Predicting Graduation in High School Seniors from Protective and Other Factors

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PREDICTING GRADUATION IN HIGH SCHOOL SENIORS FROM PROTECTIVE AND OTHER FACTORS

by

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ABSTRACT
PREDICTING GRADUATION IN HIGH SCHOOL SENIORS FROM PROTECTIVE AND OTHER FACTORS

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The purpose of the current study was to examine factors that discriminated between high school students who graduated from those who did not. High school graduation was chosen as a discriminating outcome for the comparisons groups due to the positive implications graduation has on students' future professional and emotional development. Data were collected from students enrolled in their fourth year of high school. Specifically, the Behavior Assessment System for Children (BASC-2) and the Alcohol Use Disorders Identification Test (AUDIT) were used to assess students' internalizing and externalizing behaviors as they related to academic achievement. Seventy-eight fourth year high school students agreed to participate in the study. The current study failed to identify predictor variables due to the large discrepancy in the sizes of the two outcome groups. No significant differences were found between the groups with respect to the independent variables. Significant differences were found between gender and graduation outcome. Additionally, differences in grade point average and school attendance were significant between groups. In addition to these statically significant findings, moderate and large effect sizes were identified among the independent variables and high school graduation.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1 INTRODUCTION

Statement of Problem

Without question high school dropouts lag behind their peers who graduate from high school in numerous domains (Crosby, 2000). Obtaining a high school diploma appears to be the most salient individual predictor of future outcomes. There is significant disparity between those who graduate and those who do not with respect to wages, occupational status, occupational options, self-esteem, and emotional well-being (Enyedy, 2003). Other variables such as grade point average, attendance, involvement in extracurricular activities, and standardized test scores serve as predictors of the successful completion of high school (Muller & Schiller, 2000) although as isolated variables they do not carry the same influence when predicting future success and emotional well-being. Consequently, while these variables are important predictors of success, this study focuses primarily on graduating from high school due to its predictive power of future outcomes for high school students.

Factors that can increase students' risk of dropping out of school include poverty, childhood abuse, physical handicaps, mental illness, parental alcoholism, parental criminality, and prior grade retention. Children with these risk factors are not only more likely to drop out of school but are also more likely to suffer from other detrimental outcomes including being at an increased risk for developing a psychiatric disorder (Rutter, 1979). Masten et al. (1988) found that family and environmental factors could have a strong influence over students' academic performance. They identified socioeconomic status, quality parenting, and family sociability as positive correlates to a student's grade point average while stressful life events and family stress were negative correlations. Masten et al. further noted that students with these stressors were more likely to be disruptive in class.

Disruptive classroom behaviors often lead to students becoming less academically successful due to their inattentiveness to classroom material and time spent out of class due to suspension. Disruptive students are additionally more likely to have received parenting of lower quality, less family sociability, and have a lower grade point average.

Problem Focused Approach

Often teachers and administrators view these risk factors for dropping out as evidence for why their graduation rates are low and what little influence the schools can have, particularly when addressing family factors related to students dropping out of high school. This research study emerged out of the need for a strength-based perspective on student development. Krovetz (1999) opined that practitioners in the social and behavioral sciences tend to view students from a problem-focused lens that is similar to of how physicians often view their patients' symptoms and pathology. Often these problem-focused perspectives examine identified risk factors including "dysfunctional family, disease, illness, maladaptation, incompetence, and deviance" (p. 6). In other words, viewing students as a product of risk narrows the lens that teachers and administrators can perceive their students leaving them with only deficits to view. Students who come from at-risk backgrounds are presumed to have a higher probability of future pathology when compared to their peers in more stable environments. Consequently, they are often targeted for intervention. Problem-focused literature often looks retrospectively at negative outcomes such as alcohol or drug use, criminality, or dropping out of high school and examines risk factors that correlate with these outcomes. Werner and Smith (1992) found that studies that retroactively examine students' deficits often create a fallacy that students with the "at risk" label are doomed to future pathology. In reality, they found that a higher percentage of children who come from

the same background become healthy, competent adults. This study and others like it emphasizes the importance of shifting the lens with which we view students from one of a problem-focused perspective to a strength-based approach. Using a problem-focused perspective, educators are left to be reactive in their approach and develop programs to address existing problems rather than proactive and providing opportunities for success. The problem-focused model is designed to help those who are already identified as in need. Krovetz espouses the belief that educators need to be more proactive rather than reactive. A proactive approach could possibly reduce the need for some special education classes, Title I programming, and in-house detention centers (Krovetz).

Shifting educators' perspective away from a problem focus requires them to view students' strengths rather than deficits. The functional purpose of changing this perspective so drastically is ultimately so educators can provide programming and curriculum to help improve the likelihood that students will graduate. This approach would focus on protective factors that would help students avoid negative outcomes rather than focus on areas in their lives that could lead to problems. Ideally, this type of programming would empower educators within their position in these students' lives.

Protective Factors

The concept of protective factors emerged over twenty-five years ago (Garmezy, 1985; Masten & Garmezy, 1986) and was originally used to describe factors opposite to those identified as risk. Protective factors stem from the concept of resilience that describes "the positive pole of the ubiquitous phenomenon of individual difference in people's responses to stress and adversity (Rutter, 1990, pg 181)." Rutter argues resilient students are predisposed to some vulnerability, which carries some likelihood of a maladaptive outcome,

which is then coupled with a protective factor that modifies such a reaction. While Rutter's explanation of maladaptive outcomes is generalized, this study is going to focus on one maladaptive outcome, dropping out of high school. For a protective function to be successful, Luthar and Zigler (1991) identified that the trait must be seen in a large degree of individuals who are then relatively unaffected by the increasing stressor. Conversely, those low on the protective function show declines with increasing stress levels.

One of the advantages of the strength-based perspective is that schools have a greater opportunity to provide programming or activities that promote students' strengths or factors that could promote graduation. A deficit approach often leaves educators' hands tied as there is often little they can do to change variables such as socioeconomic status, IQ, abuse histories, or community environments to list a few. Henderson and Milstein (2003) opined that schools, as organizations can be powerful resiliency builders in their students. Fostering resiliency can take the form of building protective factors and reducing the impact of risk (Rutter, 1987). Clearly, educators cannot erase many of the vulnerabilities that exist in students. Some vulnerabilities related to students' personality or temperaments, family environments, and sociocultural environments would be difficult to minimize; however, teachers and administrators can feel empowered by reinforcing students' strengths and offering services to teach new skills or provide opportunities to engage in other positive activities.

Professionals can help alter the risk itself by providing "buffers" to soften the impact of vulnerability factors (Rutter, 1987). Risk will be defined in this study not as the presence of vulnerabilities that can lead to negative outcomes, but by the lack of protective factors students have available to them. Another lens to view protective factors in contrast to

vulnerabilities is by viewing protective factors as a component of primary prevention. Primary prevention measures aim to avert the onset of a targeted condition. Secondary prevention focuses on persons who have already developed risk factors for a condition but have not shown to be symptomatic of the problem. An example of secondary prevention in the schools is coping skills groups for students who have experienced trauma, loss, or other critical incidents. The programs aim to prevent and ideally reduce the likelihood that students would drop out of school.

Prevention can come in two forms: harm reduction (secondary prevention) and health promotion (primary prevention) (Elias et al., 1994). In a risk reduction model of prevention, educators would work to prevent negative outcomes, such as dropping out of school, by eliminating or mitigating the effects of factors that put students at risk for dropping out. They identify a constellation of interrelated variables that are most often associated with negative outcomes for students including individual factors, family environment and interactions, peer and social interactions, school experiences, and community contexts. Individual level risk factors include physiological factors like disabilities, early and persistent conduct problems, alienation, rebelliousness, drug use, and criminal behavior. Poor and inconsistent family management, family conflict, familial substance use, parental criminality, and poor attachment to family members put students at a higher risk as well. Peer rejection in the elementary grades and association with delinquent peers are also risk factors for negative behaviors. School experiences such as academic failure, lowered commitment to school, lowered expectations by teachers and administrators contribute to a student's likelihood of dropping out of school or engaging in antisocial behaviors. Finally, the availability of drugs and alcohol, extreme neighborhood deprivation, neighborhood

disorganization, and ease of breaking laws or norms also are identified as risk factors for students. Ultimately, Elias et al. contends that educators can reduce students' likelihood of dropping out of school or engaging in other negative behaviors by reducing these risks. However, this approach to prevention continues to view students through a problem focused lens by only looking at the negative risks in their lives rather than seeing students' strengths and aptitudes. Many of the risk factors listed above would be difficult for educators to address given their limited range of authority, resources, and access.

There is a more empowering view of prevention with which educators can enhance existing protective factors within students (Elias et al., 1994). Three broad categories of protective factors present in students are personality or temperament, family, and sociocultural environment. Protective factors within students personality includes, but are not limited to, a resilient temperament, positive social orientation, problem solving skills, and self-efficacy. Ideally, schools could help with the promotion of individual factors by developing in-school programs that could give students opportunities to be successful by promoting their strengths. Factors within the family environment that can help promote graduation include a supportive family environment including bonding with adults in the family, low family conflict, and supportive relationships. Schools do have the potential to promote these variables as well. One school the researcher is familiar with has monthly lunches for parents and guardians to update them on their student's education as well as helping educate them on how they can better interact with their students. Another school offered families who struggle to pay for childcare activities before and after-school childcare supervision so that children are supervised to allow parents to work. Professionals can alter the exposure students have to unstable environments and dangerous situations by providing

them opportunities to be supervised during positive activities. By using extended hours supervised programming, educators can alter a student's exposure to delinquency that is often caused by a lack of supervision. Finally, positive environmental supports including positive relationships with teachers, extracurricular activities, and community involvement are protective factors that could be encouraged or enhanced.

Purpose of Study

The question for educators and administers becomes which protective factors should they focus on promoting to increase high school graduation. This study aims at examining the cluster of variables related to personality, family, and sociocultural environment to determine which ones are most salient for determining the likelihood students will graduate and which factors educators should focus future programming. The results of this study hopefully can provide information to empower schools to foster these positive attributes and resources for students and help to develop resilience in students. This study aims to identify specific protective factors that relate to graduating from high school so parents, educators, administrators and community members can promote these factors during critical developmental periods. To accomplish this goal the following research questions were posed:

1) Do the protective factors identified differentiate between students who graduate and those who do not?
2) Do differences exist in maternal education, student gender, or student race in those who graduate when compared to those who do not?
3) Do other academic outcomes differ in high school graduates when compared to those who dropout?

To respond to these research questions, data was gathered from seniors in high school in a Midwestern town. These seniors responded to questions related to psychological factors that were found in research to be protective against negative academic outcomes (i.e. dropout). Participants also completed a demographic form that included information regarding maternal education, gender, and their racial identification. At the culmination of the school year, the researcher obtained access to participants' academic records to obtain their graduation status, disciplinary record, attendance record, and grade point average.

