or low-socioeconomic status students face what can often seem to be insurmountable barriers in defining, working toward, and attaining their

educational aspirations. Kampits (1996) stresses the importance of considering students'

needs. She cautions, "Students must be motivated, involved, and invested in the

educational processes, not just the end result. Regardless of high expectations—even

regulations—that students will learn and demonstrate specific knowledge and

understanding, first they must want to learn, be inspired to learn, and understand why

they should learn. In short, they must be full partners, not just subjects, in the learning

process" (p. 176).

This study investigates what West Virginia students perceive to be the factors that

affect their educational aspirations, whether their perceptions of those factors differ over

time, and whether their perceptions differ by gender and parents' college history.

CHAPTER THREE: RESEARCH METHODS

The purpose of this chapter is to describe the research design, the population and sample, the instruments, the data collection, and the analyses that were used in this research study. Wiersma and Jurs (2005) note that "research is done for the purpose of explaining and predicting phenomena" (p. 1) and that five general characteristics help define the nature of educational research: it is empirical; it should be systematic, valid, and reliable; and it can take a variety of forms.

Research Design

The research design for this proposed study falls under the category of nonexperimental quantitative research. More specifically, survey research, which "deals with the incidence, distribution, and relationships of educational, psychological, and sociological variables" (Wiersma & Jurs, 2005, p. 16). Although nonexperimental research offers less control than experimental research, Wiersma and Jurs state that "many variables in educational settings do not lend themselves to deliberate manipulation" (p. 155) and therefore nonexperimental research is most commonly used in educational research. However, it should be noted that results stemming from nonexperimental research may be less straightforward and more ambiguous.

This study utilized extant survey data from approximately 650 students who completed surveys in the seventh and ninth grades as part of the West Virginia Department of Education (WVDE) Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) project, during school years 2000-01 and 2002-03. Student data were matched across the two years. Students attended middle/junior high schools (and high schools as ninth graders) in an eight-county region of West Virginia.

In addition to demographic variables (gender and parents' college history), 28 survey items originating from the University of Maine's "Students Speak" survey were used in this study. These 28 items are purported to comprise eight conditions that support students' aspirations. Factor analysis of the extant data determined empirically whether the same eight conditions were perceived by this population of students. Emergent factors were used to investigate via multivariate analysis whether significant differences existed over time, by gender, and by parents' college history, as well as whether significant interactions existed among these variables.

An application was submitted to the Marshal University's Social/Behavioral Institutional Review Board for permission to conduct this study. Permission was granted in January 2008; see Appendix C for approval notification. See Appendix D for a copy of a letter from Edvantia and Appendix E for a copy of letter from the West Virginia Department of Education granting to permission to access and use the extant student data.

Population and Sample

In 2000, the WVDE was awarded a 5-year partnership grant to implement GEAR UP in eight county school districts: Clay, Hampshire, Lincoln, Mason, McDowell, Monroe, Pocahontas, and Roane (see Table 4 on page 44 for a summary of county demographics). As part of that project, WVDE contracted with Edvantia (formerly Appalachia Educational Laboratory or AEL) to administer and analyze surveys to gather baseline information on incoming seventh-grade students' awareness and perceptions of, interest in, and aspirations for postsecondary education.

Table 4

Demographic Characteristics of Eight Counties in West Virginia

County	% White*	25 years of age and older		Median household income*	Per capita money income*	% persons living below poverty*	Population per square mile*	Metro-centric category*	College-going rate**
		% graduated high school*	% ≥ bach. Degree*						
Clay	99	64	7	$25,721	$12,021	22	30	Rural	44
Hampshire	98	71	11	$36,008	$14,851	14	31	Rural	52
Lincoln	99	63	6	$27,074	$13,073	22	51	Rural	44
Mason	99	72	9	$30,547	$14,804	17	60	Town	58
McDowell	89	50	6	$19,090	$10,174	33	51	Rural	37
Monroe	98	74	8	$31,069	$17,435	14	31	Rural	48
Pocahontas	99	71	12	$28,733	$14,384	16	10	Rural	54
Roane	99	67	9	$27,743	$13,195	19	32	Rural	39
WV Avg.	95	75	15	$33,993	$16,477	16	75	N/A	59
Nat. Avg.	80	80	24	$44,334	$21,587	13	80	N/A	63

*U.S. Census Bureau (2007)

**West Virginia Higher Education Policy Commission (2005)

In Year 1 of the GEAR UP project (2000-01), student surveys were distributed to 1,900 seventh graders in the eight-county region. A response rate of 86% was achieved, with 1,642 completed surveys being returned (Howley & Cowley, 2001). In Year 3 of the project (2002-03), a follow-up survey was administered to the ninth-grade students (originally the first cohort of seventh graders) in the eight-county region. A response rate of 85% was achieved, with 1,301 completed surveys out of the population of 1,534 ninth graders (Finch & Cowley, 2003)

Sample. This study focused investigation on the extant data from those students who completed GEAR UP surveys as a seventh and ninth grader **and** whose surveys were able to be matched across years. Although a plan was developed to allow for matching of all student data across subsequent follow-up surveys, in reality the implementation of that plan was less than satisfactory. Of the approximately 1,300 students who potentially could have completed both instruments and been matched across surveys, slightly more than half (664 students, or 51%) were matched using the identification codes. This subset of students comprised the sample for this study. Given the grade levels of seven and nine, these students were most likely to be at the predispositional stage of college choice (Hossler & Gallagher, 1987).

Instruments

Two separate surveys were administered to seventh-grade students in the first year of the GEAR UP project; in subsequent years, these two surveys were merged into one comprehensive survey. These surveys included 85 items utilizing a variety of response options, most of which were forced-choice. Also included were several demographic questions, including gender and parents' college history, and 28 items from

the University of Maine's "Students Speak" survey. These 28 items were added to capture students' perceptions of eight purported conditions related to aspirations (belonging, heroes, sense of accomplishment, fun and excitement, spirit of adventure, curiosity and creativity, leadership and responsibility, and confidence to take action).

Response options for these items ranged from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). (To aid respondents' comprehension of the meaning of the items, several of the aspirations items were reworded from a negative to positive orientation.) For reporting purposes, eight subscales were formed based on the University of Maine's NCSA classification of the eight components named above. Since each subscale contained a differing number of items, subscale means (total subscale score divided by number of items) were used to enable cross-subscale comparisons.

The 2002-03 ninth-grade GEAR UP survey included 50 forced-choice items. Of those 50 items, 39 had been asked of the students as seventh graders (including the 28 aspirations items). Eleven new items were added to make more balanced aspirations subscales (in terms of number of items per subscale) and to elicit students' reactions to their involvement with the GEAR UP project.

Wiersma and Jurs (2005) summarize internal validity as "the accurate interpretability of the results," external validity as "the generalizability of the results," and reliability as "the replicability and consistency of the methods, conditions, and results" (p. 9). Face and content validity was demonstrated through review by WVDE and Edvantia staff and inclusion of items similar to those asked in other such attitudinal surveys. To assess the degree to which items measure the same construct (internal consistency), Cronbach Alpha reliability coefficients were computed for seventh- and

ninth-grade sets of scores. For the seventh-grade data, the Cronbach Alpha was .91; for

the ninth-grade data, the Cronbach Alpha was .84. See Table 5 for a summary of the

Cronbach Alpha reliability coefficients for the eight aspirations subscales for the seventh-

grade data, as well as the items that comprise each subscale.

Table 5

Cronbach Alpha Reliability Coefficients for Seventh-Grade Data for the Eight Aspirations Subscales, and the Items Comprising Each Subscale

Subscale	Cronbach Alpha	Items Comprising Subscale
Belonging	.80	Teachers care about my problems and feelings. Teachers respect my thoughts. Teachers value my opinions. I am proud of my school.
Heroes	.66	I am a positive role model to other students. I have a strong caring relationship with an adult. Teachers expect me to succeed. Teachers help me to succeed. I have a teacher who is a positive role model for me.
Sense of Accomplishment	.67	Teachers care about my success in class. I believe I can always improve. I put forth the necessary efforts to reach a goal. Teachers tell me I do a good job when I try my best.
Fun and Excitement	.68	I usually have fun in class. Teachers make learning exciting. I am not usually bored in school.
Spirit of Adventure	.52	Teachers support me when I try something new. I am eager to learn new things. I have opportunities to decide for myself what I learn about in school.
Curiosity and Creativity	.65	I seek solutions to complex problems. My courses help me to understand what is happening in my everyday life. Teachers allow me to explore topics I find interesting. Teachers encourage me to ask questions.
Leadership and Responsibility	.47	I accept responsibility for my actions. Teachers expect me to be a good decision-maker.
Confidence to Take Action	.61	I am confident in my ability to do well. I take action on causes I believe in. Anyone can succeed if they work hard enough.

