Peer Adjustment of Adolescents At Risk for School Dropout

Colin B. Comfort

B.A., University of Waterloo, 1990

B.Ed., University of Calgary, 1991

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Department of Educational Psychology and Special Education

The University of British Columbia
Vancouver, Canada

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Abstract

Research on the factors influencing school dropout has traditionally focused on individual characteristics of dropouts and, more recently, school factors, frequently neglecting the role of peer relations. The intent of the present study was to determine to what extent and in what ways peer adjustment is related to school dropout risk. On the basis of previous research, five aspects of peer adjustment were delineated as potentially affecting students' decision to drop out: overall social status; social behavior (aggression, withdrawal); social support; social participation; and friends' school value. Dropout risk was assessed using both Grade Point Average and teacher nominations of dropout risk. Students (N=153) from grades 9 through 11 participated in the study. Results of univariate (correlations, extreme groups ANOVA) and multivariate (multiple regression) indicated that of all the peer adjustment measures included in the study, dropout risk was best predicted by aggression. Univariate (although not multivariate) analyses also revealed a relationship between dropout risk and lower value for school held by friends. Limited support was found for the notion that students at risk for school dropout evidence less participation in the social aspects of school. Results showed little evidence of relationship between risk for school dropout and rejection by same- or opposite-sex peers, peer-perceived withdrawal, or a lack of peer group intimacy or integration.
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Leaving school early has important consequences at both the individual level and the societal level. Individuals who drop out of high school tend to consume more alcohol, experience more unemployment, and acquire less secure and satisfying work than do graduates (McCaul, Donaldson, Coladarc, & Davis, 1992). On a societal level, with the national average dropout rate in Canada estimated at 30 per cent (Employment and Immigration, 1990), it is expected that in the next 20 years, 187,000 Canadian youths will drop out of school, at an estimated cost of $620 million per year in unemployment insurance and $710 million in social assistance programs (House of Commons Report, Children in Poverty: Toward a Better Future, cited in Biemiller & Meichenbaum, 1993). Although a substantial portion of those 30% return to graduate at some point, estimates indicate that the high school dropouts of a single given year will cost Canada approximately four billion dollars over the working lifetime of those dropouts (Conference Board of Canada report, cited in Biemiller & Meichenbaum, 1993). These serious consequences make school dropout an issue that needs to be addressed.

Rationale

Previous research has explored the association between peer variables, such as peer support and sociometric status, and outcomes related to school performance and competence, such as test scores, grade point average, academic behavior, and school motivation (Austin & Draper, 1984; Barone, Aguirre-Deandreis & Trickett, 1991; Boivin & Begin, 1989; Clark, 1991; DuBois, Felner, Band, Adam & Evans, 1992; Goodenow, 1993; Goodenow & Grady, 1993; Kinderman, 1993; Kohn & Rosman, 1991; Ladd, 1990; Wasik, Wasik & Frank, 1993; Wentzel, 1991a, 1991b). However, investigation into the influence and role of peers in school dropout has to date been relatively minimal. As will be demonstrated, dropout researchers have emphasized academic factors (e.g., ability, achievement scores and grades, grade retention,
truancy), individual variables (e.g., locus of control, self esteem, values, aspirations, pregnancy), demographic characteristics (e.g., gender, race, socioeconomic status), and family-related variables (e.g., parent expectations for child, parent educational attainment, single vs. dual parent family) associated with early school leaving. In response to criticism that such variables place a disproportionate amount of the blame on student characteristics (Wehlage & Rutter, 1986), and because many of these factors are essentially intractable, more recent research on school dropout has focused on how school-related factors such as school structure, school climate, and student-teacher relationships may impact dropout rates. As Natriello, Pallas, and McDill (1986) argue, many of these school-related factors interact with the student characteristics to define patterns of school dropout and graduation. However, overlooked in this equation is the role of peer relations in early school leaving, which involves both school-related and student variables, but does not fit neatly into either category. Given research indicating that problematic peer relations is related to later maladjustment (Parker & Asher, 1987), the impact of peer relationships on the dropout phenomenon seems worthy of investigation.

When peer adjustment aspects of school dropout have been assessed, results have often been mixed or negligible. As will be shown in the following literature review, the mixed results reported regarding the role of peer factors in school dropout may be attributable to a number of limitations in the research to date. One issue is the lack of reliable instrumentation and demonstrated psychometric adequacy of the some of the measures employed to assess social factors. Another issue is the age at which the peer social variables are measured: relationships found at younger ages may not continue into the adolescent years, and similarly, relationships found at the time when dropout occurs (typically grades 9 through 12) may not be present when peer adjustment variables are measured at younger ages. Furthermore, as will be demonstrated, with rare exception studies have isolated one aspect of peer influence
without comparing the relative or combined impact of each of several potential peer elements. Accordingly, based on aspects of peer relations emphasized in previous research, the present study examined five distinct aspects of peer adjustment: (1) sociometric status (among both same- and opposite-sex peers), (2) social behavior (aggression and withdrawal), (3) social participation, (4) social support, and (5) friends' school value. Examining the various aspects of peer influence separately and in combination is a necessary step to a broader understanding of how external and as well as internal influences impinge on dropout behavior. Such a broad understanding is imperative, not only for the identification of students at-risk for school dropout, but also for the development of effective interventions and prevention programs. Thus, the goal of the present study was to explore the nature of at-risk students' peer relationships in a high school context. A review of relevant literature follows.

**Literature Review**

In order to be adequately addressed, the problem of school dropout must first be adequately understood. Research on the dropout phenomenon provides a fairly comprehensive picture of the characteristics of the individual which are associated with failure to complete high school. More recently, many researchers have advocated an expanded view which takes into account the role that school factors play in the dropout issue. The present literature review begins with a brief review of individual/academic and school factors which have been found to predict school dropout. Subsequently, studies which have considered the role of peer relations in predicting school dropout are examined.
Student Factors

The problem of school dropout has fueled a great deal of research over the past 50 years. Much of this research has focused on the individual characteristics of dropouts, with the implication that school dropout is caused primarily by individual deficits in terms of academic, personal, or familial factors. Regarding academic variables, longitudinal studies reveal that rates of high school completion have been found to vary across levels of intellectual ability (e.g., Combs & Cooley, 1968; Howell & Frese, 1982; Lloyd, 1978), achievement test scores, and grades (e.g., Barrington & Hendricks, 1989; Ekstrom, Goertz, Pollack, & Rock, 1986; Ensminger & Slusarcick, 1992), with dropouts achieving more poorly than graduates. Dropouts have also been found to exhibit higher rates of truancy (e.g., Wehlage & Rutter, 1986), grade retention (e.g., Ekstrom, Goertz, Pollack, & Rock, 1986), and school transfers (e.g., Stroup & Robins, 1972) relative to graduates.

