

## ABSTRACT

Title of Dissertation / Thesis: IS GRADE SPAN ASSOCIATED WITH THE LEVEL OF PROBLEM BEHAVIOR AMONG EIGHTH GRADERS? AN EXPLORATORY INVESTIGATION

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In spite of two waves of grade reorganization in American schools—the Junior High and Middle School movements—and the increase of problem behavior in schools, little empirical evidence exists pertaining to the effects of grade span—the range of grades making up schools—on adolescent problem behavior. Utilizing a nationally representative sample that estimates the amount of problem behavior in and around schools, the present study employs a series of multiple regression analyses to examine the influence of grade span, and several control variables, on eighth-grade student problem behavior. Focusing on social learning theory, it is hypothesized that eighth graders who attend schools with older adolescents have more problem behavior than those who do not. Positive peer association is hypothesized to mediate the effect. Results revealed no effects between grade span and problem behavior. However, due to data limitations further research is recommended. Reasons for no effects are discussed.

IS GRADE SPAN ASSOCIATED WITH THE LEVEL OF PROBLEM BEHAVIOR  
AMONG EIGHTH GRADERS? AN EXPLORATORY INVESTIGATION

By

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Thesis submitted to the Faculty of the Graduate School of the  
University of Maryland, College Park, in partial fulfillment  
of the requirements for the degree of  
Master of Arts  
2004

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## Acknowledgements

The past year working on this thesis has been difficult, time consuming, and a test of my motivation and determination. I could not have endured this feat without the constant support and encouragement from those around me. First and foremost, I would like to thank my advisor, Denise Gottfredson, for her tremendous guidance, aid in editing, and friendship over the past two years. Gary LaFree and Charles Wellford served as readers and teachers and I thank them for their valuable aid in revising and improving the thesis. I was fortunate to have John Laub as a professor and want to thank him for his support of my endeavors and for making criminological theory fascinating. I would also like to thank the Criminology Department at the University of Maryland for their constant support.

My family deserves my heartfelt acknowledgement for they have continuously supported me along the way. I would like to thank my parents, Peggy and Dennis Casmer and Dennis and Karen Rasmussen for their emotional support, advice, and endless encouragement. My boyfriend, Sven Sherman-Peterson, deserves special recognition and thanks for his love, support and honesty, and for believing in me even when I did not.

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## Chapter 1: Introduction

Adolescence can be perceived as tumultuous since youth experience profound changes in physical, emotional, intellectual, and social development (Simmons & Blyth, 1987). The most obvious changes are physical changes that occur at puberty. However, social and psychological changes are also manifested during adolescence when youth desire autonomy and as a result are given more adult-like freedoms and responsibilities. Consequently, it has been found that almost every adolescent has engaged in problem behavior or some form of risky behavior that is recognized as delinquent (Dryfoos, 1997; Gottfredson, 2001).

Considerable research has been conducted to identify risk and protective factors for problem behavior and juvenile delinquency. Gottfredson (2001) states that most reviews of risk and protective factors related to delinquency and drug abuse include contextual factors such as the school and community as well as family, peer, and individual factors. For example, family management problems and antisocial peer influences are risk factors for delinquency (Fleming, Harachi, Catalano, Haggerty, & Abbot, 2001). Moreover, Elliott et al. (1996) suggest that living in a disadvantaged neighborhood (i.e. a neighborhood of concentrated poverty, unemployment, high mobility, violence, crime, and drugs) is a significant risk factor for adolescent problem behavior. Experiencing academic problems, as well as becoming integrated into a new school structure are also risk factors for adolescent problem behavior (Seidman, Allen, Aber, Mitchell, & Feinman, 1994).

Furthermore, research has shown that the average adolescent spends at least 7 hours of each weekday in school, which is approximately 40% of his or her waking weekday hours (Simmons & Blyth, 1987). Given the amount of time one spends in school there is every reason to expect that the school serves to educate as well as shape one's social world, both of which contributes to one's overall development. It is hard to deny that there are systematic changes in the classroom environment from preschool or kindergarten to twelfth grade and beyond (Eccles, Midgley, & Adler, 1984). For instance, many researchers have found that the transition from elementary to middle school increases the risk for youth problem behaviors, including substance abuse, delinquency, and school failure (Crockett, Peterson, Graber, Schulenberg, & Ebata, 1989; Hawkins, Catalano, & Miller, 1992; Simmons & Blyth, 1987). This period, then, represents an optimal time for interventions to promote effective education to prevent destructive and delinquent behavior.

It has been mentioned that the school environment contributes to adolescent behavior, where school environment and school structure are perceived as both risk and protective factors. For example, Gottfredson et al. (2000) in a national study on delinquency prevention in schools found that problem behavior was common in schools, and more common in some schools than others. In addition, Gottfredson, Gottfredson, Payne, and Gottfredson (2004) used a nationally representative sample of 254 schools to examine the extent to which school crime and problem behavior were explained by various school characteristics, including structural characteristics of the community in which the school is located, and other characteristics of the school which are externally determined (e.g. racial heterogeneity, size of school).



They found that an important portion of the variance in individual-level outcomes is between-schools and it is therefore appropriate to explore school-level predictors of them. Thus, it can be determined that differences in schools and their characteristics are important to consider with respect to crime and problem behavior. Further, one of these school level predictors may be grade span. However, despite major waves of grade span reorganization in past decades (e.g. the junior- high and middle-level movements), little evidence exists that grade span configurations of the school has any impact on adolescent problem behavior. Therefore, this study will examine if grade span organization—the range of grades making up a school—has any influence on the problem behavior of eighth-grade students.

### Statement of Problem

Epstein (1983) states that the ways schools and classrooms are organized affect who makes friends and how friends influence each other (p.4). Furthermore, social learning theory posits that criminal and problem behavior is learned by others, often peers (Akers, 1973). Therefore, it would seem then that grade organization and negative peer influence may be related. However, the effect of school grade span on problem behavior has been neglected in prior research. There are a number of articles that discuss how schools should be organized, specifically referring to the middle school versus junior high school debate (Coladarci & Hancock, 2002; Mac Iver & Epstein, 1993; Paglin & Fager, 1997). However, the research in this area focuses on how different grade spans influence adolescent academic achievement and self-esteem (e.g. Alspaugh, 1998a), not problem behavior.

For instance, Alspaugh (1998a) found a statistically significant achievement loss for students making the transition from elementary school to middle school as compared to K-8 schools that did not have a transition beginning at seventh grade. The achievement loss was also greater for students transitioning from middle school to high school than for students transitioning from K-8 to high school. Additionally, Alspaugh (1998b) found school characteristics, such as high school grade span, related to drop-out rates. The lowest drop-out rates occurred in districts with grade-level organizations of K-6, 7-12, while the highest rates were found in districts with grade 10-12 high schools. Alspaugh's research shows evidence of how school organization can influence the social structure and environment within schools.

In addition, it is important to look at the characteristics and effects of school transitions since the transition experience is often the impetus for designing different grade configurations. Much of the research on school transitions has focused on students entering junior high school or middle school and has found primarily negative consequences (Blyth, Simmons, & Carlton-Ford, 1983; Simmons, Blyth, Van Cleave, & Bush, 1979; Simmons, Rosenberg, & Rosenberg, 1973). Similar to the research on grade span, grades and self-esteem are the indicators most commonly used to examine school transition effects (Crockett et al., 1989), not problem behaviors. For example, Simmons et al. (1979) showed that students making the junior high transition experienced lower self-esteem levels than students who did not have to change schools. Furthermore, it has been argued that declines in GPA, attendance, and extracurricular activities may have long-term implications for the school related adjustment of adolescents (Felner, Primavera, & Cauce, 1981), given

that poor school performance has been associated with high school drop out (Rumberger, 1987) and in delinquency in general (Gottfredson, 2001).

### Research Questions

The research question explored in this study is whether or not grade span is associated with the amount of problem behavior in eighth graders. It is hypothesized that students who attend school with older adolescents are more likely to engage in problem behavior as a result of negative influence by older adolescents. For example, Karweit and Hansell (1983) suggest that, "Older students usually have special rights and privileges in their school and higher status in the peer social system... The status accorded to upperclassmen makes them attractive foci for the attention of younger students (p.33)." Furthermore, eighth graders in K-12 schools and in other grade configurations with older adolescents have more opportunities to be influenced by older peers as a result of their proximity than do eighth graders who do not attend the same school as older adolescents. Peer influence is a significant predictor of delinquent behavior and research has consistently shown that peers learn from peers through association, reinforcement, and modeling (Akers, 1973). Given the nature of peer influence and adolescent development it seems logical that adolescents would model or imitate those they most admire, particularly if these persons are older and therefore much "cooler".

Thus, it would seem that schools with older students would have more of an influence on younger students, particularly influencing their level of problem behavior. Therefore, questions that this study will consider are: Does grade span matter with regard to problem behavior? Do eighth graders in schools with older

students (e.g. 7-9, K-12) have more problem behavior than eighth graders in schools with younger adolescents (e.g. 4-8, 5-8, 6-8)?

### Purpose of the Study

This exploratory analysis focuses on how school grade configurations are related to problem behavior. The purpose of this study is to compare the effects of different types of school grade spans on the level of problem behavior among eighth graders. Do eighth graders in one grade span have different levels of delinquency compared to eighth graders in another grade span? This research will extend the current literature that has failed to address the impact grade span may have on adolescent problem behavior and to provoke a renewed focus on optimal grade configurations for schools.

### Need for the Study

In 1989 a landmark public policy report, *Turning Points: Preparing American Youth for the 21<sup>st</sup> Century* was released by the Council on Adolescent Development of the Carnegie Corporation of New York. The report stated that at least one quarter of all adolescents are at high risk for engaging in dangerous behaviors. Moreover, the Council declared that “a volatile mismatch exists between the organization and curriculum of middle grade schools and the intellectual and emotional needs of young adolescents” (p. 8-9). This mismatch was associated with a decline in young adolescents’ interests in school and increases in absenteeism, dropout rates, and the number of students involved in substance use. Thus, the Council urged essential institutions such as the family, schools, neighborhood and community organizations,

as well as policy makers to unite in order to create effective policy initiatives that assist adolescents' during critical periods of development.

The Council identified that there is a mismatch between the organization and structure of middle grade schools with the intellectual and emotional needs of young adolescents. This study will help determine if grade span is a part of this mismatch. Epstein (1990) suggests that determining the best grade span for a middle school is important to a number of individuals, including educators who plan new school buildings and attendance patterns; policy makers who are concerned with program reform; and parents, who wonder how their children will be affected by the different ways of organizing grades.

## Chapter 2: Review of Literature

A review of the literature for this study included four categories: background on adolescent transition and development, overview of grade configurations, overview of problem behavior, and the role of social learning theory.<sup>1</sup>

The method for locating information involved reviewing various databases including EBSCO, PsychInfo, Education Abstracts, ERIC, and ISI (Social Sciences Citation Index). Descriptors for literature search included the following key terms: school transition, grade span, problem behavior, adolescent development, middle school, social learning.

### Adolescent Transition and Development

#### Developmental Overview

Adolescence can be described as one of the most complex transitions in the life span. It is a time of enormous physiological, cognitive, social, and environmental change. “Few developmental periods are characterized by so many changes at so many different levels—changes due to pubertal development, social role redefinitions, cognitive development, school transitions, and the emergence of sexuality” (Eccles et al., 1993, p.90). Because of the number of changes that an adolescent goes through, this stage has often been described as “tumultuous” (Simmons & Blyth, 1987).

Storm and stress is a term that is often applied to the adolescent period, which is seen as a time of disruption, difficulty, and turmoil. There are also stage theorists

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<sup>1</sup>The Appendix reviews specific literature on transition and grade span.

(e.g. Freud, Piaget, and Erikson) that rely on the notion that development consists of a number of clearly defined stages through which the child has to pass in sequence (i.e. that one must complete a stage before moving onto the next). For example, Erickson's (1968) psychosocial theory characterized adolescence as a time of identity crisis, in which the youth's main focus is the search for a stable sense of self, that is, for a self-identity.