Data Collection

As noted earlier, this study relied on extant data obtained through surveys of seventh- and ninth-grade students in the eight-county WVDE GEAR UP region in 2000-01 and 2002-03. Packets of student surveys and demographic cover pages were provided to each participating school, as well as envelopes for returning the completed surveys to Edvantia. The seventh-grade surveys were distributed in January 2001; the ninth-grade surveys were distributed in September 2002. No follow-up communications were employed.

In order to provide anonymity to participating students, a demographic cover page was created to serve as a coding sheet. Each student was assigned a unique code number, usually by the classroom teacher; the master code sheets were not shared with or returned to Edvantia. The unique code or identification number included a student's Social Security or West Virginia Education Information System (WVEIS) number (some teachers used the former, some the latter), a two-digit county code, and a two-digit code for the school where the student attended the seventh grade. This resulted in a static 13-digit identification number that should remain unchanged across years, potentially allowing for longitudinal tracking and matching of individual data while at the same time ensuring anonymity. Teachers added these identification codes to all of the student and parent surveys before they were distributed to students. Unfortunately, subsequent coding of the student surveys resulted in only about half of the surveys from students at the seventh and ninth grades being matched properly. It is unknown whether coding instructions were unclear, formatting of the code box led to errors, or whether staff were using different coding techniques across years.

All data were collected following national SEDCAR (Standards for Education Data Collection and Reporting) research standards (Cooperative Education Data Collection and Reporting [CEDCAR] Standards Project Task Force, 1991). Although this research was conducted before the Edvantia Institutional Review Board (IRB) was created and operational, this project was subsequently approved in a post-hoc fashion. A waiver of informed consent was requested and approved, given that the data collection was already completed, that the surveys were administered by school personnel, and that individuals could not be identified in any of the data.

Data Analysis

The first procedure to take place was verification (regeneration) of matching data from both seventh-grade surveys with the data from the ninth-grade survey. It was estimated that approximately 650 valid cases would result from this verification process. Following this initial task, factor analysis and 2 x 2 x 2 General Linear Model (GLM) multivariate analysis of variance (MANOVA) were employed.

Factor Analysis

Exploratory factor analysis using SPSS software was then used to empirically identify the constructs perceived by seventh-graders as the factors affecting their educational aspirations. Factor analysis is a technique used to investigate how variables relate to one another and form clusters that represent relationships among sets of interrelated variables (George & Mallery, 2003; Salkind, 2004). Following a research design suggested by Wood and Kardash (2002), all 28 aspiration item variables were included in the factor analysis regardless of their theoretical origin (i.e., their hypothesized "condition" association). Wood and Kardash state:

It should be kept in mind that it is not necessarily the case that internal consistency, by itself, is a measure of the dimensionality of a construct. It assumes that one construct underlies the pattern of response, but does not test this assumption. Exploratory factor analysis has been used as a tool to this end. (p. 238)

George and Mallery (2003) identify four steps for conducting a factor analysis: calculating a correlation matrix of all variables, extracting the factors, rotating the factors to create an understandable factor structure, and interpreting the results. Factors with Eigenvalues greater than 1.00 were extracted through the principal component method of factor extraction, which is the most commonly used method (Thompson, 2004). Factors with Eigenvalues less than 1.00 explain less variance than the original variables and are therefore not useful in reducing variables. Factors were then rotated in an attempt to achieve a simple structure, so that each item had a high factor loading or "factor structure coefficient" (Thompson, 2004) on one factor and low loadings on other factors. Loadings can range from an absolute value of 0.0 to 1.0, similar to correlation coefficients.

Varimax (orthogonal) rotation is the most common rotation (George & Mallery, 2003; Thompson, 2004); this rotation keeps the axes at right angles to one another. Oblique rotations (most common are Oblimin and Promax) are nonorthogonal rotations that allow divergence from the perpendicular, and may result in a better simple structure—but the axes are no longer uncorrelated. Data were analyzed using multiple rotation techniques to find the best fit of the data.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett test of sphericity were conducted to test for multivariate normality and sampling adequacy.

GLM MANOVA

A 2 x 2 x 2 multivariate analysis of variance test was employed to determine whether any significant differences existed in the dependent variables (resultant factors) by the three independent variables (time, gender, and parents' college history). These tests involved multiple dependent variables and multiple independent variables, including both between-subjects and within-subjects (repeated measures) (Cronk, 2006).

Assumptions for MANOVA include normal distribution of interval or ratio data for the dependent variables (Cronk, 2006). Another assumption is that the multiple dependent variables are related.

Main effects showed the influence of the independent variables on the dependent variables. Interactions showed the effects of multiple independent variables on the dependent variables above and beyond the main effects of the independent variables. Estimates of effect size (partial eta squared) were calculated to show the amount of variance in the dependent variables accounted for by the independent variables (also known as practical significance) (George & Mallery, 2003).

<div align="center">Summary</div>

This study utilized extant data from 664 students who completed surveys in the seventh and ninth grades as part of the WVDE GEAR UP project, during school years 2000-01 and 2002-03. In addition to demographic variables (gender and parents' college history), the study included 28 aspiration items that are purported to comprise eight

<div align="center">51</div>

conditions that support students' aspirations. Factor analysis of the extant data

determined empirically whether the same eight conditions were perceived by this

population of students. Emergent factors were used to investigate via multivariate

analysis whether significant differences existed over time, by gender, and by parents'

college history, as well as whether significant interactions existed among these three

independent variables.

CHAPTER FOUR: FINDINGS

This chapter presents an analysis of the nonexperimental survey research study of West Virginia students' perceptions of the factors affecting their educational aspirations and whether those factors differ over time, by gender, and by parents' college history. Statistical analyses were employed to analyze the extant quantitative subset of data from the West Virginia Department of Education (WVDE) GEAR UP survey research conducted by Edvantia in 2000-01 and 2002-03.

This analysis is organized by population and sample, demographic information, individual research questions, and a summary of findings. The five research questions include (1) To what extent will constructs emerging from West Virginia student data parallel the eight constructs identified as supporting student aspirations by the University of Maine's National Center for Student Aspirations? (2) To what extent do students' perceptions of these factors differ over time, from seventh to ninth grade? (3) To what extent do students' perceptions of these factors differ by gender? (4) To what extent do students' perceptions of these factors differ by parents' college history? (5) What are the interactions among the independent variables of time, gender, and parents' college history?

Population and Sample

This study used extant data from the survey research conducted by Edvantia in eight county school districts for the WVDE GEAR UP project s. A total of 1,642 seventh-grade student surveys were available from the January 2001 administration; a total of 1,301 ninth-grade student surveys were available from the September 2002 administration.

Sample. This study focused on a subset of the original extant data files. Three criteria were used to identify appropriate cases: (1) data were available from both the seventh and ninth grades; (2) matching of data across time periods was possible through identification codes; and (3) aspirations data were available at both the seventh and ninth grades. After data merging and verification, the total sample for this study was 664 cases.

Demographic Information

Sample data were retained from all eight counties originally participating in the WVDE GEAR UP project: Clay, Hampshire, Lincoln, Mason, McDowell, Monroe, Pocahontas, and Roane. The distribution across counties ranged from 2% for McDowell County to 23% for Mason County. Seven of the eight counties are classified as rural using the NCES urban-centric classification system; Mason County is classified as a town.

Of the 664 cases, 48% of the respondents were male and 52% were female. Students were asked to indicate whether any of their family members (mother, father, sibling, grandparent) had attended college or obtained a college degree. These data were transformed into a new variable with two values: (1) at least one parent had college experience and (2) neither parent had any college experience. While not as precise as knowing parents' exact education level, this variable does serve as a proxy. Of the 664 cases, 36% of the respondents indicated at least one parent had college experience and 40% of the respondents indicated neither parent had any college experience. Excluded from the analysis were the remaining 24%: 11% were unsure about both parents, 7% did not reply, and 7% were combinations of not sure, missing, and no experience.

In addition to the demographic variables noted above (gender and parents' college history), data included 28 items that comprise the eight conditions identified by the National Center for Student Aspirations as supporting students' aspirations. See Appendix F for a table of descriptive statistics for the seventh-grade responses to these aspirations items and Appendix G for the ninth-grade responses.

Research Question One

To what extent will constructs emerging from West Virginia student data parallel the eight constructs identified as supporting student aspirations by the University of Maine's National Center for Student Aspirations?

Exploratory factor analysis was used to empirically determine that five constructs (factors) emerged from the seventh-grade students' responses to the 28 aspirations items. None of the five factors were exact replicas of the University of Maine constructs. (See Appendix H for a brief summary on interpreting factor analysis results.)

