EXPLORING THE RELATIONSHIP BETWEEN STUDENT ENGAGEMENT FACTORS AND ENTRY TO POSTSECONDARY PROGRAMS: A SECONDARY ANALYSIS

by

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Title: EXPLORING THE RELATIONSHIP BETWEEN STUDENT ENGAGEMENT FACTORS AND ENTRY TO POSTSECONDARY PROGRAMS: A SECONDARY ANALYSIS

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This study used the existing database of 1,052 schools contained in the National Education Longitudinal Study of 1988 to examine the predictors that were related to high school students' enrollment in postsecondary education (PSE). In order to determine which school-related experiences had an impact on the students' enrollment in PSE, a multiple regression analysis was conducted.

The results indicate that student attendance rates and "being held back" are significant predictors for predicting postsecondary enrollment across all analyses and for subpopulations disaggregated by race, SES, and gender. Recommendations to encourage student enrollment in postsecondary programs include providing grade level interventions to avoid the detrimental effects of a student repeating a grade, as well as developing programs to increase student engagement levels in the high school setting.

Limitations to the study include control strategies for confounding factors. The inclusion of additional control variables, such as parents' level of education, would increase the validity of the findings.

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DEDICATION

To my husband, Mark, whose gracious support & unfailing patience

have sustained me through this project –

∞∞∞∞∞∞∞∞∞

–And to my daughters, Brittany and Mikaela, who have consistently encouraged

me to reach as high as possible.

It is my hope and prayer that they do the same.

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CHAPTER I

INTRODUCTION

> *"Only 38% of current high school freshmen in the United States will earn a high school degree and make the transition to postsecondary education directly after graduation. Eight million additional students would walk onto college campuses if all states had participation rates in higher education that mirrored the highest performing states" (Committee for Economic Development, 2006).*

School Engagement

Educational researchers have used the term *engagement* to refer to the "extent to which students identify with and value schooling outcomes, and participate in academic school activities" (Organisation for Economic Co-Operation and Development [OECD], 2003). The degree to which students are actively engaged in education is demonstrated by student academic preparedness (The Condition of Education, 2007). Willms (2002) projects that "students' attitudes towards school and participation strongly affect their decision whether or not to pursue postsecondary studies." Determining measurement standards for the subjective attributes of student preparedness and attitude has somewhat hampered ongoing research.

Relating student characteristics to academic achievement scores and high school dropout rates has been documented. How practices related to student engagement are associated with enrollment in postsecondary education has yet to be clearly determined (National Center for Education Statistics [NCES], 2004). Part of the delay can be attributed to a lack of consensus defining student engagement as a topic of investigation. (Furlong, Whipple, St. Jean, Simental, Soliz, & Punthuna, 2003).

To quote Furlong, et al.(1984), "enough progress has been made to describe these efforts . . . based on the school context in which learning occurs."

School context is a critical element in the research base in the field of Education. Context–the circumstances under which a particular event occurs, varies from school to school. "Contextual factors" is a broad term that encompasses the concept of interrelatedness and interdependence in facets of the school. Family background, personal characteristics, school policies, and the social behavior of students combine to create conditions known as context (Krueger & Parish, 1982).

Determining which contextual policy factors are positively associated with student decisions to enroll in postsecondary education has been a subject of educational debate for decades. School level educators have fallen victim to this debate, with little clear evidence supporting particular policy implementations and how everyday procedures may be associated with improving students' predisposition to value education.

The existing research on policy associated with student engagement factors is not easily accessible to current practitioners at the school level due to its complexity. School-level practitioners seeking information on the relationships of the context of student engagement and postsecondary enrollment find conflicting "expert" opinions with little empirical evidence supporting claims. Tradition can take over when school level policy decisions are considered, with the personal experience of the parties involved having more impact than research.

Student Engagement Related to Postsecondary Education

A disposition toward learning, working with others, and the ability to function successfully in a social institution are associated with engagement in school. According to Willms (2002), "it has yet to be examined whether disengagement from school during the adolescent years will have longer term effects." It is clear that students with a higher sense of self-efficacy are more likely to be engaged, to persist in completing difficult tasks, and to seek higher education enrollment (Bandura, 1994).

A few recent studies have treated engagement as not only a process, but also an outcome variable and have attempted to explain why schools vary in their levels of engagement (Finn & Voelkl, 1993; Johnson et al., 1993). Additional studies, such as this one, will serve to guide policy recommendations leading to policy practices encouraging student engagement and creating a predisposition to enter postsecondary education.

Considering school engagement as an outcome, as well as a process suggest there is room for influence in the area of school practices, however "further research is necessary to examine the complex interplay between the individual, the school context and the environment" (Furlong et al., 2003).

Viewing engagement as a fundamental schooling outcome is an important perspective for teachers, school administrators, and policymakers to recognize in promoting student success (OECD, 2003). Emphasis on good educational practice helps focus faculty, staff, and students on the tasks and activities associated with higher rates of desired student outcomes (Kuh, 2002).

Stafford, Lundstedt, & Lynn (1984) claim inadequate attention has been paid to important variables such as motivation and attitudes, as well as social and psychological elements that affect enrollment in postsecondary education. Student engagement and its influence on decisions relating to postsecondary enrollment can be measured by student experiences and outcomes. Current and traditional practices at various levels of educational programming may negatively affect students' ability to access and perform successfully in postsecondary educational settings (OECD, 2003).

The relationship between student engagement and achievement has been established (Alexander, Entwisle & Horsey, 1997). School practices relating to student engagement decisions associated with postsecondary enrollment have not been well documented in the research. It can certainly be expected that students' attitudes towards school and their participation strongly affect their decision whether or not to pursue postsecondary studies (OECD, 2003).

Purpose Statement

Determining how specific school policies and practices may be associated with student engagement and related to postsecondary enrollment is the overarching goal of this dissertation. Presenting the results for the benefit of school level practitioners charged with implementation of the policies is designed to begin the process of connecting research with everyday practice in education.

Research Questions

Recently, researchers have begun to establish that school experiences do have an influence on student achievement. Rarely do these studies extend to the postsecondary level, and infrequently is the school the level of analysis. The complex statistical

analysis associated with the presentation of the results can be daunting to the school level practitioner. School context, considering the implementation of policies in the unique environment of the school, does affect the attitudes of students toward school.

There are a number of experiences that relate to success in school and the development of the skills, knowledge and attitudes to enroll in postsecondary programming. Among them are student engagement and effort in the school setting (U.S. Department of Education, 2007).

Answers to the following research questions are designed to serve as a guide to the practice of school site decision-makers implementing policies related to student engagement. These questions represent issues associated with school context potentially serving to either encourage or discourage the predisposition of students within their schools to enroll in postsecondary education programs.

The specific questions relating to this study, measured at the school level are as follows:

1) Is meeting or exceeding 80% attendance standard measured at the school level related to increased rates of postsecondary enrollment?
2) Is the amount of time spent on homework positively associated with student enrollment in postsecondary programs?
3) Is delayed promotion an effective remediation practice, or does it serve to increase risk factors associated with non-enrollment in postsecondary programs?
4) Which variables are statistically significant predictors of enrollment in postsecondary education?

Summary

Few studies focus the lens of inquiry on policy issues and school practices that can be adapted to student needs and adjusted based on student risk factors (Fine & Davis, 2003). There are many complex decision points—factors ultimately affecting enrollment in postsecondary programming—with student engagement serving as a construct combining attention, interest, investment, and effort students and the community expend in working toward educational goals (Marks, 2000).

Student learning and the motivation to succeed depend on the interaction between a school's climate as demonstrated through specific school policy and the sense of belonging and motivation a student gains from their educational experiences. The lack of specific research relating to the entire schooling process, encapsulating early school experiences, extending to include postsecondary educational enrollment is problematic to appropriate school level policy design and implementation.

Chapter two of this dissertation represents a thorough investigation of related literature including the chronological development of postsecondary education policy in the United States. Public concerns and policy responses to equity and access throughout the years are addressed in the context of postsecondary enrollment. Presentation of this background information is designed to view the progression of social and economic issues leading to the current educational policy framework, particularly as is relates to student engagement in schools throughout the United States today.

The trends relating to the varied paths to postsecondary education, as well as the conceptual and theoretical frameworks contained within the literature review are

provided to impart the reader with the broad lens of inquiry providing the orientation for this study. Predictors in postsecondary enrollment, including information of potential risk factors, formulate the panoramic perspective created in regard to policies and procedures relating to student engagement. Determining what constitutes best practice in encouraging the path toward postsecondary entry is a key strategy in policy formulation and implementation.

The intended audience for this study includes currently practicing and aspiring educators responsible for the daily decisions regarding attendance, homework and remediation practices potentially associated with students' disposition to enter postsecondary education.

CHAPTER II

REVIEW OF THE LITERATURE

The Historical Development of Postsecondary Education in the U.S.

New England settlers in the late 18th century, created many institutions of higher education to establish religious denominational colleges. These colleges reflected the priority early Americans attached to creating a learned society. Colonial colleges rarely enrolled more than 100 students, and received support from both English royalty and colonial governments. Despite the small size and limited academic programs offered in these first institutes for higher learning, these colleges educated a literate and articulate American elite, many of whom eventually became military and political leaders.

Local control was an important concept even in the first American colleges, with legislated protections from state intervention. Between 1800 and 1850, the number of colleges in the United States expanded by more than 200 degree granting institutions. Until government subsidies began to close the gap between operating costs and student tuition supplemented by local donors, these colleges had a high rate of closure, struggling financially from year to year.

In the mid 19th century, federal government policy legislation allowed proceeds generated from the sale of federal lands to provide equal access to higher education. The Morrill Act of 1862 granted funds to endow universities and colleges specializing in agriculture. The Second Morrill Act of 1890 allowed proceeds to provide equal

access to higher education to today's historically African-American colleges and universities (Goldin and Katz, 1999). Many of the first collegiate institutions have been recognized as playing an equalizing role and hailed as critical milestones in the early colonial government (The Institute for Higher Education Policy, 1998).

In 1916, John Dewey, in his landmark book, *Democracy and Education*, highlighted the central moral role that education plays in furthering the democratic purposes of education (Wilshire, 1990). This view was expanded to include economic development and national security as fundamental to the advancement of the public good (The Institute for Higher Education Policy, 1998). Public expenditure policies of the day had the central purpose of extending higher education to a larger proportion of the population (Stafford, et al, 1984).

Following World War II, the passage of the Servicemen's Readjustment Act of 1944 (GI Bill) created hope for the possibility of a college education for returning veterans. In the peak year of 1947, veterans accounted for 49% of college admissions. By the time the original GI Bill ended on July 25, 1956, 7.8 million of the 16 million World War II veterans had participated in an education or training program. This policy implementation was intended to avert the potential large-scale unemployment for returning WW II veterans (The Institute for Higher Education Policy, 1998). Some believe that a second, more serious economic Depression in the United States was averted by this landmark postsecondary policy legislation (United States Department of Veteran's Affairs, 2008).

The National Defense Act of 1958 established the first student federal study loan program, ostensibly in response to the launching of the Soviet space satellite, *Sputnik*, in

1957. The economic "threat" created by the launch related to the competition in the science and engineering fields (The Institute for Higher Education Policy, 1998). This legislation was also associated with beginning the era related to another economic impact associated with increased access to students attending college– the burden of debt created by the increasing costs of attending college.

The aforementioned legislative acts were among the first designed to reallocate the costs for higher education programs from private to public resources (The Institute for Higher Education Policy, 1998). There were many governmental programs to follow in the next 50 years, leading up to the 21st century. Most monetary policies relating to postsecondary were implemented to assist in financing higher education in the United States. (Goldin and Katz, 1999).

Postsecondary Equity & Access

Following the Morrill Act of 1890, funding for Negro colleges brought with it government endorsed segregation policies. These practices were maintained long after policies of segregation were changed, leading to federal legislation during the civil rights movement in the 1960s. Access to education has traditionally be viewed as an equalizing force in United States society.

The Elementary and Secondary Education Act of 1965 was a prominent element of President Johnson's "War on Poverty." Increasing emphasis on postsecondary access for minority and low-income students led to policy changes at the federal level including federal grants to individual students. In 1966, a report titled "Equality in Educational Opportunity" concluded that the background and social context of the

student were the determining factors related to student success and that schools did little to lessen the gap between more and less able students (Coleman et al., 1966).

As the dawning of the new century approached, Boesel (1999) posed the question, "is there too much emphasis on getting a 4-year college degree?" This voiced doubt as to the value of higher education in general and college in particular. It poses direct opposition to the societal expectation for democratic access and the seemingly entitlement for the right to a public education to extend to college attendance as well.

Critics of the equality policies that encouraged virtually anyone to attend postsecondary programs have charged that too many unqualified students are attending college, thereby lowering the average ability of college students, and flooding the already scarce job market (Boesel, 1999).