In addition to intellectual and academic correlates of school dropout, other studies have considered the role of personal factors in dropout. Gender differences in dropout rates in recent studies appear small (Rumberger, 1987), with males dropping out in slightly higher numbers than females (Statistics Canada, 1993). However, dropouts are found disproportionately in racial minorities and lower-SES families, but the effect of race and ethnicity decreases when SES is held constant (Rumberger, 1983). Although some evidence suggests that dropouts exhibit lower self esteem and report a more external locus of control than graduates (e.g., Bachman, Green, & Wirtanen, 1971), results from the U.S. national study "High School and Beyond" (HSB) failed to replicate such effects (Wehlage & Rutter, 1986). Dropouts, on the whole, also have lower educational and occupational expectations as compared to graduates (e.g., Wehlage & Rutter, 1986).

The family background characteristics of students also play a role in predicting school dropout. In comparison to graduates, students failing to graduate are more often
from single-parent families (Rumberger, 1983), and have less home support shown for education, such as fewer study aids at home or less opportunity for non-school-related learning (Ekstrom et al., 1986; Howell & Frese, 1982). Higher parent education level (Lloyd, 1978) and parent involvement in parent-school organizations (Ensminger & Slusarcick, 1992) have been shown to relate to the likelihood of student graduation. As well, adolescents reporting that parents set strict rules regarding school show a greater likelihood of graduating (Ensminger & Slusarcick, 1992).

School Factors

The relationship between school factors and dropout has also been explored on the assumption that the dropout phenomenon represents in part, a failure of the school system rather than stemming solely from student characteristics. This assumption has led some researchers to suggest that many dropouts are better termed "pushouts" because "dropout" implies the student has a choice to leave school early, whereas, as Fine (1991, 1986) points out, some students are "encouraged" or "forced" to leave school. School factors such as streaming (Crespo, & Michelena, 1981), educational expenditure (Fitzpatrick and Yoels, 1992), school climate (Pittman, 1991) and neighborhood vs. system-wide attendance boundaries (Toles, Schulz, & Rice, 1986) are associated with early school leaving. Specifically, Crespo and Michelena showed that streaming (i.e., channeling students into different "tracks" - slow, average, and enriched) is related to dropping out, even after controlling for intellectual ability, age, and academic performance. According to their results, 24% of the "slow" stream dropped out, while 11% of the "average" stream and 3% of the "enriched" stream dropped out before the end of high school. Educational spending was found to be indirectly related to dropout rates in that when higher expenditures per student affected dimensions of school structure such as a lower pupil-teacher ratio, dropout rates decreased (Fitzpatrick & Yoels, 1992). When higher expenditures per student failed to
impact the school structure, no difference in dropout rates was detected. School climate has also been shown to have a small but significant relationship to dropping out, in that students perceiving a more positive school spirit were less likely to drop out (Pittman, 1991). Finally, other studies suggest that dropout rates are lower in smaller as opposed to larger schools (Pittman & Haughwout, 1987), and in schools with neighborhood rather than system-wide attendance boundaries (Toles, Schulz, & Rice, 1986).

To summarize, school dropout is associated with a variety of student and school characteristics. The bulk of previous research has focused on differentiating the characteristics of students who graduate from those who drop out of school. Results indicate that as compared to graduates, students who eventually drop out tend to show lower academic achievement, ability, and educational expectations, and higher rates of truancy, and grade retention, and school transfers. Dropouts are also disproportionately represented among racial minorities and families with low SES. In terms of family characteristics, dropouts tend to come from single parent homes, homes providing less support for education, and homes with lower levels of parent education. Although previous research has focused on the individual dropout in terms of academic, personal, and background variables, more recent research has acknowledged that the organizational or structural aspects of schools may also influence the dropout phenomenon. This research shows that higher dropout rates are generally observed for larger schools, schools that have a poor school climate, that use system-wide attendance boundaries, or that stream students into ability tracks.

Peer Adjustment and School Dropout

Although research has traditionally focused on individual characteristics of dropouts and more recently on school factors, the role of peer relations in school dropout has not been adequately considered in research to date. In the sections which
follow, studies examining the relations between various peer adjustment factors and school dropout are reviewed. Five different aspects of potential peer influence are considered: social status, social behavior, including aggression and withdrawal, perceived social isolation, social participation, and friends' school value.

Social Status

Students' acceptance or sociometric status among peers has been shown to be related to various measures of later adjustment. For example, rejected children tend to exhibit higher levels of adult psychopathology (Parker & Asher, 1987), adolescent delinquency, conduct disturbance, and substance abuse (Ollendick, Weist, Borden, & Greene, 1992) than do popular children. Furthermore, Ollendick et al. (1992) found that sociometric status in grade four predicted scores on achievement tests in grade 8, and number of failed grades by grade 9, the latter two factors having been shown to be predictors of dropout (e.g., Barrington & Hendricks, 1989). Both rejected (i.e., disliked) and controversial (i.e., liked by some children, disliked by others) children exhibited lower academic achievement. Given evidence that sociometric status predicts lower achievement, it is reasonable to suggest that dropout behavior may also be related to sociometric status.

Numerous studies have demonstrated a relationship between student sociometric status and dropping out of school. For example, Gronlund and Holmlund (1958) reported that 54 percent of sixth grade, low-accepted boys and 35 percent of low-accepted girls dropped out of school, compared to 19 and 4 percent for high-accepted boys and girls, respectively. Likewise, Barclay (1966) reported that low acceptance for both girls and boys (grade 5 through 9) increased risk for dropping out by two to three times (see also Kuhlen & Collister, 1952; Lambert, 1972; Ullman, 1957). More recently, investigators have expanded the classifications of sociometric status by distinguishing between popular, average, neglected, rejected, and controversial
students. Although sociometric measures vary, essentially a student is categorized as popular when rated as "liked" by numerous classmates. Average students receive relatively fewer positive ratings, but also few negative ratings. A student is classified as neglected when classmates fail to rate the students as either liked or disliked. Rejected children are rated as disliked by numerous classmates and controversial children are rated as liked by some and disliked by others. Ollendick et al. (1992) obtained sociometric data for 296 fourth graders, then provided follow-up measures of academic, behavioral and psychological adjustment five years later (grade 9). According to Ollendick et al., 5% of the popular children, 6% of the average children, 3% of the neglected children, 9% of the controversial children and 18% of the rejected children dropped out of school by ninth grade. Thus, similar to the findings noted above indicating that controversial and rejected children were more likely to achieve lower grades than the other groups, Ollendick et. al. found that both the controversial and the rejected children were also more likely to drop out of school. It seems quite likely that Ollendick et al.'s data may be an underestimate, given that their data were collected only until the end of grade 9. If Ollendick et al. had measured past grade 9 to the end of grade 12, the number of dropouts may well have increased, potentially magnifying their results.