Furthermore, Elder (as cited in Coleman, 1974) attempted to make sense of adolescence by using sociological concepts in terms of role theory. For example, the adolescent is exposed to new role demands because as he or she gets older expectations gradually increase—his teacher may expect better performance and his parents more independence. In relation, Davis' sociological point of view (as cited in Simmons et al., 1973) describes adolescence as a period of physical maturity and social immaturity in which children reach physical adulthood before they are capable of functioning well in adult social roles. This view is similar to Moffitt's (1993) theory that adolescent-limited antisocial behavior is motivated by the gap between biological maturity and social maturity.

Developmental trajectories diverge in adolescence toward either healthy adjustment or psychopathology (Petersen & Hamburg, 1986). For example, researchers have found that some adolescents present with psychological symptoms and maladaptive behaviors such as anxiety, depression, substance abuse, and antisocial conduct (Hankin et al., 1998; Kazdin, 1993; Koenig & Gladstone, 1998). For this reason, one must identify factors that contribute to adolescent adjustment difficulties in order to understand long-term developmental pathways and outcomes.

As mentioned, one such factor that contributes to adolescent maladjustment and is a potential stressor is when the adolescent moves from one environment to another, such as school-to-school. I now turn to a discussion of the characteristics and effects of school transitions. As previously stated, referring to the transitions literature is essential because grade span manipulates the age at which transitions take place.

#### Characteristics and Effects of School Transitions

What do adolescents experience as they make a transition into middle grade schools? For one, there are systematic changes in the school environment that contribute to changes in adolescent functioning (Eccles et al., 1984), including differences in school structure, classroom organization, teaching strategies, academic standards and teacher expectations (Rudolph, Lambert, Clark, & Kurlakowsky, 2001). Many adolescents experience a larger, more impersonal, formal, evaluative and competitive environment than they were used to (Eccles et al., 1984; Harter, Whitesell, & Kowalski, 1992).

The new environment also establishes a greater diversity of teachers and peers. Thus, there are many disruptions in friendships; for example, some may move to different schools. Seidman et al. (1994) mention that for some adolescents it is hard to leave the familiarity of their peers for a new group, many of whom are older and are perceived to have more antisocial attitudes and values. Thus, it is apparent that the school structure affects the nature of age grouping in the school that produces a “top-dog/bottom-dog” phenomenon in which the oldest and largest age group has the most status and the youngest age group has the least (Marquart, 2003; Petersen & Hamburg, 1986).



The student's ability to cope with these transitional changes is likely to depend on several factors: personal maturity, coping resources, nature of school environment, and level of preparation and support (Crockett et al., 1989). Having strong coping strategies and social support will help make the transition smoother. Nevertheless, there has been a fair amount of research that present a variety of transition effects, which is where I now turn.

Self-esteem has been the central focus of research on school transitions. It began with the pioneering efforts of Simmons, Blyth, and their colleagues in their longitudinal study of Milwaukee public schools in the mid- to late 1970s (Simmons et al., 1979). They wanted to disentangle the confounding effects of age and entrance into junior high school. They did this with repeated survey interviews of 798 children who were followed from sixth into seventh grade from two different types of school organizations. Their results revealed negative effects on females' self-esteem, particularly when the school transition was at the same time as other multiple life changes such as pubertal development, early dating behavior, residential mobility, and family disruption (Simmons et al., 1987).

Moreover, Blyth et al. (1983) extended earlier work by focusing on transition into high school as well as the middle grades. They compared self-esteem for students in two primary grade level organization patterns—the 8-4 and the widely used 6-3-3, where students must make two major transitions. The researchers found that the transition into seventh grade for those students entering a junior high school placed girls at risk in terms of their self-esteem but that the transition into a four year high school at ninth grade for the K-8 cohort did not appear to have been as disruptive

as the seventh grade transition for the other students. That is, only the girls in the junior high cohort experienced a net loss in self-esteem in seventh, ninth, and tenth grades, whereas, the girls in the K-8 cohort gained in self-esteem over the course of the study.

The Simmons and Blyth studies were based on a large, heterogeneous urban sample. Other longitudinal studies using the same self-esteem measure failed to replicate the decline in self-esteem following the transition to junior high school (Fenzel & Blyth, 1986; Hirsch & Rapkin, 1987). Fenzel and Blyth's (1986) study of 410 white students in a middle class suburban school district measured the adjustment to junior high school "as a function of the quantity, frequency of contact, and intimacy of same-sex and opposite-sex peer relationships at school and with peers attending other schools" (p.315). Their results indicated that there was a significant decrease in the perception of being integrated into school and small, nonsignificant changes in self-esteem and participation in school and nonschool activities. Similarly, Hirsh and Rapkin (1987) examined 159 white and black students during the transition to junior high school and found that self-esteem was unchanged from the end of sixth through the middle of seventh grade, even rising by the end of seventh grade. Crockett et al. (1989) attribute the lack of replication in these studies to be due in part to smaller sample sizes than those in the Blyth and Simmons work, as well as differences in sample characteristics. Based on the above, it appears that the effects of school transitions during early adolescence on self-esteem are quite mixed.

Besides the emotional outcomes, dimensions of the cognitive or motivational domain have also received considerable attention within the school transition literature. For example, Eccles et al. (1984) stated, “children’s achievement orientation declines with age and that the decline is especially marked when children first enter school and again when they enter middle or junior high school” (p.284). Furthermore, Harter et al. (1992) examined the effects of transitions (to a new grade or to a new school) on children’s academic self-concepts and motivation (i.e. perceptions of scholastic competence and general feelings about school performance). As hypothesized, they found that change in competence across the transition was related to changes in motivation and to school-related affect and anxiety after the transition.

Further research on school transition effects has focused on the behavioral domain, where academic performance and attendance have been examined most often. Felner et al. (1981) mention that academic achievement and school attendance have been used as central measures in order to allow for comparisons of the results to those of prior studies. Grade-point average (GPA) consistently has been shown to manifest large declines after a school transition (Blyth et al., 1983; Crockett et al., 1989; Seidman et al., 1994; Simmons & Blyth, 1987). However, it should be noted that decreases in GPA may be a reflection of tougher grading standards and not the adolescents’ ability (Felner et al., 1981).

#### Theories Behind the Effects

A variety of explanations have been offered to explain the negative changes mentioned above. The two most common variables that have been found to moderate

(either mitigate or augment) disruptive effects are timing and number of school transitions (Crockett et al., 1989).

Simmons, Burgeson, Carlton-Ford, and Blyth (1987) argue that it is the timing of life transitions during early adolescence that jeopardizes the child's ability to adjust. For example, according to Coleman's (1974) theory of focal change, it is easier for an adolescent to go through various life changes at different times (gradually) rather than all at once. It is probable then that it would be difficult for adolescents to transition into new schools at the same time that they are confronted with other adolescent changes such as those mentioned previously. Findings from Simmons and Blyth (1987; see also Simmons et al., 1979, 1987) support the idea that there are negative consequences for adolescents who must cope with several transitions at once. For example, they found that girls during school transition had declines in self-esteem when other life changes occurred (i.e. puberty and dating). Moreover, males and females had decreases in GPA and participation in extracurricular activities when other life changes co-occurred with the transition. Simmons et al. believe that a transition into a new period can come too early and that there is an "arena of comfort" that focuses on issues of timing and pacing. Crockett et al. (1989) agree that adolescents who transition too early may not have sufficient personal coping resources since they also found negative effects for early school transitions.

Besides timing, the number of school transitions has been cited as a factor that contributes to negative transition effects (Crockett et al., 1989). Two hypotheses have been formulated. The "inoculation effect" discussed in stress literature (as cited in

Crockett et al., 1989) suggests that students who have already changed schools once will fare better at a second transition than those who have not yet changed schools because they are already familiar with the types of adjustment required. However, Simmons and Blyth (1987) found that students who transitioned twice, once at seventh grade and once at tenth grade fared worse than those students only making one transition between eighth and ninth grade. This suggests an alternative hypothesis that two transitions are worse than one. Felner et al. (1981) found that multiple school transitions due to residential mobility supported the latter interpretation. Crockett et al. (1989) also observed negative effects for repeated school transitions, with the double transition being especially debilitating.

Although timing and number of school transitions are important, Eccles, Lord, and Midgley (1991) and Eccles et al. (1993) also attribute some of the negative effects in adolescence to a “mismatch” between the motivational and developmental needs (biological, cognitive, and social) of the adolescent and the opportunities given them by their social environments. For example, “person-environment fit” theorists expect that adolescents will not do well in a school environment that does not fit their psychological needs. These theorists predict that negative transition effects such as declines in motivation, interest in school, academic performance and behavior result from this developmental mismatch (Eccles et al., 1991).

In summary, the literature presented supports the belief that adolescents experience a number of negative consequences as a result of their school transition experiences, including declines in self-esteem, academic motivation, performance, and attendance. It is evident that the transition experience is worse when there are

multiple stressors occurring simultaneously, and when there are multiple transitions over the course of adolescence; that is, the timing of the transition and the number of transitions are important. Furthermore, it has been shown that there are systematic differences between the academic environments between elementary schools, middle grade schools, and high schools and the developmental mismatch theory continues to be a compelling explanation for the negative effects of school transition. In other words, declines in motivation and behavior have been linked to the characteristics of the educational environments to which adolescents are exposed. Therefore, the point for this study is that grade span might be one of these characteristics. A background and overview of the grade span research is reviewed in the following section.

#### Overview of Grade Configuration

One major issue that arises when discussing adolescence is grade span. Namely, how should schools be organized and what is the ideal grade span? Should sixth graders be in the elementary or middle schools? What about the ninth graders? Are they better off in a junior high school setting, or would senior high be more appropriate? How about K-8 or K-12 schools; where do they fit in (DeJong & Craig, 2002)?

Grade span can be defined as the range of grade levels that a school comprises. Grade span structures currently consist of elementary/middle schools, primarily K-8; elementary/middle/high schools, mainly K-12; middle schools, mainly 6-8; 7-8 level schools; junior high schools, mainly 7-9; and middle/high, mainly 7-12 schools (Epstein & Mac Iver, 1990). In a national survey it was found that there are currently about 30 different grade spans in the United States (Epstein, 1990).

Trends over the past two decades have changed, indicating a decrease in the number of junior high schools (7-9) and an increase in the number of middle schools (6-8) (Epstein & Mac Iver, 1990; Mac Iver & Epstein, 1993). Paglin and Fager (1997) noted that the decline in junior high schools coincided with the rise of middle schools which came on the scene in the mid-1960s.

#### Historical Development

Prior to 1970 the dominant grade configuration in the United States was K-6, 7-9, 10-12. Today, it is Pre/K-5, 6-8, 9-12 (DeJong & Craig, 2002). However, establishment of primary-secondary school structures date back to the 19<sup>th</sup> century. The 8-4 plan was very popular following the Civil War (McEwin, 1983). Back then the impetus for the structure was predominantly economic by helping to better facilitate children into the labor force. With the passage of the child labor laws early in the 20<sup>th</sup> century the need arose to prepare many students for secondary schools (Hough, 1995).

The move to change the traditional 8-4 pattern had its beginnings in the influence of Charles Eliot who proposed that the courses be shortened and enriched to enable students to enter universities at an earlier age. Other factors for this change included the drop-out problem, the recognition of individual differences, changing societal needs, and the desire to implement new innovative educational reforms. In addition, there were other “chronological coincidences” that occurred with the rise in secondary school reform: the growing urbanization and industrialization of the West; the increase in school populations as a result of increased birth rates following World War I; and the need for a place to “Americanize” immigrants (McEwin, 1983).

The creation of the junior high school led to a conceptual change in education. For the first time, early adolescents finally had a school of their own. Junior high school was viewed as a preparation for high school; it was organized based on a similar departmental model. In other words, its structures included (and some still do) departmentalized classes and uniform daily class periods (Paglin & Fager, 1997). It was literally a “junior” high school.