A principal components factor analysis was generated using SPSS software. Cases were excluded listwise (i.e., excluding cases with missing responses to any of the 28 aspirations items), resulting in a total of 554 retained cases. This number far exceeds the recommended 10:1 N:P ratio (number of observations versus number of variables) for conducting factor analysis (Gable & Wolf, 1993). For this analysis, the number of factors was bounded only by having Eigenvalues above 1.00, with up to 50 iterations for convergence. Three different rotations were employed to find the simple structure or fit of the data: Varimax, Oblimin, and Promax.

The unconstrained factor analysis resulted in five factors with Eigenvalues greater than 1.00, accounting for 54% of the variance. All three rotations generated the same five factors (though in different order for the Oblimin rotation) with slight fluctuations of items and factor loadings across factors. See Appendix I for a summary of the rotated

Eigenvalues for each factor. The Promax rotation provided the best simple structure. For

this rotation, there was a better fit of the data—although items still loaded on multiple

factors, the values were much lower on factors other than the dominant one.

Table 6 presents the rotated coefficients for the 28 items from the Promax rotation.

The first column indicates the number of items within each factor (the heading refers to

the intensity with which each item loaded, not the actual survey item number). The

stronger the association between an item and factor (high coefficients), the quicker the

item will be assigned to a factor (i.e., the order in which items are numbered). See

Appendix J for the pattern matrix, which presents the survey items in their rotated order.

Table 6

Factor Analysis Results with Promax Rotation

Number of Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	.823	.706	.837	.746	.661
2	.797	.677	.634	.519	.517
3	.784	.590	.487	.507	.394
4	.771	.465		.491	
5	.760	.427			
6	.757				
7	.714				
8	.587				
9	.580				
10	.575				
11	.559				
12	.514				
13	.435				

Factor 1 contains a total of 13 items. Content investigation of the items within this factor revealed that 12 of the 13 items focus on some action or belief on the part of the teacher; therefore, this factor is named "Teacher Centric."

Factor 2 contains 5 items. The focus of this factor appears to be on students' perceptions of their own abilities; the factor name is "Self-Efficacy."

Factor 3 contains 3 items. These items focus more on classroom content; the factor name is "Curriculum."

Factor 4 contains 4 items. The focus of this factor is not as clear, but primarily seems to reflect students' proactiveness regarding their beliefs and actions; this factor is named "Self-Responsibility."

Factor 5 contains 3 items. With an emphasis on classroom fun, serving as a role model, and having strong relationships with adults, this factor is named "Connectedness."

Five factor-analytic-derived scales for the seventh-grade responses and ninth-grade responses were created by adding the item scores and then dividing by the number of items within a particular factor. This approach resulted in a similar metric for each scale, regardless of number of items. Possible scores ranged from 1 to 5. See Appendix K for details on the reliability of these scales.

Summary. Exploratory factor analysis was used to empirically determine that five constructs (factors) emerged from the seventh-grade students' responses to the 28 aspirations items. None of the five factors were exact replicas of the University of Maine constructs. A content analysis of the items within each factor resulted in naming the five factors: Teacher Centric, Self-Efficacy, Curriculum, Self-Responsibility, and

Connectedness. Five factor-analytic-derived scales were created for the seventh-grade and ninth-grade responses.

<div align="center">**Research Question Two**</div>

To what extent do students' perceptions of these factors differ over time, from seventh to ninth grade?

General Linear Model (GLM) Multivariate Analysis of Variance (MANOVA) was used to determine whether statistically significant differences existed in students' scale scores for the within-subjects or repeated measure variable of time. MANOVA analysis revealed a statistically significant difference by time; follow-up ANOVA analyses revealed that mean scores for four of the five scales (excluding Curriculum) decreased significantly from seventh to ninth grade.

Homogeneity. Box's Test of Equality of Covariance Matrices resulted in a significant value (*Box's M*(165, 416113.2) = 245.234, *p* .0001), indicating the covariance matrices of the dependent variables may be different. In order to adjust for this, the Wilks' Lambda test values were used to interpret the differences, rather than Pillai's Trace. The Levene test of equality of error variances resulted in significant values for two of the ten variables (five scale scores for both the seventh and ninth grades). These included Teacher Centric at the seventh grade (*F*(3, 463) = 3.489, *p* = .016) and Self-Efficacy at the seventh grade (*F*(3, 463) = 2.663, *p* = .047). This indicates that the variance for these two variables differed from the variance of the other eight variables. Subsequent inspection of the statistics for these variables revealed no data discrepancies and therefore the variables were retained in the analysis.

MANOVA. A multivariate analysis of variance was calculated examining the effect of time (seventh grade, ninth grade) on students' five scale scores (Teacher

Centric, Self-Efficacy, Curriculum, Self-Responsibility, and Connectedness). A significant within-subjects effect was found for time (*Lambda*(5, 459) = .844, *p* = .001, η_p^2 = .156). Partial eta squared (η_p^2) was calculated as a measure of the magnitude or practical significance of the difference. With an effect size of .156, time accounted for 16% of the variance in the scale scores.

The repeated measures component of the MANOVA resulted in transformed scale variables (average of each of the five scales across the two time periods). The means for these transformed variables ranged from 3.357 for Curriculum to 4.060 for Self-Efficacy (Teacher Centric = 3.529, Connectedness = 3.605, and Self-Responsibility = 3.834). Recall that responses originally could range from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

Follow-up univariate ANOVA. Follow-up ANOVA analyses revealed significant main effects by time for four of the five transformed scales. For all scales except Curriculum, students' seventh grade scores were significantly higher than their ninth grade scores. Especially of note is the Self-Efficacy scale—the mean score decreased .312 from the seventh to ninth grade (4.216 to 3.904). With the largest effect size of the five scales (.148), time accounted for 15% of the variance in the Self-Efficacy scale. Decreases over time for the other scales ranged from .052 for Curriculum to .207 for Self-Responsibility. See Table 7 for a summary of statistical details and mean scores by time.

Table 7

Statistical Details and Mean Scale Scores by Time

Scale	Type III Sum of Squares	df	Mean Square	F	Sig.	η_p^2	7th Grade Mean	9th Grade Mean	Differ-ence
Teacher Centric	3.727	1, 463	3.727	10.283	.001	.022	3.592	3.465	.127
Self-Efficacy	22.273	1, 463	22.273	80.667	.001	.148	4.216	3.904	.312
Curriculum	.627	1, 463	.627	1.232	.268	N/A	3.384	3.331	.052
Self-Responsibility	9.793	1, 463	9.793	29.208	.001	.059	3.937	3.731	.207
Connectedness	4.582	1, 463	4.582	11.575	.001	.024	3.676	3.535	.141

Summary. MANOVA analysis revealed a statistically significant difference by time; follow-up ANOVA analyses revealed that mean scores for four of the five scales decreased significantly from seventh to ninth grade. The four scales included Teacher Centric, Self-Efficacy, Self-Responsibility, and Connectedness.

Research Question Three

To what extent to students' perceptions of these factors differ by gender?

General Linear Model (GLM) Multivariate Analysis of Variance (MANOVA) was used to determine whether statistically significant differences existed in students' scale scores for the between-subjects variable of gender. MANOVA analysis revealed a statistically significant difference by gender; follow-up ANOVA analyses revealed that mean scores for all five scales were significantly higher for females than for males.

Homogeneity. Box's Test of Equality of Covariance Matrices and the Levene test of equality of error variances resulted in significant values. Appropriate adjustments were made when interpreting results.

MANOVA. A multivariate analysis of variance was calculated examining the effect of gender (males, females) on students' five scale scores (Teacher Centric, Self-Efficacy, Curriculum, Self-Responsibility, and Connectedness). A significant between-subjects effect was found for gender (*Lambda*(5, 459) = .938, *p* = .001, η_p^2 = .062). With an effect size of .062, gender accounted for 6% of the variance in the scale scores.

Follow-up univariate ANOVA. Follow-up ANOVA analyses revealed significant main effects by gender for all five transformed scales. For each scale, females scored significantly higher than males. Differences in mean scores ranged from .132 for Self-Efficacy to .274 for Teacher Centric. Effect sizes accounted for up to 5% of the variance in scale scores. See Table 8 for a summary of statistical details and mean scores by gender.