Kupersmidt and Coie (1990) measured the sociometric status of 112 grade five students and followed them through to the end of high school. In a maximum-likelihood categorical modeling analysis, which identifies whether children who dropped out were disproportionately represented in a sociometric status group, they found that although approximately 30% of the rejected students dropped out, as compared with 20% of the average students, 7% of the popular students, and none of the neglected students dropped out, these group differences did not reach significance. Despite nonsignificant overall results, the percent differences between status groups were obviously substantial. The non-significant result may be attributed to the fact that
the sample size may have been inadequate to find significant results - there were only 19 rejected students, 14 popular students, 11 neglected students, and 65 average status students (the 5 controversial students were not included in the analyses). Particularly noteworthy is Kupersmidt and Coie's foot notation indicating that when the logistic regression analysis was used with the white subsample (as opposed to the overall sample), and with social preference (a continuous measure of status), as opposed to a categorical index of peer rejection, social preference did emerge as a significant predictor of school dropout.

Cairns, Cairns, and Neckerman (1989) also measured social aspects of school dropout, but used teacher ratings and self reports to assess popularity and peer nominations to assess social isolation. They obtained data on these measures for 475 grade seven students in middle school and followed them through to grade eleven. Surprisingly, neither measures of popularity nor social isolation were significantly associated with dropping out, despite the relatively large sample size. Unfortunately, these researchers failed to measure peer-perceived popularity, which is considered the better measure of social status (Parker & Asher, 1987). Cairns et al. did, however, measure network affiliations by asking students to identify the groups of peers who "hang around together a lot" (p. 1440) and found that both boys and girls who would eventually drop out tended to affiliate with other boys and girls who were at risk for dropping out. This finding may explain the non-significant social isolation result in that the dropouts evidently were not lacking affiliative ties, but does little to explain the non-significant teacher-rated and self-reported popularity result.

The Cairns et al. (1989) findings serve to illustrate a repeated discrepancy in the dropout literature. While some investigators suggest that potential dropouts tend to affiliate with others who are "at-risk" and that they together disengage from school (e.g., Mensch & Kandel, 1988; Pittman, 1991), others suggest that perceived social isolation or peer rejection leads to dropping out (e.g., Pittman, 1986; Valverde, 1987).
Thus, one line of thought argues that dropout stems, in part, from a desire to affiliate more with like-minded peers, while another view asserts that difficulties or lack of contact with peers prompts dropping out. Despite the apparent disparity between these two viewpoints, elements of commonality may exist. For example, potential dropouts may experience rejection or isolation from many of their "mainstream" peers, which may drive them to affiliate more with like-minded peers, who also feel alienated from the mainstream. Another possibility is that the differing viewpoints simply reflect different types of dropouts - some dropouts may in fact have friends who are also at-risk, while other dropouts may experience rejection or may feel isolated from their peers. Beyond Cairns et. al. (1988), it appears that few other researchers have attempted to examine these possibilities in detail.

In light of these findings, social status was deemed to be an important consideration in the present study. The reviewed studies generally suggest a relationship between early peer rejection or low acceptance and later dropout, although no studies examined the link between concurrent peer status and school dropout. That is, no studies have researched social status in relation to school dropout at the high school level (grade 10 or higher), which is when most dropping out occurs. Thus, the present study examines the relationship of social status with dropout risk for students in grades 9 through 11. Given Kupersmidt and Coie's (1990) lack of significant results with respect to dropout among rejected, neglected, average, popular and controversial status groups, it was decided that a continuous, rather than categorical, index of status (termed social preference) would be used because it would allow a higher probability of finding significant results. Results using a continuous index take into consideration the variation across the entire sample thus using information from all subjects, whereas a categorical index is more limited in sensitivity and meaningfulness (Pedhazur, 1983; p. 450-458). Moreover, a continuous index can be more parsimoniously subjected to
multiple regression analyses and thereby compared with greater ease to other variables for relative influence on an outcome variable.

Although it was suggested above that students experiencing rejection from peers are more likely to drop out, it is possible that only particular forms of rejection present a risk for dropping out. More recent research has begun to consider various subgroups of rejected children, specifically aggressive versus withdrawn rejected students and suggests that different subgroups of rejected students are at-risk for different outcomes, both concurrently and in long-term prediction. For example, in terms of concurrent correlates, aggressive-rejected children tend to overestimate their competencies (Hymel, Bowker & Woody, 1993), and exhibit more severe conduct problems and greater deficiencies in adapting to peer expectations (Bierman, Smoot, & Aumiller, 1993), whereas withdrawn-rejected students report higher levels of loneliness, tend to worry about their relations with others (Parkhurst & Asher, 1992), exhibit lower self esteem in a number of domains, particularly social self concept (Hymel, Bowker & Woody, 1993), and show more deficiencies in prosocial, socially-sensitive behaviors (Bierman, Smoot, & Aumiller, 1993). Other research suggests that different subgroups of rejected students are at-risk for different long-term difficulties. For example, aggressive-rejected students are more likely to exhibit externalizing problems in the long-term (Parker & Asher, 1987), while withdrawn-rejected students are more likely to evidence internalizing difficulties over time (Hymel, Rubin, Rowden, & LeMare, 1990). Findings regarding aggressive-rejected and withdrawn-rejected students arise out of the peer rejection literature, but to date have not been considered in the dropout literature. Because this appears to be a potentially fruitful avenue of inquiry, the present study explores the possible link between aggression and withdrawal, in addition to overall social status (social preference), and dropout risk. While previous research
does not specifically address this question, some support can found within the dropout literature, as reviewed in the next two sections.