CHAPTER II REVIEW OF THE LITERATURE

Introduction

Why two students who emerge from seemingly similar backgrounds and subsequently diverge in their academic achievement is a question educators and administrators have pondered over and hypothesized about for generations (Werner, 1984; Garmenzy, 1993, Borman & Overman, 2004). Educators have encountered students who struggle with a variety of problems and have wondered what the roots were and if they could have been prevented. Many researchers believe that pathology in students is the result of risk factors present prior to the onset of such deficits. Many of these precipitating factors are interrelated and make it even more difficult for researchers to determine cause. There are numerous examples of deficits, pathologies, and maladaptive functioning that are commonly observed by teachers and administrators. However, strength based approaches, a trademark of counseling psychology, provides direction towards those factors that could reduce the risk of students developing pathologies that cause impairments. This study will focus on those processes that contribute to students' academic successes. The personality, family, and sociocultural factors are explored in this study to determine whether selected protective factors can differentiate between students who graduate from high school and those who do not.

Problem-Focused Research

While this study focuses primarily on protective factors, a look back at the evolution of research from risk to resiliency is helpful in planning the direction for this study and future research. Resiliency is inherently intertwined with risk, as it is conceptually a response to those factors that lead to vulnerabilities. The concept of risk is a term used to predict the

likelihood of current or future handicaps when there is no certain presence of negative consequences. The likelihood of the manifestation of risk is not the same across individuals. McKnight and Loper (2002) make the distinction that risks are "processes that predispose individuals to specific negative or unwanted outcomes" (McKnight & Loper, 2002, p 188). In other words, risk does not imply negative outcomes it only increases one's vulnerability.

Students' response to risk varies based on biological and environmental factors (Pellegrini, 1990; Grossman, 1991). Werner (1986) describes three types of risk research: (1) Research that examines the consequences of an adverse event (e.g. child abuse) looks at the effect of an event that has already occurred; (2) Research on identified problems (e.g. Mental Illness) looks at the consequences of the problem on child development; and (3) Research on predisposing factors that examines potential effects on child development. The first two types of risk research focus on what has already occurred in the individual while the third examines factors that might be present in the systems around the individual. This third type of research seems to create the most questions because typically educational researchers want to know not only what factors can create problems in the lives of students but also how to prevent those problems.

While an exhaustive list is not possible, there are numerous examples of observed student differences. For example, differences in cognitive functioning can manifest itself as poorer scores on cognitive measures, inferior school achievement, enrollment in remedial courses, grade retention, or failure of courses (Lowenthal, 1999). Differences in academic functioning are often the most measured and of interest to teachers and administrators given its impact on funding, school standing, and other measures of the school's performance. Student performance in the classroom and on standardized testing is important to both the

student and school's success; however, other differences in students can be just as important to a student's academic functioning. Students may display symptoms of stressors (e.g. mental illness, family adversity, trauma) stemming from within or outside of school. Within school settings, evidence of such stressors can range from inattentiveness, poor concentration, behavioral disruptions, truancy, moodiness, or symptoms of mental illness. Socially, students with these stressors may isolate, form unhealthy attachments, or have poor social skills. Educators and administrators who observe students who present with these behaviors often wonder what caused them to differ from their peers who do not display such struggles. This question has led some educational researchers to focus on finding the causes of students' deficits, dysfunction, and maladaptive behaviors.

Limitations to Deficit Perspective

When studying correlates between outcomes and predisposition to risk, circularity often exists in the literature. Since most of the risk research is focused on those who already exhibited some deficits or pathology, labeling a child "high risk" has become synonymous with predicting future problems because of those risk factors. Most risk research is ex post facto. Thus, it focuses on individuals who exhibit problems or pathology and then looks back at the individuals' personal histories, environmental conditions, temperament, and personality characteristics to find specific correlates that existed in their lives (Henderson & Milstein).

On the other hand, Barnard (1994) asserts that an actual higher percentage of children who are labeled high risk go on to became healthy adults, leaving one to ask whether there some factors that are more important than others, or have important factors been left out of the research? Longitudinal studies that have tracked individuals with significant risk factors

and found a large percentage of these individuals overcome their earlier life experiences (Werner & Smith, 1992). Thus resiliency research has evolved to the question; "How were these individuals able to overcome or "bounce back" from previous adversity?" These findings led the research to shift from the "disease" or "problem-focused" model to one where they sought to explore the mechanisms that allow individuals to be resilient.

What protective factors lead to the success of one student while another student apparently without those protective factors struggles? Emerging research is beginning to focus on the concept of resiliency and those protective factors that help students bounce back (Bloom & Reichert, 1998) from adversity. The study of resiliency examines how people overcome risk, trauma, and stress in their lives.

Resiliency

Within resiliency literature, there is no universally agreed upon definition. Some define resiliency as the antonym of vulnerability where the two processes are directly proportionate with one another (Fergusson, Beautrais, and Horwood, 2003). Whereas, the presence of a risk factor in a child's life will increase the child's vulnerability, while the absence of the risk factor will increase the child's resiliency. However, this perspective does not account for individual differences. Other researchers define resiliency as hardiness to stressful life events (Florian, Mikulincer, & Taubman, 1995; Shepperd & Kashani, 1991; Rush, Schoel, & Barnard, 1995). The construct of a hardy personality functions as a "resistance resource in the encounter with stressful life events" (Florian, Mikulincer, & Taubman, 1995, p. 687). However, some researchers have argued that hardiness as the definition of resiliency disregards the hardships that people overcome (Robinson, 2000).

More accurately, resiliency is now viewed as a cluster of personality characteristics. The identification of these characteristics can potentially help discriminate between students more likely to display resiliency (Robinson, 2000; Werner, 1984; Sheppard, & Kashani, 1991). In attempting to identify these characteristics, Werner (1984) identified four central characteristics of a resilient child 1) independence, 2) optimism, 3) good-natured, and 4) possessing an internal locus of control. Werner clarifies that more than likely if a child only possessed a few and not all of these characteristics they would still have the capacity to be resilient. Similar Joseph (1994) adds that resiliency is the collection of three characteristics that he identifies as: control, challenge, and commitment. Acknowledging that no causal link has been made between personality characteristics and resiliency, Joseph's (1999) research does distinguish resilient verses non-resilient children based on these personality characteristics. The perspective that resiliency is a function of personality characteristics suggests that these personality characteristics need to be addressed in a child to foster resiliency rather than focusing on environmental factors. Robinson (2000) contends that although environmental factors contribute to reducing personal vulnerability, resiliency is located within the child. For example, interests, hobbies, clubs, or other similar activities are helpful in building up these characteristics towards making a resilient child rather than those activities directly effecting resiliency.

Some researchers contend that those who are resilient are not unaffected by hardships but they are able to overcome or cope with them (Rutter, 1990; Pellegrini, 1990; Richardson, Jensen, & Kumpfer, 1990). Pellegrini (1990) argues that resiliency and vulnerability are not all or nothing constructs and that it is not possible for a child to endure complete immunity in the face of risk. Werner (1996) agrees that resilient children are able

to cope successfully with biological and psychosocial risk factors rather than being immune to them. She uses the term resilience to describe three kinds of phenomena: "good developmental outcomes despite high-risk status, sustained competence under stress, and recovery from trauma (Werner, 1995, p 81)." The outcome for a child is dependant on the balance between risk factors, stressful life events, and protective factors. The literature on resiliency does seem to be moving toward the "interaction" definition of resiliency, as previously identified by Richmond (1990) and Werner. Norman (2000) views resiliency as the interaction between risk factors and protective factors. She explains that individuals differ in their exposure to adversity/vulnerability as well as differing in the degree of protective factors, provided to them by their personality/temperament and environmental factors. A person's ability to "recover, adapt, or bounce back to a normal condition (pg 3)" differs over the person's lifetime as well (Norman, 2000). Individuals' responses to risk do not necessarily remain the same when circumstances change (Norman). Therefore, an individual with the same personality characteristics might not be resilient should there be a change in the risk factors or available protective factors. Furthermore, adversity is additive over time so that the more stressful life events an individual accumulates in a lifetime the more likely they are to be negatively affected. Finally, Norman adds that resilient behavior does not necessarily indicate good emotional health and that those who have been resilient can still suffer from mental health issues.

A more basic summarization of the process of resilience is provided by Rutter (1990, p 183) explains, "Resilience is concerned with individual variations in response to risk factors." The literature points to resiliency as being an individual process of coping with adversity and individuals are better able to cope when they possess both personality

characteristics and environmental supports to help them cope. Personality characteristics are important towards helping children overcome adversity while environmental supports also are critical to providing safe places and positive experiences to bolster positive personality traits.

Measuring resiliency presents a unique challenge in that it is not itself directly measured, rather it is inferred based on the measurement of two component constructs risk and positive adaptation (Werner, 2004). Resilience is particularly difficult to measure because individuals can appear to overcome adversity initially and then struggle later on in life it is difficult to determine if resilient behavior has occurred. This research project will focus on the measurement of protective factors that promote academic achievement and abate risk.

Importance of Environment

This study views personality characteristics, family environments, and environmental supports as important contributors to an individual's ability to overcome adversity. Prevention research has been critical in educational settings as the identification of precipitating factors can lead to the creation of prevention programs. After much debate, it is now commonly agreed upon by researchers and practitioners that both nature and nurture affect children's development. Moreover, one's environment interacts with genetic predispositions to shape the child's development. Because so much of a child's brain is developed postpartum, the environment is such a critical factor in their eventual functioning. The brain is the least developed organ at birth (Lowenthal, 1999); consequently, there is substantial neurological development that occurs postpartum leaving environmental factors to have a considerable influence on how children's brains will function. Bronfenbrenner

(1979) created a theory of development as it pertains to children's environment underlying the importance of the context in children's development.

Bronfenbrenner's (1979) ecological systems theory views the development of a child within the context of embedded systems to underscore the importance of environment on child development. His model explores the interaction between systems and depicts concentric circles that are embedded within one another. The innermost level is the microsystem that refers to the activities and interactions a child has in their immediate surroundings. This level includes the interactions children have with their parents, siblings, and teachers. These interactions are bidirectional so the child can influence the relationship as much as adults can. For example, a child who does not follow directions and is hyperactive is likely to evoke a negative response from adults and that negative response will negatively affect the child in this reciprocal relationship. The next level is the mesosytem, which refers to the connections or relationships between the microsystems. For example, these interactions might be between parents, parents and teachers, or parents and siblings. The exosystem is the level that does not include the individual but has influence on their development such as a school board, friends of the family, or a parent's workplace. These systems can directly affect the smaller levels and consequently affect the child. For example, a company that provides childcare for their employees will help a family reduce the cost of daycare while insuring their child has a safe place to be while they are working. The macrosystem is the outermost level of the model. It consists of the laws, values, customs, and resources of a society or culture. The macrosystem influences how parents obtain their beliefs about child rearing and how other systems value the family unit and interact with it. Predisposing factors research focuses on the systems that Bronfenbrenner outlines and their

interaction both with the individual and among one another. This type of research is most common among those looking at resiliency and preventative research. For example, predisposing factors (e.g. maternal mental illness) does not necessarily have negative effects on the development of the individual but increases their vulnerability to negative consequences.