Conceptual Framework

The Economic and Social Benefits of Postsecondary Education

Historically, funding for higher education has been related to the number of students in attendance. Low participation rates in postsecondary programs affect resource availability, both within the college setting and in society at large (Stafford, et al, 1984). In fact, Goldin and Katz (1999) state that "automobile registrations per capita is a stronger predictor of state spending on higher education than either per capita property wealth or income per capita."

The substantial influx of revenues designated for advanced training following World War II resulted in the facilitation of greater access to postsecondary opportunities through application of the simple formula of supply and demand. Veterans could easily establish the expected social and economic benefits at a time when jobs were scarce and

government subsidies, in effect, compensated them for attending and completing postsecondary programs (Stafford et al., 1984).

Societal expectations for the economic benefits associated with postsecondary education were propelled to the forefront of public policy near the midpoint of the century. Deputy Secretary of Education Raymond Simon points to the launch of the Soviet satellite *Sputnik* in 1957 as creating a seemingly undeniable reason to raise the societal expectations in regard to the number of students attending postsecondary programs, as well as the educational rigor of education in general. *Sputnik* became the incentive for advanced study, especially in the areas of math and science (Moore, 2007).

Stafford et al. (1984) identify an array of higher education benefits, both public and private, relating to the economic and social advantages of attending higher education. These include: increased tax revenue, greater productivity, reduced crime rates, and improved health and life expectancy. Increasing evidence indicates that our nation's economic well-being is linked directly to an educated and skilled pool of workers, with the knowledge to operate in an increasingly complex work environment (Judy & D'Amico, 1997; Katz, 1992).

In the early 1980s, when federal and state funding began to slow, public policy discussions began increasingly to be focused around the private economic role of college attendance, with less emphasis on the potential social benefits (The Institute for Higher Education Policy, 1998). Today the American public associates college with getting "a good job" and enhancing income potential (The Institute for Higher Education Policy, 1998). According to the American Council on Education, job

attainment is the most important benefit Americans associate with attending postsecondary education.

The matrix of higher education benefits includes public and private effects relating to social and economic considerations. Individuals participating in higher education tend to increase public tax revenues while decreasing reliance on government financial support. Social benefits can include reduced crime rates, increased charitable giving, and higher rates of community service.

The percentage of students who enroll in postsecondary programming in the fall immediately following their graduation from high school reflects the perceived availability and value of higher education (The Condition of Education, 2007). Between 1850 and 1950, every fifteen years saw the enrollment rate in higher education double (Stafford et al., 1984). The enrollment rate for students aged 16–24 who attended college within 10 years after completing high school increased from 49% to 67% between 1972 and 1997. This percentage declined to 62% in 2001, but rose to an all time high in 2005 of 69% (The Condition of Education, 2007).

From a conceptual standpoint, the path to postsecondary can be considered a series of successive transitions that are sequential in nature. Students cannot skip over a step in this process, and once the forward motion has been abandoned, it typically marks the end of the transitions (Ewell, et al. 2007). The first two steps in the journey are identified as graduation from high school and entry into postsecondary education. The underlying assumption is that there exists a series of decision points confronting students as they travel from kindergarten through postsecondary education. These

decisions are cumulative in nature and are made based on students' background and school experiences

Theoretical Framework

There are a number of theoretical models relating to the choice to attend college including similar versions of "predisposition" theories. Perhaps the most prominent of these theoretical models is the three-stage college choice model propounded by Hossler and Gallagher (1987). The three stages identified by this representation include: predisposition, search and choice. Predisposition to attend college is defined as "the developmental phase in which students determine whether or not they would like to continue their formal education beyond high school" (Hossler & Gallagher, 1987). How does student engagement relate to a predisposition to attend postsecondary? Elaborating on the theory, Horn (1997) discusses the "pipeline" of education, relating educational success to a series of obstacles for each student that must be overcome in order to achieve the level of choice, in most cases a high school diploma, necessary to consider postsecondary program enrollment.

Students and staff members who are engaged exhibit behaviors that support achievement and advanced educational goals. These behaviors include task persistence and regular attendance. Students who act like school is important to them, by completing homework, by attending class and by succeeding in academic challenges are more likely to have aspirations for further education (Rhodes, 2007).

In the majority of the theoretical literature relating to the process leading up to postsecondary enrollment, the important factors in deciding to attend college can be categorized by the following three categories: socioeconomic background, academic

ability and contextual factors (Paulsen, 1990). The first two categories are familiar fixtures in educational research. Context, referring to the interwoven culture, practices, climate and overall effectiveness of a particular school, would appear to be the defining variable as to why comparison schools could display a markedly different result when measuring the percentage of students choosing to enter postsecondary education.

Factors in Postsecondary Enrollment

Student engagement is a process that combines the attention, interest, investment, and effort students expend in work towards learning (Marks, 2000). In 1985, Mosher and McGowan noted that while compulsory attendance in high school can be mandated, engagement can't be legislated. Engaged students tend to earn higher grades, perform better on tests and drop out at lower rates (Appleton, Christenson & Furlong, 2008).

For the purposes of this secondary analysis, the definition of postsecondary institution is "the provision of a formal instructional program whose curriculum is designed primarily for students beyond the compulsory age for high school" (Knapp et al., 2007). Excluded are adult basic education programs primarily designed to only provide remediation and basic language skills.

A number of researchers have addressed the path students travel as they make their way through the education system, using a series of variables to predict high school completion and/or academic achievement (Horn, 1997). The consistent component of each prediction model is that all students make a decision regarding their intention to continue in school. When that decision is made, and what specifically impacts the decisions are still under debate.

Attaining a high school diploma is a necessary, but not necessarily sufficient condition of entry into postsecondary programs for the vast majority of students. Certain family and student characteristics have been empirically proven to put students at risk of not finishing high school. (Rumberger, 1983; Coie et al., 1993; Horn, 1997). The term "educational pipeline" was coined to embody the series of experiences that may either encourage or discourage postsecondary enrollment. Generally speaking, low socio-economic status, growing up in a single parent household, having a sibling not complete high school, and being the first generation to attend postsecondary programming contribute to leaving high school before graduating (Horn, 1997).

Effective Schools

Effective schools research has been concerned with the processes of effective schooling, initially evolving from case studies of schools performing outside the expected student performance range to contemporary studies merging qualitative and quantitative methods for the study of schools (Teddlie & Reynolds, 2000). Kuh (2003) summarizes the research from the postsecondary education perspective that the single best predictor of students' learning and personal development is the time and energy they devote to "educationally purposeful activities" in *The National Survey of Student Engagement: Conceptual Framework and Overview of Psychometric Properties.*

There is a widespread assumption among educational researchers internationally that schools affect children's development, and there are observable regularities in effective and ineffective schools that make defining the policies associated with student engagement and success possible (Teddlie & Reynolds, 2000).

School Practices

The policies and practices implemented at the school level, as reported by the school level administrator, allow the consideration of how positively or negatively the particular practice affects a student's decision to enter postsecondary programs. The OECD reported in 2003 that it had not yet been determined whether or not disengagement of students during the adolescent years would have longer-term effects on their future decisions regarding postsecondary training.

Time available for learning tasks can vary depending on the implementation of state and local policies at the school and district level. Policy implementation of social promotion decisions, homework requirements, and enforcement of mandatory attendance laws directly affects the opportunity time available for student learning. If students require more time to master a concept, do structured opportunities for additional academic pursuits result in increased student engagement? Organizational practices have been well documented at the elementary level, but have failed to be equalized at the middle school and secondary levels (McPartland & Slavin, 1990).

School Climate

Researchers define school climate as " . . . the quality of person-to-person relationships, the way in which and degree to which respect and consideration are woven into the daily fabric of school life, and the overall level of structure, meaningful order, and supportiveness of the school" (National School Climate Center [NSCC], 2004). The 1950s is when the systematic study of school climate began. School climate generally refers to the character of school life and the quality of school experiences. It includes norms, values, and expectations creating a climate for learning. The literature

suggests that there are climate-related risk factors for both school disaffection and poor achievement (Coie & Jacobs, 1993). Student background characteristics, such as low socio-economic status and race, can have an effect on student engagement.

It cannot be inferred, however, that low student engagement is simply a consequence of family-related risk factors. There is ample evidence that the school environment has a strong effect on student participation and sense of belonging (OECD, 2003). Researchers note that students with positive school linkages demonstrate increased academic achievement (Furrer and Skinner, 2003). With respect to student engagement, school climate has been singled out as a critical factor affecting student's feelings of belonging to school. (Furlong, Whipple, St. Jean, Simental, Soliz, & Punthuna, 2003).

School Effectiveness

Intervention policies regarding low academic performance of elementary age students have been primarily related to the organizational approaches of holding students back, ability grouping and tracking, and classifying them in special education programs (McPartland & Slavin 1990). These authors further indicate that there can be far-reaching ramifications to implementing these strategies, and although certainly these strategies can offer more opportunities for students to master basic concepts, there is evidence that they significantly increase the probability that these students will continue to display at-risk characteristics resulting in disengagement from school. The term *disengagement from school* is used by the OECD (2003) to characterize students who describe, "not feeling a sense of belonging at school" and identifies those who have withdrawn from school activities in a significant way.

The absolute effects of school can be theoretically measured as the overall result of attending school versus not attending school. In these comparison studies, initiated where education is not compulsory, students have dropped out or there is an event that leads to "no schooling" for specific students for a period of time. An example of the shut down of schooling includes defiance of the Brown ruling between 1959 and 1963. Officials in Prince Edward County, Virginia, shut down the school system in order to avoid desegregation of public schools. Comparing these students to students in the adjacent county, the effect was "devastating" on student performance according to Miller (1983). Measured achievement scores plummeted by 2.5–4.0 grade levels in the group of students receiving no formal education (Teddlie & Reynolds, 2000).

The most common way student engagement is measured is through student self-reporting. The National Center for Educational Statistics (NCES) offered some new perspectives and measurement tools for measuring student engagement. Comparing transcripts and parent reports to student self-reports provided an additional layer of validity to overt measure of student engagement such as attendance rates, homework completion rates and the amount of time dedicated to homework, both inside and outside school settings.

Student Engagement as a Predictor of Postsecondary Enrollment

Student engagement as a predictor of academic success has been the primary focus of researchers Willms (2002), Goodenow (1993), and Voelkl (1995). These findings assert that the correlation between academic achievement and engagement is moderate—generally between .25 and .30. This suggests that there are high achieving

students who are disengaged from school, as well as lower achieving students who are highly engaged in school.

For enrollees, the type of postsecondary activity chosen seems to have little to do with their ability and more to do with factors such as early resources available during the earliest grades and even before school entry (Anderson, Bowman, & Tinto, 1972). School-level policy implementation based on findings may result in increased encouragement on the part of parents and school personnel for enrollment in postsecondary programs.

Meeting the needs of students who are not engaged in the school process is perhaps the biggest challenge currently facing teachers and school administrators (Finn, 1989; Jenkins, 1995; Willms, 2002). Determining how school policies and practices may be positively associated with student engagement and related to postsecondary enrollment, as well as providing reliable information to school-level practitioners is the overarching goal of this study.

Attendance

Student absenteeism is a major problem faced by schools across the United States, which has far reaching effects on the individual, the school, and society in general (Goldstein, Little, and Akin-Little, 2003). Kearney (2003) describes the problem as having reached "crisis proportion" with researchers not giving the topic of student attendance "the attention it deserves."

Expressing student engagement as a disposition toward learning, working with others, and functioning in a social institution (OECD, 2003) uses two measures of student engagement. One is a student's sense of belonging; the other, student

attendance. According to Willms (2003), most consider attendance to be a primary indicator of participation in the school community, and therefore a key factor in measuring student engagement.

The basic level of participation by students in school is demonstrated by attendance. Regular attendance is essential throughout the schooling process in order for successful school outcomes to be achieved (Finn & Voelkl, 1993).

Attendance can be characterized as being low, moderate, or high, depending on the number of days late, classes skipped, and days missed. Categories can be assigned based on the percentage of student attendance, which directly relates to the value students assign to their educational experiences.

The concept of compulsory attendance is deeply ingrained in history and American social values (Katz, 1976). Richardson (1980) indicates that enactment of compulsory education laws requires the involvement of both favorable structural conditions and active social political forces. To what degree should the state take part in child rearing? This question, posed by Katz (1976) in regards to compulsory attendance laws relates to the local control and individual rights on which our society was founded.

The enactment of compulsory attendance laws formally established the relationship of individual communities to state authority. Economically, the mandate reinforced the primary responsibility for financial support of public schools to the state, thus establishing a social institution (Richardson, 1980). Enactment of compulsory schooling can be interpreted by the amount of resources committed to governments to sustain public education for all (Richardson, 1980).