However, by mid-century it became evident that there was a gap between theory and practice. The major criticism was that junior high schools were a scaled down version of senior high. What was once thought of as a revolutionary idea was now criticized because of its complex departmentalization, competitive interscholastic sports, rigid scheduling and “inappropriate” social events. These very components impeded one of the original purposes of the junior high school—to provide a transitional program for early adolescents. Another criticism was the developmental concerns of placing ninth graders in a junior high school (McEwin, 1983).

Thus, a growing debate over grade spans ignited. The debate started out as a confrontation between advocates of middle schools (5-8 or 6-8) and those of junior high schools (7-9) (Mac Iver & Epstein, 1993). One reason for the concerns over junior high grade spans was new knowledge about early adolescent development. It was evident that adolescents were maturing physically and intellectually much earlier than they used to. Accordingly, there were discussions of where sixth and ninth graders should be placed. It was acknowledged that there were obvious differences between 12 and 14 year-olds and many agreed that sixth graders should move to



middle school and ninth graders to the senior high school. Furthermore, most educators argued that ninth graders belonged in high school because they were considered “high schoolers” even in the junior high. For example, ninth grade is the beginning of graduation requirements and the first year for interscholastic sports (DeJong & Craig, 2002).

Therefore, in the 1960s there was a rapid growth and wide acceptance of this new middle school philosophy. William H. Alexander proposed changing to a new organization and program. Changes included moving ninth graders to high school and including grades 5-8 in the middle; providing programs based on the needs of 10-14 year-olds; and developing transitional programs (McEwin, 1983). The new middle school is considered child centered with “responsive practices” that include group advisory programs, interdisciplinary teams of teachers, flexible scheduling, and articulation activities among other things (Mac Iver & Epstein, 1993; Paglin & Fager, 1997).

Although the middle school ideology was implemented several decades ago, the questions of which grades to include in the middle school still continue. Many proponents of the middle school ideology favor the educational separation of adolescents to best accommodate their developmental needs and characteristics, and believe that 5-8 or 6-8 structure is more desirable than a K-8 structure (Jenkins & McEwin, 1992). However, rural educators disagree; some areas are embracing the K-8 and K-12 models. Rural educators foresee limited enrollment and possible school closures that do not justify the costs of having multiple schools. Moreover, they are in favor of the K-8 or K-12 model since it causes fewer transitions for students and

keeps students in neighborhood schools instead of transporting them to middle or senior high schools in nearby towns (DeJong & Craig, 2002).

#### Research and Issues

Paglin and Fager (1997) identify three central issues that are related to grade span. The first issue is the appropriateness of grouping certain grades together. The researchers state that the nature of the role modeling that the younger students receive from the older students is particularly important when considering grade configurations. The second issue related to grade span deals with the number of grades included in the school and the number of classrooms available within each grade. Paglin and Fager (1997) suggest that a bigger grade span with many grade levels increases the opportunities for cross-age activities (e.g. tutoring). Furthermore, it is expected that with a wider grade span there would be more parental involvement, especially parents of older kids, than would be typical for middle school or high school configurations. However, the drawback of very wide grade spans generally means that schools will have fewer students and classrooms per grade, which corresponds with fewer electives. Additionally, it would be harder to match students to particular teachers and to prevent classroom disruptions; that is, it would be more difficult to separate students who do not get along.

Finally, the third issue related to grade span is the number of school transitions students will be required to make over the course of their K-12 education (Paglin & Fager, 1997). It has already been mentioned by rural educators that the most optimal structure is K-8 or K-12 because there are minimal transitions. Furthermore, it has been shown that declines in self-esteem and academic

achievement among other negative effects occur with school transitions. Thus, these are some areas of concern that need to be addressed when considering school grade spans.

Empirical research on the topic of grade spans is sparse. There are a few studies that attempt to gauge the influence of various grade configurations on student academic achievement (Alspaugh, 1998a, 1998b, 1999; Alspaugh & Harting, 1995; Eccles et al., 1991; Wihry, Coladarci, & Meadow, 1992) but none that discuss the relationship between grade span and problem behavior.

Eccles et al. (1991) questioned whether declines in academic motivation, self-perceptions, and school related behaviors were related to different grade spans. They used individual level data of approximately 24,599 eighth graders from the National Educational Longitudinal Study to answer their question. Using multiple regression analyses they compared schools with four different types of grade configurations: P/K/1-8, 6-8, 7-8, and 7-9. They found that student outcomes were better in K-8 schools than in other school configurations, and teachers and students believed that truancy, student violence, and substance use was higher in the more typical middle grade schools. Eccles et al. found that students in K-8 structures reported higher self-concepts and also received higher grades and did better on standardized achievement tests when compared to students in the other grade spans.

However, Eccles et al. (1991) suggested that the geographic and economic distribution in the K-8 schools may have had an effect on student outcomes. They surmised that traditional K-8 schools were private and in rural areas and that these factors could play a role. Therefore, they controlled for socioeconomic status (SES)

and urbanization. They discovered that the effects were still significant; family of origin effects and community setting do not account for the school grade structure differences. Eccles et al. then ran an additional model controlling for the size of school, whether the school was public versus private, and whether or not it had a religious affiliation. The patterns between school grade structure and student outcomes remained largely unchanged. However, some effect sizes were lower suggesting that these environmental characteristics had an impact. For instance, students in K-8 did worse than other students when the public versus private variable was controlled. Eccles et al. mention that this finding reflects the fact that many K-8 are private and performance levels of private students are higher than public students. In addition, when controlling for religion the grade span contrasts became nonsignificant.

Eccles et al. (1991) concluded that the grade structure effects depend on the characteristics of the individual schools themselves that are distinguishable from the actual school transition. In other words, the presence or absence of a major school transition is less critical than the type of school the child is in during early adolescence.

Similarly, Wihry et al. (1992) measured the influence of grade span on academic achievement of eighth graders in different school configurations. They found that grade span was a significant predictor of academic achievement and that the grade span in which eighth grade is located influences student achievement. Their findings are similar to Eccles et al. (1991) in that schools that had eighth grade in an elementary setting (K-8, K-9, 3-8) outperformed the other school settings in academic

achievement and were most favorable for the location of the eighth grade. On the other hand, the junior/senior settings were least favorable since eighth grade in 6-12, 7-12, and 8-12 performed less well on measures of academic achievement.

Another study that addressed the issue of how different school grade spans affected the academic learning of students was Becker (1987). A cross-sectional dataset of 8,000 sixth graders was used to determine if school organizational patterns affected the learning of students who are categorized as coming from a “low” social background or a “high” social background. Social background was created from a prediction equation of SES variables, race, and residential instability (moves that affect school attendance) on individual student test scores (in reading, English, and math). Findings indicated that grade span affected the achievement of students from low to high SES, and elementary school settings benefited students from low social backgrounds more than middle schools. Specifically, low background sixth graders in elementary schools scored better on academic tests than low background sixth graders in middle school.

Additional research on grade span and its influence on academic achievement have been conducted by John Alspaugh (Alspaugh, 1998a, 1998b, 1998c, 1999; Alspaugh & Harting, 1995). In general, he has found that students suffer achievement loss during each transition year they experience from elementary to middle school/junior high school to high school. Alspaugh (1998a) studied the changes in achievement during the transition to high school at ninth grade for three school groups of 16 school districts for a total sample of 48 districts. The first group of districts had a K-8, 9-12 grade level organization, with only one elementary school

and one high school. The second group was considered linear because it had one elementary school, one middle school, and one high school. The third group had two or three elementary schools, one middle school, and one high school, with a pyramid transition arrangement.

Alspaugh (1998a) found that all three school groups experienced a transition loss in the transition to high school at ninth grade. Interestingly, the pyramid group had more achievement loss, which led Alspaugh to state that mixing students from multiple elementary schools in the transition may increase achievement loss. Furthermore, students in the middle grade schools had more achievement loss than students from K-8, indicating that the experience of making a previous transition did not moderate the achievement loss during the second transition. Thus, it would suggest that the lack of a transition year and its associated achievement loss is an advantage of the K-8 school organization (Alspaugh & Harting, 1995).

In sum, the consistency of grade span results generally suggest that academic achievement in the middle grades is higher in schools that have an elementary-middle configuration (K-8) compared to middle school or junior high school configurations. The main reason appears to be because of the lack of a transition year. However, it is noted that these results should be treated with caution as the studies are very few in number and it is obvious that more research is needed.

Although the research documents modest grade span effects on school programs and student outcome, Mac Iver and Epstein (1993) state that the wide variation in practices and outcomes with identical grade spans suggests that there is no one “most responsive” grade span. Furthermore, they emphasize that grade span

explains only a small proportion of the variance between schools in the middle grades and their practices or students outcomes, especially after one controls for other school variables such as location, sector, and size. It is suggested that researchers should focus more on implementing better practices and less on changing structures.

### Overview of Problem Behavior

Jessor and Jessor (1977) define problem behavior as “behavior that is socially defined as a problem, a source of concern, or as undesirable by the norms of conventional society...and its occurrence usually elicits some kind of social control response” (p. 33). Therefore, problem behaviors are likely to include alcohol use, cigarette smoking, marijuana and other drug use, delinquent behavior, and precocious sexual experiences. Jessor (1987) suggests that problem behaviors like those mentioned above can be viewed as a “transition marker”. For example, sex and alcohol use are age-graded behaviors and engaging in these behaviors is a form of affirming one’s maturity. Jessor mentions, “[There is] nothing irrational, perverse, or psychopathological about young people engaging in problem behavior; for adolescents, such behavior can fulfill important goals and can be an essential aspect of psychological development” (p. 335).

Although problem behavior is seen by some as important for adolescent development (e.g. Jessor, 1987), it still remains a significant area of concern for law enforcement and school officials. In 2001, law enforcement agencies in the U.S. arrested approximately 2.3 million persons under the age 18; fifteen percent were arrested for violent crime and 30% for property crime. Furthermore, between 1992

and 2001, there were major increases in juvenile arrests for drug abuse violations (121%) (Snyder, 2003).

School officials have similar reasons to be concerned. Research has indicated that a disproportionate amount of crime and problem behaviors occur during the school day, in school, or on the way to and from school (Gottfredson, Gottfredson, & Weisman, 2001). Gottfredson et al. (2000) state that minor forms of problem behavior are common in schools. In their National Study of Delinquency Prevention in Schools they found that 27% of teachers report that student behavior often keeps them from teaching a fair amount or a great deal. In addition to minor problem behavior, serious forms have been reported. For example, 21% of middle/junior high schools reported at least one incident of physical attack or fight involving a weapon to law enforcement officials. Furthermore, victimization reports are similarly startling where 19% of students reported threats and 14% reported attacks. Moreover, Kaufman et al. (2001) found that in 1999 students ages 12 through 18 were victims of approximately 2.5 million total crimes at school, 186,000 of which were serious violent crimes such as rape, sexual assault, robbery, and aggravated assault. In addition, younger students (ages 12 through 14) were more likely than older students (ages 15 through 18) to be victims of crime at schools. Gottfredson et al. (2000) had similar findings that indicated most kinds of problem behavior occurred more often in middle schools than in elementary schools or high schools. The exception was drug use, which is more widespread in high schools.

Based on the above it is obvious that many juveniles are arrested for engaging in problem behaviors or are victims of them, and that schools report increasing levels



of problem behavior. However, the numbers of crimes that occur in or around school are often underreported. Similarly, victimization accounts are not clearly accurate given limitations of social desirability, forgetfulness, or simply not wanting to share information. Thus, it is likely that juveniles engage in more problem behaviors and there are more victims of crime and violence in schools than researchers can accurately assess. At any rate we know that problem behaviors occur, the question that now remains is why juveniles begin to engage in these behaviors in the first place. The next section discusses a prominent theory of crime and deviance—the social learning theory.