Social Behavior: Aggression

Comparisons of dropouts and graduates consistently indicate that dropouts receive higher aggression ratings from both teachers and peers (e.g., Cairns et al., 1989; Ensminger & Slusarcick, 1992; Kuhlen & Collister, 1952; Kupersmidt & Coie, 1990; Lambert, 1972; see Parker & Asher, 1987, for a review). From as early as grade one (Ensminger & Slusarcick, 1992), the late elementary grades (e.g., Kupersmidt & Coie, 1990), or the early adolescent years (Cairns et al. 1989), ratings of aggression have been shown to be strong predictors of dropout. Further, even when other variables are taken into account, aggression adds to the prediction of dropout. For example, in a multivariate analysis Kupersmidt and Coie (1990) considered gender, race, peer rejection, aggression, excessive absences and low grades, measured when students were in grade 5, as predictors of dropout before the end of high school. Results indicated that only two variables emerged as significant predictors of subsequent dropout: peer-perceived aggression and excessive absences. Similarly, Cairns et al. (1989) gathered teacher nominations of aggression for grade 7 students and followed the students to the end of grade 11. In logistic regression equations performed separately for girls and boys, with aggression as well as race, SES, age/grade retention, maturation and popularity entered into the equations, only age/grade retention and aggression were found to be significant predictors of dropout across gender. Thus, previous research reveals a consistent link between aggressive behavior and future dropout status. The present study extends this research by examining the relationship of aggressive behavior, in addition to social status and other peer-related variables, concurrently with dropout risk.
Social Behavior: Withdrawal

Few studies investigating the prediction of dropout have explored withdrawn behavior as a possible predictor variable, although there is some evidence to suggest that withdrawn behavior may also be an important consideration. For example, Bowman and Matthews (1960, as cited in Parker & Asher, 1987) found that grade nine (but not grade seven) students identified as withdrawn by either teachers or peers were at greater risk for dropping out. However, more recent studies found no relationship between teacher ratings of shyness in grade one (Ensminger & Slusarcick, 1992) or between peer nominations of social isolation in grade seven (Cairns et. al., 1989) and subsequent dropout. One possible explanation for the mixed findings is that withdrawal at or near the time when dropout usually occurs (i.e., in high school) may be associated with dropping out, whereas withdrawal that is more distal (i.e., in elementary and junior high) to subsequent dropout may not reflect this association. To date, studies have not examined concurrent social withdrawal per se and dropout, although some studies have considered students' feelings of social isolation and lack of social involvement or participation as potential contributors to dropout, as reviewed below.

Perceived Peer Support and Social Participation

One cannot assume that the experience of peer rejection and/or social withdrawal is equivalent to the perception of a lack of peer support, as measured by self report. In some instances self perceptions of social isolation (i.e., lack of support from peers) may be unrelated to actual peer rejection, neglect, social withdrawal and could be hypothesized to provide a stronger motivation to dropout than the actual experience of rejection or neglect by peers. Although a large number of writers have suggested that potential dropouts experience alienation, disenfranchisement or isolation, surprisingly few empirical studies specifically examine perceptions of social support among
potential dropouts (see Finn, 1989 for a review). It should be noted that alienation and similar terms are not synonymous with perceived lack of peer support, although many conceptualizations of alienation include social isolation as one dimension of the alienation construct (Brofenbrenner, 1986; Calabrese, 1987; Flake, 1990; Seeman, 1975).

Among the few that have studied the issue, Seidel and Vaughn (1991) compared Learning Disabled dropouts with Learning Disabled non-dropouts in terms of self-reported social alienation from peers and found that dropouts did indeed report greater social alienation than do non-dropouts. However, because their study examined only Learning Disabled students, generalizability may be limited. Similarly, results from national study of Danish students by Dohn (1991) also indicated that dropouts felt somewhat more excluded by their classmates than did non-dropouts. In an inner-city context, Fagan and Pabon (1990) compared dropouts with students still in school and found that social isolation was a strong contributor to school dropout among inner-city adolescents, even in the presence of other variables. Despite consistent results from these three studies indicating a significant link between perceived social alienation and dropout, there are several methodological concerns that may limit the validity and generalizability of these findings. First, each of the three studies employed a retrospective design in that the self-reports of isolation were obtained after the participants had dropped out. This is problematic in that dropouts' memories of their school experiences may be distorted by the act of dropping out. A second issue involves the lack of clear psychometric quality of the measures employed to investigate social alienation. Of the three studies, only Seidel and Vaughn (1991) provided specific information regarding the content and reliability (alpha = .84) of the scales used to measure the social variables. Because the other studies failed to demonstrate psychometric adequacy it is unclear whether they relied on a reliable and valid index of social alienation.
Only one study has utilized a prospective design to examine self-reported feelings of social involvement and subsequent dropout. From the longitudinal HSB data set, Pittman (1991) derived a variable he termed "Sense of Social Belonging" to predict dropout. This variable was based on "factor scores produced from principal components analysis of eight questions - referenced perceived popularity and the manner in which classmates viewed the student" (p.294). Social belonging manifested a -.17 correlation with dropout status (where dropout status was coded 1=graduate, 2=dropout), indicating that the less students reported feeling that they 'belonged' at school, the more likely they were to drop out. However, in a subsequent path analysis, the path coefficient between social belonging and dropout status was non-significant, suggesting that social belonging was not a significant predictor of later dropout, over and above the predictive power of other variables (e.g., grades, participation in extracurricular activities, perception school utility, school climate). With respect to the psychometric adequacy of the measures employed, both reliability and validity questions arise. In terms of reliability, no mention of the internal consistency of the social belonging variable was made beyond the reference to the principal components analysis. Furthermore, there is no certainty that the social belonging variable actually measured social belonging because the items are not presented in any more detail than indicated by the quote above. Perceived popularity may be a different and separate (though related) concept from the social belonging construct per se (i.e., it is possible that one may not think of oneself as popular, despite having good friends and feeling accepted), thus there is some reason to suspect that Pittman's social belonging variable may not capture the essence of feelings of social belonging. Other researchers who argue that social bonding to peers is an important element in the dropout phenomenon (Wehlage, Rutter, Smith, Lesko & Fernandez, 1989) have likewise used instruments with questionable psychometric properties. The Wisconsin Youth Survey questions, employed by Wehlage et. al. (1989) and Catterall (1987) in intervention studies,
contain a social bonding scale with a reported alpha of .58 (Catterall, 1987), which is only minimally adequate even for research purposes. Thus, numerous studies examining perceived peer support or related concepts among students do not provide clear conclusions due to the dubious psychometric quality of their measures.