Protective Factors and Schools

Resilience that specifically pertains to educational settings and achievement is an adjustable process that can be developed and cultivated (Padron, Waxman, & Huang, 2000). Students who are resilient in school tend to display the same qualities as children who are resilient in other areas of their life. Educational resilience is cultivated by student's personality characteristics as well as family and environmental supports, many of which are fostered within the schools. As resiliency was evolving from the risk literature, an intention of the research was to identify protective factors that lead to resiliency to help foster within children and to help to prevent negative outcomes (Werner, 1995). Protective factors are transcendent of ethnic, social class, and geographic boundaries (Werner).

Educators and administrators in schools are the service providers with the best access to promote these protective factors. Given that, youth spend the majority of their days in school; this appears to be the most appropriate context for prevention programming. Educational personnel have significant contact with students on a daily basis and influence on their academic and social lives. Henderson and Milstein (2003) claim that more than any institution outside of the family, schools provide the environment and conditions to foster resiliency for children. For the application of prevention programs, translating resiliency into an operational definition is yet another obstacle. Masten, Best, and Garmezy (1990) assert

that resiliency cannot be judged by just one type of outcome rather they contend that resilience can result in three kinds of outcomes. An individual can have good outcomes despite high-risk status, sustained competence under threat, or recovery from trauma. Educators can support students by identifying and enhancing their protective factors (Sheppard, 2004) with a general goal of improving academic outcomes.

The most examined variable and seemingly, critical outcome for students is their successful completion of high school earning a high school diploma. Studies have chronicled the disparity in wages, occupational status, occupational options, self-esteem, and emotional well-being (Enyedy, 2003) because of the failure to obtain a high school degree. The variable of whether a student has obtained a high school diploma appears to be the most salient for predicting future outcomes. Consequently, educators target high school graduation as a critical outcome for high school students. For students who have experienced adversity, graduating from high school can be a large task. Not every student who accomplishes the goal of graduating from high school has necessarily displayed resiliency. However, graduating from high school can be evidence of resiliency for students who have experienced significant adversity in their lives. Students overcoming adversity who eventually graduate have presumably been exposed to protective factors that have helped to promote their successful completion of high school. Consequently, this study explored those specific protective factors that help students achieve this critical outcome.

While risk is important to note, resiliency factors are the processes in which children are able to overcome hardships. Temperament/personality attributes, family variables, and the availability of social supports are three general clusters of resiliency factors (Taylor &

Thomas, 2002). These resiliency factors are "buffers" to a person's reaction to a negative situation or stimuli (Taylor & Thomas).

Normative Development and Protective Factors

Protective factors are cultivated at different points during a child's development and can be found as early as infancy and develop as late as adulthood. Temperament/personality attributes that contribute to resiliency can include biological/genetic skills, positive temperament, and cognitive competences (Garmezy, 1993). One of the first developed internal protective factors is one's temperament. Temperament is first recognized in infancy and early childhood. Resiliency is strongly correlated with children who as infants were active, affectionate, cuddly, good-natured, and easy to interact with (Werner, 1995). These traits are seen in children who are characterized as having an "easy" temperament." Children with these qualities have been found, according to Werner (1995), to balance autonomy with an ability to ask for help when needed by the time they reach preschool. This self-awareness at an early age helps prepare children by forming a solid foundation for positive problem solving skills, which will help children later in life to appraise and respond to adversity.

As children age into middle childhood and adolescence, they can develop additional protective factors that are available through normal maturation and environmental opportunities. Researchers (Werner, 1995; Barnard, 1993) found that children's increased cognitive capabilities help them to gain critical skills such as practical problem solving, a positive self-concept, impulse control, and achievement motivation. Additionally, children at this age were found to be more resilient when they had some intellectual or scholastic competence (Henderson & Milstein, 2003).

As children enter Piaget's formal operational state of cognitive development they are able to think more abstractly and can be more logical in their problem solving. Two major features of this stage of cognitive development are being capable of hypothetico-deductive reasoning and propositional thought. When young persons are faced with problems, they are able to predict all possible factors that might affect an outcome and deduce what might happen. Students are better able at this stage to problem solve using logical predictions. Students in this stage of development are also able to evaluate the logic of verbal statements without needing visual stimuli to assist them in their decision-making (i.e. propositional thought) (Berk, 2008). Students able to problem solve and have an accurate cognitive appraisal of problems have been found to be better able to overcome adversity. For example, Beardslee & Podorefsky, (1988) found that children growing up in a home with at least one parent with severe psychopathology were more protected from similar illnesses when they had good problem solving abilities. Consequently, as children develop their cognitive abilities, they become more equipped to cope with adversity based these improved abilities.

Familial Protective Factors

Protective factors developed within a family are also important towards building resiliency within a child. Despite stressors like chronic poverty, family discord, or parental pathology, a child can show resilient behaviors and attitudes if they have the opportunity to establish a close bond with at least one emotionally stable person (Werner, 1995). A child's ability to attach to an adult appears to be one of the key factors in the development of resiliency (1995). Werner's Kauai Longitudinal Study has chronicled the biological and psychosocial risk factors, stressful life events, and protective factors on the development of 698 children born in 1955 in Hawaii. In her study, she found that children who had been

abused could still be resilient if they had nurturing and were able to trust another adult. Often substitute caregivers are grandparents or older siblings.

There are differences between genders as to what helps to promote resiliency with respect to family dynamics. Boys seem to prosper from households with structure and rules (Carr & Vandiver, 2001). It also helps if they are able to attach to an adult male, either their father or a male surrogate, who is able to help cultivate their emotional regulation (Werner, 1995). Following parental divorce, boys who were found to be the most resilient were first-born sons who did not have many other siblings (Werner, 1995). It is important for children to have same-sex adults in their life to help guide their development (Berk, 2008). Resilient girls tend to come from homes that combine an emphasis on risk taking and independence with an attachment to a female who is either their mother or a female surrogate (Werner, 1992). Following divorce, girls benefited from watching their mother gain employment, while the additional responsibility given to girls when their mother is out of the house helps cultivate their autonomy and sense of responsibility (Werner, 1986). Parents with high expectations for their children are positive influences on students (Mundy, 1996). A strong maternal figure has been found to counteract some of the effects of poverty (Carr & Vandier, 2001). The likelihood of positive developmental outcome for both boys and girls are greater if mothers who have graduated from high school regardless of their socioeconomic status (Carr & Vandier, 2001). Additional protective factors within the family include adequate health care and safe, less crowed homes (Bradley, Whiteside, & Mundfrom, 1994). There is a strong relationship between the family system and adolescent's demonstration of prosocial behaviors and avoiding juvenile delinquency (McCubbin et al., 1998). Children from

families that are intact have fewer than five children; have employed parents, and whose children are two years apart are less likely to show delinquent behaviors (Werner, 1986).

Some within families, protective factors begin to be cultivated during infancy and adolescence. These included maternal competence, close bond with a primary caregiver, supportive grandparents, and supportive siblings (Werner, 1986). As children grow older factors such as structure, rules in the household and assigned chores become more important (Bradley, Whiteside, & Mundfrom, 1994).

Sociocultural Protective Factors

Social support systems include a variety of systems as outlined by Bronfenbrenner (1979). Important sociocultural protective factors include appropriate peer selection (Carr & Vandiver, 2001; Fergusson, Beautrais, Horwood, 2003) and the identification of positive role models (Fenaughty, Harre, 2003), and mentors (Dondero, 1997). Additionally, peers provide support, care, and help with students' attachment needs (Oswald, Johnson, & Howard, 2003). Johnson et al. (1999) found that students reported that peer relationships were primary in their descriptions of protective mechanisms. In their study on adolescent girls' delinquency, McKnight and Loper (2002) found that risk factors could be overcome by certain resilience factors. The strongest of these resiliency factors are abstaining from alcohol, the belief their teachers are fair, feeling loved and wanted, parental report of trust of the adolescent, and having some form of religiosity in their lives (McKnight & Loper, 2002). Resilient children tend to rely on peers and elders in the community as sources of emotional support and seek out these people in times of crisis. During the coming out process for gay men, those who received high levels of support and identified role models were better able to cope with the stress of this process in comparison to their peers who did not have those supports

(Fenaughty, & Harre, 2003). Not surprisingly, children identified "favorite" teachers as one of their greatest sources of support (Thomsen, 2002). Werner (1996) found that students they identified as resilient could name at least one teacher who contributed to their positive functioning. In the Kauai longitudinal study, all of the resilient high-risk children could point to at least one teacher who was an important source of support (Werner, 1992). Some researchers (Dondero, 1997) consider having a mentor as imperative for reversing dropout rates in high school students. Underscoring the importance of the roles schools play in the fostering of resiliency researchers found a positive relationship with a non-parent (Grossman et al., 1992), extracurricular activities (Werner, 1984), educational opportunities, favorable school environments, and school success can be a mediator between stressors and negative outcomes (Garmezy, 1987). There is a similarity between positive home and school environments; in that, children benefit from both settings being nurturing, predictable, and structured (Werner, 2000). Positive relationships thus have a strong influence on successful outcomes for students (Mundy, 1996). Schools can help promote students' individual strengths by providing opportunities for success for students. Extracurricular activities like athletics, clubs, and academic teams help to promote a sense of accomplishment, self-esteem, positive problem solving, and a positive self-concept, not to mention the social benefits of these activities.

Protective Factors and Academic Achievement

Self-esteem, positive self-concept (Smith & Prior, 1995; Fenaughty, & Narre, 2003; Werner, 1995, Barnard, 1993), self-awareness (Hippe, 2004) internal locus of control (Grossman et al, 1991; Shepperd & Kashani, 1991), being good natured (Werner; Garmezy, 1993; Joseph, 1994; Grossman et al.; Shappard & Kashani), autonomy (Beardslee &

Podorefsky, 1988; Barnard; Werner, 1984; Padron, Waxman, & Haung, 2000), problem-solving skills (Garmezy 1993; Padron, Waxman, & Haung, 2000; Barnard), optimism (Werner), a sense of purpose (Padron, Waxman, & Haung; Barnard), willing to challenge oneself (Joseph), commitment (Joseph), and interest in hobbies (Robinson, 2000) are personality and individual factors that have been found to be protective factors for children. Additionally, students who abstain from alcohol use are more likely to be academically successful (McKnight & Loper, 2002; Jeynes, 2002). Alcohol use can negate the benefits of the previously identified factors. Moon and Ando (2009) found that alcohol use is a critical mediator of the positive relationship between students' positive attitudes towards school and their academic achievement.

With respect to interpersonal functioning protective factors include positive peer relationships (Carr & Vandiver, 2001; Fergusson, Beautrais, Horwood, 2003; McKnight & Loper), the identification of positive role models (Fenaughty, Harre, 2003), and mentors (Dondero, 1997), sociability (Werner, 1984; Barnard), social competence (Padron, Waxman, & Haung; Werner; Bernard), the belief that teachers are fair (McKnight & Loper), positive relationship with teachers (Thomson, 2002; Dondero, 1997; Grossman et al.; Werner, 1994), and positive relationships with parents (McKnight & Loper). These personality characteristics results in higher Full Scale IQs, lower attention deficit scores, improved academic achievement, and less conduct problems among students that are more resilient.