Table 8

Statistical Details and Mean Scale Scores by Gender

Scale	Type III Sum of Squares	Df	Mean Square	F	Sig.	η_p^2	Female Mean	Male Mean	Differ-ence
Teacher Centric	17.263	1, 463	17.263	23.836	.001	.049	3.666	3.392	.274
Self-Efficacy	3.967	1, 463	3.967	8.783	.003	.019	4.126	3.995	.132
Curriculum	7.001	1, 463	7.001	7.955	.005	.017	3.445	3.270	.175
Self-Responsibility	11.645	1, 463	11.645	19.637	.001	.041	3.947	3.721	.225
Connectedness	13.173	1, 463	13.173	18.557	.001	.039	3.725	3.486	.240

Summary. MANOVA analysis revealed a statistically significant difference by gender. Follow-up ANOVA analyses revealed that mean scores for all five scales were significantly higher for females than for males.

Research Question Four

To what extent do students' perceptions of these factors differ by parents' college history?

General Linear Model (GLM) Multivariate Analysis of Variance (MANOVA) was used to determine whether statistically significant differences existed in students' scale scores for the between-subjects variable of parents' college history. MANOVA analysis revealed a statistically significant difference by parents' college history; follow-up ANOVA analyses revealed that students with at least one parent with college experience scored significantly higher on Self-Efficacy than students whose parents had no college experience.

Homogeneity. Box's Test of Equality of Covariance Matrices and the Levene test of equality of error variances resulted in significant values. Appropriate adjustments were made when interpreting results.

MANOVA. A multivariate analysis of variance was calculated examining the effect of parents' college history (at least one parent with college experience, neither parent with college experience) on students' five scale scores (Teacher Centric, Self-Efficacy, Curriculum, Self-Responsibility, and Connectedness). A significant between-subjects effect was found for parents' college history (*Lambda*(5, 459) = .964, p = .005, η_p^2 = .036). With an effect size of .036, parents' college history accounted for 4% of the variance in the scale scores.

Follow-up univariate ANOVA. Follow-up ANOVA analyses revealed a significant main effect for one of the five transformed scales by parents' college history. For the Self-Efficacy scale, students with at least one parent with college experience scored significantly higher than students whose parents had no college experience. This

62

was the highest difference at .101; other differences in mean scores ranged from a low of .018 for Teacher Centric to a high of .083 for Connectedness. The effect size for Self-Efficacy was.011, indicating that parents' college history accounted for 1% of the variance in scale scores. See Table 9 for a summary of statistical details and mean scores by parents' college history.

Table 9

Statistical Details and Mean Scale Scores by Parents' College History

Scale	Type III Sum of Squares	df	Mean Square	F	Sig.	η_p^2	Some College Exp. Mean	No College Exp. Mean	Differ-ence
Teacher Centric	.072	1, 463	.072	.099	.753	N/A	3.538	3.520	.018
Self-Efficacy	2.345	1, 463	2.345	5.192	.023	.011	4.111	4.010	.101
Curriculum	.500	1, 463	.500	.568	.451	N/A	3.381	3.334	.047
Self-Responsibility	.269	1, 463	.269	.453	.501	N/A	3.817	3.851	-.034
Connectedness	1.596	1, 463	1.596	2.248	.134	N/A	3.647	3.564	.083

Summary. MANOVA analysis revealed a statistically significant difference by parents' college history; follow-up ANOVA analyses revealed that students with at least one parent with college experience scored significantly higher on Self-Efficacy than students whose parents had no college experience.

Research Question Five

What are the interactions among the independent variables of time, gender, and parents' college history?

General Linear Model (GLM) Multivariate Analysis of Variance (MANOVA) was used to determine whether statistically significant interactions existed between the

independent variables of time, gender, and parents' college history. No significant interactions were found among these variables at the MANOVA level.

Homogeneity. Box's Test of Equality of Covariance Matrices and the Levene test of equality of error variances resulted in significant values. Appropriate adjustments were made when interpreting results.

MANOVA. A multivariate analysis of variance was used to determine whether statistically significant interactions existed among the independent variables of time (seventh grade, ninth grade), gender (males, females), and parents' college history (at least one parent with college experience, neither parent with college experience). No significant interactions were found among these variables at the MANOVA level (*Lambda*(5, 459) = .996, *p* = .856). See Table 10 for a summary of statistical details.

Table 10

Statistical Details for Interactions Among Independent Variables

Effect	Variables	Lambda Value	F	Hypo-thesis df	Error df	Sig.	η_p^2
Between Subjects	Gender x Parent College	.993	.692	5	459	.630	N/A
Within Subjects	Time x Gender	.990	.907	5	459	.476	N/A
	Time x Parent College	.986	1.344	5	459	.244	N/A
	Time x Gender x Parent College	.996	.390	5	459	.856	N/A

Summary. No significant interactions were found among the independent variables at the MANOVA level. Therefore, follow-up ANOVAs were not interpreted.

Summary

Five constructs emerged via factor analysis with Promax rotation. These five factors retained all 28 of the survey items. The factors were converted to scales and named Teacher Centric, Self-Efficacy, Curriculum, Self-Responsibility, and Connectedness.

MANOVA analyses revealed statistically significant differences by time, gender, and parents' college history. Follow-up ANOVA analyses revealed that, for time, mean scores for four of the five scales (excluding Curriculum) decreased significantly from seventh to ninth grade. For gender, mean scores for all five scales were significantly higher for females than for males. For parents' college history, students with at least one parent with college experience scored significantly higher on Self-Efficacy than students whose parents had no college experience. No significant interactions were found among the independent variables at the MANOVA level.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

This section provides conclusions and recommendations for future research. First, though, brief summaries of the purpose, population and sample, methods, and findings are presented.

Purpose

The purpose of this study was to empirically investigate the perceptions of West Virginia students about factors affecting their educational aspirations and to determine whether these factors differed significantly over time, by gender, or by parents' college history. The study used the National Center for Student Aspirations theory of student aspirations to frame the investigation of students' perceptions. This theory emphasizes the need for grounding students' dreams for the future in the reality of what they are doing now.

The study proposed five research questions. The answers to the first question served as the dependent variables for the following three questions (each of which served as an independent variable). The last question addressed the interaction among the independent variables. Questions included: (1) To what extent will constructs emerging from West Virginia student data parallel the eight constructs identified as supporting student aspirations by the University of Maine's National Center for Student Aspirations? (2) To what extent do students' perceptions of these factors differ over time, from seventh to ninth grade? (3) To what extent do students' perceptions of these factors differ by gender? (4) To what extent do students' perceptions of these factors differ by parents' college history? (5) What are the interactions among the independent variables of time, gender, and parents' college history?

Population and Sample

In 2000, the West Virginia Department of Education (WVDE) was awarded a 5-year partnership grant to implement a GEAR UP project that included eight county school districts. As part of that project, WVDE contracted with Edvantia to administer and analyze surveys to gather baseline information on incoming seventh-grade students' awareness and perceptions of, interest in, and aspirations for postsecondary education.

In Year 1 of the GEAR UP project (2000-01), student surveys were distributed to 1,900 seventh graders in the eight-county region. In Year 3 of the project (2002-03), a follow-up survey was administered to the ninth-grade students (originally the first cohort of seventh graders).

Sample. This study focused investigation on the extant data from those students who completed GEAR UP surveys as a seventh and ninth grader **and** whose surveys were able to be matched across years. Of the approximately 1,500 students who potentially could have completed both instruments and been matched across surveys, slightly less than half (664 students) were matched using the identification codes. This subset of students comprised the sample for this study.

Methods

This study utilized extant survey data from 664 students who completed surveys in the seventh and ninth grades as part of the West Virginia Department of Education GEAR UP project, during school years 2000-01 and 2002-03. Student data were matched across the two years. In addition to demographic variables (gender and parents' college history), 28 survey items originating from the University of Maine's "Students Speak"

survey were used in this study. These 28 items are purported to comprise eight conditions that support students' aspirations.

Factor analysis of the extant data determined empirically whether the same eight conditions were perceived by this population of students. Emergent factors were used to investigate via multivariate analysis whether significant differences existed over time, by gender, and by parents' college history, as well as whether significant interactions existed among these variables.

Findings

A summary of key findings from this study of the conditions affecting students' educational aspirations is provided below. The summary is organized around the five research questions.

Research question one. Exploratory factor analysis was used to empirically determine the constructs (factors) emerging from the seventh-grade students' responses to the 28 aspirations items. An unconstrained principal components factor analysis with Promax rotation resulted in five factors with Eigenvalues above 1.0. None of the five factors were exact replicas of the University of Maine constructs. A content analysis of the items within each factor resulted in naming the five factors: Teacher Centric, Self-Efficacy, Curriculum, Self-Responsibility, and Connectedness. Five factor-analytic-derived scales for the seventh-grade responses and ninth-grade responses were created by adding the item scores and then dividing by the number of items within a particular factor. This approach resulted in a similar metric for each scale, regardless of number of items. Possible scale scores ranged from 1 to 5.