There are no guarantees that navigating the path to postsecondary will ensure employment. Due to the institutionalization of the standard that adolescents belong in school rather than working, policy leaders now face increasing numbers of students who have successfully navigated through high school and even postsecondary experiences but do not meet the standards for employment (Katz, 1976).

Court challenges have come from the basis of the constitutionality of mandatory attendance laws. In a critical ruling in 1972, *Wisconsin v. Yoder*, the Supreme Court ruled against mandatory attendance, exempting Amish parents from laws compelling school attendance past the eighth grade (Katz, 1976). The historical record indicating the mandate of attendance was not without conflicts over who should control the socialization of children and the family's right to the child's labor (Richardson, 1980).

A number of different avenues have been identified by researchers as potential solutions including community-based interventions (McPartland & Nettles, 1991) and school-based interventions (Gottfredson, Jones, & Gore, 2002) as plans of attack to assist in remedying what Goldstein et al (2003) identify as one of the top ten major problems in American schools. In a 1979 survey of more than 1,400 school administrators, concerns were voiced that chronic school absenteeism could "lead to permanent intellectual damage to students." Additionally, absenteeism was seen as contributing to "the overall lowering of academic standards of a school" (Goldstein et al., 2003).

Educational demand theory reflects the decision to enroll in an institution as an investment decision. The present value of the expected benefits resulting from the education, such as the social and intellectual rewards a person would likely receive,

must outweigh the present cost of the education prior to enrollment (Stafford et al., 1984). The question for schools and districts to consider is how they prioritize scarce resources for the leading to encouraging student engagement that positively affects the predisposition of students to enroll in postsecondary education.

Despite mandatory attendance laws in every state, there is not consistent enforcement of these regulations. Should schools be the social agency to be responsible for this element of American culture? These questions are critical in the case of entry to postsecondary, if in fact, attendance is to be considered as a predictor of postsecondary enrollment.

Attendance has been noted as being related to educational outcomes, as well as being impacted by educational practices, including social promotion. Potential relationships between attendance and social promotion are supported by the statistic that absences in the first grade show that always promoted students miss 11 days of school on average, while students with a history of delayed promotion average nearly 16 absences per year (Alexander et al., 1997).

Social Promotion

The term *social promotion* refers to the practice of promoting students based on their chronological age, instead of considering factors including proven maturity and academic ability, and stands in opposition to re-enrolling students in order to repeat the same grade.

The practice of the social promotion of students to the next grade level has been a controversial topic in public education for a number of years. Factors included in the research literature include academic performance and cognitive ability, the decision

makers, behavior issues, demographic factors, and family characteristics (Jimerson, Carlson, Rotert, Egeland, & Sroufe, 1997). Being promoted with same-age peers, termed in educational jargon as "passing" a grade level in school, avoids the stigma often associated with "failing" or "being held back," which has been shown to have a negative impact on student engagement in early grades (Alexander, Entwisle & Horsey, 1997).

McPartland and Slavin (1990) report that social promotion decisions can result in high school students who have not learned basic academic skills. According to Natriello, McDill, and Palls (1990), there is "strong evidence" that the school experience of being held back significantly increases the chances that a student will not complete the requirements for a high school degree.

In the interest of clarification, the term *retention* will be used sparingly throughout this analysis because, although in this context it refers to being held back to repeat a grade, it can also refer to a student staying in school until the completion of a degree (Tinto, 2004). The more explicit and unique concept of social promotion or student non-promotion will be used for the sake of clarity. Additionally, the term *delayed promotion* will be utilized, describing the practice of repeating the same grade level for more than the traditional single school year.

An estimated 2.4 million students were not promoted with their same-age peers in the United States in 1990. Shepard and Smith (1991) provide further estimates on the rate of non-promotion in United States public schools as being between one quarter and one third of American students not advancing in grade level with their same-age peers at some point during their schooling. Gottfredson (1988) relates that the "routine" 15–

20% of urban students combine to result in a startling 60% of students in urban schools being retained at least once by the beginning of their tenth grade year.

Approximately 9% of students were entered into kindergarten or first grade programs at an age older than their peers—that is, those students whose were enrolled after the eligible age to start school according to the guidelines of their school district (NCES, 2000). In 1995, pupils diagnosed as being developmentally delayed were twice as likely as other students to delay entry into kindergarten and were non-promoted at a rate four times higher than other children (NCES, 2000). In 1993, first and second grade students who spent two years in kindergarten were more likely to get negative feedback from teachers (NCES, 2000).

Students may be non-promoted in a grade for a variety of reasons including social and academic delays. Judging student readiness for the next grade can be a subjective process (Jimerson et al., 1997). Individuals making the decisions typically only have access to the immediate outcomes of increased performance in the year following non-promotion. The attitudes of teachers and administrators and the practice of social promotion would likely be affected if, in fact, the long-term effects of non-promotion, using comparison groups of similarly low-performing students who are not retained, showed an association with poor long-term outcomes.

At a cost of roughly $14 billion per year in added costs for students to spend an additional year in the public school setting, as estimated by Dawson in 1998, the cost of the intervention demands accountability as to its effectiveness. Economic factors associated with societal investment through government expenditures preclude unproven strategies carrying such a high price economically, as well as socially.

Academic failure is the driving force behind a "frustration self-esteem downward spiral that often culminates in dropout" (Finn, 1989). Finn further relates that failing early in school "ought to cast a long shadow on a child's life" referring to the potential long-term effects of perceived failures affecting the self-esteem of students.

Adding potential support for non-promotion, President Clinton (1999) called for an end to social promotion in his State of the Union Address. With the continuation of policy implementation such as the No Child Left Behind Act of 2002, it would seem that fewer students are likely to be socially promoted to meet the expected accountability standards while avoiding the consequences of not meeting adequate yearly progress standards.

Conversely, recent statistics from the United States Census Department report the percentage of youth non-promoted in kindergarten through grade 5 declined from 11% in 1995 to 5% in 2004. Percentages of students held back in grades 6–12 varied little, with 7% retained in 1995 and 5% retained in 2004. Projected estimates show little agreement over the likelihood of increased or stable social promotion rates at the elementary, middle, and high school levels. Required graduation exams and ever-increasing standards designed and implemented as a result of the accountability movement will likely have an impact on the rate of student non-promotion, as well as the rate of high school completion.

An additional component of the social promotion issue may be related to increased enrollment in kindergarten. Reportedly hovering at a rate of close to 60% in 1965, rates of kindergarten attendance had increased to nearly 90% by 2000. While increasing percentages of students beginning their school careers in kindergarten seem

to have an inverse relationship with being held back in first grade, there are other considerations that affect the rates of social promotion (Haney, Madaus, Abrams, Wheelock, Miao & Gruia, 2004).

In apparent response to the minimum competency testing movement beginning the late 1970s, the percentage of "overage" students began to increase. The relationship of social promotion and high school completion has been verified by several sources. In 2004, for example, 21% of youth who failed to complete high school requirements had ever been retained, compared to 12% of those still enrolled and 4% of high school completers. Furthermore, those students retained in grades K–5 represented 10% of student dropouts, while those retained in grade 6–12 accounted for 17% of those students failing to finish high school (U. S. Department of Education, 2007).

Previous studies regarding the timing of non-promotion have focused on the dropout rates of students not socially promoted with their peer group. A few have focused attention on the longer term outcomes for students who have been held back (Jimerson, 1999), but no studies were found relating the timing of repeating a grade and its potential relationship to enrollment in postsecondary education (Fine & Davis, 2003). Information regarding the non-promotion of students in elementary, middle, and high school programs is well researched, if not closely followed by policymakers and school-level practitioners. The effects of repeating a grade are typically only seen through the practitioner's eyes in the year (or few years) following the retention. Although it is logical that a student completing identical or similar curricula a second time would result in a high performance rate, the other latent factors that could potentially affect a student later in their school career are not typically considered by the

decision makers. According to Fine and Davis (2003), delayed promotion of students may be related to negative educational outcomes not realized for many years.

Jimerson (1999) further reports that students not promoted with same-age peers between kindergarten and third grade are 20–25% more likely to drop out of high school compared to similarly low-achieving but promoted students. Ferguson et al. (2001) describe students who successfully complete high school despite repeating one or more grades as having "beaten the odds."

Follow-up studies conducted by the National Education Longitudinal Study would seem to indicate that non-promoted students who complete high school do so at a lower rate than for socially promoted students. Long-term outcomes for non-promoted students have not been widely studied (Jimerson, 2001). Although a child's fate is not necessarily sealed by non-promotion, "prospects for reengagement later are not good when children are plagued by self-doubt . . .. and are overage for their grades" (Alexander, Entwisle, & Dauber, 1997).

Identifying the long-term effects of repeating a grade, and informing those responsible for making the promotion decisions regarding these effects is a worthwhile endeavor. How the practice of early grade-delayed promotion is associated with enrollment in postsecondary education, however, has yet to be clearly determined (NCES, 2004). It would seem logical that students not in school to benefit from the educational experience would necessarily find themselves at a disadvantage regarding issues of academic readiness as compared to students regularly attending class.

Homework

State and local education agencies have raised homework requirements based on the increasing demand for proof of academic achievement publications such as *A Nation at Risk*, which questioned the qualifications and results of public education, have created. The extensive public financial resources devoted to schools have raised the level of accountability. Restrictions on access to monetary resources such as No Child Left Behind focus the decision-making authority for student requirements to the Federal level.

Public financial support for education in the United States has grown exponentially since the early 1960s with expenditures growing from $29 billion in 1961–62 to $57 billion in 1967–68. Only six years later, in 1973–74, expenditures for public schooling topped $98 billion (Katz, 1976). Along with the increasing financial interests in postsecondary programs have come increasing interest and accountability in programs.

With the aforementioned conditions taken into consideration, the rate of homework completion between the different groups of sophomores showed an increase in the percentage of students reporting they spent more than 10 hours per week on homework. Between 1980 and 2002, the reported figures were 7% and 37% respectively. Those students reporting spending more than 3 hours per week in 1980 grew to 77% in 2002. Consistency in gender groups was evident, with females reporting spending more hours than males in both the 1980 and 2002 studies (Cahalan, Ingels, Planty, & Daniel, 2006).

There are many experiences that may relate to success in school and the development of the skills and knowledge to enroll in postsecondary programming. Among them are student engagement and effort in the school setting (U. S. Department of Education, 2007). The policies and practices regarding social promotion, student attendance, and time spent on homework are the focus of this analysis.

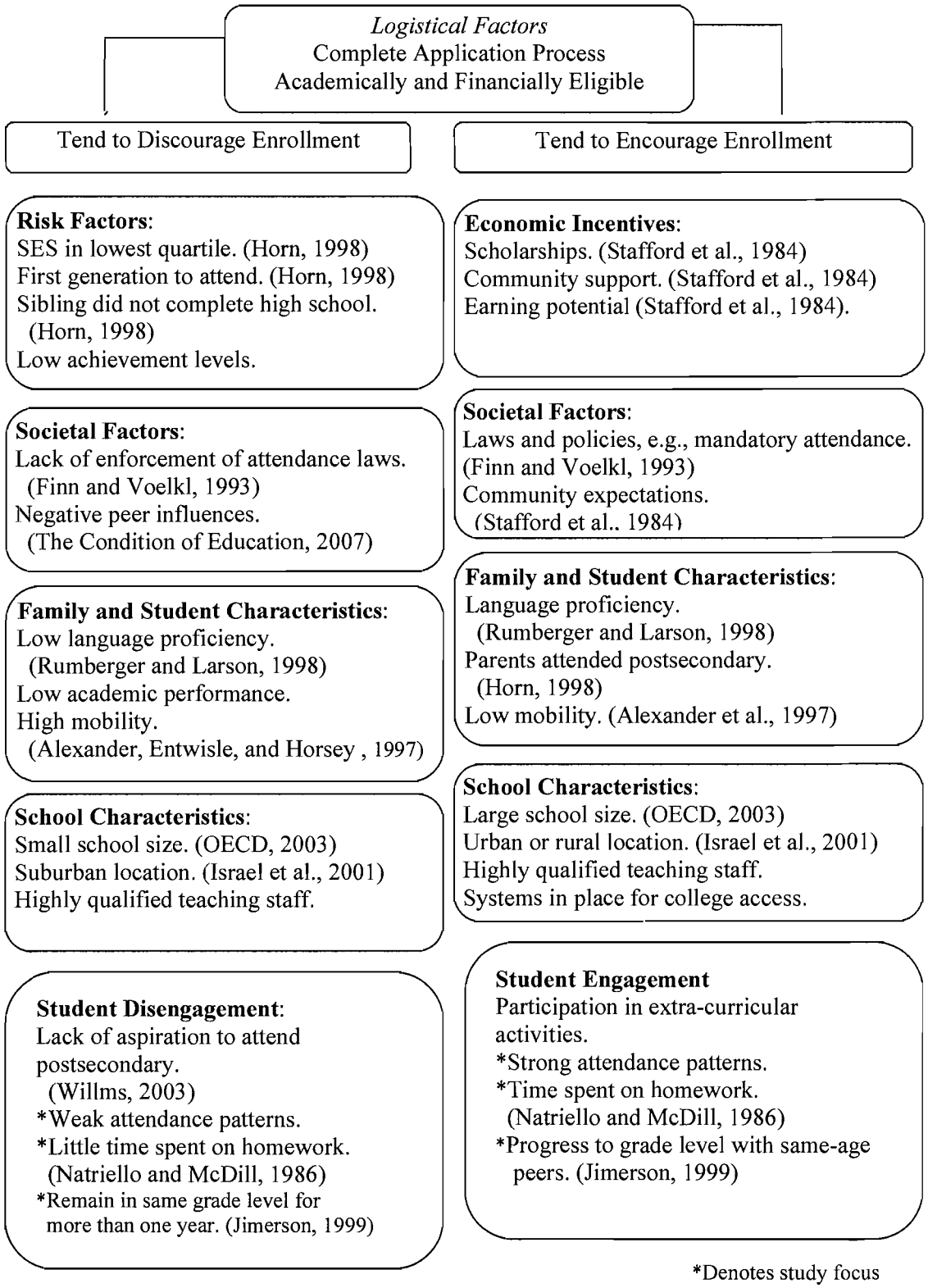
Affecting the Predisposition to Enroll in Postsecondary Education

There have been a number of interacting factors that are found to either encourage or discourage students to consider postsecondary enrollment, with student engagement issues being one of the primary variables that can apparently be affected, at least marginally, by school procedures and policy implementation (Furlong et al., 2003). According to Choy, Horn, Nunez, and Chen, (2000) the same characteristics that are associated with non-enrollment in postsecondary are related to the risk factors of not finishing high school.