For this study, ten of the above factors were assessed to determine whether they discriminate between students who graduated from high school from those who did not. Self-esteem, sense of adequacy, internal locus of control, self-reliance, relationship with

parents, interpersonal relationships, social stress, attitude towards school, attitude towards teachers, and abstaining from alcohol use were all measured.

Individual and Personality Factors

Self-esteem is measured and defined in this study as "feelings of self-esteem, self-respect, and acceptance (Reynolds & Kamphaus, 2004, p. 74). Previous research has identified a reciprocal relationship between self-esteem and academic achievement (Joshi & Srivastava, 2009; Marsh, & O'Mara, 2010). Pullmann and Allik (2008) found that high self-esteem is a strong and accurate predictor of school achievement. Specifically, increased self-esteem is shown to improve students' motivation for engaging in instruction, which leads to improved academic achievement (Roskam & Nils, 2007). Trajectories of self-esteem were clearly related to academic achievement in Whitesell, Mitchell, and Spicer's (2009) longitudinal study of academic success. In their study, the result of their analyses suggested that this relationship was more related to the effects of self-esteem on achievement than to the effects of achievement on self-esteem. Given the directionality of the relationship between self-esteem and academic achievement, it is intuitive that this protective factor should be fostered in students. Werner (1995) advocates that providing students' with opportunities to be successful both within and outside the classroom are effective means of accomplishing this. Outside of the classroom, students with a talent or special interest that finds pride in that activity are more likely to endorse a positive self-concept (Werner).

Self-perceptions of competency are inversely measured and defined in this study as "perceptions of being unsuccessful in school, unable to achieve one's goals, and generally inadequate" (Reynolds & Kamphaus, 2004, p. 74). Goldfinch and Hughes (2007) found that as self-efficacy increases academic performance increases as well. Not only is self-efficacy

associated with increased achievement but it also correlates with increases in educational attainment and self-esteem, which as noted previously, fosters academic attainment (Marsh, & O'Mara, 2010). For students labeled "at-risk," belief in their own effectiveness is strongly correlated with being able to bounce back from adversity (Shepperd & Kashani, 1991).

Internal locus of control is inversely measured and defined in this study as "the belief that rewards and punishments are controlled by external events or people" (Reynolds & Kamphaus, 2004, p. 74). An internal locus of perceived control positively predicted students' grade point averages (GPA) in a study by Stupnisky et al. (2007). Their findings indicate that perceived control is a powerful predictor of students' GPA, even stronger of a predictor than self-esteem. With respect to long-term academic prognosis, students with an internal locus of control are more likely to graduate from college (Hall, Smith, & Chia, 2008). Among adolescents living in poverty, internal locus of control and positive self-perceptions were related to academic resilience (Gizir & Aydin, 2009). Internal locus of control has previous been associated with improved self-efficacy, self-reliance, and less psychological distress. Self-reliance and autonomy is associated with increased motivation, and increase in self-appraisal of competence, and increased academic performance (Patall, Cooper, & Lynn, 2010). Self-reliance is defined in this study as "confidence in one's ability to solve problems; a belief in one's goals personal dependability and decisiveness" (Reynolds & Kamphaus, 2004, p. 74). The desire for autonomy is a natural development among adolescents (Berk, 2008). Those students who are successful in their attempts at self-reliance are academically more successful than those who are unable to establish such independence (Beardslee & Podorefsky, 1988; Barnard 1993).

Interpersonal Relationships

The quality of students' interpersonal relationships is defined in this study as "the perception of having good social relationships and friendships with peers" (Reynolds & Kamphaus, 2004, p. 74). Conversely, social stress is also measured in this study and is defined as "feelings of stress and tension in personal relationships; a feeling of being excluded from social activities" (Reynolds & Kamphaus, 2004, p. 74). Quality interpersonal relationships are associated with increased self-esteem and increased GPA (Jia, et al., 2009). Students with a sense of belongingness are less likely to become depressed and have a more positive attitude towards school (Baskin et al., 2010). In the study conducted by Veronneau et al. (2010), researchers explored predictors of academic achievement. They found that higher academic achievement was predicted by increases in peer acceptance and decreases in peer rejection. The implications of this finding are suggestive that academic achievement is strongly influenced by peer acceptance and a sense of belonging. Positive parent-child relations are also associated with better academic achievement in high school (Lopez, Ruth, Desmond, & Bruch, 2010). Student's relationship with their parents is measured and defined as "a positive regard towards parents and a feeling of being esteemed by them" (Reynolds & Kamphaus, 2004, p. 74). The relationship between the parental factors and academic achievement is similar in strength for boys and girls (Kristjansson, & Sigfusdottir, 2009)

Attitudes Towards Teachers and School

Students' positive attitude towards their school is inversely measured and defined as "feelings of alienation, hostility, and dissatisfaction regarding school" (Reynolds & Kamphaus, 2004, p. 74). Students positive beliefs about their teachers are inversely measured and defined as "feelings of resentment and dislike of teachers; beliefs that teachers

are unfair, uncaring, or overly demanding" (Reynolds & Kamphaus, 2004, p. 74). A positive attitude towards school and ones teachers is associated with an increase level of motivation for attending school, increased self-efficacy, increased academic performance, and less psychological distress (Close & Solberg, 2008). When students have positive relationships with their teachers, an increase in educational performance was found among students identified as "at-risk" (Wegner et al. 2010). In fact, positive relationships with teachers are related to students' academic outcomes in all periods of school from elementary school through high school (Kosir, Socan, & Pecjak, 2007). The belief that a teacher likes them is influential not only of academic achievement but of a student's motivation as well (Davis & Lease, 2007). Hickman et al. (2008) reported that the perception that teachers were supportive of them was a discriminating factor between those who graduated from high school and those who dropped out. School bonding is also predictive of academic achievement among African American adolescence (Eisele, Zand, & Thomson, 2009). The quality of a student's experience of school is most accurately represented by the relationship between academic, social, and emotional outcomes. Specifically, the quality of relationships among students with peers, families, and teachers directly influences students' ability to be successful in school (Murray-Harvey & Slee, 2007). These researchers noted that teachers sometimes even exert a stronger influence on students' wellbeing than peers and families.

Conclusion

Initial research that explored pathology in individuals focused on risk factors that predisposed the resultant condition. Developmental, chronic, and acute risk factors, as outlined by Taylor and Thomas (2002), when present in individuals create a vulnerably for future negative outcomes. The identification of specific risk factors has been instrumental in

primary and secondary prevention programming providing direction for service providers. However, identifying a student as “at-risk” can create a false sense of inevitability that the predisposed condition will eventually become present. In reality, an actual higher percentage of children labeled “high risk” go on to becoming healthy adults (Barnard, 1994). Based on the resiliency of these individuals questions were raised as to why some with identified risk factors never exhibited their predicted pathology. A number of protective factors have been identified in the research including: independence (Werner, 1984; Padron, Waxman, & Haung, 2000; Beardslee & Podorefsky, 1988; Bernard, 1993), optimism (Werner), being good natured (Werner; Garmezy, 1993), internal locus of control (Werner; Joseph, 1994; Grossman et al., 1991; Sheppard & Kashani, 1991), willing to challenge oneself (Joseph), commitment (Joseph), interest in hobbies (Robinson, 2000); social competence (Padron, Waxman, & Haung; Werner; Bernard), problem-solving skills (Garmezy; Padron, Waxman, & Haung; Bernard), sense of purpose (Padron, Waxman, & Haung; Bernard), self-esteem (Smith & Prior, 1995; Fenaughty & Narre, 2003), self-awareness (Hippe, 2004), and abstinence from alcohol (McKnight & Loper, 2002). In addition to these individual psychological factors other environmental factors have been identified including: appropriate peer selection (Carr & Vandiver, 2001; Fergusson, Beautrais, & Horwood, 2003), positive role models (Fenaughty & Harre), and positive relationship with teachers (Thomson, 2002; Dondero, 1997; Grossman et al.; Werner, 1994). At-risk literature was explored, in part, to help differentiate between students whose positive outcomes suggested resiliency from students whose outcomes, while positive, does not suggest resilience because they did not have to overcome adversity. As outlined, protective factors develop at various points of a child’s development. Some protective factors, particularly those associated with personality

and temperament are apparent during infancy; however, other factors are not obtained until late adolescence or even adulthood.

In review of the literature, regarding protective factors specifically as they relate to academic outcomes there are numerous questions that remain. Perhaps most notably, there is a void in the research as it regards to those factors that are most closely related to academic achievement. This void includes identifying the strength of protective factors as predictors of resiliency. The predominant trend in the literature is to measure protective factors after resiliency has been demonstrated. This study aims to add clarity to our understanding of the specific protective factors that help students graduate from high school. The outcome of high school graduation was chosen because of its predictive power for positive personal and economic outcomes. It was the intention of this study to fill the void in the literature by identifying protective factors that are predictive of positive academic outcomes in students.

As initially identified in Chapter 1, the first research question posed was, "Do the protective factors identified differentiate between students who graduate and those who do not?" In particular, the psychological factors that were measured were students' sense of inadequacy, locus of control, self-esteem, self-reliance, relationship with parents, interpersonal relationships, attitude towards school, attitude towards teachers, social stress, and alcohol consumption. The second research question was, "Do differences exist in maternal education, student gender, or student race in those who graduate when compared to those who do not?" For this question, demographic information provided by the students was used to determine whether differences existed between students who graduated when compared to those who did not graduate. The third research question was, "Do other academic outcomes differ in high school graduates when compared to those who dropout?

To address this question, academic factors were explored between students who graduated and those who did not with respect to grade point average, disciplinary incidents, days suspended, and periods absent.

CHAPTER III METHODOLOGY

Overview

The goal of this study is to gain an improved understanding of protective factors that are positively influential for high school students graduating. The aim of the data collection was to differentiate between factors to discover the most salient for predicting high school graduation. The overarching purpose of this exploratory approach was to provide focus for classroom guidance programming that could be implemented within schools to promote and perhaps even improve the graduation rates at their high school. This chapter will describe the participants involved, data collection procedures, and measures used to assess factors relating to graduation.

Participants

All of the members of the senior class at a suburban public high school in the Midwest were invited to participate, which included 171 students. Of these students, 78 seniors chose to participate in this study for a 45.61% response rate. Seniors in high school were chosen to identify the protective factors in the students' lives while they are still attending high school. Students were recruited during their English class, as recommended by school administration, as that is the only course required for all seniors.

Table 3.1 shows the demographic characteristics of students who consented to this study.

Table 3.1
Demographic Characteristics of Students

	Frequency	Percent	M	SD	Range
Gender					
Male	31	39.70			
Female	47	60.30			
Age			17.79	.49	17-19
Race					
African-American	49	62.80			
Latino	23	29.50			
Caucasian	1	1.30			
Asian	1	1.30			
Other	3	3.90			
Native English Speaker					
Yes	65	83.30			
No	13	16.70			
Learning Disabled					
No disability	74	94.90			
Learning Disabled	4	5.10			
Involved in Extracurricular Activities					
Yes	32	41.00			
No	30	38.50			

The participants were comprised of both males (39.70%) and females (60.30%) who were predominantly African American (62.80%) with the next largest racial group

representing being Latinos (29.50%). The participants' average age was under eighteen (17.79). The majority of the participants were native English speakers (83.30%), not diagnosed with a Learning Disability (94.90%), and participated in extracurricular activities (41.00%). The demographics of the participants appear to be quite representative of the school's population overall. Table 3.2 compares the racial and ethnic identifications of the participants with the overall school's population.