### The Role of Social Learning Theory

#### Defining Social Learning

One of the most notable explanations of deviant behavior is social learning theory, developed first by Robert L. Burgess and Ronald L. Akers as differential association-reinforcement theory (Burgess & Akers, 1966) and later elaborated on by Akers (1973). This theoretical perspective integrates Edwin Sutherland's differential association theory of criminal behavior (Sutherland, 1947) with general behavioral modeling and reinforcement principles (Bandura, 1977; Skinner, 1976). Akers (1998) proposes that his general social learning theory is applicable to all types of criminal and deviant behavior; that is, it has been used to explain a range of behaviors such as drugs and alcohol behavior, sexual deviance, white collar crime, violent crime, suicide, and mental illness. Furthermore, the social learning theory is able to explain the initiation, persistence, and desistance of criminal behavior.

However, before discussing social learning theory it is essential that the theory of differential association is briefly mentioned. Differential association theory proposes that criminal behavior is learned by others in intimate groups (often peers) who present the individual with criminal and anti criminal patterns, techniques, and motivations. Delinquency and criminal behavior occurs when there is an excess of definitions favorable to law violation; when there is an excess of definitions unfavorable to violating the law conformity is the outcome. These definitions are often measured by frequency, duration, priority, and intensity with which one is exposed to lawful or criminal definitions (Akers, 1998; Sutherland, 1947).

As mentioned, Akers' social learning theory is an extension of Sutherland's differential association theory. Akers (1998) states, "The basic assumption in social learning theory is that the same learning process, operating in the context of social structure, interaction, and situation, produces both conforming and deviant behavior" (p.50). The theory focuses on four major concepts—differential association (direct and indirect interaction with others), differential reinforcement (instrumental learning through rewards and punishers), imitation (observational learning), and cognitive definitions (attitudes) (Akers & Lee, 1996). Differential association occurs first, where the groups that one interacts with provides the environment that exposure to definitions, imitation of models, and social reinforcement takes place (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979).

Akers et al. (1979) note, "The most important of these groups with which one is in differential association are the peer-friendship groups..." (p. 638). Likewise, Agnew (1991) states that one of the most consistent findings in the literature is that

peer influence is one of the strongest predictors of delinquency; if an adolescent hangs out with delinquent peers, they are more likely to be delinquent themselves. Furthermore, Oetting and Beauvais (1987) present a psychosocial model known as “peer cluster theory”, that suggests that small subsets of peer groups who spend leisure time together, and who share beliefs, values, and behaviors, have a great deal of influence on each other and can encourage drug involvement or provide sanctions against it.

Sutherland’s theory emphasized the attitudes of peers in the transmission of delinquency, whereas social learning theorists like Akers stressed that it was not only the attitude of the peers but also the behavior of peers that influenced delinquency. Warr and Stafford (1991) raise the question of whether the impact of peers on one’s own behavior comes from “what they think or what they do”. Warr and Stafford found that when the behavior and attitudes of peers are inconsistent, the behavior of peers outweighs the attitudes of peers, and that delinquency more likely arises from imitation or group pressures to conform. Akers (1998) mentions that it is both attitudes and behavior:

Peer influence comes from what peers think (or say) is right or wrong and from what they do, not only in the sense of committing or not committing delinquent acts but also in the sense of modeling, reacting to, instructing, and supporting that behavior (p. 62).

As a result of differential reinforcement the adolescent learns through interaction that delinquency is encouraged and rewarded by the group and the rewards outweigh the punishments associated with their criminal behavior. Akers (1998)

explains that the probability that a behavior will be committed or repeated depends on the rewarding outcomes or reactions that one receives, such as obtaining approval, status, or money; this is the process of positive reinforcement. For example, Jessor (1987) suggests that an adolescent may engage in risky behavior in order to gain peer group acceptance, remain within peer norms, or achieve a certain image or status. The likelihood that a behavior will occur also depends on negative reinforcement; that is, if the act will allow the individual to avoid or escape unpleasant situations or feelings.

Moreover, it has been mentioned that an adolescent's social behavior is acquired through direct conditioning and through imitation or modeling of others' behavior. Burgess and Akers (1966) state that the role of modeling can be acquired by observation from a distance without close social interaction. Bandura (1977) agrees with the notion that modeling processes have their effect not only by direct observation of the model, but symbolically as well (e.g. through visual or printed media).

Above I presented the mechanisms of social learning theory. I explained that crime is learned through interaction with others, through positive and negative reinforcement, and through imitation and modeling. However, do the basic processes of instrumental and classical conditioning, observational learning, schedules of reinforcement and other behavioral principles receive empirical support? I now turn to an overview of the research on social learning in crime and delinquency.

## Research on Social Learning

A large body of literature over the century has tested full or partial social learning models or models that incorporate various social learning concepts. Akers (1998) states:

The preponderance of evidence from that research favors the major propositions from social learning theory that differential reinforcement, differential association, definitions, and modeling, mainly involving peer groups and the family, account for individual differences in criminal, delinquent, and deviant behavior (p. 110).

It seems obvious that Akers would come to this conclusion given that he has conducted a fair amount of research on social learning theory. However, there was supportive research reporting the effects of Sutherland's differential association theory and definitions back in the late 1950s and early 1960s even before Akers' differential association-reinforcement theory was developed (e.g. Short, 1957; Voss, 1964). In addition, Akers (1998, chap. 5) cites a lengthy chronological listing of studies (not all his own) that empirically validate social learning theory. The research ranges from minor forms of adolescent deviance, to teenage alcohol and drug use or abuse, to precocious sexual behavior, to serious delinquent and criminal behavior. A few of these studies will be mentioned.

One of the overall problems of substance use and abuse in today's society is the increasing use of tobacco, particularly during adolescence (Akers, 1998). Akers and Lee (1996) tested social learning theory on adolescent smoking using a longitudinal study of secondary school students in Iowa. The authors used a self-

report questionnaire to survey students attending junior high school (grades 7-9) and senior high school (grades 9-12). Respondents were asked how often they smoke cigarettes along a 6-point scale from never smoked to smoke every day. Measures of differential reinforcement asked about positive and negative consequences of smoking, which were either social (parental and friend reinforcement) or nonsocial (good and bad physical effects from smoking). There was also a differential association measure that included three subsets of variables, differential peer association, parents' definitions, and friends' definitions. Likewise, there was a measure of one's own definitions. The authors found support for the social learning theory and particularly that the behavioral process in smoking remains stable over time.

Besides cigarettes, alcohol use by adolescents continues to be a focal concern. DiBlasio (1986) tested social learning theory to explain why adolescents drive under the influence of alcohol and ride with drinking drivers. High school students were randomly selected to fill out an anonymous self-report survey instrument. DiBlasio found that most adolescent drivers reported participating in driving under the influence at least once, and a large group reported it on a regular basis. Furthermore, most adolescents were willing to ride with drinking drivers. The results indicated that all subsets of the social learning model were supported, with the differential association (exposure and identification to various groups) subset being the strongest.

Above and beyond smoking and alcohol use, many researchers have found evidence for social learning theory and adolescent substance use (Dinges & Oetting, 1993; Johnson, Marcos, & Bahr, 1987; McGee, 1992; Simons & Robertson, 1989;

Winfree & Griffiths, 1983). Dinges and Oetting (1993) used a nationwide sample of junior and senior high school students ranging from ages 10 to 19 self-reporting on their drug use. The researchers found that peer influence was important for understanding adolescent drug use. Specifically, they found that if adolescents are currently using drugs, they will almost certainly have friends who are using the same drugs. Simons and Robertson (1989) found similar results—involvement in a deviant peer group was related to adolescent substance use.

Evidence for social learning on adolescent substance use has also been found when it is compared to other theories. For instance, Johnson et al. (1987) analyzed the role of peers in adolescent drug use by combining a model of differential association, situational group pressure, and social control/social bond theory (Hirschi, 1969). Johnson et al. tested adolescents for self reported use of alcohol, cigarettes, marijuana, amphetamines, and depressants. The results indicated that the social learning variables had the strongest effects in the model and definitions or attitudes favorable or unfavorable to drug use did not play a dominating role in an adolescent's decision to use drugs. Instead, adolescents stated that they simply use drugs because their friends do. In addition, the authors indicated that the situational pressure to go along with the crowd and participate in drug use was the most important process leading to adolescent drug use.

Furthermore, McGee (1992) used data from the 1985 version of Monitoring the Future to test whether or not the effects of parental and peer influence on adolescent drug use differed by social class. The author used variables from social control/social bond theory (Hirschi, 1969), social learning theory, and strain theory

(Cloward & Ohlin, 1960; Cohen, 1955). The findings showed strongest support for the social learning model as well as indicating that peer influence on drug use was greatest among middle-class adolescents.

Lastly, precocious sexual behavior can be contributed to social learning (Little & Rankin, 2001). The authors found that peer influence variables (interpreted as differential association indicators) received support for why young eighth graders in New York initiated consensual sexual activity. For example, the most statistically significant predictor of the boys' sexual activity was whether or not they thought their friends were having sex, and for the girls it was how their friends would feel about their having sex. Little and Rankin suggest that boys initiated sexual activity in the context of status-seeking while girls were more likely to do so as a way of obtaining approval.

It has been mentioned that peer influence is a significant predictor of delinquent behavior and that peers learn from peers through association, reinforcement, and modeling. It has also been mentioned early in the literature review that adolescents spend a significant amount of time in schools with other peers. Thus, it would follow that a fair amount of what adolescents learn from their peers would be in or near school. Furthermore, it has been shown that adolescents often model or imitate the behavior of others, which is often to seek approval or status. Given the nature of peer influence and adolescent development it would look as if adolescents would model or imitate those they most admire, whether they are the same age and in the same grade, in a highly desirable and revered "clique" or whether the person is older and therefore much "cooler".



Little is known about how the age of a peer influences basic social learning processes such as imitation. However, in a study of peer modeling designed to examine children's imitation of same-age, younger, and older peers, Brody and Stoneman (1981) found that children selectively imitated both same-age and older models when those models were paired with a younger model. The findings presented suggest that the age composition of peer groups influences the performance of peer modeled information (in this case pointing to fruit as the preferred food). This study provides an indication that imitation of peers is a selective process that is influenced by the relative age of the model to the observer.

The above study focused on peer modeling with elementary students. Blyth, Hill, and Smyth (1981) explored the influence of older adolescents on younger adolescents at each grade level in junior high school in terms of participation, substance use, perception of the school environment, victimization, dating/sexual behavior, and self evaluations. The subjects consisted of about 3,000 seventh through ninth grade students in a suburban school district as it changed from a 6-3-3 to a 6-2-2 structure. Blyth et al. found that "the presence or absence of older students in a school can have a significant effect on the attitudes, behaviors, and experiences of younger students in the same school" (p. 106). In addition, the older students almost always increased the precocity of the younger students' behavior. Thus, it is apparent from this study that older students clearly act as models for younger students in a variety of ways, both positive and negative. The presence of older students also can increase or decrease the number of opportunities available to younger students. For example, an increase in opportunity can be negative when a younger student in school

has more opportunities to buy drugs and subsequently learns from older students how to use them.

Blyth et al. (1981) mention that the effects were stronger for ninth graders placed with tenth graders than for seventh and eighth graders placed with ninth graders. However, one limitation of this study is that it is based upon information from only one school district. Therefore, one goal of my study is to use a national sample of a variety of school districts and grade configurations to determine if problem behavior is related to grade span, and whether or not peer association is a mediating predictor. It has been suggested that grade configurations matter because of the peer structures in the school and the differences that can arise in social learning. For instance, Wihry et al. (1992) believe that an eighth grade student who is in the youngest age group at a junior or senior high school is subjected to significantly different social influences than an eighth grade student who is in the highest age group at a K-8 school.