How to effectively implement practices is important for school decision-makers to be aware of. Once they are aware of which practices tend to encourage postsecondary entry, they can provide support for policies and procedures to be implemented in American schools today.

A conceptual representation of these interactions with the tendency to either encourage or discourage postsecondary enrollment is summarized in Figure 1.

Figure 1. Factors in Postsecondary Enrollment (Adapted from *Interacting Factors Affecting Participation in Higher Education*, Stafford et al., 1984).



*Denotes study focus

Risk Factors

The literature suggests that there are risk factors that contribute to engagement. These risk factors are evident when children enter school and are "cumulative and predictive" of long-term educational outcomes (OECD, 2003). Theoretical literature argues that it is low achievement that causes students to withdraw from school (Coie & Jacobs, 1993; Rumberger, 1983; Yoshikawa, 1994). Although persistent students can overcome potential risk factors, the trajectory of such students, beginning with their elementary school experiences, can be difficult to surmount (Horn, 1997).

Much of the school engagement literature provides a focus on subgroups of students, particularly for those groups already identified as "at-risk" for displaying such factors as alcohol or substance abuse (Furlong et al., 2003). School-wide contexts such as school size, climate, physical setting, discipline practices, and diversity of the student body have also been examined.

The average level of socio-economic status is associated with school achievement (OECD, 2001). In nearly every country studied, the effect of SES was large and statistically significant, consistently demonstrating that a student with average family background characteristics tended to demonstrate higher achievement when attending a school with high socio-economic level peers (OECD, 2003). "There is no single factor, however that explains why some schools or countries have better results than others"(OECD, 2001). Rather, school policies and practices contributed to students' success in a myriad of ways. The factors characterizing these school-level issues are class attendance, being prepared for class, completing homework, and attending lessons (OECD, 2003).

Although extensive research has been conducted regarding access to and retention in postsecondary education, considering such factors as race, gender, learning disabilities, English language learners, low socio-economic groups, and other sub-populations (NCES 1995, 1998, 2000, 2007; Alexander et al., 1997; Israel, Beaulieu, and Hartless, 2001; Adelman, 2004, 2006), there are additional factors relating to these topics about which data have been collected, but for which few associations relating to long-term outcomes associated to student success have been linked on a longitudinal basis.

Enga gement behaviors related to school experiences include academic failure, which, according to Finn (1989), is the main factor in developing a "frustration-self-esteem" that, when experienced early in a child's academic career, can lead to the "cast of a long shadow on a child's life" (Alexander et al., 1997). In *The Role of Nonacademic Factors in College Readiness and Success,* published by ACT (2007), monitoring relevant, but nonacademic student behaviors based on such criteria as absenteeism and missed homework assignments can assist in the identification of students who may be experiencing academic trouble, leading to disengagement unless action is taken.

School policies relating to student engagement can be associated with increased positive effects of the school versus the individual characteristics of the students within the school environment. These positive effects, including the time and opportunity to learn and that encourage postsecondary enrollment, can be improved at the school level, based on prioritization of resources and acquisition of the knowledge regarding which school context factors should maintain the focus of school personnel and policies.

Overcoming Barriers to Postsecondary Enrollment

Researchers have begun to establish that what happens in schools does affect student achievement. In 2003, Robert Marzano presented research to indicate that school characteristics and experiences have a significant impact on student learning and can "almost entirely overcome the effects of student backgrounds."

Skills in time management, efficient work habits, and commitment to improvement are also elements of success in academic environments, although standards and measurement of each element can be difficult to define. Early college high school programs have increasingly become available, allowing students to create momentum in earning college-level credits. Students able to access the "pipeline" to college enrollment—including aspirations for a bachelor's degree, academic preparation for college, completing entrance exams, applying to college, and enrolling in college—included both low- and high-risk students (Horn, 1997).

Mortimer (1993) found that the school attended is responsible for 24% of the variation of reading progress, making the school attended four times more important than the family background factors. Policy-oriented research aimed at the school level, where school improvement efforts are targeted, identifies that "from a policy perspective, schools are the unit that can be best evaluated and manipulated"(Witte & Walsh, 1990).

One element lacking in the current body of research is the isolation of specific, measurable educational experiences associated with enrollment in postsecondary programs. According to the Organization for Economic Co-operation and Development (2003), students' attitudes toward school and their participation strongly affect their

decision whether or not to pursue postsecondary studies. By the ninth grade most students have already developed occupational and educational aspirations (Eckstrom, 1985; Stage & Hossler, 1989; Cabrera & LaNasa, 2000).

Plans to go to college are based on the value students place on the occupation they have chosen. These preliminary career aspirations seem to play a catalyst role in planning for college track curriculum and in encouraging students to maintain a good academic performance (Cabrera & LaNasa, 2000).

Additional Impetus for the Study

In the 21st century, most students need at least some level of postsecondary education to earn a living wage. Currently, an estimated 90% of the fastest growing and best paying jobs require some postsecondary education (US Department of Labor). Options for those who do not attend college have slowly diminished over the past three decades (The Condition of Education, 2007). "It is clear that postsecondary education is more important than ever, both to the individual and society" Gladieux and Swail (2000).

As the price of not attending postsecondary programs becomes more economically and socially costly to potential students in terms of lifetime earnings and quality of life—along with economic social contributions—the more pressing the need to investigate and utilize the information gained in reforming the education system in the United States (Institute for Higher Education Policy, 1998; OECD, 2003; NCES, 2006).

Postsecondary enrollment patterns have become increasingly complex, and the need to examine the association between student engagement and enrollment in

postsecondary more acute. Defining the engagement variables that will increase the odds of students completing high school and going on to postsecondary educational opportunities will serve practitioners and policymakers alike.

School engagement issues have attracted scientific attention due to their contribution to the understanding student motivation and achievement. Thus, the factors relating to student engagement, as controlled by school context and student characteristics, provide a robust framework for the analysis of students' commitment and investment in the classroom.

Defining the student engagement characteristics positively and negatively associated with postsecondary entry can inform school and district level policies to ensure not only the academic rigor is added to the practice, but also the tools for students and teachers to succeed within the systems of increased accountability in today's educational system.

Specifically, student attendance rates, homework completion patterns, and repeating a grade during elementary, middle, or high school would appear to have some effect on the educational decision of enrollment in postsecondary programming, based on the existing body of literature. The many confounding variables that go into choices made by students enrolling in postsecondary education can be compared to the criteria they likely used in choosing courses during their high school enrollment.

Finn & Voelkl (1993) concluded that engagement, particularly in regard to minority and low-income students, is a critical outcome construct that affects long-term identification with the schooling processes. Which elements have the most influence on student engagement are important to define, so that policy, procedures and practices at

the school level serve to increase each student's likelihood of making decisions to remain in school and seek higher education opportunities.

Student engagement in the educational process and ultimately in the decision to enrollment in postsecondary vocational programs has not been thoroughly researched likely due to the complexity of the factors (Voelkl, 1995). Indicators of engagement that emerge consistently throughout the literature include participation in school-related activities, amount of time spent on homework, and the rate of homework completion (Jimerson, Campos, & Grief, 2003). Additionally, school records indicating levels of absenteeism are often used to measure student engagement (Jimerson et al., 2003).

In the United States in 2008, a high school diploma is helpful in the job market, but certainly imposes a "glass ceiling" serving as a limiting factor to the types of careers young adults can reasonably pursue. Secondary schools can do little to mediate the personal factors with which students arrive at their door. Concentrating resource on elements that can be affected by school practices may serve to raise the proportion of students who are inclined to continue their educational careers into the postsecondary level.

What then, are the defining variables that secondary schools can reasonably address with adopted policies and everyday procedures that will assist students in succeeding in what has become the basic minimum standard in the job market to achieve the goal of earning a living wage: entry into a system of postsecondary education?

Although there is a large body of research relating to social and psychological factors that influence individual decisions to participate in higher education, it is not

fully integrated into a specific theoretical framework (Stafford et al., 1984). More difficult to define, and less universally analyzed, are the characteristics affecting and reflecting student engagement in the process of postsecondary entry.

The current body of literature fails to adequately represent the issues related to student engagement and school experiences and their relationship to enrollment in postsecondary education programs. This study attempts to close the gap and inform the decisions made on a daily basis by tens of thousands of teachers and administrators throughout the United States regarding social promotion, attendance policies, and homework practices.

Summary

This literature review has provided synopsis of the historical development of the system of postsecondary education in the United States. The conceptual and theoretical frameworks of postsecondary entry have outlined the economic and social advantages to individuals and society of widespread participation in higher education. Access to some form of postsecondary education has increased for nearly every economic, racial, and ethnic group in the past several decades (The Condition of Education, 2007). Additionally, the need for some level of postsecondary training for the majority of those entering the job market has been provided. The question remains: Why are so many American students not choosing entry to postsecondary programs after earning a high school diploma?

The investigation of this question has been carried out in many formats, with primary emphasis placed on academic success as it relates to completing the requirements for a high school diploma. Additionally, the academic rigor and access to

college-entry courses that have a measurable impact on student entry to postsecondary programs has been well documented by researchers. One of the general categories identified, but not well defined by educational researchers, as impacting the predisposition to enroll in postsecondary programs are the elements comprising student engagement.

Overall, student engagement factors are associated with access to postsecondary education. Specifically, there is little valid evidence that particular practices, at the school level have a relationship to postsecondary entry. Furthermore, longitudinal data provide a better perspective of how aspects of the school environment affect student engagement over time (OECD, 2003).

More jobs require postsecondary training for entry-level positions, but the participation rates in postsecondary continue to flat-line, with few solutions in sight. The accountability trend of increased standards of performance for students and teachers has not increased levels of postsecondary enrollment.

The process of transitioning to postsecondary programs has been researched from a variety of perspectives, noting social and economic concerns (The Institute for Higher Education Policy, 1998). Additionally, student physical (e.g., ethnicity, gender) and family characteristics (e.g., single-parent household, socioeconomic status) categorized as student "risk factors" (Horn, 1998) have been analyzed. These, along with societal risk factors such as community aspirations for postsecondary enrollment (Finn & Voelkl, 1993), have been well documented with policies established to assist student access to postsecondary programs (Alexander & Eckland, 1975; Sewell & Shah, 1968; Cabrera & LaNasa, 2000).

Acquiring the necessary academic qualifications for college work, earning a high school diploma, and applying and enrolling in postsecondary education are the critical tasks students must undertake to pave the way to advancement in learning opportunities.

Actions taken today at the kindergarten level may have an impact on the student's predisposition to enroll in postsecondary education more than a decade later. The insights offered through this analysis are designed for the consideration of school-level practitioners who currently occupy positions to influence the trajectory of students for whom these decisions could potentially affect, both economically and socially, for a lifetime.

Some education professionals have attributed student motivation, attendance, and time spent on homework as potential issues in the progression to postsecondary programming (Finn, 2006). The elements relating to student engagement encouraging students to access postsecondary education are the focus of this study. Specific conditions indicating student engagement –including social promotion practices, attendance rates, and time spent on homework, viewed from the school level, are included in this study to establish their relationship to postsecondary enrollment.