Research question two. MANOVA analysis revealed a statistically significant difference by time; follow-up ANOVA analyses revealed that mean scores for four of the five scales (Teacher Centric, Self-Efficacy, Self-Responsibility, and Connectedness) decreased significantly from seventh to ninth grade.

Research question three. MANOVA analysis revealed a statistically significant difference by gender; follow-up ANOVA analyses revealed that mean scores for all five scales were significantly higher for females than for males.

Research question four. MANOVA analysis revealed a statistically significant difference by parents' college history; follow-up ANOVA analyses revealed that students with at least one parent with college experience scored significantly higher on Self-Efficacy than students whose parents had no college experience.

Research question five. No significant interactions were found among time, gender, and parents' college history at the MANOVA level. This indicates that the differences in the dependent variable scores were due to the individual effects of each of three independent variables and not to any interactive, moderating effects among them.

Conclusions

Theory of Student Aspirations

According to the theory of aspirations supported by the National Center for Student Aspirations at the University of Maine, the 28 items from the Students Speak survey represent eight conditions that support aspirations: belonging, heroes, sense of accomplishment, fun and excitement, spirit of adventure, curiosity and creativity, leadership and responsibility, and confidence to take action. Factor analysis of West Virginia data revealed that only five factors (or conditions) exist for this set of data.

69

While none of the original eight conditions emerged as exact replicas from the West Virginia data, all eight are represented to some degree within the five emergent factors. As shown in Table 11, Belonging is the only one of the eight University of Maine conditions in which all of its items (four) remained together and loaded within a single factor (Factor One).

Table 11

Cross-Walk Between Factor Analysis Results with University of Maine Conditions

Factor One: Teacher Centric	Factor Two: Self-Efficacy	Factor Three: Curriculum	Factor Four: Self-Respons.	Factor Five: Connectedness
4 Belonging	2 Conf. Action	1 Spirit of Adv.	1 Ldrship/Resp.	2 Heroes
2 Heroes	2 Sense of Acc.	1 Curiosity/Cr.	1 Conf. Action	1 Fun/Excite.
2 Curiosity/Cr.	1 Curiosity/Cr.	1 Fun/Excite.	1 Heroes	
2 Sense of Acc.			1 Spirit of Adv.	
1 Spirit of Adv.				
1 Fun/Excite.				
1 Ldrship/Resp.				

More recent research by the University of Maine's National Center for Student Aspirations (2006) has focused on a condensed framework (the *Three Constructs of Aspirations*) that focuses on three rather than eight constructs: social supports (emotional support, guidance, and recognition by school personnel); intrinsic motivation (students' desire and effort to reach academic goals); and self-efficacy (students' belief in their ability to accomplish tasks, make decisions, and achieve their goals). They posit these

internal and external factors can foster students' sense of place and belonging, motivation, and confidence.

Results from this study more closely parallel the revised framework than the original eight-construct first supported by the National Center for Student Aspirations. Both study results and the condensed framework include a dimension of Self-Efficacy; three of the five study factors map onto the dimension of social supports (Teacher Centric, Curriculum, and Connectedness); and Self-Responsibility seems related to intrinsic motivation. Further, results from the National Center for Student Aspiration's statewide study of Maine youth revealed similar trends as found in this study of West Virginia youth: All three constructs resulted in higher scores for females than males and showed decreased scores from the seventh to ninth grade.

The Self-Efficacy factor was most likely to show differences across groups in this study. This factor showed the most decrease in mean scores from seventh to ninth grade and it also pinpointed a higher mean score for those students whose parents had some college experience as compared to those students whose parents had no college experience.

Further, Self-Efficacy and Self-Responsibility appear to be the two constructs most closely tied to the two key components of aspirations: ambitions and inspiration. Self-Efficacy refers to students' perceptions of their own abilities—ambitions to an individual's ability to look ahead and invest in the future. If students have low self images, and doubt they have what it takes to succeed, it would be exceedingly difficult for them to feel confident enough to make solid plans for the present—much less for their future. Similarly, Self-Responsibility implies a level of proactiveness on the part of the

71

student, and inspiration refers to an individual's ability to invest the time and energy in the present to reach future ambitions. If students are lacking a sense of responsibility for their actions in the present, then it would be difficult for them to actively work toward any future goals they might have established.

In general, the findings from this study of West Virginia youth seem to confirm the theory of aspirations, although not the same exact eight constructs, espoused by the National Center for Student Aspirations. If students have low perceptions (i.e., scores) of the level of support for the five constructs identified in this study, then it seems reasonable to assume these youth would find it more difficult to understand the connection between the present and the future. In short, they may be unintentionally sabotaging their futures by neglecting the present.

Implications. Educators are continually striving to improve student performance, including increasing their educational aspirations. This study has confirmed that one critical focus of such initiatives is to intervene at the middle school and early high school years to ensure that students have the necessary supports in place to help them succeed. Efforts may be geared toward the classroom, school, district, or state level. First and foremost is the need to create and sustain supportive school climates.

School staff can help students increase their perceptions of themselves (i.e., self-efficacy, self-esteem, self-confidence) by building trusting relationships with students and fostering student responsibility and empowerment. To further engage students in the learning process, staff can use a variety of classroom learning opportunities, challenge students intellectually, and use place-based curriculum that meets state standards and makes the content relevant and meaningful to students within their community context.

School staff can foster students' sense of connection or belonging by helping them feel valued, accepted, and respected; having high expectations for students, yet also providing supports necessary for them to meet those expectations; and encouraging students to participate in extracurricular, after-school, and/or community activities (University of Maine, 2006).

Ties to Origins of Aspirations

Early aspiration research revolved around level of aspiration, social comparison, and achievement motivation. Level of aspiration theory emphasizes how aspirational levels are influenced by an individual's past experiences, current successes and/or failures, and group standards. Students who have already experienced academic failure in their past, moving through schools with little social support and in which overall academic achievement is low, are at real risk of having stunted levels of aspiration. Opportunities for successful experiences must be provided to these youth. Helping students feel connected to their school environment and feel safe enough to actively engage and explore and take risks—within a rich, rigorous academic context that values and expects student effort—could help provide a strong foundation for students' educational aspirations.

Current Research

In general, findings from this study supported the trend of a decrease in students' perceptions of themselves in terms of their abilities and confidence, and in terms of their connection to their schools, as they progress through middle school into high school (American Association of University Women, 1994; Gassin & Kelly, 1993; Sadker & Sadker, 1994). In related dissertation research involving the 1992 version of the Student

Aspirations Survey by the University of Maine's National Center for Student Aspirations, Messick (2000) found, in general, the same trend of decreasing perceptions from seventh to eighth grade.

Findings from this study also paralleled those of researchers who found gender differences in general (Chenoweth, 2003; Pottorff et al., 1996; Trusty et al., 2000). And, more specifically, that females reported higher levels of satisfaction with themselves, their abilities, their educational aspirations, and the support they receive at school (Dunne et al., 1981; Mau & Bikos, 2000; Mau et al., 1998; Messick, 2000; Pollack, 1998; Robertson, 2000). In related dissertation research involving the conditions supporting aspirations, Messick (2000) also found gender disparities, with females in general scoring higher than males. In similar dissertation research, Robertson (2000) found that females had higher perceptions of their sense of accomplishment than males.

Findings related to parents' college history confirmed earlier research by Camblin (2003) and Saenz et al. (2007). Those students with parents who had no college experience had lower perceptions of their abilities and were less supported at school than their counterparts whose parents had at least some college experience.

This study supports the importance of the school climate in influencing students' educational aspirations. The largest and strongest factor was teacher centric. Twelve of the 13 of the items within this factor focused specifically on some expectation of or action by the teacher—i.e., teachers expect me to succeed, teachers expect me to be a good decision-maker, teachers help me to succeed, and teachers care about my problems and feelings. What teachers believe, say, and do has far-reaching impacts on students and their perceptions of themselves.

This emphasis on the support provided within the school environment ties in with Esveld's (2004) summarization of supports for and barriers to rural schooling. Key supports included low student/teacher ratios—having a low ratio of students to teacher would provide more opportunities for teachers to interact with students and foster more of a supportive environment. Key barriers included a lack of role models and less qualified teaching staff. If more qualified teachers were present within the school, they could serve as those role models as well as provide a richer, more meaningful educational context for students' learning to take place.

Implications. Educational initiatives such as federal programs (GEAR UP, TRIO, or other college access programs) and philanthropic scholarship programs (Gates Foundation, McKelvey Foundation) can use findings from this study to inform their practices. Study findings can also be used to help shape program criteria and interventions.