Results of qualitative studies also suggest that a perceived lack of support from peers is experienced by at least a portion of those who dropout. After interviewing 52 graduating Hispanic students and 52 Hispanic dropouts with similar background characteristics, Valverde (1987) found that graduates reported having more friends than did dropouts and dropouts reported feelings of alienation and rejection. She also found that the graduates and dropouts reported no affiliation with each other. On the whole, graduates placed greater importance on friendships and a large proportion of dropouts (25%) evidently placed no importance on friendship. Using the same structured interview format as Valverde, Williams (1987) reported similar findings for black adolescents. Specifically, in comparison to dropouts, she found that graduates attached more importance to friendship and graduates were more likely to have friends who graduated. However, the post-hoc nature of the Valverde (1987) and the William's (1987) studies suggests that their findings should be interpreted with caution in that we cannot know whether dropouts' reported experiences accurately reflected their values and feelings before they left school or whether the act of dropping out created a retrospective bias such that their perceptions of the school experience, including their relationships with peers, were in some way changed or influenced by the event of dropping out.

Studies investigating the reasons students give for quitting school also suggest that difficulties with other students may contribute to the likelihood of dropping out for at least some students. For example, in a study of Cincinnati youth, Gastright (1987) reported that 3% of the dropouts surveyed spontaneously reported that "other students" were a reason for dropping out. As well, Tidwell (1988) reported that, across three
groups (White, Black, and Hispanic), 20.5% of dropouts agreed that "students at the school" was a reason for leaving school early, although this category was ambiguously described and may include such things as gang threats, bully-victim difficulties, or problems with romantic relationships. Nevertheless, the data do suggest that some dropouts may leave school early as a result of feelings of rejection or isolation from peers. In contrast, when other researchers have provided students with a list of possible causes of dropout, dropping out was not found to be attributable to peer relation difficulties (Pittman, 1986; Rumberger, 1983). It is possible, however, that problems with peers was subsumed by other categories such as "disliked school", "other" (Rumberger, 1983), or "unhappy school experience" (Pittman, 1986). Findings from the HSB data also suggest that peer relations may be a reason for dropping out. Specifically, McCaul (1989) reported that 6.3% of dropouts, across urban, suburban, and rural school contexts, agreed with the statement "couldn't get along with students" as a reason for their dropping out (McCaul, 1989).

Thus, although there is some suggestion that difficulties with peer relationships may contribute to the likelihood of dropout for at least some students, the results reported across studies are mixed and, almost without exception, retrospective in design. The disparity of findings across studies may, in part, be attributable to variations in the way in which student reasons were solicited. Both Tidwell (1988) and McCaul (1989) used closed-ended questions in which dropouts could agree or disagree with various reasons for dropping out, and found that at least some peer difficulties were a a contributing factor (e.g., 6.3% in McCaul, 1989; 20.5% in Tidwell, 1988). In contrast, Pittman (1986) and Rumberger (1983) coded spontaneously-generated reasons for dropping out, as reflected in responses to open-ended questions about the reasons for dropping out, and found no clear evidence for peer relation difficulties as a major reason for dropping out. However, as noted, social problems may well have been subsumed under other, researcher-derived categories. Gastright (1987) also
categorized spontaneously-generated reasons for dropout, offered in response to open-ended questions and reported that only 3% of dropouts indicted that "other students" contributed to their decision to dropout.

One conclusion that may be derived from this review is that dropouts generally do not spontaneously attribute dropout causes to peer difficulties or influences. However, this does not necessarily mean that peer difficulties were not a contributing factor. For example, it may be that dropouts are reluctant to attribute early school leaving to social difficulties, when less personally critical (and more socially acceptable) causal factors such as boredom or dislike of school are available. Dropouts may well be motivated to preserve their self-esteem by attributing their school leaving to more external causes, reflecting inadequacies of the school situation rather than to more internal factors such as one's own social deficiencies. It is also possible that dropouts more readily emphasize immediate precipitating events rather than more distal or general factors which impact significantly on the decision to drop out. As Ekstrom et al. (1986) argue, "Student self-reports provide a list of reasons for leaving school, but they do not yield much insight into the causal factors that led a student to drop out of school" (p. 364). Thus, asking dropouts for their reasons for dropping out may not present an accurate picture of what in actuality brings about their early withdrawal from school.

Using concurrent rather than retrospective data, other researchers also argue that dropouts feel alienated, rejected and isolated within the school environment. For example, Wehlage and Rutter (1986) report that dropouts feel alienated and rejected at school. However, their arguments are based on results obtained for three variables: "Teacher Interest in Students", "Effectiveness of Discipline", and "Fairness of Discipline", none of which clearly address feelings of social alienation or rejection from peers. As Finn (1989) points out, the variables considered by Wehlage and Rutter need to be differentiated from social alienation per se because they "do not
constitute the main features of any of the usual models of alienation, and it is even
difficult to see why the terms ["Teacher Interest in Students", "Effectiveness of
Discipline" and "Fairness of Discipline"] connote 'rejection' as distinct from, say,
'dislike'" (p. 126). Similarly, Elliott and Voss (1974) also purport to provide support
for the notion that students who would later dropout report greater perceptions of social
isolation. However, four out of five questions on their social isolation scale reflect
school participation rather than perceived isolation from peers. Although a lack of
school participation may result from feelings of social isolation (and/or vice versa), one
does not necessarily follow from the other. For example, students working at part-time
jobs may not feel socially isolated, but may participate very little in extra-curricular
activities.

Nevertheless, participation in extra-curricular activities has been construed by
some researchers and theorists as a dimension or indicator of social integration in the
school context in that it reflects social involvement (Kelly & Pink, 1972; Tinto, 1975).
Based on the assumption that school participation qualifies as a social integration
variable, the relation between dropout and school participation has received a relatively
large amount of research attention. The preponderance of these studies demonstrate
that dropouts participate less in extra-curricular activities and/or sports than their non-
dropout peers, suggesting that, at least to some extent, dropouts are not well-integrated
or involved in the social activities offered by schools (Ekstrom et al., 1986; Elliott &
Voss, 1974; Hinojosa & Miller, 1984; Kelly & Pink, 1972; Pittman, 1991; Smith,
Tseng & Mink, 1971; Thomas, 1954; Walters & Kranzler, 1970).

Further research using more carefully developed measures of social alienation,
isolation, or integration with demonstrated psychometric adequacy are clearly needed to
determine the extent to which peer isolation (or the lack of its opposite: integration)
actually contributes to school dropout. As well, future research would benefit from
consideration of the degree to which peer isolation as well as social participation
predicts school dropout over and above other social factors. In attempt to begin to address the possible links between perceptions of isolation, social participation and school dropout, the present study examined perceived peer integration and intimacy, and social participation in relation to dropout risk.