CHAPTER III

METHODOLOGY

Introduction

Taken as a whole, student postsecondary choice begins as early as seventh grade and ends with enrollment in a postsecondary institution. Throughout the process, parents and middle school and high school policies, along with the student's school experiences, affect the developing initial aspirations, going through the logistical steps involved to apply, and enrolling (Cabrera & LaNasa, 2000). The effect of the overall experience in school is known as school effects.

The definition of school effects, for the purposes of this study, includes the "unique effects" each school in the system is considered to have on pupil outcomes (Willms, 1992). There is an "effect" associated with attendance at a particular school, therefore, the policy characteristics of "type A effects" as defined by Willms (1992) refers to how well an average student would perform in a particular school compared to the average performance of the entire school system, or the performance of a student in another school. Stating the effect size in terms of percentage of standard deviations, either positive or negative, means that a school is either more or less effective for an individual student compared to an established standard.

Few studies focus the lens of inquiry on policy factors and school practices that can be adapted to student needs and adjusted based on student risk factors (Fine & Davis, 2003). The current body of literature fails to adequately represent the issues

related to student engagement and school experiences and their relationship to enrollment in postsecondary education programs. This study attempts to close the gap and inform the decisions made on a daily basis by tens of thousands of teachers and administrators throughout the United States regarding social promotion, attendance policies, and homework practices.

Study Design

This study utilized the existing database of NELS: 88 to examine whether the engagement factors at the school level would predict the rate of postsecondary enrollment. Compiled at the school level, the hypothesis that the measurable rates of attendance and time spent on homework, as well as the school experience of ever being held back in grades K–8 will predict rates of student enrollment in postsecondary programs. Multiple regression analyses were used in this study.

Population

NELS: 88 began with a cohort group of approximately 25,000 eighth graders from across the United States, attending 1,052 public and private schools identified by a national probability sample. A two-stage stratified probability design was used to select a nationally representative sample of eighth grade schools and students (Owens, 1996). Four follow-up surveys have been completed, the first three at two-year intervals—1990, 1992, and 1994. The fourth follow up was conducted in 2000.

Schools and students throughout the 50 United States as well as the District of Columbia were initially eligible for the random selection process. NELS: 88 excludes Bureau of Indian Affairs schools, special education schools for the handicapped, area vocational schools that do not directly enroll students, and schools for dependents of

United States personnel overseas. Excluded student characteristics include: mentally handicapped students, students not proficient in the English language, and students having physical or emotional problems that would make their participation in the study unrealistic.

Data Management and Analysis

Data Collection

NELS: 88 collected survey information from enrolled students, dropout students, parents, teachers, and school administrators between eighth grade and age 26. Additional information has been collected from high school transcripts and course offering data provided by educational institutions. A base-year ineligible study and a follow-up study of excluded students were conducted in 1988 and 1992, respectively. High school effectiveness studies were conducted along with the first and second follow-ups (1990 and 1992) and a transcript study was conducted in 1994.

The primary sampling unit was the 1052 schools contributing useful data about students. The probability that a school was selected was proportional to the size of the eighth grade class. Private schools were oversampled. Information from students, teachers, parents and the school policies and procedures was collected in 1, 035 of these schools. Schools were stratified along sector type including private, Catholic and public groups.

For the base year, the students were the primary sampling unit. In order to achieve the goals of this study of measuring school level practices, the data were aggregated prior to the analysis, making the unit of analysis of this study the school level. According to the NELS: 88-sample design, data for Asian and Hispanic students

was disproportionately selected to ensure samples large enough for sampling of these two ethnic subgroups. The study is cross-sectional in nature, with data from the student, parent, teacher, and administrator/school level in all waves of data collection.

The first follow-up sampling strategy involved sub-samples of students from the base year. The reason for this design was the movement of the students from a little more than 1,000 junior high schools had been distributed to approximately 4,000 high schools. Base year students with at least ten other base year students attending the same school were sampled with certainty, with all others being sampled assigning probabilities of greater than zero and less than one (NCES, 1996).

For the second follow-up survey, all students were included in the survey. A total of 2,258 schools were included, with the 1,030 schools that housed four or more first follow-up members included in the study with a probability of certainty. Others were subject to a sampling process (NCES, 1996). Two additional components were included in the second follow up. The transcript and course offerings components, providing additional sources of information with which to compare results of student reported data.

Non- Response Issues

When an individual student or school level personnel decline to participate, it is termed "unit non-response". For NELS: 88, there were very few non-responses as participation approached 99% in the first and second follow-up. The student non-response issue was not assessed in the base year, so weights were provided, adjusting for unit non-response.

"Item non-response" occurs when a survey participant fails to complete specific items on the survey instrument. There were three ways in the design of NELS: 88 that attempted to compensate for item non-response. 1) Machine editing was performed, which in some cases rectified the situation by forcing logical agreement between dependent questions and filters. 2) Key variables at the school level were inserted when questionnaire data was missing, and 3) Legitimately skipped items on dependent items were tabulated (NCES, 1996).

The independent variable expressing time spent on homework is taken from each year in eighth, tenth, and twelfth grades. The independent variable associated with non-promotion represents student reports of "ever being held back." Additionally, the overall student report from the 1992 survey was compared to the response rate from the prior survey.

The sample was "freshened" in 1990 and 1992, constituting a nationally representative sample of spring-term eighth graders in 1988, spring-term sophomores in 1990, and spring-term seniors in 1992 (NELS, 1996). Further information regarding the design of the study is available from the NCES publication of the *Base-Year to Fourth Follow-up Data File User's Manual* (Curtin, 2002). It is available in both public and restricted use versions. In addition, the NCES has created an electronic codebook, available on compact disc, in which researchers can look at each data variable individually, view the original question posed in the various questionnaires, and create a working file by tagging specific variables using SPSS software format. The tagged files were analyzed independently in this study.

Data Preparation

Before conducting the statistical analysis, it was important to ensure that the data possessed as much integrity as possible. This is especially true in the case of a large database such as NELS: 88. Basic data cleaning strategies were very useful for this analysis. A two-step process of detection and correction of errors in a data set was utilized in this case.

Transformation refers to changing the variables as a prerequisite to analysis. The data were transformed for this study for two primary reasons: so that analysis could occur at the school level, and in order to eliminate the nested nature of the data, thus creating a simplified analysis. This process created a data file containing aggregated variables that were prepared for a school-level analysis as described in this study design and contained in Table 1 of this study.

Of the many potential sources of error outlined, there were two error sources that were of particular interest in this study: scatter plots and descriptive statistics used in order to determine the normal distribution of the data. Scatter plots for each independent variable are found in the appendices of this document. The summary statistics for the variables used in this study are found in Table 2. The results of the Kolmogorov-Smirnov test statistic to assess the normalcy of the dependent variable is found in Figure 2, page 58 in the results section of this study.

Assumptions of Regression

Multiple regression shares the same assumptions of correlation: the consistent level of relationship throughout the range of the independent variable; the data shares the characteristics of normal data distribution; the independence of the individual

variables (in this case ensured by the aggregation of data to the school level); and the measurements are reliable measures of the data. Due to the size of the data source, a residual analysis was also conducted to meet the assumptions necessary to conduct the regression analysis.

NELS: 88 Survey Design and Content

The base-year (1988) survey was conducted during the spring school term of 1988 when students were in the eighth grade. It was made up of four components: 1) Eighth grade student questionnaire and academic assessments, including items on their background, language use, family, opinions about themselves, plans for the future, job and chores, school life, schoolwork, and activities. Approximately 25 students from each school were surveyed, creating a representative sample. Students also completed curriculum-based cognitive tests in reading, mathematics, science, and social science. 2) A survey of parents (one parent of each sampled student), including data on parental aspirations for their children, the support level of education at home, and general family characteristics. 3) A survey of teachers—each student was represented by two of the four teachers a student had for the cognitive testing areas. The teachers provided data on school and teacher characteristics, evaluations of the selected students, course content, and classroom teaching practices. 4) School administrators provided data about each school's teaching staff, school climate, and characteristics of the entire student body, school policies, and subject offerings (Owings, 1998).

A base-year ineligible study conducted in the first follow up (1992) and a follow-back study of excluded students (1992) included those students no longer considered ineligible to the "freshened" samples of the first and second follow ups

(NCES, 1996). The resulting complex statistics are more variable than a simple random sample in order for statistical significance not to be over-exaggerated.

In 1992, the second follow-up was implemented, when most students contained in the sample were seniors in high school. In addition to the surveys of students, school dropouts, parents, teachers, and school principals, a review of student transcripts was included. This provides a culminating measurement of patterns and experiences throughout the students' course of high school. At this juncture, the sample was freshened to better represent the high school class of 1992. This wave included the prior student dropouts from the first follow up as well as identifying and surveying students who had left school since the prior wave.

1994 marked the third follow-up when most sample members had completed high school. The primary purpose of this wave was to provide data for trend analysis with National Longitudinal Study (NLS: 72) and High School and Beyond (HS&B). It was also designed to address issues of employment and access to postsecondary education. Additionally, the number of high school dropouts who had returned to school and their return path was documented.

The fourth and final follow up occurred in 2000, consisting only of the student questionnaire. The questions contained in the student questionnaire included the areas of employment and postsecondary education. Specifically, the content areas included academic achievement, perceptions about school and work, work-related training, and enrollment in postsecondary education (NCES Handbook, 1996).

For most components, data were collected through self-administered questionnaires/tests administered in group sessions on campus. There were several

exceptions: Parents were surveyed via mailed questionnaires and dropouts and students who had transferred and/or missed in-school sessions were surveyed through off-campus group sessions. In the third and fourth follow-ups, (1994 and 2000), computer-assisted telephone interviews were conducted to collect data.

Procedure

The NELS: 88 data were stratified and clustered for probability sampling. In this study, the public-use version of the electronic codebook was used. The data available on this compact disk contained no personally identifiable demographic information. Subjects are therefore protected from lapses in confidentiality and questionnaires can be used in the replication of study methods. Specifically, this study analyzed data from the first- and second-follow up samples, capturing student, parent and administrator responses. The third wave of data were utilized for entry to postsecondary and serves as the dependent variable. To ensure the representativeness of the sample, the appropriate panel weights created by NCES were used at each stage of the analysis.

Detailed information regarding the construction of each of the dependent variable is contained in Table 1. There were several variables considered in this study consisting of both categorical (ordinal and nominal) and continuous (interval and ratio) variables. Because the data were aggregated to the school level, some of the variables had to be transformed in order to provide a more precise measurement of the school-level variable. In general, if the variable was categorical, a percentage of students were calculated that were observed to obtain a characteristic. Alternatively, if the variable was continuous, the mean value for the student scores was calculated and used in the final analysis.

Independent Measures

The variables are listed in order based on the significance of the relationships found in Table 2. The most significant variable is listed first, based on the correlation coefficients. Results of the initial regression are found in Table 3.

- Ever held back a grade in school - when aggregated by school, this variable represents the % of students within the school promoted to the subsequent grade level each year between grades kindergarten and eight.
- Days of school missed in the past four weeks - when aggregated by school, this variable is defined as the % of students who achieved an 80% rate of attendance over the prior four weeks.
- Time spent on homework per week - when aggregated by school, this variable represents the % of students who spent no time on homework outside of school.

Dependent Measures

The dependent variable documenting entry to postsecondary, was aggregated to the school level. As Krueger and Parish (1982) note, research supports the idea that change efforts need to focus at the school level. Prior to aggregation, the primary dependent variable measured whether a student attended postsecondary education at one of the two time-points indicated: 1) The fall of 1993, which would indicate a typical entry into college following completion of four years of high school or 2) the spring of 2000, which would exclude students enrolled at the first measurement. This encompasses the timeframe of the data available from the NELS: 88 data and provides for an up to eight-year delayed entry into postsecondary education. Aggregated data

represented the percentage of students entering postsecondary education measured at the school level.

Generalizability and Validity

The longitudinal design of the data collection, in which the main sample of the cohort were followed through the first four waves of study, allows researchers to investigate the relationships between the antecedent variables—in this case social promotion, attendance, and homework patterns—to the outcome variable of enrollment in postsecondary education some years later (NELS, 1996).

Methodological deficiencies found in many of the prior retention research employing the one-group pretest-posttest design lead to questions of internal and external validity, as Campbell and Stanley (1963) point out by using such a research design as a "bad example" to describe the many confounding variables affecting the validity of the research outcomes. Without a comparison or control group, the actual benefits and drawbacks of early school retention remain somewhat vague.

Although such a study may isolate the long-term outcomes of early grade retention, the ethical considerations along with the time constraints make such research improbable, certainly within the scope of this research study. Instead, a look back at students retained and what association this appears to have on their trajectory toward postsecondary options is the goal of this project.

The population generalized in this study is limited to the sample studied due to the limitations of the research design. Due to the site-specific nature of school context, these finding may or may not hold true in another school setting.