This study has implications for teacher preparation, as well. Given the importance of teachers' beliefs and behaviors on students' sense of support, it may be that additional training is needed to heighten teachers' awareness of their impact on students and to provide them with specific techniques for helping foster students' social as well as academic growth.

Another area of emphasis is the need to equalize the levels of support for both males and females. While ample research exists to support claims for inequities for either gender, this study found that males felt less supported in each of the five constructs that support their educational aspirations. In addition to increasing efforts at the classroom and school levels to equalize student support, gender-based youth organizations (Boy

Scouts, Girl Scouts, YMCA, YWCA) can use findings from this study as they design program activities.

This study also has rural implications. As noted by Esveld (2004), key barriers to rural schools included few role models for higher education attainment and limited curriculum. This reaffirms the necessity of enhancing students' connections with school staff, i.e., the Teacher Centric construct, and of offering learning opportunities that encourage student decision-making and connect to students' everyday lives, i.e., the Curriculum construct. Similarly, other rural researchers (Howley, 2006; Howley et al., 1996) have emphasized the importance of "place" to rural students, highlighting the need to help students feel like they "belong" in their school environments, i.e., the Connectedness construct.

West Virginia youth in this study were from rural counties that were below state and national averages in terms of income, high school graduation rates, and college-going rates. How can schools already struggling with these economic, financial, and academic challenges find the resources to take their school improvement efforts beyond NCLB's accountability and into the realm of creating and sustaining supportive school climates where youth can flourish? It will take a collaborative, concerted effort—by parents, families, schools, communities, and businesses—to ensure rural youth have access to the tools and information needed to inform their decision-making in terms of educational aspirations and goals. So that regardless of the path that students set for themselves, they can do so with full awareness and support.

Recommendations for Future Research

A number of recommendations emerged from this study investigating students'
perceptions of the factors affecting their educational aspirations. Each recommendation is
presented below.

First, continue research using the University of Maine's National Center for
Student Aspirations theory on students' aspirations as a framework or point of departure
when adding other constructs of interest to survey research. Additional research might be
based on the more recent *Three Constructs of Aspirations*, which includes an expanded
and revised set of items.

Second, expand such research to include more diverse samples—both
geographically and ethnically. The current study was bounded by the constraints of locale
(rural) and ethnicity (98% White). Although the University of Maine's more recent
research did disaggregate student findings by race for the state of Maine (University of
Maine, 2006), no information on locale differences was reported. Further, neither study
included data from more urbanized areas of the United States.

Third, future research should attempt to investigate differences in perceived
constructs and the levels of support for those constructs across a variety of settings.
Possibilities include investigating whether significant differences exist between urban
and rural students' perceptions; between middle school and high school students'
perceptions; or, between perceptions of students in large schools versus students in small
schools.

Fourth, future research should include a more sensitive measure of parents'
college history. While the proxy measure used in this study did detect one difference

between students whose parents had no college experience and those with at least one parent with any college experience, this did not allow investigation by extent of college experience, i.e., some coursework, undergraduate degree, graduate degree, etc.

Fifth, future research should include some measure of socioeconomic status. Although the data for this study came from counties with median household and per capita money incomes below state and national averages, there was no opportunity to mine the data using this measure as an independent variable.

Sixth, future research should include school-level variables such as Title I status and performance level (adequate yearly progress status or other indicators). Investigation of these school effects may reveal significant findings that could bolster efforts to support students' aspirations.

Seventh, future research should include a measure of teachers' perceptions of their attitudes toward and expectations of students, in addition to data collection on students' aspirations. This would allow for triangulation between teachers and students to identify commonalities and/or disparities.

Eighth, longitudinal studies related to students' aspirations should include data collection beyond high school. Following up with students after high school graduation, and then annually for several years would provide a more complete picture of how students' educational aspirations were formed, what factors affected those aspirations, and whether their aspirations came to fruition. Recognizing the constraints to such an approach, even obtaining one post-high school data point would be of extreme value.

Ninth, building in a qualitative component to such research efforts would allow for a more complete understanding of the unique contexts in which our rural youth are

situated. Qualitative methods would also foster a more comprehensive understanding of the meaning behind students' perceptions of conditions that support or impede their educational aspirations.

Although one individual study may not be able to incorporate all of the above suggestions, each recommendation would help build the research base on this topic. And, each may help in unpacking and revealing the reasons underlying the observed findings.

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APPENDICES

Appendix A: Festinger's Nine Hypotheses of Social Comparison Theory (1954) and Collier's Synthesized Hypotheses (1994)

Appendix B: The Structure of Education in the United States

Appendix C: Marshall University IRB Approval Notification

Appendix D: Edvantia Letter of Permission

Appendix E: West Virginia Department of Education Letter of Permission

Appendix F: Descriptive Statistics for Seventh-Grade Responses to Aspirations Items

Appendix G: Descriptive Statistics for Ninth-Grade Responses to Aspirations Items

Appendix H: Brief Summary on Interpreting Factor Analysis Results

Appendix I: Initial and Rotated Eigenvalues for Five Factors

Appendix J: Pattern Matrix from Promax Rotation

Appendix K: Reliability Information for Factor-Derived Scales

Festinger's Nine Hypotheses of Social Comparison Theory (1954)
and Collier's Synthesized Hypotheses (1994)

Festinger's Nine Hypotheses (1954)	Collier's Synthesized Hypotheses (1994)
(1) "There exists, in the human organism, a drive to evaluate his opinions and his abilities" (p. 117).	"People have a need to evaluate their beliefs and level of ability" (p. 82).
(2) "To the extent that objective, non-social means are not available, people evaluate their opinions and abilities by comparison respectively with the opinions and abilities of others" (p. 118).	"When objective evidence is not available, they tend to use other people as a source of social comparison" (p. 82).
(3) "The tendency to compare oneself with some other specific person decreases as the difference between his opinion or ability and one's own increases" (p. 120).	"People tend to prefer others who are similar"—comparing "ourselves with others who hold similar beliefs because consensus within a group tends to confirm the correctness of our views" (p. 83).
(4) "There is a unidirectional drive upward in the case of abilities which is largely absent in opinions" (p. 124).	"There is a unidirectional upward drive for abilities (where people strive to do better and better) that is largely absent in the case of opinions"—hence, "group members strive to improve just up to a point where they are slightly better than other members of the group. The group serves as a powerful anchor that limits the level of aspiration, particularly when the group is cut off from other groups" (p. 83).
(5) "There are non-social restraints which make it difficult or even impossible to change one's ability. These non-social restraints are largely absent for opinions" (p. 125).	"Nonsocial factors also make it difficult or impossible to improve beyond a certain point" (p. 83).
(6) "The cessation of comparison with others is accompanied by hostility or derogation to the extent that continued comparison with those persons implies unpleasant consequences" (p. 129).	"When people stop comparing their performance with others, they tend to derogate those others and feel hostile" (p. 83).
(7) "Any factors which increase the importance of some particular group as a comparison group for some particular opinion or ability will increase the pressure toward uniformity concerning that ability or opinion within that group" (p. 130).	"Any factor increasing the importance of the group, such as group attractiveness or topic relevance, will increase pressures toward uniformity" (p. 83).
(8) "If persons who are very divergent from one's own opinion or ability are perceived as different from oneself on *attitudes consistent with the divergence*, the tendency to narrow the range of comparability becomes stronger" (p. 133).	
(9) "When there is a range of opinion or ability in a group, the relative strength of the three manifestations of pressures toward uniformity will be different for those who are close to the mode of the group than for those who are distant from the mode. Specifically, those close to the mode of the group will have stronger tendencies to change the positions of others, relatively weaker tendencies to narrow the range of comparison and much weaker tendencies to change their own position compared to those who are distant from the mode of the group" (pp. 134-135).	