Table 3.2
Comparison of Racial and Ethnic Identifications of Participants with Total School Population

Race	Participant Percent	School Percent
African-American	62.80	56.70
Latino	29.50	37.20
Caucasian	1.30	2.80
Asian	1.30	1.30
Other	3.90	1.90

Table 3.3 shows the demographic characteristics of the families of the students completing the study.

Table 3.3
Demographic Characteristics of Families

	Frequency	Percent	M	SD	Range
Primary Caregiver					
Mother	54	69.20			
Father	10	12.80			
Grandparent	10	12.80			
Other	3	3.80			
Siblings			3.61	2.81	0-16
None	5	6.40			
One	10	12.80			
Two	11	14.10			
Three	13	16.70			
Four	18	23.10			
Five	8	10.30			
Six or More	9	11.60			
Maternal Education					
Grade School	4	5.10			
Some High School	39	50.00			
HS Diploma	12	15.40			
Some College	4	5.10			
Graduated College	3	3.80			
Graduate School	3	3.90			
Unknown to Student	13	16.70			

The majority of students identified their mother (69.20%) as their primary caregiver. Participants averaged nearly four (3.61) siblings. More that half (55.10%) of the participants reported that their mother had not graduated from high school and only 7.70% of students identified that their mother graduated from college.

Recruitment occurred at a public school near a large Midwest City. The school comprised of students living in the community itself as well as those living on a nearby Naval Base. This high school is on Academic Warning Status and had failed to demonstrate *Adequate Yearly Progress* (AYP) in six consecutive years. Adequate Yearly Progress was identified as a school who fails to meet at least one of three criteria: 1) At least 95% of all students are tested for reading and mathematics, 2) At least 70% of all students meet the minimum annual target for meeting or exceeding standards for reading and mathematics, and 3) High School Students meet the minimum graduation rate (78%). The data collection site, during the time of data collection, had failed to meet the second of those requirements. The graduation rate for school was 79.1% during the year of data collection.

Table 3.4 shows the demographic characteristics of the community from which the school draws its students.

Table 3.4
Demographic Characteristics of Community

	Frequency	Percent
Age Group		
Under 15	7,507	20.90
15-24	13,613	37.90
25-34	6,106	17.00
35-44	3,771	10.50
45-54	2,047	5.70
55-64	1,257	3.50
65 and Over	1,616	4.50
Race		
African American	13,024	36.30
Latino	2,750	7.70
Caucasian	17,140	47.70
Asian	1,342	3.70
Other	301	0.80
Educational Attainment		
Less than 9th Grade		11.90
Some High School		11.60
HS Diploma		28.70
Some College		27.00
Associates Degree		5.60
Bachelors Degree		9.50
Graduate Work		5.70

Measures

Two different instruments were used to gather information regarding the protective factors that are available to students. The measures assessed student's protective factors related to their personality/temperament factors, family factors, and socio-cultural supports. These categories are reflective of three general sets of protective factors that help to support a student's resiliency following adversity.

The Behavior Assessment System for Children-Second Edition (BASC-2)

The Behavior Assessment System for Children-Second Edition (BASC-2) self-report for adolescents is a 176-item self-report of personality test that is designed to evaluate personality, affect, and self-perceptions of young adults (Reynolds & Kamphaus, 2004). It is written at a second grade reading level. This instrument was selected for use based on its multi-focal assessment of students' personality scales that were identified in previous research as student protective factors.

The BASC-2 assesses for test validity using three validity indices. The F Index tests for infrequency of student responses. It assesses whether a student responded with an inordinate amount of negative answers. This "faking bad" is an indicator that the client might not be taking the test seriously or could also indicate a plea for help. The L index is the opposite as the F Index as it looks at whether a student is "faking good" or succumbing to social desirability. Students who score high on the L Index could lack insight into their behaviors or perhaps are not willing to disclose negative information about themselves. Finally, the V Index determines if students respond to nonsensical items that might indicate carelessness, a failure to understand the question, or a failure to cooperate with the assessment. In this current study, none of the participants produced invalid tests.

The BASC-2 has twelve clinical scales that measure students' maladjustment. Increased scores on these scales represent negative or undesirable characteristics that can cause impaired functioning in the home, school, peer relationships, or community settings. T- Scores on these scales that range from 60-69 are suggestive of "At-Risk" characteristics with T-Scores 70 and above are indicative of functioning that is clinically significant (Reynolds & Kamphaus, 2004). The clinical scales are anxiety, attention problems, attitude to school, attitude to teachers, atypicality, depression, hyperactivity, locus of control, sensation seeking, sense of inadequacy, social stress, and somatization. Four adaptive scales comprise the BASC-2. These scores measure positive adjustment with high scores indicative of positive or desirable characteristics. Lower scores on the adaptive scales represent possible problem areas. T-Scores between 30-39 are indicative of students' being "at risk" and below 30 are clinically significant. The four adaptive scales are interpersonal relationships, relationship with parents, self-esteem, and self-reliance (Reynolds & Kamphaus, 2004).

The individual scales of the BASC-2 are grouped into composite scores of school problems, internalizing problems, inattention/hyperactivity, personal adjustment, and emotional symptoms. The school problems composite score consists of the scaled scores of attitude to school, attitude to teachers, and sensation seeking. The internalizing problems composite score is comprised of atypicality, locus of control, social stress, anxiety, depression, sense of inadequacy, and somatization. The inattention/hyperactivity composite is based on the scaled scores of attention problems and hyperactivity scales. Emotional Symptoms Index is comprised of social stress, anxiety, depression, sense of inadequacy, self-esteem, and self-reliance. Finally, the personal adjustment composite is comprised of

relations with parents, interpersonal relations, self-esteem, and self-reliance scaled scores. Composite T-Scores of 60-69 are considered at-risk with T-Scores 70 and above considered clinically significant. These composite scores make it easier to group sets of characteristics and behaviors among students. These scores are useful indicators of the students' overall degree of behavioral psychopathology and functioning. It should be noted that functional impairment does not necessarily equate mental illness, as the BASC-2 is not a diagnostic instrument.

Given the personal nature of the questions asked of students there was a possibility that some students would reveal emotional distress in their BASC-2 profiles. The BASC-2 has a SAD (Social Stress, Anxiety, and Depression) Triad in which high school represent significant emotional distress, poor support mechanisms, or poor coping skills. When student's T-Scores are above 65, the possibility of impending clinical decompensation may be evident. Those students with T-Scores 65 and above would have required follow-up by the researcher. Given the potential to reveal students in significant emotional distress, it was important that the profiles for this study allow for follow-up should a student identify extreme emotional distress. However, in this study, no follow-up was required based on students' responses.

The BASC-2 was selected, in part, because of its reliability and validity and to reduce the amount of measures needed to gather information about students.' The tables below depict the reliability of the BASC-2 Composite Scales as measured by their coefficient alpha and test-retest reliability. The data were taken from adolescents age 15-18 on the adolescent self-report measure. Table 3.5 shows the reliability statistics of the BASC-2 Composite Scales (Reynolds & Kamphaus, 2004).

Table 3.5
Reliability Statistics of BASC-2 Composite Scales

Composite Scale	Coefficient Alpha	Test-Retest	Standard Error of Measurement
School Problems	.85	.84	4.0
Internalizing Problems	.95	.82	2.2
Inattention/Hyperactivity	.83	.82	4.1
Emotional Symptoms Index	.94	.81	2.4
Personal Adjustment	.89	.74	3.3

The scale scores that comprise the composite scores are also found to have adequate reliability and validity and shown below. The sample size that was used to determine the coefficient alpha reliability and standard error of measurement was 982 students, without documents mental health diagnoses or learning disabilities, between the ages of 15-18. To determine test-retest reliability for the BASC-2, 107 students were surveyed. Table 3.6 shows the reliability statistics of the BASC-2 Clinical Scales (Reynolds & Kamphaus, 2004).

Table 3.6
Reliability Statistics of the BASC-2 Clinical Scales

Scale	Coefficient Alpha	Test-Retest	Standard Error of Measurement
Attitude to School	.82	.84	4.2
Attitude to Teachers	.79	.73	4.6
Sensation Seeking	.70	.76	5.5
Atypicality	.82	.79	4.2
Locus of Control	.78	.74	4.7
Social Stress	.83	.74	4.1
Anxiety	.86	.70	3.7
Depression	.86	.82	3.7
Sense of Inadequacy	.79	.74	4.6
Somatization	.67	.67	5.7
Attention Problems	.79	.84	4.6
Hyperactivity	.74	.69	5.1
Relationship with Parents	.88	.80	3.5
Interpersonal Relationships	.78	.75	4.7
Self Esteem	.82	.78	4.2
Self Reliance	.70	.61	5.5
Median	.79	.75	4.6
Sample Size	982	107	982

The validity of the BASC-2 was derived from scale intercorrelations and factor analyses from the grouping of scales into composites. As would be expected, intercorrelations within clinical scales and within adaptive scales were positive, whereas correlations between clinical and adaptive scales were negative. Two types of factor analysis were performed in developing the composites Covariance Structure Analysis (CSA) and Principal-Axis analysis. A sample of 3,094 participants was used for the purposes of these analyses. Table 3.7 shows the factor loadings for the BASC-2 based on the CSA. Validity was also determined through the correlations between the BASC-2 composite and individual scale scores with scores obtained on other behavioral measures and scores of profiles of children with particular clinical diagnoses or educational classifications. Specifically, the BASC-2 was found to have convergent validity with the Achenbach System of Empirically

Based Assessment, Children's Depression Inventory, Revised Children's Manifest Anxiety Scale, and Conners-Wells Self-Report Scale.

Table 3.7
CSA Factor Loadings for the BASC-2

	School Problems	Internalizing Problems	Inattention/Hyperactivity	Personal Adjustment
Scales				
Attitude School	.74			
Attitude Teachers	.83			
Sensation Seeking	.35			
Atypicality		.68		
Locus of Control		.79		
Social Stress		.84		
Anxiety		.69		
Depression		.88		
Sense of Inadequacy		.77		
Somatization		.58		
Attention Problems			.87	
Hyperactivity			.62	
Relations with Parents				.61
Interpersonal Relations				.71
Self-Esteem				.73
Self Reliance				.50
Factor Correlations				
Internalizing Problems	.67	--	--	--
Inattention/Hyperactivity	.75	.73	--	--
Personal Adjustment	-.63	-.91	-.65	--

While the BASC-2 addresses multiple domains in a student's life only a select few of the scales were used in this study. However, for the ease of administration the entire BASC-2 was administered to students. The scaled scores that assess students' protective factors related to their personality that were included in this study include (internal) locus of control, sense of inadequacy, self-esteem, and self-reliance. The scaled scores that assess students' protective factors related to their family that were included are relationship with parents. Related to a child's social environment, attitude to school, attitude to teachers, social stress,

and interpersonal relationships were be included in this study. The SAD triad was not used for research purposes but was examined to determine whether there existed student is in need for further services or referrals.