Limitations of the Study

During the base year 1988, the sample is nationally representative, but cannot be generalized due to sampling constraints in the initial study design. Specifically, the under sampling of urban schools and disadvantaged schools with special groups, and the complete exclusion of students whose disabilities or language barriers made it infeasible to survey using questionnaires and cognitive tests, limits the use of the data in policy issues such as special education and limited English proficiency (Owens, 1996).

In fact, 5% of the base year students were excluded from the study because of physical, mental, or language problems (NELS, 1996). Although these potential biases are addressed through the Data Analysis System (DAS) use of descriptive analysis weighting, the validity of findings is adversely affected as many of these students would be deemed "at-risk" and would likely result in a lower number of sample participants enrolling in postsecondary education programs.

Determining an association between elements and outcomes is valuable information for policy implementation and practitioner use, NELS:88 did not include an experimental intervention, with a control group, or a pretest-posttest design. The only conclusion to be drawn is whether or not postsecondary enrollment occurred within the subjects selected for the sample.

All statistical tests for significance carry with them the possibility of error. Results in this analysis found to be "statistically significant" may not reveal the same level of significance in a sample population drawn from the larger pool of potential participants. The probability of such an error, commonly known as a Type I error, was set at .05 throughout this analysis. The socio-economic variable, when evaluated

displaying a summary of statistics shows a value of the standard deviation higher than the mean. These results would need to be further considered for errors, should additional analysis be undertaken.

The major conceptual limitation of all regression techniques is that no causal impacts can be proven through statistical analysis using multiple regression. Only relationships between the variables can be ascertained. In correlation research, alternate causal explanations much be considered.

The limitations to the current study are those in which the researcher did not control in the study. The sample was not controlled in the study, as it was designated by the research design of the NELS:88 database. Additionally, the sample size was not under the control of the researcher, as it was pre-determined by the study design.

These finding may or may not hold true in alternate school settings due to the site-specific nature of student engagement context. Further research is needed to establish how schools can utilize findings from studies such as this to implement effective procedures for encouraging their students to enter postsecondary programs. The responses of this dataset would likely not be representative of the responses of a current students survey .

The data were aggregated to represent the school-level data. This was undertaken in order to simplify the required analysis, as well as to the limit the interdependence between each of the students who attend a particular school. By aggregating the data to the school level, there was a chance that there were not enough observations for each school to make appropriate inferences regarding the phenomenon under investigation (NCES, 1996).

Implications

By combining the two factors of the social and economic benefits of attending higher education, as well as identifying overt indicators that serve to measure student engagement, this study makes a case for the policymakers and school leaders to address the school level conditions encouraging enrollment in postsecondary education. Monitoring and assessing overt student engagement indicators in order to determine how school policies and practices may be associated with student engagement and related to postsecondary enrollment, is an important element to add to the research base.

State and national leaders have a renewed interest in enhancing educational attainment, not just for the sake of education, but also as a key social asset (Ewell, Jones & Kelly, 2007). Establishing a link between school practices associated with student engagement will advance the body of research relating to educational policy. In the present study, the literature on student engagement and its potential relationships governing educational decisions made at the high school level is extended to the postsecondary level.

In reference to postsecondary education, research confirms that the time and energy students devote to educationally purposeful activities is the single best predictor of student's learning and personal development (Kuh, 2003; Astin, 1984; Pascarella &Terenzini, 1991; Pace, 1980).

Concern regarding student disengagement in school has been a persistently reported, often discuss, but not adequately researched. Overt, measurable behaviors demonstrated by students and staff that can be consistently and positively associated to postsecondary enrollment is a critical piece of the educational policy puzzle. These

theoretical issues leading to practical responses can only be impacted by school practices if they are identified and subsequently consistently addressed by school policies and procedures.

CHAPTER IV

RESULTS

Introduction

The purpose of this chapter is to present the findings and results of the evaluation conducted to determine variable associations with the outcome measure—the elements that had an impact on whether a student accesses a postsecondary education (PSE). The following specific associations were investigated:

1) Is meeting or exceeding 80% attendance standard measured at the school level related to increased rates of postsecondary enrollment?
2) Is the amount of time spent on homework positively associated with student enrollment in postsecondary programs?
3) Is delayed promotion an effective remediation practice, or does it serve to create additional risk factors associated with non-enrollment in postsecondary programs?
4) Which variables are statistically significant predictors of enrollment in postsecondary education?

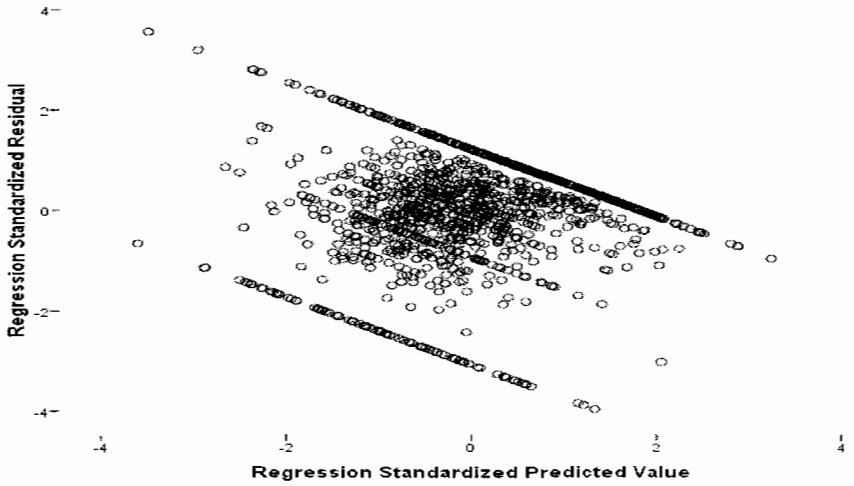
In order to assess which variables had an impact on postsecondary enrollment, this study utilized the existing database of NELS:88. Within this database respondents had to have participated in all four waves of the study in order to be considered. The survey measured on an average of 24 students within 1,052 schools. For the purpose of

this study, the data were aggregated to the school level resulting in analyses treating school (N=1,052) as the unit of analysis.

Initially, exploratory analysis were conducted on the independent and control variables included in the study with the goal of determining if any significant correlations existed between the variables. This type of analysis determined the collinearity–level of correlation between dependent and independent variables being evaluated. If such a relationship were to exist, the precision of the measurement will potentially be skewed, affecting the results of the parameter estimates. Pearson's correlation coefficients were computed for the independent and covariates. For each school, independent and dependent variables were computed so that the high school variables could be assessed for their ability to predict the rate of postsecondary enrollment.

To test for the normality of the data, the Kolmogorov-Smirnov test statistic was utilized in order to assess the normality of the dependent variable. Similarly, the linearity -or homoskedasticity of the data were examined using plots of the independent and dependent variables, as well as plots of the predicted values versus the residuals. Figure 2 indicates a trend for the where a zero or 100% attendance rate was observed. Other than these observations, there do not appear to be any trends in the data with the observations randomly distributed around zero.

Figure 2. Predicted Variable Value versus Regression Standardized Residual



$p = .86$

For the purposes of this study, the assumptions of the reliability of the data were assumed true as the data was collected by the National Center for Educational Statistics. NCES, in their methodological summary materials indicate that the measurements are, in fact reliable.

As for the independence of the variables in the study, the process of aggregation of data to the school level provides for the independence of the variables. By aggregating the data to the school level the potential dependency between independent variables created by student responses gathered within the same classroom was eliminated. More detailed information on this topic is contained in the upcoming section describing the aggregation process.

In order to determine which variables have an impact on postsecondary enrollment, multiple linear regression analyses was conducted. The analysis was designed in a two-stage format in order to predict the strength of the association

between variables associated with the research questions and student enrollment in postsecondary education.

For the convenience of the reader, this chapter is divided into two sections. The first section contains the process of aggregating the variables to conduct the study as designed, using the school as the level of analysis. This section also provides descriptive statistics on the aggregation process of the school-level variables used in this study.

The second section contains the results of the multiple regression analysis. Multiple regression analysis can establish that independent variables have a relative predictive importance on the dependent (outcome) variable. In this study, entry to postsecondary is the dependent variable. The significance of the difference of two R^2 allows the determination if adding an independent variable to the models helps explain a proportion of the variance (or change) in the dependent variable.

Aggregation of Data and Descriptive Statistics

Prior to the analysis being conducted, the variables in the database were aggregated to the school level. The data were aggregated in order to study the associations of the variables with the school as the unit of analysis. As noted previously during the description of data management and preparations, the aggregation process created a situation in which the different schools were considered independent of one another, thus meeting the assumption of independence required for the regression analysis.

There were several variables considered in this study consisting of both categorical (ordinal and nominal) and continuous (interval and ratio) variables. Because

the data were aggregated to the school level, some of the variables had to be transformed in order to provide a more precise measurement of the school-level variable. In general, if the variable was categorical, a percentage of students were calculated that were observed to obtain a characteristic. Alternatively, if the variable was continuous, the average value for the student scores was calculated and used in the final analysis.

Table 1 displays a list of the variables and defines the aggregated form of the variable used in this study. The dependent, or outcome variable is the rate of entry to postsecondary programs, measured as a percentage of the total school. The independent variables including the covariates are displayed in Table 1. Also included is the type of variable, as well as the aggregated description of the data that were analyzed.

Table 1. *List of Variables Used in the Analysis and How they were Transformed*

Variable	Original Variable	Aggregation
Ever held back a grade in school	Categorical	Percentage who said that they were not held back a grade in school.
Number of days of school missed in the past four weeks	Categorical	Percentage of students who missed less than 5 days
Number of hours spent on homework in a week	Categorical	Percentage of those who spend less than 5.5 hrs a week on homework
Gender	Categorical	Percentage of "Male" students
Race	Categorical	Percentage of "White" students
Socio economic status	Continuous	Mean score since this was on a continuous scale
Number institutions attended	Continuous	Mean score because variable was continuous
Percentage of Students who Attended PSE	Categorical	Percentage of students who attended at least one PSE

Multiple Regression Analysis

Multiple regression analysis was undertaken in this study to attempt to identify some of the school level student engagement predictors to entry to postsecondary educational programs. The primary independent variables, representing overt student engagement indicators considered for the multiple regression analysis were: ever held back a grade in school percentage, days missed from school in past four weeks, and the number of hours spent on homework per week.

Gender, race, and socio-economic status were used as covariates, as they have been documented to affect enrollment in postsecondary. The exclusion of important causal variables or the inclusion of non-significant variables can change the beta weights and lead to the misinterpretation of the relative importance of independent variables.

The dependent variable that was used in this study represented the percentage of students within a school who attended some type of postsecondary institution. To utilize this variable as continuous at the school level, the variable was first transformed into a dichotomous variable for each of the students based on the number of institutions the student had attended. A value of "1" was assigned and represented that the student attended at least one PSE. Otherwise they were assigned a value of zero.

Next, the data were aggregated so that the percentage of students who attended at least one PSE was calculated for each school. Based on this information, each one of the variables in the study was categorized as a continuous variable (either as percentages or average values).

Summary statistics for the primary independent, control variables, and dependent variables are presented in Table 2, where N represents the number of schools in the analysis, M refers to the mean average of the outcomes associated with a probability distributions and SD is defined as standard deviation–the measure of the dispersion (variability) of the set of values.

Table 2. *Summary Statistics for Variables in Regression Analysis*

	N	Range	M	SD
*Ever held back a grade in school	1422	0 to 100	85.38	23.82
*Number of days missed from school in past four weeks	1431	0 to 100	93.14	16.78
*Number of hours spent on homework per week	1426	0 to 100	65.17	30.42
**Gender	1476	0 to 100	48.69	32.10
**Race	1471	0 to 100	80.31	30.78
**Socio-economic status	1400	-1.81 to 1.97	.01	.64
***Percentage of students who attended PSE	1465	0 to 100	70.32	30.65

* independent variables; **control variables; ***dependent (outcome) variable.

As depicted in Table 2, there is a range of mean (M) values observed for each of the variables included in the regression analysis. The variable observed to have the largest average percentage was the number of days of school the student missed in the past four weeks. In fact, on average 93.14% (SD = 16.78%) of the students aggregated to the school level missed no classes within the four weeks prior to the survey. The variable representing socio-economic status was observed to have a range from -1.81 to 1.97.

The multiple regression analysis was the attempt to find a straight line that represents the data points corresponding to each school in the study. Correlation is the number that measures how closely the points follow a straight line. The more closely the points follow a straight line, the closer the correlations is to either -1 (negative

correlation) or 1 (positive correlation). A positive correlation refers to an x increase on the x-axis, creating a systematic increase on the y-axis. A negative correlation means that as x increases on the x-axis, y decreases.