Friends' School Value

As noted above, various investigators (Cairns et. al., 1989; Mensch & Kandel, 1988; Pittman, 1991) suggest that potential dropouts tend to affiliate with other at-risk peers. Thus, students at risk for dropout may not associate with peers who value and encourage education completion. Evidence supporting this assertion can be found in a number of studies. First, students who later drop out are more likely to report lower educational aspirations for their friends than are graduates (e.g., Ekstrom et al., 1986; Rumberger, 1983). Second, students who have friends that like school (Hinojosa & Miller, 1984), get good grades, are interested in school, or attend classes regularly (Ekstrom et al., 1986) are more likely to graduate. Indeed, in a path analysis of the HSB data set, Pittman (1991) found that of the variables examined, peers' interest in school had the largest impact on students' own interest in school, which in turn, had the largest direct influence on dropout status. Also using the HSB data set, Hanson and Ginsburg (1988) found that peers' educational values (a variable based on three questions about closest friend's class attendance and plans to go to college, as well as their friends' feelings concerning students with good grades) added significantly to the prediction of dropout/graduation even when other background characteristics were taken into account. Third, retrospective studies show that having friends who have dropped out significantly discriminates between dropouts and graduates (Alpert & Dunham, 1986; Dunham & Alpert, 1987). Similarly, McCaul (1989) found that at least some dropouts (2.5%) acknowledge that one of the reasons they dropped out is that their friends were dropping out. Finally, findings from qualitative studies suggest that belonging to peer groups that embrace a non-educational focus can contribute to
the decision to drop out (Delgado-Gaitan, 1986; Farrell, Peguero, Lindsey, & White, 1988). Together, these results indicate that students at-risk for dropping out may share a number of similar negative school values with like-minded friends who are also at-risk or perhaps have already dropped out. In light of these findings, the present study examined the relationship between friends' school values and school dropout risk.

**Summary**

The decision to drop out of school in adolescence has serious consequences both for the individual dropping out and for society in general. Because successful attempts to deal with the problem are contingent on a thorough understanding of the underlying causes and processes of the dropout phenomenon, a large amount of research has examined this issue, focusing primarily on student characteristics, but sometimes also considering school variables that may play a role in school dropout. Relatively little research has investigated peer adjustment variables which may also influence early withdrawal from school. As Rumberger (1987) stated in his review of the dropout literature, "it is not clear to what extent and in what ways a student's friends and peers influence the decision to leave school" (p.110). In reviewing previous research conducted on the social (peer) factors which may contribute to school dropout, five potential peer influences on the dropout decision were delineated: social status, affiliation with at-risk peers, perceived social isolation, extra-curricular participation, and social behavior, including aggression and withdrawal. Although in some cases the research conducted to date has been limited, retrospective in nature, methodologically flawed or equivocal in terms of findings across studies, there is some evidence to suggest links between each of these peer adjustment variables and school dropout. Specifically, students who drop out of school tend to a) experience early rejection by peers, b) exhibit relatively high levels of earlier aggressive and withdrawn behavior, c) perceive themselves as relatively unsupported by peers, d) fail to participate extensively
in school activities, and, e) affiliate with peer who either have dropped out or who do not highly value academic success.

On the basis of the preceding review, further investigation of the social predictors of school dropout appears to be warranted for a number of reasons. First, many of the social variables in previous research were based on single-item measures (e.g., "In how many extra-curricular activities are you involved?"). Moreover, when multiple-item scales have been used, the reliability and/or validity data was often poor or completely absent. Thus, the psychometric quality of the measures used in the bulk of the studies reviewed is suspect, consequently making the results and conclusions questionable. Second, methodological problems were evident in many studies. For example, a number of studies utilized retrospective, or ex-post-facto, designs. That is, they examined differences between dropouts and graduates after dropping out and graduating had occurred, potentially biasing the results. A third concern is that results obtained across studies were often mixed or negligible for a number of the social variables reviewed. This was especially apparent when multivariate designs were employed in which factors showing significant relationships with dropout in univariate analyses often failed to exhibit relationships when other factors were brought into the analyses. Therefore, it is not certain at this point whether some of the peer adjustment variables are indeed significant factors in the dropout phenomenon. A fourth and related issue is that very few studies look at more than one social variable simultaneously, and to date no study has examined all five of the variables together. Thus, the relative impact of each variable on dropout remains unknown. Finally, many of the studies, especially those examining peer sociometric status and social behavior (aggression and withdrawal), investigated students as pre-adolescents or early adolescents and then follow them to the end of high school. Although this longitudinal approach is a necessary and appropriate avenue of research,
it is not informative as to the concurrent associations between peer social variables and dropout. Examining peer social variables among high school students who are at-risk for dropping out would be taking a relevant first step in clarifying these issues.

Thus, in light of this review of the literature, the present study is designed to address and overcome many of the issues noted above by exploring the relationship between various peer adjustment variables and dropout risk. Five areas of peer adjustment variables were delineated: Social Preference, Social Behavior, Social Support, Social Participation, and Friends' School Value. For variables within each peer adjustment area, the degree of association between dropout risk and the given variable was determined.

Dropout Risk

Studies of school dropouts have traditionally investigated the issue using one of two different designs. The first identifies school dropouts and usually compares their characteristics with non-dropouts or graduates (e.g., Dohn 1991; Seidel & Vaughn, 1991; Valverde, 1987). This is termed an ex-post-facto or retrospective design because the characteristics of the dropouts are measured after the act of dropping out has occurred. In contrast, a longitudinal design typically measures the characteristics of students at a certain point in their education and then follows the students to the time of graduation (e.g., Cairns et al., 198; Ensminger & Slusarcick, 1992; Kupersmidt & Coie). The dropouts are then compared to the graduates in terms of their earlier characteristics. Although both of these designs have been quite useful in documenting various factors associated with or contributing to the likelihood of school dropout, conclusions may be somewhat limited for several reasons. When a retrospective design is used, conclusions about the causes of dropout are tenuous because we do not know if the characteristics of dropouts measured after the students have dropped out are the same as before they dropped out. That is, post-hoc rationalizations may occur
which do not provide a true picture of differences between dropouts and graduates. Another limitation is that the many of the dropouts are often difficult to locate and it cannot be known whether the dropouts that are located are representative of the full cohort of dropouts. Longitudinal studies are susceptible to subject mislabeling or attrition due to death, change of home location, or transfers to other schools. Further, variables may change over time, potentially affecting the resulting dropout equation. For example, the relationship between peer rejection and later school dropout has been demonstrated for children and early adolescents, but, as noted above, because rejection status may change over many years time, no conclusions can be made suggesting that dropouts are rejected at the time that they decide to leave school. In addition, longitudinal designs suffer the drawback of being carried out over a period of years, which may not be feasible for some researchers. Despite the limitations and disadvantages of retrospective and longitudinal designs, research stemming from these designs is important, if not critical to a understanding of the dropout phenomenon. However, there may be an alternative approach that is practical, and perhaps equally important and informative. That is, the study of dropout risk.