The current research tested hypotheses about the association of grade span with problem behavior, while controlling for community and compositional influences in a recent national sample of schools. The study's hypothesis was that there is a difference in the level of problem behavior among eighth graders in schools that have grade spans that include older adolescents compared to schools with grade spans that include younger adolescents. Specifically, I conjectured that there would be greater problem behavior among eighth graders in junior high school and junior/senior high school settings than there would be in middle school settings. I made this claim based on aspects of social learning theory, in which younger

teenagers are often influenced by older peers. Thus, this study tested grade span on problem behavior and delinquency and whether the effect was mediated by positive peer influence.

## Chapter 3: Methods

The present study assessed the effects of grade span on the problem behavior of eighth-grade students. Additional variables, including school characteristics, were included in the analysis as statistical controls. These variables are known or hypothesized to affect problem behavior in schools and include community poverty and disorganization, urban (vs. rural) location, and total school enrollment among others (Gottfredson et al., 2004). Furthermore, positive peer association was included to test whether or not the effect of grade span on problem behavior is mediated by peer influence. Below I describe the data that was used in this study, the sample, the measures, the dependent and independent variables, and the statistical analyses that were conducted.

### Data

Secondary data analyses were conducted on aggregated data that was collected under the National Study of Delinquency Prevention in Schools (NSDPS; Gottfredson & Gottfredson, 2002; Gottfredson & Gottfredson, 2001; Gottfredson et al., 2000). NSDPS is a national probability sample of the nation's public and private schools during the 1997-1998 school year and "was undertaken to develop a comprehensive account of the levels of problem behavior in United States schools and of what schools do to prevent problem behavior and to promote a safe and orderly environment" (Gottfredson et al., 2000, p. 1-1). NSDPS provided national estimates of the amount of problem behavior, crime, and violence that occurs in and around schools.

## Sample

The sample for NSDPS was designed to describe schools in the U.S. and characterize them by level and by location. Accordingly a sample of public, private, and Catholic schools stratified by elementary, middle, and high, and urban, suburban, and rural was drawn from Market Data Retrieval, which is a comprehensive commercial mailing list vendor. NSDPS sampled 1,287 schools with an equal number of schools in each of the nine cells (143) with the expectation that if a response rate of 70% could be achieved there would be 300 schools responding from each level and location, or 900 schools overall.

### Response Rates

From the sample of 1,287 schools, seven were found to be closed and one was found not to be a school, which left 1,279 schools in the sample. Teacher and student surveys were administered only to secondary schools in the spring of 1998. Of 847 schools asked to participate, 310 (37%) participated in the student survey and 403 (48%) participated in the teacher survey. Gottfredson et al. (2000) found that schools located in small towns or rural areas were significantly more likely to participate in filling out the surveys. Furthermore, schools that were situated in urban areas and in communities with more female-headed households and households receiving public assistance were less likely to have participated in the surveys.

The researchers sought to survey all teachers and obtain completed questionnaires from a probability sample of 50 students in participating secondary schools. Westat, a research corporation that has conducted a number of surveys of schools under contract with the U.S. Department of Education, was responsible for

the sampling of teachers and students in participating secondary schools. Recruiters offered secondary schools an incentive of \$100 to participate in the study. In general, all teachers in participating schools were sampled, as well as a sufficient amount of students that were stratified by grade level or by gender if the information was available. In the schools that participated in the surveys, the mean student response rate was 76% and the mean teacher response rate was 78%.

#### Schools Used in this Study

Certain categories of schools that were in the original sample were excluded in this analysis. First, only the 310 schools that participated in both the student and the teacher survey were included in the sample for analysis. In addition, alternative schools for disruptive youth that were included in the overall sample were excluded, as well as private and religious schools since preliminary analyses revealed that these schools were very different and would require separate analyses. These exclusions resulted in a sample of 254 secondary schools. Moreover, since the current study is focused on grade span in the middle grades, particularly schools that include eighth grades, cases that were considered high schools (e.g. 9-12 and 10-12) or schools that did not include eighth grade (e.g. 4-7 and 6-7) were excluded. Furthermore, there were 11 schools that had missing data on variables examined in this study and were also excluded. Thus, the final sample for this study is 142 public, secondary, non-alternative schools that included the eighth grade and that participated in both the teacher and student surveys. Consequently, the results of this study are most applicable to the nation's schools that have these characteristics. In the final sample, the within-school response rate for the student survey ranged from 26% to 100% with

a mean of 78%, and the within-school response rate for the teacher survey ranged from 31% to 100%, also with a mean of 78%.

## Measures

### Dependent Variables

The measures most relevant for this study are of school disorder and levels of problem behavior, including victimization. The items and scales are based on student and teacher questionnaires. Descriptions of the measures are below as well as the reliability coefficients and intra-class correlations which are taken from Gottfredson et al. (2000). Overall the scales appear to be a valid and reliable measure of problem behavior, delinquency, drug use, and victimization.

*Teacher Victimization* is based on an 8-item scale from the teacher questionnaire (adapted from the Effective School Battery [ESB], G.D. Gottfredson, 1999) that measures the number of different crimes or acts of incivility that the teacher experienced at school during the school year. For example, teachers responded “true” or false” to whether or not the following items happened to them personally in their school the current year: “Damage to personal property worth more than \$10,” “Theft of personal property worth less than \$10,” “Was physically attacked and had to see a doctor,” “Had a weapon pulled on me.” A school’s score on this item is the mean across teachers of the proportion of items endorsed. The individual-level alpha (internal consistency) is .61 and the intra-class correlation (the proportion of variance that lies between schools) is .14. One school’s score was an extreme outlier and was trimmed to three standard deviations above the mean.

*Classroom Orderliness* is a 14-item scale from the teacher questionnaire (adapted from the ESB, G.D. Gottfredson, 1999) measuring the degree to which the school has orderly classrooms. Examples of items in this scale include: “Students pay attention in class,” “Students take things that do not belong to them,” “Students do what I ask of them,” “Students destroy or damage property.” Responses are on a Likert-scale and include “almost always,” “often,” “sometimes,” “seldom,” and “never.” A high score on this scale is considered orderly, and a school’s score is the mean across teachers. The individual-level for this measure is .92 and the intra-class correlation is .21.

*Student Victimization* is similar to *Teacher Victimization* but is based on a 7-item scale from the student questionnaire (adapted from What About You [WAY] Form DC, G.D. Gottfredson and Gottfredson, 1999), which measures the number of victimization experiences by the student at school during the current school year. Victimization experiences range from minor crimes such as theft to more serious offenses such as physical attacks. This measure was aggregated for eighth-graders; therefore, a school’s score is the mean across eighth grade students of the proportion of items endorsed. The individual-level for this measure is .61, and the intra-class correlation is .04.

*Student Delinquency* is based on a 13-item self-reported delinquency behavior scale (adapted from WAY, G.D. Gottfredson and Gottfredson, 1999) that measures student self-reports of their delinquent behavior in the last year, including behaviors ranging from minor theft to robbery. Responses are “yes” or “no” to items such as: “In the last 12 months have you purposely damaged or destroyed property



belonging to a school?” “...Stolen or tried to steal something worth more than \$50?” “...Carried a hidden weapon other than a pocket knife?” “Hit or threatened other students?” “...Been involved in gang fights?” Four items in this scale measure delinquent activities that occurred in school. Similar to *Student Victimization*, student delinquency was aggregated for eighth-graders; therefore, a school’s score is the mean across eighth grade students of the proportion of items endorsed. The individual-level alpha for this scale is .84, and the intra-class correlation is .07.

*Last Year Variety of Drug Use* scale is based on a 16-item self-report of drug use in the past year (adapted from WAY, G.D. Gottfredson and Gottfredson, 1999). Responses are “yes” or “no” to items such as: “In the last 12 months, have you sold marijuana or other drugs?” “...smoked cigarettes?” “...drunk beer, wine, or ‘hard’ liquor?” Similar to the other student measures, this was aggregated for eighth-graders; therefore, a school’s score is the mean across eighth grade students of the proportion of items endorsed. The individual-level alpha for this scale is .87 and the intra-class correlation is .14. One school’s score was an extreme outlier and was trimmed to three standard deviations above the mean.

#### Independent Variables

*Grade span* is a binary variable indicating whether the school contains grades above grade eight (1) or not (0).

*Positive Peer Influence* is based on a 7-item self-report (adapted from the ESB, G.D. Gottfredson, 1999) of peer influence. Students were asked to think about their friends when responding “mostly true” or “mostly false” to questions such as: “My friends often try to get me to do things the teacher doesn’t like.” A school’s

score is the mean across eighth grade students of the proportion of items endorsed. The individual-level alpha is .67 and the intra-class correlation is .06. This variable is a mediating variable and is intended to test whether the effect of grade span on problem behavior is mediated by peer influence.

#### Exogenous Variables

The following potentially confounding variables were controlled in the analysis. Information on the variables was obtained from Payne, Gottfredson, and Gottfredson (2003) and Gottfredson et al. (2000, 2004):

*Percentage students African-American* is a binary variable indicating African American (1) and White, Asian, Native American and Other (0). A school's score is the mean across eighth grade students.

*Percentage students male* is the mean across eighth graders based on the self-reported gender of students who completed the student questionnaire. It is a binary variable indicating males (1) and females (0).

*Age of students* is based on the self-reported age of students who completed the student questionnaire. It is the mean age across eighth graders.

*Student enrollment* is based on principal reports of the number of students enrolled in the school from the first principal questionnaire. These principal reports were compared with data from the Common Core of Data and Market Data Retrieval. Clarification from the schools was sought when discrepancies occurred. The natural log of the enrollment was taken to reduce skew.

*Poverty and Disorganization* is a factor score based on 1990 census information marked by several census variables: receipt of public assistance income,

high ratio of households with children that are female-headed to households with children that have the husband and wife present, a high proportion of households below median income (\$27,499), a high ratio of persons below 1.24 times the poverty income level to persons above that level, high divorce rate (those who are married with spouse present to those who are separated, divorced, or have a spouse that is absent), high male and female unemployment, and a low proportion of owner-occupied housing units. A few schools' scores that were extreme outliers were trimmed to three standard deviations above the mean.

*Foreign born and Residential crowding* is also a factor score from the 1990 census information. Immigration and crowding is marked by a high ratio of households with five or more persons to other households and a low proportion of non-English speaking households. A few schools' scores that were extreme outliers were trimmed to three standard deviations above the mean.

*Urbanicity* is a factor score based on 1990 Census information for the zip code area in which each school is located. It is marked by: population size (total population), and ordinal variable measuring city type (e.g. rural, suburban, urban), and urbanicity (the proportion of people living in an urbanized area). A few schools' scores that were extreme outliers were trimmed to three standard deviations above the mean.

Table 1 shows the means, standard deviations, actual range, and Ns for all of the variables described above.

Table 1  
Mean, Standard Deviation, Range, and N for All Variables

<b>Variable Name</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Range</b>	<b>N</b>
<b>Dependent Variables/ Problem Behavior</b>				
Teacher Victimization	.16	.07	.04 – .37	142
Classroom Orderliness	2.25	.26	1.52 – 2.73	142
Student Victimization	.23	.06	.11 – .41	142
Student Delinquency	.14	.06	.02– .31	142
Last Year Variety Drug Use	.11	.05	.02 – .27	142
<b>Independent Variables</b>				
Grade Span	.15	.36	.00 – 1.00	142
Positive Peer Influence	.67	.08	.37 – .91	142
<b>Exogenous Factors</b>				
Percentage students African American	.13	.24	.00 – 1.00	142
Percentage students male	.50	.12	.25 – .82	142
Age of students	13.84	.23	13.20 – 14.50	142
Student enrollment	703.82	341.75	97.00-2011.00	142
Student enrollment (natural log)	6.42	.56	4.58 – 7.60	142
Poverty and Disorganization	-.16	.68	-1.24 – 3.00	142
Residential crowding	-.01	.79	-1.50 – 3.00	142
Urbanicity	-.26	.98	-2.33 – 1.77	142

### Analysis Strategy

The distributional characteristics of the measures to be included in the study were examined first. Two variables (teacher victimization and last year variety drug use) had one case each that was trimmed to three standard deviations above the mean, which effectively reduced the skew. Then descriptive statistics were run, including means, standard deviations, and ranges for all the variables (see Table 1). Next, ordinary least-squares multiple regression was employed to examine the effects of grade span on eighth-grade problem behavior, holding constant the effects of the remaining independent variables. One multiple regression equation controlling for the exogenous variables was conducted for each dependent variable (see Tables 3-7).