An exploratory analysis was performed to assess whether there was any significant correlation between the variables. In the case of collinearity–an exact linear relationship between the variables, the resulting estimates may not be precise due to the parameter estimates being skewed. Pearson's correlation coefficients were computed for the independent, dependent and control variables. The results are shown in Table 3.

Table 3.*Correlation Analysis between Dependent, Independent and Control Variables*

	1	2	3	4	5	6	7
1. Ever held back a grade in school	--						
2. Days of school missed past four weeks	.044	--					
3. Hours spent on homework in a week	-.033	.000	--				
4. Gender	-.133**	.040	.048	--			
5. Race	.050	.058*	-.070**	.023	--		
6. Socio Economic Status	.211**	.093**	-.241**	.080**	.197**	--	
7. % of Students who Attended PSE	.232**	.088**	-.168**	-.043	.039	.519**	--

Note: ** $p < .01$, * $p < .05$

Several variables in Table 3 were significantly correlated, either positively or negatively with one another. There was a small, statistically significant negative correlation between gender and whether they had been held back in school, $r = -.133$, $p < .001$. Since gender defined in terms of percentage of males, and being held back in school was defined as a student being socially promoted, the negative correlation describes the relationship of girls being promoted with their same-age peers more frequently than boys. Race and number of hours spent on homework each week were also negatively correlated, $r= -.070$, $p < .008$. In this study, race is defined in terms of

being white, so white students were more likely to spend time doing homework than their minority counterparts.

Alternately, there were positive correlations between (higher) socioeconomic status and being socially promoted r - .211, p <. 001. Race and the number of days missed in the past four weeks, r = .058, p=. 028 are also positively correlated, indicating that white students, as a group, aggregated by school, were more likely to miss less than five days as compared to their minority peers. Similarly, higher socioeconomic status was positively related to being absent fewer than five days in the prior four weeks.

With none of the variables very large in magnitude, the correlations could potentially be related to the size of the sample surveyed instead of actual relationships that exist between the variables. For this reason, each of the variables analyzed in the study were included in the final regression analysis, with the variance inflation factor for each being calculated to determine if, in fact, any of the parameters of the model were inflated due to correlations between variables.

As for the correlations between the independent variables, the dependent variable and the covariates, it was found that there existed a significant positive correlation between the percentage of students who attended postsecondary programs and were always promoted with their peers, r=. 232, p < .001.

Findings

For the purpose of this study, a forward selection procedure was used so that only the most significant independent variables were included in the final model. For this forward selection procedure the entry criteria for the variables was set at $p = .05$.

The findings presented represent the forward selection procedure, entering the control variables first, then adding the independent variables one at a time to determine the change in model fit, as well as the strength of their contribution to the model.

Based on the results presented in Table 4, it can be observed there does not appear to be a prior correlation between the variables in the model because the variance inflation factor scores are less than ten. For the forward selection procedure, the first variable included in the model was the percentage of students who were never held back a grade in school, after controlling for the other variables in the model.

The next variable that was included in the model was the percentage of students who missed fewer than five days of school in the four weeks prior to the survey, after controlling for the variables already in the model. This standard represents attendance rates either equal to or greater than 80%. The standard of 80% is defined as "good attendance" in this study based on mandatory attendance legislation.

In table 4, B represents the regression coefficient– the amount the dependent variable changes when the corresponding independent variable changes 1 unit.

β –the beta value–is a measure of how strongly each predictor variable influences the output variable. By comparing the beta weights, the relative predictive importance of the independent variables can be established. T-tests are used to assess the significance of individual b coefficients, testing the null hypothesis that the

regression coefficient is zero. Because a 2-tailed test was used, results are determined by comparing each p-value to the pre-selected value of alpha of .05. Coefficients having p-values less than alpha are significant with p representing the probability of significance. VIF is an acronym for variance inflation factor. The VIF measures how much the variance of a coefficient is increased due to collinearity.

Table 4. *Parameter Estimates for Forward Selection Regression Analysis*

	Variable	*B*	*β*	*SE*	*t*	*p*	*VIF*
Model 1	Intercept	62.214		3.566	17.445	.000	
	Gender	-.067	-.071	.022	-3.064	.002	1.035
	Race	-.049	-.051	.022	-2.179	.029	1.047
	Socio Economic Status	22.766	.516	1.061	21.463	.000	1.114
	Ever held back a grade in school	.181	.140	.031	5.919	.000	1.072
Model 2	Intercept	64.644		3.812	16.958	.000	
	Gender	-.063	-.067	.022	-2.894	.004	1.043
	Race	-.050	-.052	.022	-2.247	.025	1.049
	Socio Economic Status	22.287	.505	1.093	20.391	.000	1.185
	Ever held back a grade in school	.183	.141	.031	5.991	.000	1.074
	Hours spent on homework in a week	-.041	-.042	.023	-1.795	.073	1.076
Model 3	Intercept	56.257		5.365	10.486	.000	
	Gender	-.066	-.070	.022	-3.005	.003	1.046
	Race	-.053	-.055	.022	-2.354	.019	1.051
	Socio Economic Status	22.165	.502	1.093	20.284	.000	1.188
	Ever held back a grade in school	.182	.140	.031	5.951	.000	1.074
	Hours spent on homework in a week	-.041	-.042	.023	-1.802	.072	1.076
	Days of school missed in the past 4 wks	.094	.051	.043	2.218	.027	1.010

The percentage of students who do not spend any time on homework during the week was observed to not meet the entry criteria so was therefore left out of the final model. The resulting model, therefore, was comprised of the control variables, the

percentage of students who were regularly promoted in school, and percentage of students who met the standard (80%) of good attendance.

From the model, it was observed that the percentage of students who were never held back a grade in school had a significant relationship on the percentage of students in the school who entered a postsecondary program t (1333) = 2.22, p-.027. As for the percentage of students who spent no time on homework in a week, there was no statistically significant difference (T1333) = -1.80, p=. 072, at the .05 level of significance. The null hypothesis is therefore accepted for the variable of homework and its association with postsecondary enrollment.

In order to measure the strength of the relationship between each of the independent variables on the percentage of students in the schools who attended postsecondary programs, the change in R squared value and the change in the F-statistic is presented in Table 5.

Table 5. *Change in R Squared and the Significance of the Change in R Squared Value*

			Change Statistics				
Model	R	R^2	R^2 Change	F Change	df_1	df_2	P
1	.554	.307	.018	35.036	1	1335	.000
2	.556	.309	.002	3.221	1	1334	.073
3	.558	.312	.003	4.921	1	1333	.027

The F test is used to test the significance of R, which is actually the same as testing for the significance of R^2 and therefore the significance of the regression model as a whole. F is computed considering the degrees of freedom (df). The degrees of freedom are associated with the sources of variance. The variable for students being

held back in this model increased the R squared value by .018 units. This resulted in an increase in the R squared value that is to be considered significant ($p < .001$).

The next independent variable, relating to homework, when added to the model only increased the value of R squared .002 units. This resulted in the acceptance of the null hypothesis for this variable. Finally, the inclusion of the 80% attendance standard, the R squared value increased by .003, which was significant ($p = .027$). Based on these results, the only two variables that significantly increased the R squared value of the model were the "held back" variable and the "attendance" variable.

One final multiple regression model was run, including the control variables, as they significantly contribute to the explanation in the percentage of students in the schools who went into a PSE. The two significant independent variables of "ever held back a year in school" and the "number of days of school missed in the past four weeks" were also used. The results for this model are presented in Table 6.

Table 6. *Parameter Estimates for Forward Selection Regression Analysis*

	B	*β*	*SE*	*t*	*p*	*VIF*
Intercept	53.835		5.199	10.356	.000	
Gender	-.069	-.074	.022	-3.176	.002	1.038
Race	-.051	-.053	.022	-2.286	.022	1.050
Socio Economic Status	22.646	.513	1.061	21.353	.000	1.117
Ever held back a grade in school	.180	.138	.031	5.879	.000	1.072
Days of school missed in the past four weeks	.094	.051	.043	2.212	.027	1.010

Based on the results presented in Table 6, it can be observed that once again there does not appear to be any mulitcollinearlity between the variables in the model because the VIF scores are not greater than 10.

For the forward selection procedure, the first variable included in the model was the percentage of students missing less than five days of schools in the prior four weeks, after controlling for variables already in the model. The resulting model was comprised of the control variables, and the percentage of students who were never held back a grade in school, along with the percentage of students who missed fewer than five days of school in the prior four weeks.

From the model, it was observed that the percentage of students who were never held back a grade in school had a small, but statistically significant relationship to the percentage of students in the schools who went into a PSE $t\ (1334) = 5.88 < .001$. In fact, the model predicts that for every percentage increase in the percentage of students who were never held back a grade in school, the percentage of students in the schools who enrolled in a postsecondary institution would also increase slightly after controlling for the other variables in the model. This means that if the student was not held back a grade in school, the chances of them enrolling in a PSE would increase by a small, but measurable amount.

An important consideration in the interpretation of this model is that there exist many other contextual variables that may contribute to the correlation between the variables considered in this study. Many of these variables are listed in figure 1 of this study (pg. 29). Alternate explanations of the correlations found in this paper are possible due to the extensive number of variables related to student engagement.

Similarly, the percentage of students who missed less than five days in the past four weeks was related to the percentage of students in the schools who went into a postsecondary institution, $t\ (1334) = 2.21$, $p = .027$. Again, a comparatively small

increase is noted, resulting in less than one additional student per 100 entering postsecondary programming.

The overall fit of this model as indicated by the R squared term was .310, meaning that this model was able to explain 31.0% of the variation of the percentage of students in the schools who entered postsecondary education.

CHAPTER V

DISCUSSION & CONCLUSIONS

Introduction

Education is central to our economic and cultural well-being. It is widely accepted that student's decisions to enroll in postsecondary education have important implications for both the individual student, as well as for society at large. The factors that affect the decision to enter postsecondary are important to identify and address in education policy at the national, state and school levels. These rules, regulations and policies may constrain or enhance successful implementation efforts. Knowledge regarding which policies work toward student entry to postsecondary is valuable to school practitioners who are implementing related policy on a daily basis.

Postsecondary training provides more diversity of employment, thereby creating improved working conditions along with personal and professional mobility The direct economic and social impact of participation in higher education is difficult to calculate, with the capacity for America's colleges to meet the increasing social and economic needs in question (The Institute for Higher Education Policy, 1998).

The minimal percentage increases of immediate enrollment in postsecondary education are not keeping pace with the need for an educated labor force that is positioned to respond to the growing challenges of technology, as well as other emerging social and economic conditions (Stafford et al., 1984). Policies encouraging enrollment are key to increasing the number of students in postsecondary programs.

Discussion of Research Questions

Q: Is meeting or exceeding 80% attendance standard measured at the school level related to increased rates of postsecondary enrollment?

A: Good attendance was defined in this study as being at school on four out of five days –at least 80% attendance rate, in the most recent four weeks prior to the survey being conducted. The data were aggregated to the school level for analysis. There was a minuscule positive association found in the correlations analysis between good attendance measured at the school level and entry to postsecondary education after controlling for background factors.

Q: Is the amount of time spent on homework positively associated with student enrollment in postsecondary programs?

A: The amount of time spent on homework, even when the variable was transformed to measure students spending no time on homework, had a negligible effect on whether or not students went on to postsecondary programs. In this case, the null hypothesis was accepted.

Q: Is delayed promotion an effective remediation practice, or does it serve to create risk factors associated with non-enrollment in postsecondary programs?

A: Delayed promotion or "holding students back" to repeat a grade level was shown to be slightly negatively associated with entry to postsecondary. This analysis resulted in the finding that schools that implement the policy of holding students back might have had fewer students entering postsecondary education.

Social promotion decisions are typically shared between teachers, parents and school staff, with the school administrator being required to approve retentions and accelerations. It is appropriate, therefore, that the data in this study were aggregated to the school level, in order to measure the comparative percentage of students being held back to those entering postsecondary education.

Q: Which variables are statistically significant predictors of enrollment in postsecondary education?

A: *These findings are based on the aggregation of the student population at the school level with a sample N = 1052. Variables transformed in the aggregation process are defined in Table 1.*

- *The variables aggregated to the school level that were positively associated with entry to postsecondary were good attendance and not being held back in school.*
- *The variables negatively associated with entry to postsecondary included gender (-.043) and homework (-.168).*

Significance of this Study

Traditional research has focused on characteristics of at-risk status for students that are least amenable to change. Understanding how the characteristics of schools may associate with student predispositions to enroll in postsecondary education is an important perspective for practicing educators.

It is the goal of this study to enhance the understanding of school level decision-makers on which local conditions have long-term associations with students choosing to

enter postsecondary education programs. These elements of student engagement, resulting in the prioritization of resources, relationships between individuals, and the use of educational knowledge, particularly in terms of incentives and disincentives associated with student entry to postsecondary education are critical for educators to be aware of.