Alcohol Use Disorders Identification Test (AUDIT)

To assess students' alcohol use the Alcohol Use Disorders Identification Test (AUDIT) was administered. The AUDIT is a 10-item screen questionnaire with three questions asking the amount and frequency of a student's drinking, three questions related to alcohol dependence, and four questions on problems caused by drinking alcohol. The items are scored in a 5-point Likert scale. The AUDIT was administered in addition to the BASC-2, as the BASC-2 does not address substance use issues, which negatively influences students' academic performance.

The AUDIT was chosen, in part, because it is a brief and rapid assessment of alcohol use. Cronbach's alpha for the AUDIT is .88 (Saunders et al., 1993). It also has a strong correlation with other alcohol problem questionnaires. For example, there is a strong correlation between the AUDIT and the MAST (Michigan Alcoholism Screening Test) where the r =.88 for both males and females (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). Babor and colleagues, who testing the AUDIT's reliability and validity found a high correlation coefficient (.78) between the AUDIT and the CAGE in ambulatory care patients. They also found that the AUDIT also has a strong test-retest reliability (r =.86).

Procedures

The researcher recruited the participants during their senior English class. The researcher recruited on a predetermined "free period" day where students were allowed to work on homework but no instruction had been scheduled to occur. The purpose of the

study, potential implication of the results, time commitment, potential benefits and risks were explained orally to them. They were then offered the opportunity to sign the Informed Consent if they elected to participate and were age eighteen or older. Those students under the age of eighteen were allowed to complete the Informed Assent paper work. Parental consent was required of those students. Students, under age eighteen, who signed the Informed Assent, were given a stamped envelope that included the researcher's home address and a Parental Consent Form for their parents to complete and send directly to the researcher. The researcher explained that their participation would be voluntary as there will be no extra credit given for students' participation and none of their grades would be affected by their choice to participate in this study. It was further explained that each participant would be assigned a participant number. This number was used to help the researcher follow up with each student at the end of the school year to determine if students successfully graduated from high school. Because being able to correlate a participant's graduation outcome with their responses on the instruments was a critical component to the study, the students were not provided anonymity.

Those students who returned a completed Informed Consent form were given the opportunity to complete the two assessments and the demographic form at that time. The researcher returned to a later date, also on a "free day," to collect data from the remaining students after all the Parental Consents were returned. Students were not permitted to collaborate with others or take measures home to complete to ensure the validity of their responses. Those students who completed all of the measures were included in the follow-up data collection. When the school year concluded, the researcher returned to gather data from

participants' academic record including graduation status, total number of credits, disciplinary record, attendance, and grade point average.

CHAPTER 4 RESULTS

The purpose of this study was to determine which factors could successfully discriminate between students who graduate from high school from those who did not. This chapter will review the research questions posed for this study and provide their relevant statistical analyses. This study surveyed 78 high school seniors at a suburban public high school in the Midwest. The participants completed two measures, the Behavior Assessment System for Children-Second Edition (BASC-2) and the Alcohol Use Disorder Identification Test (AUDIT), which were both completed early during their senior year of high school. When the school year was completed, the study outcome data (i.e., students' GPAs, disciplinary records, attendance records, and graduation outcome) were obtained. Of the 78 total participants, 71 graduated, representing a graduation rate of 91.03%. The overall graduation rate for this student cohort that entered high school together as freshman was 79.1% reflecting a soft truncation effect whereas this research study missed students that dropped out during grades 9-11.

Table 4.1 shows the means, standard deviations, and ranges for the measures. High scores on the AUDIT, Attitude towards School, Attitude towards Teachers, Locus of Control, Social Stress, and Sense of Inadequacy represent negative or maladaptive functioning whereas lower scores represent adjustment that is more positive. T-Scores on these scales between 60-69 are indicative of "at-risk" whereas those scores above 70 are clinically significant. Inversely, on the adaptive scales of Relationship with Parents, Interpersonal Relationships, Self-Esteem, and Self-Reliance, lower scores represent maladaptive functioning whereas higher scores are indicative of adjustment that is more positive. T-

scores between 30-39 are indicative of "at-risk" for these scales whereas those below 30 are indicative of clinically significant maladaptive functioning.

Table 4.1
Means, Standard Deviations, and Ranges for Independent Measures

	M	SD	Range
AUDIT	2.06	3.051	0-16
Attitude towards School	48.56	8.912	32-73
Attitude towards Teachers	51.70	10.958	34-90
Locus of Control	49.17	9.909	37-78
Social Stress	45.79	8.741	33-70
Sense of Inadequacy	47.21	9.070	34-67
Relationship with Parents	46.51	11.812	19-66
Interpersonal Relationships	52.34	7.694	24-62
Self-Esteem	53.18	8.796	13-64
Self-Reliance	50.30	10.929	13-70

Research Questions

Question 1: Do the protective factors identified differentiate between students who graduate and those who do not?

A discriminant analysis was performed to determine whether the students who graduated from high school could be predicted based on their scores with regard to alcohol use (as measured by the AUDIT), attitudes towards school, attitude towards teachers, locus of control, social stress, sense of inadequacy, relationship with parents, interpersonal relations, self-reliance, and self-esteem (as measured by the BASC-2). Of the 78 students who participated in the study and had their academic records made available to the researcher, 71

of them graduated from high school at the end of their senior year. A summary of the means and standard deviations of these predictor variables are shown on Table 4.2 as a function of the grouping variable, high school graduation. Of the total 78 cases, three were excluded from the discriminant analysis due to the absence of at least one discriminating variable. In tests of equality of group means, no predictor variable differed significantly over the groups. The value of Box's M, determining equality within group variance/covariance, was unable to be calculated due to too few cases of students who did not graduate from high school. Consequently, the assumption of homogeneity of variance-covariance matrices between the populations is presumed to be violated. As a result, no predictor variables were identified by the discriminant function analysis.

Table 4.2
Summary Measures for the Predictor Variables Used to Discriminate Between Those who Graduated and Those Who Did Not.

Graduation Status	Summary Measure	AUDIT	Attitude to School	Attitude to Teachers	Locus of Control	Social Stress	Sense of Inadequacy	Relations with Parents	Interpersonal Relations	Self-Reliance	Self Esteem
Graduated	N	68	68	68	68	68	68	68	68	68	68
	Mean	1.68	48.57	51.75	49.79	46.19	47.03	46.63	52.04	50.29	52.85
	SD	2.49	9.31	11.18	10.19	9.05	9.36	12.30	7.96	11.13	9.21
Did Not Graduate	N	7	7	7	7	7	7	7	7	7	7
	Mean	3.29	50.86	51.71	42.14	42.00	47.71	44.14	55.71	46.86	56.86
	SD	3.15	5.40	8.69	5.31	5.54	7.57	7.88	5.06	8.03	4.56
Total	N	75	75	75	75	75	75	75	75	75	75
	Mean	1.83	48.79	51.75	49.08	45.80	47.09	46.40	52.39	49.97	53.23
	SD	2.58	9.01	10.93	10.07	8.84	9.16	11.93	7.78	10.89	8.94

A subsequent analysis was conducted to determine whether significant differences existed between the identified variables. The hypothesized differences in the scores on the AUDIT, Attitude to School, Attitude to Teachers, Locus of Control, Social Stress, Sense of Inadequacy, Relations with Parents, Interpersonal Relations, Self-Reliance, and Self Esteem scales between those who graduated from high school and those who did not were assessed with a one-way ANOVA. The means and standard deviations are shown on Table 4.3. A Levene test of homogeneity of variance conducted prior to the ANOVA did not indicate the assumption of homogeneity of variance was significantly violated ($p > .05$) on any comparison. However, no significant differences were found between any of these independent variables and the outcome of high school graduation. In other words, students who graduated from high school and those who dropped out did not differ significantly in their report of alcohol consumption, attitude towards school, attitude towards their teachers, locus of control, sense of inadequacy, relationships with their parents, interpersonal relationships, self-esteem, or self-reliance. Given the lack of statistical power, the researcher was only able to test for very large effects. In other words, the potential for significant differences remains, but given the lack of statistical power in this study, only very large effects could be detected.

As shown in Table 4.3, the differences between those who graduated from high school and those who dropped out were not statistically significant, but there were some notable differences between the groups nonetheless. Using an alternative approach to calculating effect sizes, some moderate and large effect sizes were found. Cohen's d effect-size was utilized to determine the strength of the relationship between the independent

variables and the outcome of high school graduation by comparing the standardized means of the two outcome groups. Another commonly used approach to calculating effect sizes is eta-squared that estimates the variance in the dependent variable explained by the independent variable while controlling for other predictors. This type of calculation is prone to overestimate the variance explained and is a function of the sample size. In this study, there were two unequal outcome groups, which would make this type of calculation less ideal than the Cohen's d method of calculating effect size.

A small to medium effect size was found in students' self-report of alcohol consumption, as measured by the AUDIT. Students who graduated reported less alcohol consumptions than those who did not. A small to medium effect size in students' Attitude towards School was found as students who did not graduate reported feeling more alienated, hostile, and generally dissatisfied with their school compared to their peers who graduated. A moderate to large effect size was calculated with respect to students' Locus of Control as students who graduated reported less control over the rewards and consequences they received. A medium effect size was identified when differentiating Social Stress between the two groups. Students who graduated reported more stress, tension, and feelings of exclusion in interpersonal relationships than those who failed to graduate. A moderate effect size was found in students' assessment of their Interpersonal Relationships. Students who graduated high school reported fewer quality social relationships and friendships. A small to medium effect size was identified for students' report of Self-Reliance. Students who graduated reported more confidence in their ability to problem-solve than their peers who did not

graduate. A medium effect size was found for students' Self-Esteem as students who graduated reported lower self-esteem than those who did not graduate.

Table 4.3
Means, Standard Deviations, and Effect Sizes for BASC-2 and AUDIT

Graduation Status	Summary Measure	AUDIT	Attitude to School	Attitude to Teachers	Locus of Control	Social Stress	Sense of Inadequacy	Relations with Parents	Interpersonal Relations	Self-Reliance	Self Esteem
Graduated	N	71	71	70	71	70	70	70	70	70	71
	Mean	1.94	48.34	51.70	49.86	46.17	47.16	46.74	52.00	50.64	52.82
	SD	3.04	9.18	11.21	10.01	8.94	9.25	12.15	7.86	11.16	9.05
Did not Graduate	N	7	7	7	7	7	7	7	7	7	7
	Mean	3.29	50.86	51.71	42.14	42.00	47.71	44.14	55.71	46.86	56.86
	SD	3.15	5.40	8.69	5.31	5.54	7.57	7.88	5.06	8.03	4.56
Total	N	78	78	77	78	77	77	77	77	77	78
	Mean	2.06	48.56	51.70	49.17	45.79	47.21	46.51	52.34	50.30	53.18
	SD	3.05	8.91	10.96	9.91	8.74	9.07	11.81	7.69	10.93	8.80
	r_{Y1}	.21	.17	.00	.43	.27	.03	.13	.27	.19	.27

Question 2. Do differences exist in maternal education, student gender, or student race in those who graduate when compared to those who do not?