In recent years, an increasing number of studies (to be reviewed below) have instead investigated students “at-risk” for dropout. These studies attempt to identify the characteristics of students who are currently still in school but who are perceived to be highly likely to drop out prior to high school graduation. Studies of dropout risk may be limited in terms of what they can reveal about the dropout phenomenon per se in that not all at-risk students drop out, and there is no single accepted and empirically proven means of assessing risk. Nevertheless, studies of dropout risk offer several important advantages over traditional dropout studies. First, in contrast to retrospective studies of dropout, studies of dropout risk eliminate potential post-hoc biases which may arise when dropouts are asked to recall their school experiences. Second, whereas longitudinal studies are limited by changes which may take place over
time, studies of dropout risk gather data in a single collection period allowing for the examination of direct temporal relationships between variables because no change over time takes place. Further, because all the subjects are students in school at the time of data collection, there is no problem of subject attrition (as in longitudinal designs), or loss of data due to difficulty in locating dropouts (unlike retrospective studies).

As alluded to earlier, an issue within the at-risk literature involves the definition and identification of who is at risk for dropping out. Surveying the literature, it is evident that no consensus exists as to how potential dropouts might best be identified. Researchers have employed a variety of approaches for defining dropout risk. The operational definitions for risk include: teacher or administrator identification of at-risk students through nominations or ratings (Bauwens & Hourcade, 1992; Larson, 1989; Payne & Payne, 1991; Pullis & Cadwell, 1985; Stevens & Pihl, 1982, 1987), student self-report of educational expectations (Cotterell, 1992; Hyndman & Evans, 1989; Power, 1984), academic criterion such as low GPA, course failures, or grade failures used exclusively (Catterall, 1987; Loughrey & Harris, 1990; Ruby & Law, 1982; Slicker & Palmer, 1993) or in combination with some other criteria such as excessive absenteeism or behavior problems (Kagan, 1988; Mayer et al., 1993; Nunn & Parish, 1992; O’Sullivan, 1990; Reyes & Jason, 1993; Sansone & Baker, 1990; Wirth-Bond, Coyne & Adams, 1991). Thus, while some studies use only one indicator such as teacher nominations, grades, or expectations of quitting school, other studies use a combined approach, usually employing a combination of variables such as academic grades, absences, grade retention, and/or behavior problems. Variations in identification procedures make it difficult to draw generalizations regarding the characteristics of at-risk students. Accordingly, the present study operationalized dropout risk in terms of two separate measures that are primary means of measuring risk in previous research: GPA and teacher nominations. A unique aspect of the study was that the risk measures were used not only to separate students into at-risk vs. not
at-risk categories, but also to assess degree of risk (i.e., the two indices of risk were utilized as continuous variables). An advantage to examining degree of risk is that continuous measures can be subjected to multiple regression techniques and the full range of variance can be exploited in analyses.

Assertions that students at-risk for school dropout experience peer adjustment difficulties are prevalent within the dropout literature (e.g., Evans & DiBenedetto, 1990; Finn, 1989; Trusty & Dooley-Dickey, 1993; Whelage et. al., 1989), although few writers furnish evidence in support of these claims. For example, Howard and Anderson (1978) made the interesting claim that the inability to meet peer group conformity demands in terms of "patterns of dress, leisure activities, and possession of material goods" can contribute to the decision to drop out by making the person feel inadequate (p. 224). Larson (1989) asserted that a substantial proportion of high-risk students lack interpersonal skills, and Kagan (1990) suggested that chronic low achievers are relatively inaccurate in processing social information. Fortune, Bruce, Williams, and Jones (1991) also maintained that a lack of peer support systems discriminates between potential dropouts and persisters but failed to provide supportive evidence. Likewise, Kagan (1990) recently argued that "factors within classrooms transform at-risk students into a discrete subculture that is functionally incompatible with school success. The result is alienation, a feeling of isolation and estrangement, and academic failure" (p. 108). Kagan went on to issue a call for research comparing at-risk students with other groups of students in order to determine whether these student groupings do indeed constitute separate cultures within the classroom. She identified three categories of classroom variables which may discriminate students at-risk from non-risk students, including differential treatment by teachers, differential student cognition and mediation, and differential peer interaction within the classroom. Thus, together these writers posit a range of peer adjustment difficulties that may be exhibited by potential dropouts. The present study responds to Kagan's call for
research, as well as to the claims of the other authors, with particular focus on how at-risk students may differ from non-risk students in terms of their peer adjustment.