Competing regression analyses were also run using Positive Peer Influence as a mediating factor with grade span. Results of the regression analyses are presented separately by each dependent variable.

## Chapter 4: Results

This chapter reports the findings of the study. Table 2 shows the correlations among the five problem behavior measures and between these variables and the primary independent variable Grade Span, as well as each exogenous variable.

Table 2  
Correlations among Study Variables

	Teacher Victim	Class Order	Student Victim	Student Delinquency	Last Year Drug Use	Positive Peer
<b>Dependent Variables/Problem Behavior</b>						
Teacher Victimization	--	--	--	--	--	--
Classroom Orderliness	-.748**	--	--	--	--	--
Student Victimization	.064	-.055	--	--	--	--
Student Delinquency	.182*	-.188*	.365**	--	--	--
Last Year Variety Drug Use	.071	-.106	.197*	.686**	--	--
<b>Independent Variables</b>						
Grade Span	.042	.093	.052	.092	-.038	-.055
Positive Peer Influence	-.321**	.325**	-.210*	-.516**	-.540**	--
<b>Exogenous Factors</b>						
Percentage students African American	.321**	-.489**	.030	.032	-.055	-.037
Student enrollment (natural log)	.051	.022	-.111	-.127	-.232**	.147
Poverty and Disorgan- ization	.439**	-.436**	.007	.140	.176*	-.240**
Residential crowding	.256**	-.212*	-.038	-.121	-.173*	-.005
Urbanicity	.003	.014	-.015	-.100	-.232**	.221**

\*\* Correlation is significant at the 0.01 level (2-tailed), Listwise N = 142

\* Correlation is significant at the 0.05 level (2-tailed)

The first thing to note about the correlations between the dependent variables listed in Table 2 is that over half of the relationships are statistically significant. In addition, all of the student reported measures are related to one another, as are the teacher reported measures. Higher levels of student victimization, student delinquency, and student's last year drug use, combined with lower levels of classroom order (i.e. disorder), are related to higher levels of teacher victimization. Furthermore, the more orderly the classroom, the less reported instances of teacher and student victimization, student delinquency, and student's last year drug use. Finally, out of the five dependent variables student delinquency is the only one to have a statistically significant relationship with each of the other dependent variables. In other words, as student delinquency increases, teacher victimization, student victimization, and student's last year drug use increases while classroom order decreases. It is important to mention that some of the correlations were surprisingly low. For example, the correlations between student victimization with teacher victimization ( $r = .064$ ) and student victimization with classroom orderliness ( $r = -.055$ ). These low correlations are a result of methodological issues in the original study in that there were differences between teachers self-reports and students self-reports with respect to the level of problem behavior occurring in the schools.

Table 2 reveals no significant relationships between the problem behavior measures and with Grade Span, the primary independent variable of interest. The highest correlations with Grade Span, albeit very small, are with Classroom Orderliness and Student Delinquency. This would suggest that there is a positive relationship between eighth graders in schools with older adolescents and teacher's

reports of orderly classrooms. Likewise, the positive relationship between grade span and student delinquency suggests that eighth graders in schools with older adolescents are more likely to report instances of student delinquency. Lastly, while not listed in Table 2, there is only one significant correlation between grade span and the exogenous variables. Schools that have eighth graders with older adolescents are significantly less likely to be in an urban area ( $r = -.298, p < .01$ ). This finding makes sense given the literature on grade span reviewed earlier.

Unlike grade span, Positive Peer Influence has significant correlations with all the problem behavior measures. Specifically, more positive peer influence is significantly related to lower levels of teacher victimization, student victimization, student delinquency, and student's last year drug use. In addition, an increase in positive peer influence leads to an increase in classroom order.

The exogenous factor Poverty and Disorganization is significantly related to more measures of problem behavior than any other exogenous variable. The more poverty and disorganization there is, the more teacher victimization and student drug use there is, as well as less classroom order and less positive peer influence. Besides Poverty and Disorganization, Residential Crowding is positively associated with teacher victimization such that the more crowding there is the more reports there are of teacher victimization.

In addition to the above, other exogenous variables had significant relationships with the problem behavior measures. For instance, the higher the percentage of blacks in the eighth grade, the more teachers reported being victimized and the more they reported having classroom disorder. Furthermore, the only



significant relationships with urbanicity were student's last year drug use and positive peer influence. For example, students in more urban areas were less likely to report drug use and more likely to report association with positive peers. Lastly, the exogenous variables male and age were not significantly related to any of the problem behavior measures.

Results from the regression analyses are presented separately by dependent variable (Tables 3-7)<sup>2</sup>. Overall, the values of  $R^2$  indicate that the models for classroom orderliness and teacher victimization accounted for a higher portion of variance ( $R^2 = .335$  and  $.254$  respectively). The variance for student's last year drug use was low with an  $R^2$  of  $.164$  and student victimization and student delinquency were extremely low ( $R^2 = .035$ , and  $.068$  respectively). Furthermore, all of the models were in the normal range for the Durbin-Watson test statistic, which describes serial correlation among residuals. The values indicate that the residuals are not correlated. In addition, the Variance Inflation Factors for each variable were close to 1 in each model, which signifies that overlap with other predictors was not a significant problem.

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<sup>2</sup> Competing regression analyses were also run using Positive Peer Influence as a mediating factor with grade span. However, since there were no significant effects between grade span and any of the dependent variables, the regression models that included both grade span and Positive Peer Influence will not be discussed. Positive Peer Influence remained significant in all of the regression models.

Table 3  
Multiple Regression Results: TEACHER VICTIMIZATION

Variable	Standardized Coefficients (B)	Unstandardized Coefficients (b)	Standard Error	T-statistic
Grade Span	.091	.017	.015	1.126
Percentage Students African American	.109	.030	.026	1.167
Percentage students male	.020	.011	.043	.268
Age of students	-.100	-.029	.023	-1.236
Student enrollment	.003	.000	.011	.977
Poverty and Disorganization	.375	.036	.010	3.795**
Residential crowding	.163	.014	.007	2.061*
Urbanicity	.082	.006	.007	.798
Constant		.550	.330	1.668

Note:  $R^2 = .254$ ,  $F = 5.647$  ( $p < .001$ ), Listwise  $N = 142$

\*\*Significant at the 0.01 level (2-tailed) with 120 d.f.; critical value = 2.617

\*Significant at the 0.05 level (2-tailed) with 120 d.f.; critical value = 1.980

Table 4  
Multiple Regression Results: CLASSROOM ORDERLINESS

Variable	Standardized Coefficients (B)	Unstandardized Coefficients (b)	Standard Error	T-statistic
Grade Span	.066	.048	.055	.871
Percentage Students African American	-.359	-.388	.095	-4.079**
Percentage students male	-.096	-.208	.156	-1.330
Age of students	.143	.160	.085	1.880
Student enrollment	.077	.035	.040	.876
Poverty and Disorganization	-.210	-.079	.035	-2.249*
Residential crowding	-.165	-.054	.024	-2.214*
Urbanicity	-.014	-.004	.025	-.148
Constant		-.060	1.208	-.050

Note:  $R^2 = .335$ ,  $F = 8.369$  ( $p < .001$ ), Listwise  $N = 142$

\*\*Significant at the 0.01 level (2-tailed) with 120 d.f.; critical value = 2.617

\*Significant at the 0.05 level (2-tailed) with 120 d.f.; critical value = 1.980

Table 5  
Multiple Regression Results: STUDENT VICTIMIZATION

Variable	Standardized Coefficients (B)	Unstandardized Coefficients (b)	Standard Error	T-statistic
Grade Span	.050	.008	.015	.542
Percentage Students African American	.047	.012	.027	.446
Percentage students male	.113	.057	.044	1.311
Age of students	-.030	-.008	.024	-.323
Student enrollment	-.141	-.015	.011	-1.336
Poverty and Disorganization	.007	.001	.010	.061
Residential crowding	-.028	-.002	.007	-.312
Urbanicity	.073	.004	.007	.626
Constant		.399	.338	1.179

Note:  $R^2 = .035$ ,  $F = .610$  (Not significant)  
Listwise N = 142

Table 6  
Multiple Regression Results: STUDENT DELINQUENCY

Variable	Standardized Coefficients (B)	Unstandardized Coefficients (b)	Standard Error	T-statistic
Grade Span	.099	.016	.014	1.099
Percentage Students African American	-.075	-.018	.025	-.717
Percentage students male	-.002	-.001	.041	-.026
Age of students	-.021	-.005	.023	-.236
Student enrollment	-.100	-.010	.011	-.968
Poverty and Disorganization	.231	.019	.009	2.096*
Residential crowding	-.163	-.012	.006	-1.848
Urbanicity	.038	.002	.007	.330
Constant		.288	.319	.901

Note:  $R^2 = .068$ ,  $F = 1.209$  (Not significant)

\*Significant at the 0.05 level (2-tailed) with 120 d.f.; critical value = 1.980

Listwise N = 142

Table 7  
Multiple Regression Results: LAST YEAR VARIETY DRUG USE

Variable	Standardized Coefficients (B)	Unstandardized Coefficients (b)	Standard Error	T-statistic
Grade Span	-.088	-.012	.012	-1.030
Percentage Students African American	-.229	-.048	.021	-2.321*
Percentage students male	-.010	-.004	.034	-.130
Age of students	-.009	-.002	.019	-.107
Student enrollment	-.123	-.011	.009	-1.255
Poverty and Disorganization	.319	.023	.008	3.052**
Residential crowding	-.218	-.014	.005	-2.608*
Urbanicity	-.112	-.006	.006	-1.021
Constant		.222	.265	.837

Note:  $R^2 = .164$ ,  $F = 3.254$  ( $p < .01$ )

\*\*Significant at the 0.01 level (2-tailed) with 120 d.f.; critical value = 2.617

\*Significant at the 0.05 level (2-tailed) with 120 d.f.; critical value = 1.980

Listwise N = 142

### Grade Span

Overall, grade span, the principal variable in this study, did not emerge as a significant predictor of problem behavior in any of the dependent variables. In fact, the relative contribution of grade span in every dependent variable was extremely small. For example, the unique contribution of grade span can be explained by examining the semi-partial correlations of the dependent variables. The semi-partial correlations represent the extent to which grade span relates to the dependent variables after the influence of the remaining predictors (i.e. African American, Male, Age, School size, Disorganization and poverty, Residential crowding, and Urbanicity) has been removed from grade span. Examining the semi-partial correlations in each of the dependent variable regression models shows that less than 1% of the unique portion of variance in each of the dependent variables is explained by grade span. In

other words, of all the variance to be explained that could be explained in teacher victimization, classroom orderliness, student victimization, student delinquency, and students last year drug use, grade span explains approximately 1%. In sum, the contributions of grade span in the measures of problem behavior are no more than what would be expected by chance.

### Exogenous Factors

Although the control variables were not the focus of this study, I offer a few observations on their signs and significance levels. The results show that three out of seven control variables reached statistical significance, percentage of students African American, Poverty and Disorganization, and Residential Crowding. For example, Poverty and Disorganization and Residential Crowding are significant positive predictors of teacher victimization, while African American students, Poverty and Disorganization, and Residential Crowding are significant negative predictors for classroom orderliness. Furthermore, Poverty and Disorganization is significantly related to student delinquency and student's last year variety drug use. That is, the more Poverty and Disorganization, the more reported student delinquency and student drug use. Further, African American students and Residential Crowding were significant negative predictors for students last year drug use. There were no significant exogenous variables for student victimization.