The results of this study display the need for school, student and community focus on the aspects of school that show an association with desired outcomes. Homework completion seems to have no measurable relationship to student entry to postsecondary, it would seem logical that the time spent on assigning, completing and reviewing homework might be de-emphasized in order to focus on issues that have a larger impact on students navigating the educational pipeline.

The school experience of being held back, according to the results of this study, has the most significant effect of variables examined relating to student entry to postsecondary. With that information in mind, developing programs of early intervention, with alternatives to repeating a grade is a critical use of time and resources.

The individual impact of one student at one school may be small, but the incremental improvement represented by additional students entering postsecondary education is certainly a step in the right direction. Creating, implementing and following policies that improve the educational outcome for students, even on a small scale will decrease the next generation's at-risk status due to their parent successfully navigating the education pipeline by entering postsecondary education.

Student engagement is one of many factors that affect student success in school. If, in fact, the level of success experienced by student in school can positively affect student engagement, it should be considered in the planning and implementation of educational programming at all levels, with policy and procedures reflecting the positive effects of sustained student engagement.

Hossler and Gallagher (1989) outline a theory for student engagement and entry to postsecondary education that has been likely the most prominently accepted among educators today. Their three-step process highlights the stages of entering postsecondary education that students go through, and that they must complete in order to enter postsecondary programming. The first stage outlined in the theory is predisposition. Students must be predisposed to make the choice to continue –to stay in the schooling process and enter with the perspective of being successful students, mostly based on the social and economic benefits associated with a high education.

In reviewing the theories associated with student enrollment in postsecondary education, the majority have concluded that factors such as family encouragement, social status and demographic features such as race and economic access play an enormous role in the path students take through the many obstacles or enhancements that lay along their journey. Having parents who value education and have already ventured on the postsecondary path is a great asset to students making their educational choices. Resources, including the financial means to easily access postsecondary programs geographically and financially are all factors that influence the decision.

Having the predisposition to engage in further education is likely to be developed and nurtured in school systems that reflect observed and unobserved

behaviors associated with the predisposition of students to enter postsecondary education. States vary widely in the percentage of students entering postsecondary education. The "college-going" rate, as reported by NCES (2007) ranges from a high of nearly 70% in North Dakota to a low of less than 40% in Utah. The policies and procedures of the schools, combined with the culture and attitudes of the communities where the schools are located shape the predisposition of students to access postsecondary attendance.

The theories of student engagement describe a variety of observed and unobserved indicators that relate to student academic success and high school completion. A student's progress through school is alternately described by researchers as a pipeline, a network or a path to academic achievement. There are, however, contextual factors at the school level that can be impacted by knowledge, awareness and action on the part of school-level professionals to ease the journey students take on their way to postsecondary entry.

The focus on academic rigor associated with legislation such as *No Child Left Behind* carries with it the danger of ignoring other factors that students consider when making the transition decisions necessary to navigate the educational system in the United States today. Increases in student's engagement level, even if incremental, will lead to more positive attitudes toward continued schooling.

Knowledge of the elements of student engagement that tend to positively affect a student's decision to continue into postsecondary programs is a beginning step in creating awareness of how these contextual factors might play out in an individual school setting. Providing insight into the interrelationships between various elements of

the context will contribute to effective policy implementation. In addition to the elements in this study, there may be additional elements that contribute to the interrelationships that create either a bridge or a barrier to student engagement.

Recommendations for Further Research

Throughout this paper, elements of student engagement factors have been discussed individually. The literature supports the interrelationships and interdependence of these elements contributing to school context. Exactly how these elements interact is not clear in the research. Creating a systemic approach of addressing the variables associated with students continuing their education through policy and practice will ensure schools are addressing student engagement. Further study regarding exactly what school leaders may do to reduce the barriers to postsecondary entry while strengthening those elements supporting positive student engagement are needed.

Due to the site-specific nature of context, these finding may or may not hold true in another school setting. Further research is needed to establish how schools can utilize findings from studies such as this to implement effective procedures for encouraging their students to enter postsecondary programs.

McPartland & Slavin (1990) refer to the swinging of the pendulum in education. They suggest changing the ground rules under which new policies are enacted. Further, they point to educators not demanding hard evidence as to the benefit of a new practice as an important reason why the education pendulum continues to exist.

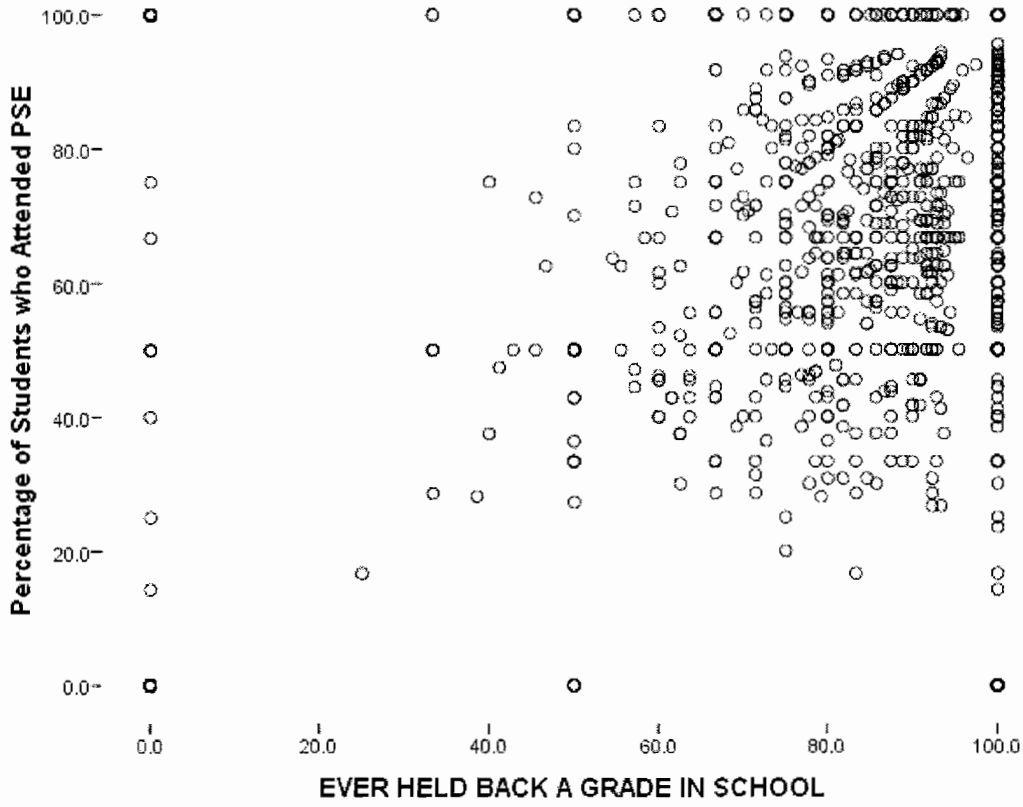
Overall, knowledge of elements that make up the factors associated with student engagement that schools have influence over and that encourage student entry to

postsecondary is a necessary component of the school improvement planning process. School-level policies and procedures should reflect the elements that contribute to students having the option to continue their path to advanced training after high school.

APPENDIX A

PSE VS NOT HELD BACK

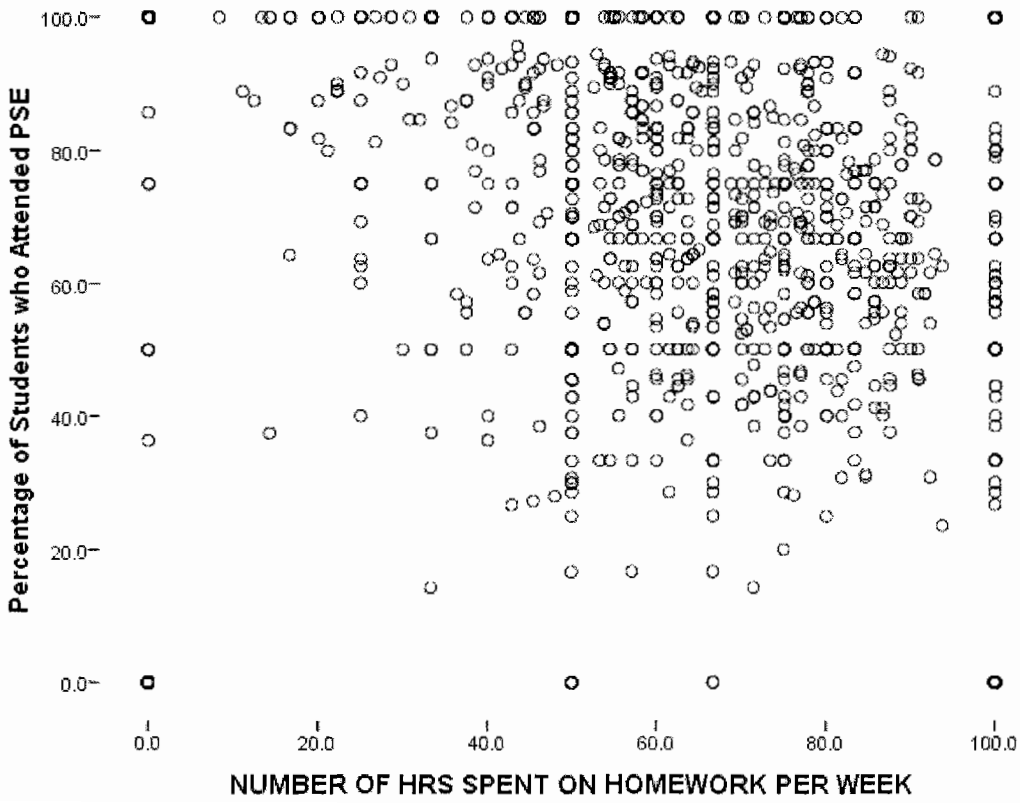
Figure 3. Percentage of students entering postsecondary vs. percentage of students in the school who were not held back



APPENDIX B

PSE VS NO TIME ON HOMEWORK

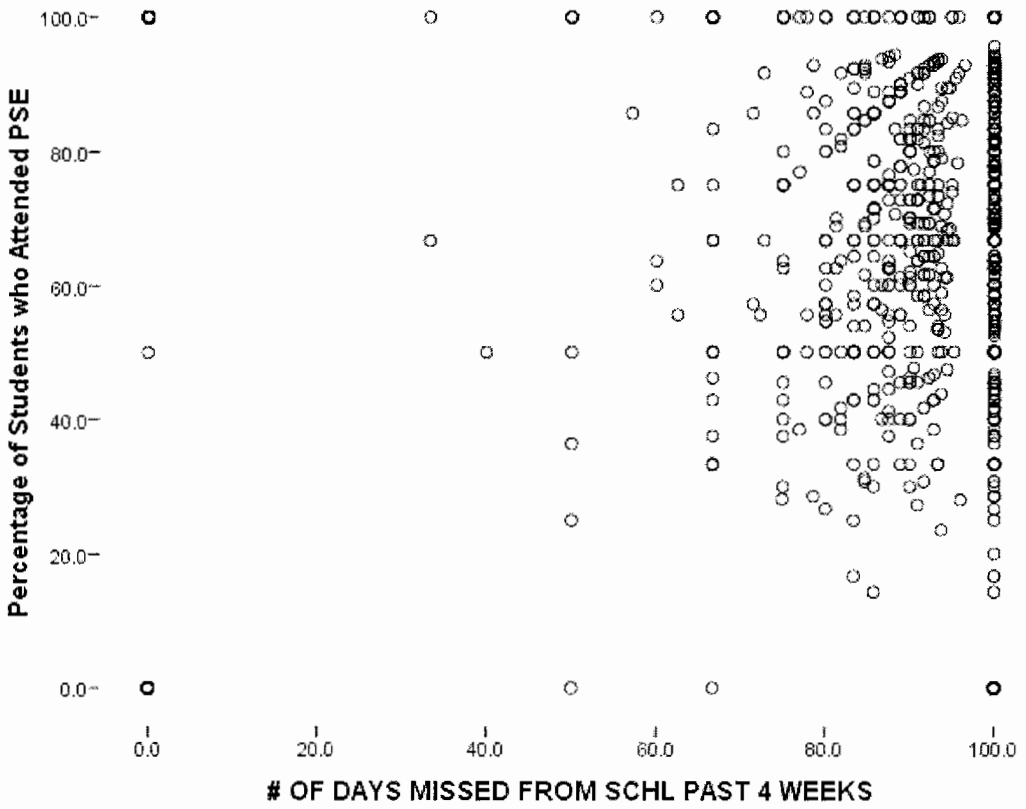
Figure 4. Percentage of students who attended a PSE at the school level vs. the percentage of students did not spend any time on their homework during the week.



APPENDIX C

PSE VS ACHIEVED 80% ATTENDANCE

Figure 5. Percentage of students entering postsecondary education vs. students within the school achieving good attendance (80% or higher).



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