APPENDIX B:
The Structure of Education in the United States
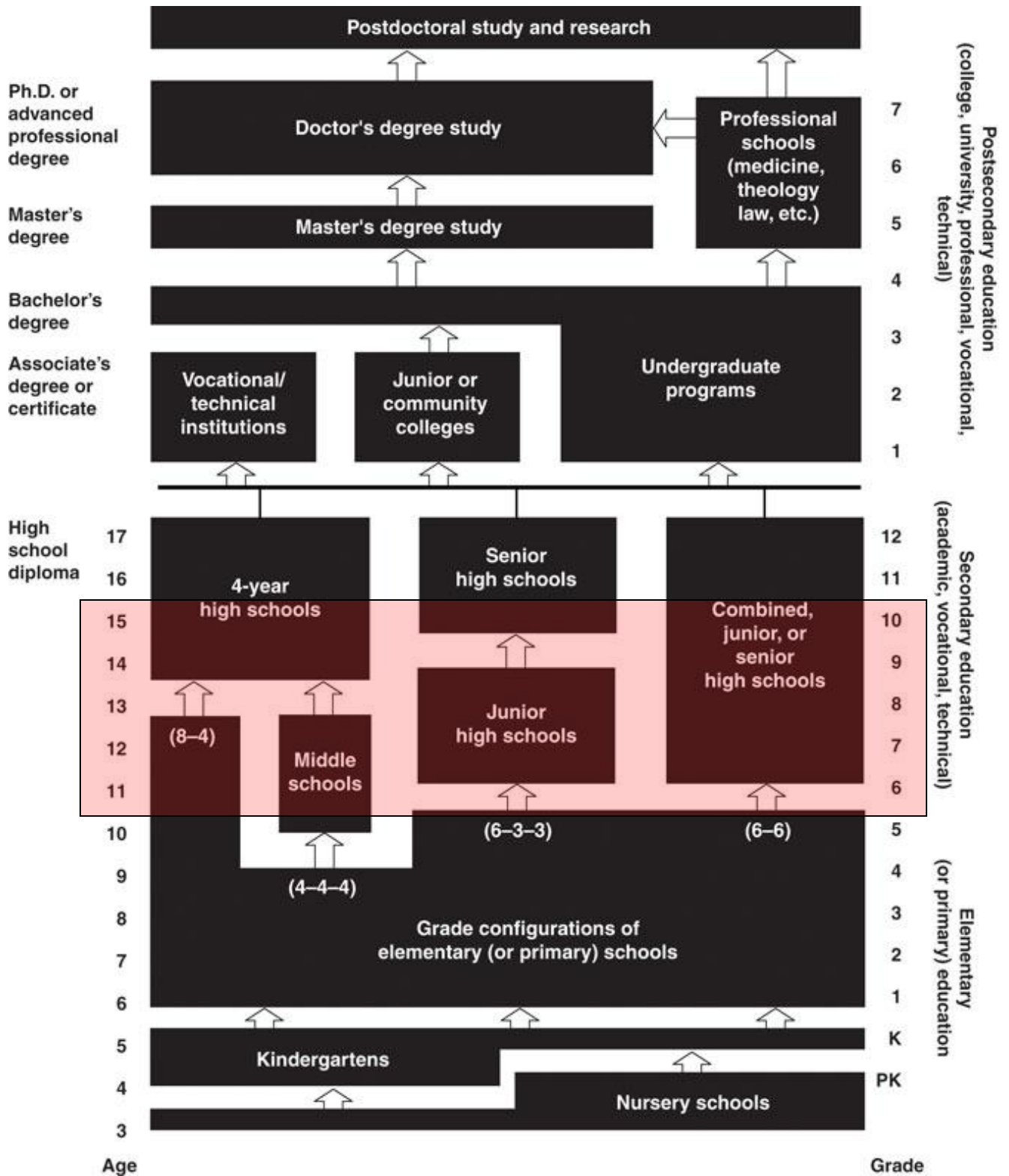
APPENDIX C:
Marshall University IRB Approval Notification

MARSHALL UNIVERSITY
www.marshall.edu

Office of Research Integrity
Institutional Review Board

Tuesday, January 22, 2008

Rudy Pauley, Ed.D.
Elementary/Secondary Education
100 Angus E. Peyton Dr.
South Charleston, WV. 25303

RE: IRB Study # EX08-0062   **At:** Marshall IRB 2

Dear Dr. Pauley:

Protocol Title:
Investigating West Virginia Middle School Students' Perceptions of the Factors Affecting Their Educational Aspirations

Expiration Date:	1/21/2009	
Our Internal #:	4363	
Type of Change:	(Other)	Exempted
Expedited ?:		
Date of Change:	1/18/2008	
Date Received:	1/18/2008	
On Meeting Date:		
Description:	In accordance with 45CFR46.101(b)(4), the above study was granted Exempted approval today by the Marshall University IRB#2 Chair for the period of 12 months. The approval will expire 1/21/09. A continuing review request for this study must be submitted no later than 30 days prior to the expiration date.	

The purpose of this survey study is to twofold. First, it will empirically investigate the perceptions of WV middle school students about factors affecting their educational aspirations. Second, it will investigate whether these factors differ significantly over time, by gender, or by family history of college.

Respectfully yours

Stephen D. Cooper, Ph.D.
Marshall University IRB #2 Chairperson

WE ARE... **MARSHALL** ™

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January 8. 2008

To Whom It May Concern:

Edvantia grants permission for Kimberly Cowley to use extant data resulting from Edvantia's contract with the West Virginia Department of Education to collect, analyze, and report student survey data for the 2000-2005 GEAR UP project. I understand that Ms. Cowley will be using portions of the extant student database for her Marshall University dissertation research on middle school students' perceptions of the conditions affecting their educational aspirations. I further understand that no assistance or further involvement will be requested from Edvantia toward this effort and that no new data collection will take place.

If you have questions, please contact me at 304-347-1896 or doris.redfield@edvantia.org.

Thank you.

Doris Redfield, Ph.D.
President and CEO

dr/kc
cc Karen Bradley
     Rose Mary Lett

www.edvantia.org

West Virginia
Department of Education

Dr. Steven L. Paine, State Superintendent of Schools
1900 Kanawha Boulevard, East, Building 6
Charleston, West Virginia 25305-0330
Phone: 304-558-2681
Fax: 304-558-0048

http://wvde.state.wv.u

December 6, 2007

To Whom It May Concern:

This letter is to confirm the West Virginia Department of Education (WVDE) grants permission for Kimberly Cowley to use extant data resulting from EDvantia's contract with the WVDE to collect, analyze and report student survey data for the 2000-2005 GEAR UP project. We understand that she will be using portions of the extant student database for Marshall University doctoral dissertation research on middle school students' perceptions of the conditions affecting their educational aspirations. We also understand that no assistance or further involvement will be required from the WVDE and that no new data collection will take place.

If you have questions, please feel free to contact me at shopkins@access.k12.wv.us or by phone at 304-558-2346.

Sincerely,

Stanley E. Hopkins
Assistant State Superintendent of Schools

SH:gj

APPENDIX F:
Descriptive Statistics for Seventh-Grade Responses to Aspirations Items

Aspiration Items	Number of Cases	Mean	Standard Deviation	Skewness	Kurtosis
I usually have fun in class.	644	3.62	1.13	-0.96	0.15
I am a positive role model to other students.	643	3.34	1.05	-0.26	-0.18
Teachers care about my problems and feelings.	644	3.45	1.10	-0.46	-0.25
Teachers respect my thoughts.	646	3.46	1.05	-0.48	-0.11
I seek solutions to complex problems.	639	3.64	0.95	-0.63	0.32
I have a strong caring relationship with an adult.	645	4.01	1.02	-1.06	0.79
Teachers care about my success in class.	641	3.89	0.96	-0.85	0.70
I believe I can always improve.	643	4.40	0.74	-1.42	2.87
Teachers expect me to succeed.	639	4.05	0.86	-0.67	0.25
I am confident in my ability to do well.	644	4.28	0.78	-1.30	2.78
I take action on causes I believe in.	648	3.96	0.87	-0.79	0.80
Teachers value my opinions.	645	3.37	0.96	-0.44	0.17
I accept responsibility for my actions.	645	4.04	0.84	-1.18	2.01
I am proud of my school.	648	3.47	1.25	-0.62	-0.60
Teachers help me to succeed.	646	3.88	0.97	-1.04	1.08
I put forth the necessary effort to reach a goal.	643	4.14	0.79	-0.85	0.74
Teachers support me when I try something new.	643	3.56	1.04	-0.62	-0.08
My courses help me to understand what is happening in my everyday life.	647	3.56	0.99	-0.56	0.06
Teachers tell me I do a good job when I try my best.	647	3.82	1.07	-0.96	0.38
I am eager to learn new things.	639	4.12	0.89	-1.27	2.14
Teachers make learning exciting.	644	3.16	1.22	-0.31	-0.93
I have a teacher who is a positive role model for me.	645	3.56	1.21	-0.53	-0.65
Teachers allow me to explore topics I find interesting.	637	3.43	1.12	-0.53	-0.45
I am not usually bored in school.	641	2.96	1.34	-0.13	-1.28
Teachers expect me to be a good decision-maker.	641	3.78	0.98	-0.84	0.64
Anyone can succeed if they work hard enough.	644	4.37	0.86	-1.66	3.06
I have opportunities to decide for myself what I learn about in school.	646	3.67	1.10	-0.80	0.13
Teachers encourage me to ask questions.	647	3.78	1.08	-0.89	0.30