The demographic information collected from all participants following their completion of the informed consent process included gender, race, and mothers' educational attainment. An analysis was completed to determine whether there was a relationship between graduation status and gender. Of the 31 male students in this study, 25 of them graduated from high school and six did not. Of the 47 female students, 46 graduated from high school and one did not. Table 4.4 shows the contingency table representing male and female students and their graduation status. A chi-square test of independence indicted the relationship between gender and graduation was significant, χ^2 (1, N = 78) = 6.79, p < .01, φ = -.30. The graduation rate for males was 80.65% while the graduation rate for females was 97.87%. An effect size of -.30 represents a moderate effect. Table 4.5 shows the crosstabulation table between gender and high school graduation.

Table 4.4
Contingency Table for Gender and High School Graduation

		Gender	
		Male	Female
Graduated	Yes	25	46
	No	6	1

Table 4.5
Crosstabulation for Gender and High School Graduation

			Did Student Graduate		
			Yes	No	Total
Gender	Male	Count	25	6	31
		Expected Count	28.2	2.8	31.0
		Residual	-3.2	3.2	
	Female	Count	46	1	47
		Expected Count	42.8	4.2	47.0
		Residual	3.2	-3.2	
Total		Count	71	7	78
		Expected Count	71.0	7.0	78.0

A chi-square test of independence was used to determine whether graduation status was proportionate to students' ethnicity. It is expected that no one ethnicity will be over represented or under represented in either outcome group. The graduation rate for African America was 92.00%, Latinos 86.96%, and 100% for Asian, Caucasian, and three students who identified themselves as being of another ethnicity. A chi-square test of independence indicted the relationship between ethnicity and graduation was not significant, χ^2 (4, N = 78) = 1.01, p >.05.

To determine whether there was a relationship between maternal education and graduation status, students were compared within those who graduated from high school and those who did not. All of the students who indicated that their mothers had completed grade school (4 participants), some college (4 participants), graduated from college (3 participants), and completed some graduate school (2 participants) graduated. Of the 39 students who

indicated that their mothers completed some high school, 35 graduated from high school and four did not. Of the 12 students who indicated that their mothers graduated from high school, 10 graduated from high school and two did not. The one student who endorsed his mother has a Master's Degree did not graduate from high school. A chi-square test of independence indicted the relationship between maternal education and graduation was not significant, χ^2 (6, N = 64) = 10.30, p >.05.

Question 3. Do other academic outcomes differ in high school graduates when compared to those who dropout?

Of the 78 study participants, 71 graduated from high school while seven failed to graduate from high school at the end of their fourth year. At the end of the participants' fourth year of high school, additional academic information was gathered from their academic record including the number of periods they were absent, their total disciplinary incidents, the number of days they served in suspension, and their grade point average. All of these academic outcomes were cumulative from over the course of students' entire high school careers. The means, standard deviations, and effect sizes are shown on Table 4.6.

Table 4.6
Means, Standard Deviations, and Effect Sizes for Academic Outcome Variables

Graduation Status	Summary Measure	Periods Absent	Disciplinary Incidents	Days Suspended	Grade Point Average
Graduated	N	64	68	68	69
	Mean	175.14	7.09	1.00	2.40
	SD	120.25	10.67	2.08	0.65
Did Not Graduate	N	5	7	7	7
	Mean	436.80	5.14	3.86	1.39
	SD	148.21	6.79	8.51	0.32
Total	N	69	75	75	76
	Mean	194.10	6.91	1.27	2.31
	SD	139.13	10.35	3.24	0.69
	r_{Y1}	.70	.11	.22	.70

It was hypothesized that students who graduate will have higher grade point averages, be absent less, and have less frequency and severity of punishments. The hypothesized differences between the mean periods absent, disciplinary incidents, days suspended, and grade point average between those who graduated and those who did not were assessed with a one-way ANOVA. The ANOVA was significant, F (1, 74) = 15.96, p < .001, r_{Y1}= .70 when comparing the grade point averages of students who graduated with those who did not. A Levene test of homogeneity of variance conducted prior to the ANOVA did not indicate the assumption of homogeneity of variance was significantly violated (p > .05). Students who graduated had significantly higher grade point averages (M = 2.40, SD = .65) than students who failed to graduate (M = 1.39; SD = .32). This difference represents a very large effect size. The ANOVA was also significant, F (1, 67) = 21.30, p < .001, r_{Y1}= .70, when comparing periods absent between those who did and did not graduate. A Levene test of homogeneity of variance conducted prior to the ANOVA did not indicate the assumption of homogeneity of variance was significantly violated (p > .50). Students who graduated had significantly fewer periods absent from school (M = 175.14, SD = 120.25) than students who

did not graduate (M = 436.80, SD = 148.21). This difference represents a very large effect size. Another ANOVA, with a moderate effect size, was significant F (1, 73) = 5.218, p = .025, r_{Y1}= .22 in a comparison of the days spent in suspension between those who graduated and those who did not. However, a Levene test of homogeneity of variance indicated the assumption of homogeneity of variance was significantly violated (p < .001). Consequently, these results cannot be considered valid. There were no significant differences in the number of disciplinary incidents between these two groups and the effect size was small.

CHAPTER 5 DISCUSSION

The purpose of this study to was to identify factors that discriminate between students that eventually graduate from high school from those who do not graduate. This chapter will examine the results of the study with regard to each of the original research questions, identify some of the limitations and implications of this study, and provide suggestions for the direction of future research in this area.

Research Questions

Question 1. Do the protective factors identified differentiate between students who graduate and those who do not?

The outcome of graduation from high school could not be predicted between the psychological factors of alcohol use (as measured by the AUDIT), attitudes towards school, attitude towards teachers, locus of control, social stress, sense of inadequacy, relationship with parents, interpersonal relations, self-reliance, and self-esteem (as measured by the BASC-2) due to the discrepancy in the number of students who graduated compared with those who did not graduate from high school and the limited statistical power that was available. Of the 78 students who participated in the study and had their academic records made available to the researcher, 71 of them graduated from high school at the end of their senior year. No statistically significant differences were found between the two groups in participant report of alcohol consumption, attitude towards school, attitude towards their teachers, locus of control, sense of inadequacy, relationships with their parents, interpersonal relationships, self-esteem, or self-reliance. However, moderate and large effect sizes were found between the outcomes groups on these measures.

Of the variables that produced small-medium to medium- large effect sizes, students who graduated from high school endorsed less alcohol consumption, a more positive attitude towards school, and higher confidence in their problem solving abilities. However, those who graduated did not exclusively endorse more protective factors than students who failed to graduate. Graduates endorsed to a greater degree an external locus of control, more stress and tension in interpersonal relationships, fewer positive social relationships and friends, and lower self-esteem. With respect to promoting high school graduation, it appears that students' interpersonal relations may actually have a negative relationship with positive outcome. Future research should examine this possibility more thoroughly.

The limited statistical power of this study was the consequence of the research design itself as a large percentage of students who dropped out of school likely did so prior to their fourth year of high school. In this study, 91.03% of participants graduated from high school whereas the cohort from which these participants were drawn had a 79.1% graduation rate. Consequently, this sample was not representative of the whole population of students from the study high school.

It is not appropriate, at this point, to make inferences regarding the lack of statistically significant differences found in the study measures between the graduates and dropouts. Since the participants were not reflective of the cohort population in general, inferences cannot be made within the context of high school graduation. Students who continued in high school to their fourth year likely shared a number of protective factors that led them to continue their academic studies. Conversely, students who dropped out of school prior to their fourth year would not be expected to have the same protective factors as those who

persisted into their senior year. Consequently, it is not surprising that there is significant shared variance between the two outcome groups.

Question 2. Do differences exist in maternal education, student gender, or student race in those who graduate when compared to those who do not?

Males students in the study were found to have dropped out of high school at a significantly higher rate compared to the female students. Of the 31 male students, 25 graduated from high school and six did not. Of the 47 female students, 46 graduated from high school and one did not. No relationship was found between graduation status and ethnicity or maternal education. Students in either outcome group were not disproportionately represented based on racial/ethnic identification. Furthermore, maternal education did not differentiate between those who graduated from high school and those who dropped out. These findings may very well be due to the lack of representativeness of the study sample. A large percentage of students in the initial student class cohort were not included in this study due to either dropping out prior to their fourth year of high school or non-participation in this study and this may account for the lack of differences found with regard to these variables.

Question 3. Do other academic outcomes differ in high school graduates when compared to those who dropout?

At the end of the participants' fourth year of high school, information was gathered from their academic record regarding the number of periods they were absent, their total disciplinary incidents, the number of days they served in suspension, and their grade point average. Graduates had significantly higher grade point averages than students who failed to graduate, with a very large effect size. High school graduates were expected to have higher

grade point averages as, at minimum, receiving a grade for a course results in class credit that would be lacking in students that failed to graduate. However, given the effect size between grade point average and graduation it appears that academic achievement, as measured by grade point average, has a strong relationship with one another beyond what would be expected.

Students who graduated had significantly fewer periods absent than students who did not graduate—the effect size for this relationship was also found to be very large. It is possible that students not expecting to graduate were less motivated to attend school. It is also likely that students were counted as absent immediately following their dropping out and prior to being removed from the active enrollment register. There were no significant differences in the number of disciplinary incidents or number of days spent in suspension between these two groups.

Limitations

Over the course of this research project, a number of factors became apparent as limitations of this study. The most significant limitation was the inability to have a sufficient sample of students who failed to graduate during their senior year of high school compared with those who did graduate. This study suffered from soft truncation because students who dropped out of high school in grades 9-11 were not captured during the period of data collection. In this current study, 91.03% of the senior high school participants graduated compared to the total high school graduation rate of 79.1% (i.e., the percent of entering freshmen who ended up graduating). Clearly, the graduation rate of the study participants was not reflective of the graduation rate for the whole high school.

To address this issue, data collection should have begun during students' first year of high school or even in middle school. This study could have otherwise sought out individuals who dropped out of high school and compared them with peers who remained enrolled in school. Without a representative comparison group of students who failed to graduate, this study was very limited in its ability to identify protective factors that predict who will ultimately be successful in graduating from high school.

Another limitation of this study was that only self-report measures were used to assess students' protective and other factors. For example, with completing the AUDIT, students may have underestimated their degree of alcohol use due to social desirability or out of fear that they will face consequences due to the illegality of underage alcohol consumption. Social desirability perhaps also played a role in how students responded to the BASC-2 instrument as they might have evaluated themselves in a more favorable light than their social and clinical functioning would warrant. In future research, observational measures that parents and teachers could complete would be helpful additions for gaining a more thorough assessment of students' social and personal functioning.

Another limitation of this study was the self-selection of students who elected to participate. Perhaps students who were functioning better academically and socially were more prone to participate than those who did not particularly since the researcher would be gathering information related to their graduation status.