## Chapter 5: Discussion

Using a large national sample of secondary schools, this study examined the extent to which eighth grade problem behavior was explained by the grade span of the school. The findings of this study were uniform across all measures of problem behavior, that is, the findings were the same for each of the five dependent variables, teacher victimization, student victimization, classroom orderliness, student delinquency, and student's last year variety drug use. These findings strongly suggest that the grade span in which the eighth grade is located, e.g. in schools with older adolescents vs. in schools with younger adolescents, does not influence the level of problem behavior among eighth graders. No significant effects for grade span were found for any of the five measures of problem behavior. In addition, since there was not a relationship between grade span and problem behavior, positive peer influence was found not to be a mediating variable.

The study has several limitations shared by most survey research. First of all, the NSDPS data are cross-sectional. Longitudinal data and the inclusion of data that measured student transitions would be helpful for testing grade span effects. Also, although I attempted to control for extraneous factors related to the location and composition of the schools that might influence both grade span and problem behavior, it remains possible that some of the relationships are spurious. In other words, correlations based on aggregated data can be spuriously inflated by many factors, including unmeasured third variables. Similarly, potentially influential characteristics of the school environment such as peer culture and parent involvement

are omitted from my models. It is not clear how their inclusion might influence the results.

The low school participation rate and the relation between survey participation and community characteristics is another limitation for this study. The highest nonparticipation rates in the survey came from urban areas. The full and final samples also differed with respect to the size and grade levels included in the schools. For instance, there were 11 schools in my sample that had missing data, some of which included no responses related to grade span. Therefore, the study results may not generalize well to schools like those not included in the final sample.

However, Gottfredson et al. (2004) examined the extent to which attrition biased the results of their study and determined that the basic results of their study would not change with the inclusion of the non-responding schools. Furthermore, Gottfredson et al. (2000) employed weighting procedures to correct for possible non-response bias; their report showed that unweighted and weighted correlational results were similar. Future research should, if possible, replicate the current study with samples that are more representative of schools, particularly in urban communities.

In addition, given that three out of seven control variables reached statistical significance, percentage of students African American, Poverty and Disorganization, and Residential Crowding it is important for future researchers and social disorganization theorists to continue to examine social structural effects in relation to school characteristics. In this study the measures for social disorganization were far more important for the prediction of problem behavior than grade span, which reveals that there is much more going on than what was measured.

Another limitation to this study, and clearly a flaw in this research, is the small sample size of schools in the older group category. Of 142 schools, 121 (85.2%) are in the younger category (eighth graders attending schools with younger adolescents) and 21 (14.8%) are in the older category (eighth graders attending schools with older adolescents). The power is very low to detect the difference between school organizational structures and the level of problem behavior; however, more power would not change the direction of the effects.

In addition, the design of this study is a drawback. For instance, since this study only looks at the influence older adolescents have on eighth graders it is unclear how the other grades in the school are affected. In other words, the positive effects for eighth graders may be off set by disadvantages for other grades. What is best for the whole system has to gauge not only the impact on eighth graders but the impact on the other grades. It would be advantageous for future researchers to investigate this matter.

It is important to mention that grade spans are different and are set up for different reasons often because of community characteristics. Thus, it would also be beneficial to obtain a larger sample of schools that reflect different grade spans and different community characteristics in order to better detect differences between them. Finally, measuring the timing of school transitions and the effects of transitions in relation to grade span may be valuable for determining levels of problem behavior since school grade span manipulates the age at which transitions take place and since previous research has shown negative transition effects (Simmons and Blyth, 1987).



Unfortunately there has been no other research on the effects of grade span organization of schools and the level of problem behavior to compare these findings to. Notwithstanding, the results of this study are surprising to me given that previous research on a similar problem, grade span and academic achievement, found significant effects (e.g. Eccles et al., 1991; Wihry et al., 1992). For instance, Eccles et al. (1991) found that student outcomes such as self-concepts and academic achievement were better in K-8 schools than in other school configurations. Similarly, Wihry et al. (1992) found that the grade span in which the eighth grade is located strongly influenced academic achievement. Specifically, the elementary setting, which represented grades K-8, K-9, and 3-8, surfaced as the most favorable location for eighth graders, resulting in achievement advantages. The researchers determined that the junior/senior setting, which represented grades 6-12, 7-12, and 8-12, was the least successful location for eighth graders with regard to academic achievement.

My hypothesis that a school grade configuration, particularly those having eighth graders enrolled with older adolescents, would surface as less favorable than another school grade configuration with regard to problem behavior was not validated in this research. In developing this hypothesis I was under the assumption that the level of a student's academic achievement is not far removed from the level of their problem behavior. In fact, Gottfredson (2001) states, "Consistent evidence supports an association between poor school performance and drug use and other adolescent problem behaviors" (p. 32). Furthermore, Gottfredson et al. (2004) found that it was important to explore school level predictors, such as the differences in schools and

their characteristics in relation to school crime and disorder. Thus, it seemed suggestive to me that if academic achievement is related to grade span, and problem behavior is related to academic achievement, then grade span would be related to problem behavior, especially given that grade span could be categorized as one of these school predictors that was important to explore. However, the results clearly do not agree with the above assumption.

The fact that grade span is related to academic achievement and academic achievement is related to problem behavior but grade span is not related to problem behavior presents an interesting puzzle. It would have been informative in this research study to have looked at the effect of grade span on academic achievement in conjunction with problem behavior, as well as with other related variables. For instance, future research in this area could look to see if commitment to school holds in the data for a proxy of academic achievement. Moreover, it would have been interesting to get results for subsets of data, including any interactions between grade span and exogenous variables. For example, future research could determine if grade span only matters in urban areas, poor schools, for blacks, etc. A question that now remains is why grade span does not relate to problem behavior. A theoretical discussion in the following section hopes to answer this question.

### *Theoretical Considerations*

The theoretical model intended to explain the relationship between grade span and problem behavior is the social learning theory. Social learning theory highlights the mechanism of social influence. “According to this perspective, behaviors are learned through the observation of others engaged in a behavior and subsequent

modeling of this behavior, as well as the rewards/punishments and favorable/unfavorable definitions associated with the behavior” (Kobus, 2003, p. 39). It was hypothesized that eighth graders would do worse with respect to problem behavior if they were in schools with older adolescents because they would learn delinquent behavior through the differential association with older adolescents. These older adolescents would control powerful reinforcements, provide normative definitions, and expose the eighth grader to behavioral models (Burgess & Akers, 1966).

Peer influence can be both direct peer pressure (i.e. teasing, taunting, and bullying) and indirect “self-pressure” (i.e. to fit in) (Kobus, 2003). For instance, in their study on smoking experimentation and initiation, Nichter, Nichter, Vuckovic, Quintero, and Ritenbaugh (1997) found that many adolescent girls tried smoking in order to avoid potential exclusion by peers, to gain social approval, to facilitate social interaction and to achieve a sense of independence. The researchers described how adolescents often smoke to “look cool”:

For those girls who began smoking in elementary school, smoking cigarettes was viewed as a way to be accepted by an older crowd. One girl explained how she had started smoking in the fourth grade (9 – 10 years old) because she hung out with all the older girls, and as they smoked, she smoked. She noted that she had done it ‘mainly just to be cool’ (p. 290).

It was thought that eighth graders in schools with older adolescents would be influenced either directly or indirectly to engage in problem behavior, including delinquency and drug use. However, it was found that there was not a relationship

between grade span and problem behavior and positive peer influence was found not to be a mediating predictor. Notwithstanding these findings, research has shown the significant relationship between crime and problem behavior and association with delinquent peers (see Gottfredson, 2001 for a review). Thus, I do not want to discount any effects that social learning may have on the problem behavior of eighth grade students who attend schools with older adolescents. Instead, the results have led me to think about why grade organization might not lead to differential association in the first place.

Social learning theory and differential association find that youth are viewed as being most likely to imitate behaviors of those with whom they have the greatest amount of contact, in terms of both frequency and duration. Thus, one conclusion that can be drawn from this study is that even though eighth graders may be attending school with older adolescents, perhaps eighth graders in the higher grade span organizations do not interact much with the older adolescents. This thought led me to consider research on friendship selection and how school organizations play a role.

There are features in social settings, such as schools, that serve to segregate people who are different, and to congregate those who are similar. In a commentary on the pattern of friendship selection in secondary schools, Cohen (1983) explained that proximity either facilitates or hinders opportunities for contact. For example, opportunities for contact are often determined by neighborhood of residence, classroom assignments, alphabetical-by last-name seating, locker arrangements, and participation in extracurricular activities.

In addition to the above, “One of the most obvious organizational characteristics of American schools is the arrangement of students by ability for instruction. This practice known as tracking is common in the middle schools and almost universal in secondary schools” (Kubitschek & Hallinan, 1998, p. 1). Kubitschek and Hallinan describe the nature of tracking in schools and how it affects students’ friendships. The purpose behind tracking is to segregate students by academic ability and achievement, which is often measured by grades and standardized tests. Then students are often placed into one of three tracks: Academic, General, or Vocational. Hallinan and Williams (1989) found that students assigned to the same track are more likely to become friends than those in different tracks, all else constant. Kubitschek and Hallinan point out that school tracking is an example of how an organization can and does affect social relations through its social structure, and how involuntary associations can be caused by that structure (p. 2).

Kubitschek and Hallinan (1998) state that students’ track placement influences their friendship choices. For instance, they mention that tracking fosters certain patterns of propinquity among students. In other words, students who are in the same track are more likely to be in the same classes than are students in different tracks. Thus, a student would be more likely to choose as a friend a student in the same track than a student in a different track. Likewise, Kandel’s (1978) study of high school students shows that students tend to choose friends who are similar in their sex, race, age, academic achievement and expectations.

In relation to the current study, the social interaction between eighth graders and older students may be impacted by possible curricular tracking. That is eighth

graders who are in a particular track placement would lead them into more frequent and regular contact with certain individuals over others. It is also assumed that the adolescents who are placed in the different tracks also have similar backgrounds and achievement levels. Thus, it is possible that eighth graders may not even be exposed to older adolescents for extended periods of time since they are not in their track. If they are exposed to older adolescents as a result of their track, then it is assumed that their preexisting characteristics are already similar. In other words, an eighth grader who is in the Academic track is probably unlikely to associate or come into contact with a junior in the Vocational track.

In addition to tracking, Karweit and Hansell (1983) mention another differentiation practice known as “age-grading” and suggest that most secondary students never even take a course with a schoolmate of a different grade. That is, courses in schools are often structured by grade, for example, freshman math and sophomore English. Therefore, the opportunity for an eighth grader to be negatively influenced by older adolescents is limited as a result of age-graded classrooms and curricular tracking. What about extracurricular activities?

Karweit and Hansell (1983) state that extracurricular activities actually provide few opportunities to form friendships between age groups. One reason is that many activities are geared to a particular grade level. Similar to age-graded classrooms, Karweit and Hansell explain that some extracurricular activities are age-graded, such as freshman football. A second reason is that age is considered an important status characteristic and leadership positions in extracurricular activities are usually held by upperclassmen. Karweit and Hansell suggest “it is unlikely that

associations across age groups actually form given the social rank associated with age” (p. 33).

Finally, Cohen (1983) states that peer emulation that involves no actual friendship selection results in little peer influence and that most influence stems from those who have been selected as close friends. Given that students are more likely to select friends on the basis of proximity and similarity, and that students are more likely to be influenced by close friends rather than large peer groups or aggregate school populations, it makes sense that the eighth graders in schools with older adolescents in this study would not interact much with the older adolescents in those schools and as a result of limited interaction would not be negatively influenced to engage in problem behavior.

### *Concluding Remarks*

I attempted in this study to identify whether a characteristic of schools, namely grade span organization, contributes to the level of problem behavior among eighth graders. Using social learning theory I hypothesized that eighth graders who attended school with older adolescents would be more susceptible to problem behavior and disorder as a result of older peer influence and modeling. However, I found that there was not a difference between eighth graders who attended school with older adolescents and eighth graders who attended school with younger adolescents in relation to school disorder. A possible reason for this finding is that eighth graders may not interact with older adolescents as much as I previously thought. It seems that school features such as school tracking and age-grading plays a role in friendship selection and regulates the opportunities for adolescents to interact

with other peers. Kubitschek and Hallinan (1998) state the issue clearly, “In general, any school policy or practice that affects students’ social organization is likely to influence their social relationships, whether students participate voluntarily or involuntarily (p. 14).”