Descriptive Statistics for Ninth-Grade Responses to Aspirations Items

Aspiration Items	Number of Cases	Mean	Standard Deviation	Skewness	Kurtosis
I usually have fun in class.	635	3.37	1.15	-0.61	-0.60
I am a positive role model to other students.	636	3.31	1.00	-0.49	0.11
Teachers care about my problems and feelings.	639	3.26	1.02	-0.41	-0.08
Teachers respect my thoughts.	633	3.33	1.00	-0.54	0.09
I seek solutions to complex problems.	631	3.61	0.87	-0.66	0.74
I have a strong caring relationship with an adult.	634	3.91	0.99	-0.89	0.60
Teachers care about my success in class.	631	3.68	0.94	-0.69	0.58
I believe I can always improve.	636	4.07	0.86	-1.00	1.22
Teachers expect me to succeed.	632	3.76	0.90	-0.66	0.65
I am confident in my ability to do well.	635	3.87	0.86	-0.88	1.07
I take action on causes I believe in.	630	3.83	0.86	-0.75	0.89
Teachers value my opinions.	627	3.38	0.93	-0.54	0.41
I accept responsibility for my actions.	626	3.86	0.89	-1.15	1.87
I am proud of my school.	630	3.62	1.06	-0.72	0.12
Teachers help me to succeed.	628	3.60	0.97	-0.83	0.56
I put forth the necessary effort to reach a goal.	631	3.85	0.86	-0.87	1.02
Teachers support me when I try something new.	631	3.43	0.93	-0.54	0.38
My courses help me to understand what is happening in my everyday life.	628	3.45	0.95	-0.61	0.24
Teachers tell me I do a good job when I try my best.	621	3.63	1.01	-0.93	0.55
I am eager to learn new things.	631	3.75	0.95	-0.93	0.92
Teachers make learning exciting.	635	3.05	1.10	-0.19	-0.71
I have a teacher who is a positive role model for me.	629	3.45	1.06	-0.54	-0.15
Teachers allow me to explore topics I find interesting.	635	3.28	1.03	-0.54	-0.13
I am not usually bored in school.	626	2.95	1.20	-0.24	-1.02
Teachers expect me to be a good decision-maker.	623	3.62	0.88	-0.68	0.83
Anyone can succeed if they work hard enough.	628	4.06	0.95	-1.09	1.09
I have opportunities to decide for myself what I learn about in school.	630	3.67	0.97	-0.85	0.81
Teachers encourage me to ask questions.	625	3.65	0.98	-0.86	0.62

APPENDIX H:
Brief Summary on Interpreting Factor Analysis Results

Although factors are artificial variables, they are defined in terms of the variables on which they are based—in this case, the 28 aspirations items. Coefficients (loadings) are correlations between the scores on individual items and factors that vary between ± 1.00 and indicate the strength and direction of a relationship between an item (variable) and a factor. A high positive coefficient or loading indicates that an item contributes extensively to the composition of a factor. The most desirable outcome is for an item to load on only one factor, or at least to have a high loading on one factor and low ones on other factors. However, items do sometimes load on multiple factors (cross-load), and researchers generally assign the item to the factor with which it is most strongly associated (highest coefficient).

Three different rotations were employed to find the simple structure or fit of the data. Varimax is the most common rotation option, resulting in a right-angle orthogonal display of axes (perpendicular or uncorrelated axes). Oblimin (oblique) and Promax are both nonorthogonal rotation options, which allow the axes to diverge from right angles, becoming correlated to some extent.

The Kaiser-Meyer-Olkin (KMO) test is a measure of the degree to which the distribution of values is adequate for conducting a factor analysis. With a measure of .95, the distribution of values was more than adequate for this technique. The Bartlett test of sphericity is a measure of the multivariate normality of the distributions. With a Chi-Square value of 6105.39 (378 degrees of freedom) and a significant p value of .0001, the data are multivariate normal and appropriate for factor analysis.

APPENDIX I:
Initial and Rotated Eigenvalues for Five Factors

Factors	Initial Eigenvalues	Eigenvalues after Varimax Rotation	Eigenvalues after Oblimin Rotation	Eigenvalues after Promax Rotation
1	9.42	6.36	8.13	8.52
2	2.30	3.34	4.44	4.03
3	1.24	2.08	2.97	4.46
4	1.14	1.85	1.46	3.84
5	1.01	1.48	4.47	1.78

APPENDIX J:
Pattern Matrix from Promax Rotation

This table presents the actual items in their rotated order with coefficients for the dominant factor as well as any cross-loadings above .100 (for ease in interpreting the table, loadings less than .100 were not included). Item loadings included in each factor are emphasized in bold.

Items	1	2	3	4	5
Teachers care about my problems and feelings.	**.823**				.174
Teachers respect my thoughts.	**.797**				.152
Teachers help me to succeed.	**.784**				-.121
Teachers value my opinions.	**.771**	-.113			.124
Teachers care about my success in class.	**.760**	.218		-.139	.136
Teachers support me when I try something new.	**.757**			.116	
Teachers encourage me to ask questions.	**.714**				-220
Teachers tell me I do a good job when I try my best.	**.587**		.258		-.186
Teachers expect me to succeed.	**.580**	.505	-.173	-.205	
Teachers allow me to explore topics I find interesting.	**.575**	-.108	.184	.138	
Teachers make learning exciting.	**.559**	-.230	.214	.213	.151
Teachers expect me to be a good decision-maker.	**.514**	.294	.132		-.349
I am proud of my school.	**.435**	-.114	.107	.318	
I am confident in my ability to do well.	-.111	**.706**	.109	.118	.127
I believe I can always improve.	-.103	**.677**		.113	.222
I put forth the necessary effort to reach a goal.	-.152	**.590**		.352	
I seek solutions to complex problems.		**.465**			.233
Anyone can succeed if they work hard enough.		**.427**	.184	.118	
I have opportunities to decide for myself what I learn about in school.		.207	**.837**	-.265	.108
I am not usually bored in school.	.181		**.624**		.246
My courses help me to understand what is happening in my everyday life.	.149		**.487**	.104	
I take action on causes I believe in.		.283	-.246	**.746**	
I accept responsibility for my actions.		.312	.102	**.519**	-.198
I have a teacher who is a positive role model for me.	.484		-.258	**.507**	.103
I am eager to learn new things.		.339		**.491**	.176
I usually have fun in class.		.116	.474	-.11	**.661**
I am a positive role model to other students.		.340			**.517**
I have a strong caring relationship with an adult.		.363		.251	**.394**

APPENDIX K:
Reliability Information for Factor-Derived Scales

Cronbach Alpha reliability coefficients were generated for each scale for the full group for each grade level. Across grade levels, Alpha reliability coefficients ranged from .45 to .94. Not unexpectedly, scales with fewer items resulted in lower coefficients. The table below depicts the scales, number of items, number of cases in each analysis, and the Alpha coefficient for each grade level.

Scales	Seventh Grade			Ninth Grade		
	Number of Items	Number of Cases	Alpha	Number of Items	Number of Cases	Alpha
Teacher Centric	13	586	.92	13	540	.94
Self-Efficacy	5	611	.71	5	601	.82
Curriculum	3	634	.57	3	611	.60
Self-Responsibility	4	628	.62	4	601	.74
Connectedness	3	634	.45	3	613	.57

CURRICULUM VITAE

KIMBERLY S. COWLEY

EDUCATION

Marshall University
> Doctor of Education in Curriculum and Instruction, 2008
> Education Specialist, 2006
> Master of Arts in Secondary Education, 2002
> Certificate in Behavioral Statistics, 2002

University of Charleston
> Bachelors of Arts in Social Sciences, 2000
> Associate of Arts in Business Administration, 1996

WORK EXPERIENCE

2004-present   Research and Evaluation Specialist II, Edvantia, Charleston, WV

Fall 2004   Taught Program Evaluation course, Marshall University Graduate College

2000-2004   Research Associate, Edvantia, Charleston, WV

1996-2000   Research Assistant, Edvantia, Charleston, WV

1985-1996   Executive Secretary, Edvantia, Charleston, WV

1979-1985   Secretary, Edvantia, Charleston, WV

1978-1979   Stenographer, WV Dept. of Health and Human Services, Charleston, WV

HONORS AND RECOGNITION

From 2002-08, received national recognition by the AERA Division H Outstanding Publications Competition for 10 reports (1st Place, 2nd Place, and/or Honorable Mention).

From 2000-06, received seven Golden Quill awards for national recognition by Edvantia.

From 2003-05, served as invited member of the NACAC Advisory Council.

From 2003-06, served as invited member of the Helping Teens Succeed Advisory Board.

PROFESSIONAL CREDENTIALS

Earned Certificate in Evaluation Practice from The Evaluators' Institute in April 2008.