A final limitation might have been in selecting graduation as a discriminating variable of success in high school. During the final data collection, the researcher discovered that credits, not grade point average or any other criteria, determines whether a student graduated. Students were required to accumulate 24 credits in the high school where the data were

collected. A school administrator informed the researcher that they make every effort to ensure each student who wants to graduate is successful in doing so. They offer students extra credit opportunities, summer school, tutoring, and allow students to repeat courses. A school administrator emphasized the importance of students' graduating as this school had failed to meet Annual Yearly Progress as defined by its state Board of Education for six consecutive years.

Suggestions for Future Research

Future research that examines high school graduation would benefit from addressing the methodological limitations discussed above. Specifically, a longitudinal study beginning during or prior to students' first year of high school would allow for the inclusion of students who withdraw at any point during their high school career. Beginning data collection earlier in students' high school careers would allow researchers to track changes in students' protective factors and academic performance over a longer period, providing richer information regarding potential critical intervention periods in students' lives. Furthermore, a longitudinal study could explore static and dynamic variables as they relate to academic success. Static factors that are less likely to change over time present a different type of challenge for school administrators when compared to dynamic factors. Future research could also track students' self-appraisal beginning in their first year of school to determine whether it remains static or is dynamic in those who successfully complete high school. Wood (2006) identified the importance of tracking trajectories of internalizing behaviors (specifically anxiety) to examine their impact ones academic performance.

An alternative approach to gathering data on a comparison group of individuals who did not graduate from high school is to recruit participants after they have dropped out of

school. This method, more in the ad-hoc approach to gathering data, would afford the researchers greater control with respect to the size of the comparison group.

Gathering parent and teacher ratings of students' behavior and performance can be useful in future studies to compare self-report with collateral observations. Research participants can be prone to having either an overly favorable or an overly negative self-appraisal, which might not indicate their typical performance, or functioning. Furthermore, collateral information would also provide useful information regarding the interpersonal functioning of students.

Implications

The results from this current study demonstrate the need for continued research in discriminating between those who graduate from high school and those who do not. If researchers find discriminating factors between these comparison groups, in-school programming can be developed to promote protective factors found to be positively predictive of graduation. Specifically, self-reliance, attitude towards school, and alcohol use (inversely related) were variables that were found to be important variables for those students who graduated.

The lack of statistical power and the sampling problems in the present study make it difficult to draw inferences that might inform interventions to help prevent school dropout. Likely, those who persisted into their senior year were motivated to graduate--otherwise they might have dropped out prior to their senior year. Based on the original freshman class size of 171 students and a graduation rate of 79.1%, it is estimated that approximately 36 students, in total, dropped out of this cohort. Of those estimated 36 students, eight of them participated in this study. Consequently, the disproportionate participation between those

who graduated compared to those who dropped out is important to note. Given the above figures, approximately 22.22% of those who dropped out of this high school participated in this study whereas 52.59% who graduated participated. The inference is that students who participated were, in general, more academically successful with a greater likelihood of graduating than non-participants in the original cohort. Therefore, it is not surprising that insignificant statistical differences existed between the two outcome groups.

With respect to the third research question, students who graduated were more successful academically and were absent less often. These results appear to be intuitive in that students who are less successful academically are absent with more frequency and thus miss larger amounts of instruction. Clearly, students who are not present to learn academic material initially will be less likely to perform well on tests and other measures of information retention and application. However, despite this apparent intuitive finding, schools continue to take students out of class, at times for days, as a means of discipline. This policy appears to be worth revisiting as students who are not present in the classroom lag behind their peers academically.

To conclude, this present study aimed to find discriminating factors between those who graduate from high school and those who do not. This study failed to find a large enough comparison group comprised of students who dropped out of school during their senior year and failed to graduate. Nonetheless, this study does point to the importance of learning more about factors that can be promoted to help lead high school students to academic success.

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Appendix A

MARQUETTE UNIVERSITY
ASSENT FORM FOR RESEARCH PARTICIPANTS
Protective Factors That Are Influential in High School Students Graduating

Investigator(s): Ana Garcia, M.A.

I am doing a research study. A research study is a special way to find out about something. We want to find out factors that are instrumental in high school seniors graduating.

You can be in this study if you want to. You are being asked to be in this study because you are a high school senior and every member of your high school class is invited, which means you will be one out of 500 students involved in this study. If you want to be in this study, you will be asked to fill out a number of questionnaires related to yourself, your family, and your extended social network. Your participation in this study also will include allowing the researcher to have access to your educational record at the end of the school year to find out if you have graduated.

We want to tell you about some things that might happen to you if you are in this study. While no study is without risks the risks that you would be exposed to are minimal. The researcher is asking you to fill out a number of questionnaires that may require a significant time commitment. The researcher estimates that completing these questionnaires might consist of two study hall periods or lunch hours of your time. You should also know that if you reveal thoughts, plans, or desires to hurt yourself or someone else or report abuse your information cannot be kept confidential and will be shared with the appropriate persons who could help you.

If you decide to be in this study, some good things might happen to you. You might become more thoughtful about the positive aspects of your life. You might also learn some things about yourself that you didn't know prior to answering these questions. We might also find out things that will help other students some day. But we don't know for sure that these things will happen.

When we are done with the study, we will write a report about what we found out. We won't use your name in the report.

Your parents have agreed to let you take part in this study, but it is your decision whether or not to be in the study. You do not have to be in this study if you don't want to. You can say "no" and nothing bad will happen. If you say "yes" now, but if you want to stop later, that's okay too. If something about the study bothers you, you can stop being in the study. All you have to do is tell the researcher you want to stop.

If you have any questions about the study, you can ask the researcher.

If you want to be in this study, please sign and print your name.

I, _____, want to be in this research study.
(write your name here)

_____ _____
Sign your name here (Date)

_____ _____
Investigator signature (Date)

Appendix B

MARQUETTE UNIVERSITY
PARENT PERMISSION FORM
Protective Factors That Are Influential in High School Students Graduating
Ana Garcia, M.A.
Counseling and Educational Psychology

Your child has been invited to participate in this research study. Before you agree to allow your child to participate, it is important that you read and understand the following information. Participation is completely voluntary. Please ask questions about anything you do not understand before deciding whether or not to give permission for your child to participate.

PURPOSE: I understand that the purpose of this research study is to determine factors that are instrumental in high school students graduating from high school. I understand that my child will be one of approximately 500 participants in this research study.

PROCEDURES: I understand that my child will be asked to answer questions about themselves, their family, and extended social network. These questions will be in the form of questionnaires. I understand that my child will not be expected to miss any academic classes to participate in this study. My child will complete these questionnaires during either their study hall period or lunch hour. An important aspect of the study is to determine which factors are influential in high school student graduating therefore it will be important to pair up the result of your child's senior year in high school with their responses to questions at the beginning of the semester. At the end of the school year, I give my consent for my child's academic record to be open to the investigator so the researcher can find out if they have graduated from high school. I understand that my child will not be video or audio recorded. I understand that since the outcome of my child's senior year is a critical component of this study, their name will be recorded with their responses to these questions.

DURATION: I understand that my child's participation will consist of filling out questionnaires about themselves, their family, and social network. The researcher estimates that your child's time commitment would consist of two class periods that would be during their study hall or lunch hour. Should your child require additional time the researcher will be available to accommodate additional non-academic class period times or after school.

RISKS: I understand that the risks associated with participation in this study are no more than what your child would encounter in everyday life. While no study is without risks the risks that your child would be exposed to are minimal. The researcher is asking your child to fill out a number of questionnaires that may require a significant time commitment. The researcher estimates that completing these questionnaires might consist of two study hall periods or lunch hours of your time. Additional should your child you reveal thoughts, plans, or desires to hurt themselves or someone else or report abuse their information cannot be kept confidential and will be shared with the appropriate persons who could help them.

BENEFITS: I understand that the benefits associated with participation in this study include your child might become more thoughtful about the positive aspects of their life. They might also learn some things about themselves, their family, and social networks that they did not know prior to answering these questions. The researchers might also find out things that will help other students some day. The researcher cannot guarantee that these things will happen though.

CONFIDENTIALITY: I understand that all information my child reveals in this study will be kept confidential. All of my child's data will be assigned an arbitrary code number rather than using my child's name or other information that could identify my child as an individual. When the results of the study are published, my child will not be identified by name. I understand that the data will be destroyed by shredding paper documents and deleting electronic files after the completion of the study. My child's information will be kept in a locked file drawer in the primary researcher's residence. Only the researcher will have immediate access to my child's information. I understand that my child's information will be kept until the research project is complete and the researcher's dissertation is defended. I understand that the research records may be inspected by the Marquette University Institutional Review Board or its designees, and (as allowable by law) state and federal agencies.

VOLUNTARY NATURE OF PARTICIPATION: I understand that participating in this study is completely voluntary and that my child may withdraw from the study and stop participating at any time without penalty or loss of benefits to which my child is otherwise entitled. If either I or my child withdraws consent I understand that the principal researcher can be contacted in person or by phone at anytime prior, during, or after data collection. If either my child or I decides to withdraw consent my child's data will be destroyed.

CONTACT INFORMATION: If I have any questions about this research project, I can contact Ana Garcia at (630) 202-0237 or her dissertation advisor, Rebecca Bardwell, PhD, at (414) 288-1430. If I have questions or concerns about my child's rights as a research participant, I can contact Marquette University's Office of Research Compliance at (414) 288-1479.

I HAVE HAD THE OPPORTUNITY TO READ THIS PARENT PERMISSION FORM, ASK QUESTIONS ABOUT THE RESEARCH PROJECT AND AM PREPARED TO GIVE MY PERMISSION FOR MY CHILD TO PARTICIPATE IN THIS PROJECT.

_____ _____

Parent's Signature(s) Date

_____

Parent's Name(s)

_____ _____

Researcher's Signature Date

Appendix C

Demographic Information

Subject # ____ ____ ____ ____ ____ (For Researcher Use Only)

Name _____ _____
(First name) (Last name)

Phone Number: (___ ___ ___) ___ ___ ___-___ ___ ___ ___ (home)
(___ ___ ___) ___ ___ ___-___ ___ ___ ___ (cell)

E-mail address**:** _____

Street Address
_____

City _____ **State** _____ **ZIP** ___ ___ ___ ___

Date of Birth __ __ / __ __ / __ __ __ __ **Age** _____

Ethnicity (Circle all that apply: African American, Asian, Caucasian, Hispanic, Native American, Other). If other, specify ethnicity_____

Gender_____

Primary Caregiver
Mother Father Aunt/Uncle Grandparent Other _____

Number of Siblings _____

Maternal Highest Level of Education? (circle one: grade school, some HS, graduated HS, trade school, some college, BS/BA, some grad school, MS/MA, JD, PhD, MD, other) If other, explain:_____

Are you a native English speaker?
Yes No
If no, at what age did you begin formal education in English?_____

Do you have a learning disability?
Yes No

If yes, did you need to be removed from the regular classroom and take special education classes? Please explain the details:

_____

_____

Cumulative GPA _____

Do you plan on graduating from high school at the end of this school year?

Yes No

Have you or do you plan on applying for college?

Yes No

Are you involved in any extracurricular activities?

Yes No

If yes, please describe: _____