Clearly, much work needs to be done to provide solid evidence in support of this hypothesis. Although this study did not find a significant relationship between grade span and problem behavior, I believe that it does contribute to the research literature because it was the first attempt to look at these variables in relation to one another. It is recommended that further research in the area of school effects, particularly grade span, continue to look not only at the how academic achievement is affected but also how problem behavior and school disorder may be affected as well. In addition, it was mentioned that transitioning between schools has tremendous effects on adolescent achievement and motivation and can result in significant negative declines. It is imperative for researchers to continue to investigate the effects of school transitioning and to identify possible interactions between transitions and grade span organizations. For example, researchers should focus on and strive to improve upon programs and activities that lessen the adverse effects of school transitions. Furthermore, additional research on school tracking, age-grading, and friendship selection in relation to grade configurations would be interesting and informative.

Eccles et al. (1991) identify that the nature of the school environment is critical—not the grade span configuration or the timing of the transition. Problem behavior and school disorder is bound to continue and remain an issue for years to



come, regardless of the school organization. Furthermore, it is known that the environment affects peer contact, choices of friends, and patterns of influence. Thus, it is up to researchers, policy makers, school administrators, teachers, parents, and any other significant stake holder to design, implement, and evaluate effective programs and practices in our nation's schools to achieve optimal quality and to reduce problem behavior and school disorder. Given the findings in this study it is fair to say that the configuration of grades is not related to problem behavior, and the challenge is for future researchers to explain why not.

## Appendix

### Additional Information on Transition and Grade Span Research

	<b>Research Question</b>	<b>Level of Analysis</b>	<b>DV and IV</b>	<b>Control Variables</b>	<b>Methods</b>	<b>Findings</b>
<b>Alspaugh (1981)</b>	If there is a loss in student achievement associated with school-to-school transitions then is there an increase in high school (HS) dropout rates associated with the number and grade level of these transitions?	School N = 447 school districts with high schools	DV: Five year average dropout rate for each school district for the school years 1990-1991 through 1994-1995 IVs: the number of transitions in the grade level organization of each district; the grade level of the last transition to HS	SES level of students (percent of students on free/reduced lunch; the average enrollment per attendance center in each of the sample school districts	One-way ANOVA, Correlation matrix, Hierarchical multiple regression	<ul style="list-style-type: none"> <li>• An increase in the number of school-to-school transitions within a school district is associated with an increase in the HS dropout rate</li> <li>• School size is a significant factor in HS dropout rates</li> <li>• SES is associated with HS dropout rate</li> </ul>
<b>Alspaugh (1998a)</b>	Further explores the nature of achievement loss associated with the transition to HS. Is there a relationship between school-to-school transitions and the percentage of students who drop out of HS?	School Three groups of 16 school districts = 48 districts	<i>Part I</i> DV: the difference between the district average 5 <sup>th</sup> and 6 <sup>th</sup> grade achievement scores (represents the achievement loss) and between 8 <sup>th</sup> and 9 <sup>th</sup> grade IV: school transitions <i>Part II</i> DV: HS dropout rates IV: school transitions	School size, SES	<i>Part I</i> Two-way ANOVA <i>Part II</i> One-way ANOVA, Tukey's pairwise comparisons	<ul style="list-style-type: none"> <li>• Students in a pyramid transition of multiple elementary schools into a single middle school experienced greater achievement loss</li> <li>• Students attending middle schools experienced a greater achievement</li> </ul>

	<b>Research Question</b>	<b>Level of Analysis</b>	<b>DV and IV</b>	<b>Control Variables</b>	<b>Methods</b>	<b>Findings</b>
						<p>loss in the transition to HS than students from K-8 schools</p> <ul style="list-style-type: none"> <li>• Students in larger schools had higher dropout rates as well as schools with two transitions</li> </ul>
<b>Alspaugh (1998b)</b>	What are school characteristics that are associated with HS dropout rates? What is the relationship between school dropout rates and the general well being of communities?	School N = 428 school districts that have HS	DV: HS dropout rates IV: School characteristics (i.e. school size, grade span, units of HS credit, extracurricular activities)		Not described	<ul style="list-style-type: none"> <li>• School size is related to school dropout</li> <li>• Lowest dropout rates occur in districts with K-6, 7-12, highest in districts with 10-12</li> <li>• The more units of high school credit (more courses) the higher the dropout</li> <li>• The less that is spent on extracurricular activities, the higher the dropout rate</li> <li>• There is a dramatic increase in unemployment rates as dropout increases</li> <li>• High dropout rates</li> </ul>

	<b>Research Question</b>	<b>Level of Analysis</b>	<b>DV and IV</b>	<b>Control Variables</b>	<b>Methods</b>	<b>Findings</b>
						are associated with high crime rates
<b>Alspaugh (1999)</b>	What is the interaction effect of the grade level of transition to HS and gender on dropout rates? What is the relationship between the grade level of transition to HS and dropout rates by grade level?	School N = 45 (15 schools selected to represent each of the three most common grade spans)	IV: grade level of transition to HS (HS grade span), gender, grade levels 9-12 DV: average HS dropout rate for school years 1993-4 through 1996-7 by gender and grade level	Background characteristics of the schools	Three-way ANOVA	<ul style="list-style-type: none"> <li>• School district organization is associated with educational outcomes</li> <li>• A raise in the grade level of transition to HS is associated with an increase in dropout rates</li> <li>• Boys have larger HS dropouts than girls</li> <li>• Highest dropout occurs at 11<sup>th</sup> grade</li> <li>• Higher dropout for 10-12 schools compared to 7-12</li> </ul>
<b>Becker (1987)</b>	How to different school organizational patterns affect the academic learning of students with different background and abilities?	Individual Cross-sectional N = 8, 000 6th graders	DV: Achievement levels of students based on background level. IV: school and classroom organization		Linear regression	<ul style="list-style-type: none"> <li>• Low 6<sup>th</sup> graders in elementary score better than low students in middle school settings</li> <li>• Grade span affects the achievement of students from low</li> </ul>

	<b>Research Question</b>	<b>Level of Analysis</b>	<b>DV and IV</b>	<b>Control Variables</b>	<b>Methods</b>	<b>Findings</b>
						<p>to high SES</p> <ul style="list-style-type: none"> <li>• Elementary school settings benefit students from low social backgrounds</li> </ul>
<b>Blyth, Simmons, and Carlton-Ford (1983)</b>	To what extent do psychological, academic and social disruptions occur as a consequence of three different transitions occurring in two different organizational structures?	Individual—5 year longitudinal study of 594 adolescents	DV: self-esteem, academic grade point average, extracurricular activities IV: school transitions/grade level		One-way ANOVA	<ul style="list-style-type: none"> <li>• Transition into a four year HS at ninth grade for the K-8 cohort is not as disruptive as the seventh grade transition into junior high school.</li> <li>• No significant differences for either boys or girls in level of self-esteem for ninth graders who are the top grade in junior high as compared to those K-8 students who have just entered HS.</li> <li>• The transition into JHS in early adolescence has negative consequences for youth, particularly</li> </ul>

	<b>Research Question</b>	<b>Level of Analysis</b>	<b>DV and IV</b>	<b>Control Variables</b>	<b>Methods</b>	<b>Findings</b>
						in terms of participation and girls' self-esteem.
<b>Eccles, Lord, and Midgley (1991)</b>	Are declines in academic motivation, self-perceptions, and school related behaviors related to the types of educational environments to which early adolescents are exposed?	Individual—8 <sup>th</sup> grade cohort from the National Educational Longitudinal Study N = 24,599 8 <sup>th</sup> graders drawn from 1,052 schools (24 per school)	DV: school-level student outcomes IV: School grade structure	SES, Urbanization, Public vs. Private, Religious Affiliated vs. Not, School Size	Multiple regression	<ul style="list-style-type: none"> <li>• Student outcomes are better in the K-8 schools than in the others, they have higher self-concepts, receive higher grades</li> <li>• Family of origin effects and community setting do not account for the school grade structure differences</li> </ul>
<b>Fenzel and Blyth (1986)</b>	How do peer relationships interact with adjustment to junior high school?	Individual Sequential/longitudinal study N = 410	IV: adjustment to new school at 7 <sup>th</sup> grade defined in terms of changes from 6 <sup>th</sup> grade in self-esteem, participation in school/nonschool activities, integration in the school environment DV: peer relationships (quantity, frequency, intimacy)		12 2x2 ANOVAs	<ul style="list-style-type: none"> <li>• Significant decrease in perception of being integrated into school was found for males and females but only small, nonsignificant changes in self-esteem and participation were</li> </ul>

	<b>Research Question</b>	<b>Level of Analysis</b>	<b>DV and IV</b>	<b>Control Variables</b>	<b>Methods</b>	<b>Findings</b>
						<p>evidenced</p> <ul style="list-style-type: none"> <li>• Males who had gained in self-esteem had more frequent peer contacts and were more intimate with peers than males who declined.</li> <li>• The reverse was true for females</li> </ul>
<b>Hirsch and Rapkin (1987)</b>	What is the psychological well being of students during the transition to JHS?	Individual longitudinal N = 159	DV: psychological well being as measured by Self-esteem, symptoms, quality of school life, peer social support IV: school transition	Gender, race, academic competence	ANOVA	<ul style="list-style-type: none"> <li>• Adjustment patterns were complex and highly differentiated</li> <li>• Self-esteem was unchanged from the end of 6<sup>th</sup> grade to the middle of 7<sup>th</sup> and rising by the end of 7<sup>th</sup></li> <li>• Girls reported more depressive symptoms than boys</li> <li>• Perceived quality of school life decreased</li> <li>• Peer social support increased only for high competent</li> </ul>

	<b>Research Question</b>	<b>Level of Analysis</b>	<b>DV and IV</b>	<b>Control Variables</b>	<b>Methods</b>	<b>Findings</b>
						blacks <ul style="list-style-type: none"> <li>No race differences in overall self-esteem</li> </ul>
<b>Simmons, Blyth, Van Cleave, and Bush (1979)</b>	What children are most vulnerable to the role transition of childhood to early adolescence and what is the effect of changes in school environment, pubertal development, and social behavior?	Individual Longitudinal N = 798 white school children from 18 elementary schools	DV: Self-esteem IVs: school type	Pubertal development, early dating behavior	Analysis of covariance in a regression framework	<ul style="list-style-type: none"> <li>7<sup>th</sup> grade girls who transitioned into JHS are at a disadvantage compared to both boys and girls in general, and to girls who don't have to change schools</li> <li>The girls with the lowest self-esteem are the ones who have experienced the most change (i.e. changed schools, reached puberty, and have started to date)</li> <li>Among boys, early pubertal development is an advantage</li> </ul>



	<b>Research Question</b>	<b>Level of Analysis</b>	<b>DV and IV</b>	<b>Control Variables</b>	<b>Methods</b>	<b>Findings</b>
						Coping with a major role transition can significantly be affected by environmental context, level of biological development, and social behavior
<b>Wihry, Coladarci, and Meadow (1992)</b>	What are the effects of grade span on academic achievement?	School N = 163	DV: Academic achievement in 6 areas: reading, writing, math, science, social studies, and humanities IV: grade span	Community SES, school characteristics (instructional expenditures,, school size, pupil-staff ratio), teacher attributes (post-BA education, average tenure)	Ordinary least squares multiple regression	<ul style="list-style-type: none"> <li>• The grade span in which 8<sup>th</sup> grade is located influences achievement, even when community SES and various school and teacher attributes are controlled.</li> <li>• Elementary setting appeared to be the most favorable location for 8<sup>th</sup> graders, junior/senior setting was the worst</li> </ul>

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