In a similar vein, several theorists and researchers have argued that there is a need to foster a sense of belonging among at-risk students or implement social skills training for potential dropouts (e.g., DeNofa, 1993; Kronick & Hargis, 1990; Larsen & Shertzer, 1987; Larson, 1989; Rumberger et al. 1990). Indeed, reviews of dropout prevention programs have concluded that effective programs need to provide social as well as academic support (Orr, 1987; Rumberger, 1990), although the lack of controlled, rigorous studies in the area of dropout prevention has been widely noted (e.g., Baker & Sansone, 1990; Catterall, 1987; Rumberger, 1987), making such conclusions somewhat speculative. In an intervention study with at-risk sixth-grade students, Larson (1989) found that even strategies solely aimed at enhancing social functioning through problem solving were effective in not only reducing misbehavior but also improving report card grades. However, not all studies have found successful outcomes when links with peers were forged. Investigating the effects of a dropout prevention intervention on low-achieving high school students, Catterall (1987) found that intensive group counseling resulted in generally negative effects on outcome measures. Catterall provided a possible explanation for the non-significant findings in that the group members exhibited higher social bonding to peers than did control group members but had significantly higher perceived negative labeling by teachers and significantly lower social bonding to teachers. Thus, the group intervention may have led to increased bonding among group members who shared similar negative values toward school. These apparently discrepant findings among prevention studies illustrate the need for research determining in what aspects of peer adjustment at-risk high school students exhibit problems and which, if any, social skills should be taught or what type of social support should be encouraged.
As noted above, few studies of students at risk for school dropout have explored the peer adjustment of such students. A review of the few studies which have addressed the social characteristics of students at risk for dropout provides some support for such a focus. An Australian study by Hyndman and Evans (1989) investigated the social competence of grade 10 students expecting to drop out of school, measuring social competence in terms of "interest in social goals", "social competence" (assessed by responses to hypothetical situations), and teachers' ratings of social competence (in terms of the same hypothetical situations). They found no significant differences between potential dropouts and other students in terms of these social competence measures. Measuring a far different aspect of peer functioning, a Chicago study comparing inner-city Hispanic high school students at high and low risk for dropout found that high risk students reported more gang-affiliated friendships and received more invitations for gang membership than their low-risk counter-parts, although only one at-risk student admitted to being a member of a gang (Reyes & Jason, 1993). Kagan (1988) found that elementary students identified by teachers as potential dropouts were viewed by teachers as exhibiting more withdrawal, higher aggression-disruptiveness, and lower social competence than non-risk students. Findings in the dropout literature similarly reveal clear links between earlier aggressive behavior and later school dropout (e.g., Cairns, 1989; Ensminger & Slusarcick, 1992; Kupersmidt & Coie, 1990), although the relationship of early social withdrawal with later school dropout (e.g., Bowman & Matthews, 1960, cited by Parker & Asher, 1987; Cairns, 1989; Ensminger & Slusarcick, 1992) is not well established. Congruent with the dropout research indicating that a proportion of dropouts report that difficulties with peers was a reason for dropping out (Gastright, 1987; McCaul, 1989; Tidwell, 1988), a small-scale study of ninth and tenth grade at-risk students found that four (out of twenty-one) acknowledged that one of the reasons for not doing better in school was that they were having problems with friends (Loughrey & Harris, 1990).
Finally, in contrast to dropout studies indicating that some dropouts feel neglected or unsupported by peers (e.g., Dohn, 1991; Fagan & Pabon, 1990; Seidel & Vaughn, 1991), and contrary to expectations that at-risk students show poor peer adjustment, correlational research by Cotterell (1992) indicated that adolescent Australian males who expected to leave school reported a higher number of supportive ties with friends ($r = -.41$), although no significant relationship was found for females. However, "attachment" with peers (in terms of perception of acceptance, communication, and trust) was not related to educational expectations for either males or females. Thus, similar to the dropout literature, findings from the at-risk literature appear mixed; while some studies of at-risk students indicate poor social functioning, others find no differences or even differences in favor of at-risk students. These discrepancies may be due to a number of factors such as variations in samples and/or methodology, including procedures for identifying at-risk students, the aspects of peer functioning that are measured, the age of students, and the person who performs the rating (e.g., self, peer, or teacher). Clearly there is a need for studies of at-risk students to use multiple measures of peer variables in order to compare various aspects of peer adjustment among students at risk for dropping out.

Overview of the Present Study

Given the range of findings in the dropout and at-risk literature, it is evident that peers do play a role in the process of school withdrawal. However, results from the relatively few studies examining peer adjustment in relation to school dropout or dropout risk were often mixed, methodologically flawed, and have not typically considered the possible influence of more than one peer adjustment measure. Thus, though it is reasonably clear that poor peer adjustment (particularly low social participation and friends' low school values) is an antecedent to dropping out, much
remains unclear. Research to date has not yet clarified: a) whether students in high school who are rejected by peers are concurrently at greater risk for dropping out, b) whether socially isolated high school students are at greater risk for dropping out, c) whether students in high school who are viewed by peers as aggressive or withdrawn are concurrently at greater risk for dropping out, and, d) which aspects of peer adjustment exhibit greater associations with dropout risk. Research demonstrating that low social participation and having friends with low school value is relatively consistent in showing links with school dropout, but few studies have examined these variables in relation to other peer adjustment factors.

The present study attempts to overcome many of the methodological concerns noted and expand current knowledge of the influence of peers within the process of withdrawal from school. While this study does not claim to answer all of these questions raised, it is a first step, a response to calls for such research, and it incorporates the unique aspect of comparing a broad range of distinct peer adjustment variables simultaneously and within the same data set. On the basis of the previous research exploring social predictors/correlates of school dropout, five aspects of peer adjustment were delineated as potentially affecting students' decision to drop out, including: overall social status (social preference); social behavior, including aggression and withdrawal; social participation; social support; and friends' school value. The intent of the study was to determine to what extent and in what ways peer adjustment is related to the identification of students who are considered to be at-risk for school dropout. Of primary interest was whether students perceived to be at risk for school dropout were more likely to exhibit various forms of social adjustment difficulties.

As part of a larger, ongoing project, data for the present study were gathered over the period of a week during which time high school students (grades 8 through 11) and teachers responded to a variety of measures. Peer assessments were used to assess
social status, aggression, and withdrawal, while indices of social participation,
perceived peer integration, perceived peer support, friends' school value were assessed
through self reports. Dropout risk was assessed using two separate measures: GPA
(Grade Point Average), and teacher nominations of dropout risk, which were analyzed
as both continuous and nominal variables.

Measures of Dropout Risk

GPA. The first approach was to define dropout risk in terms of a common
predictor of dropout. Thus, academic achievement in the form of overall GPA was
utilized because, as reviewed above, there is abundant evidence that achievement
predicts dropout (Barrington & Hendricks, 1989; Ekstrom et. al., 1986; Ensminger &
Slusarcick, 1992). Using low GPA (< 1.7 on a 4 point scale) in ninth grade as a
cutoff, one longitudinal study found that dropouts could be distinguished from
graduates with 90% accuracy, including both false positives and false negatives as
ersors (Barrington & Hendricks, 1989). Furthermore, GPA or some other form of
academic achievement (e.g., course failures, achievement test scores) has been used to
define risk in studies of the characteristics of at-risk students (Loughrey & Harris,
1990) as well as in dropout intervention studies (Catterall, 1987; Ruby & Law, 1982;
Slicker & Palmer, 1993). When achievement is not exclusively used to define risk, it
is frequently utilized as one of a combination of defining factors (Mayer et al., 1993;
Nunn & Parish, 1992; O'Sullivan, 1990; Reyes & Jason, 1993; Sansone & Baker,
1990; Wirth-Bond, Coyne, Adams, 1991), and overall, is likely the single most
common component of operational definitions of dropout risk in the risk literature.
Thus, the present study employs low GPA as an index of school dropout risk.

Teacher Nominations of Dropout Risk. A second approach was to define risk
in terms of teacher nominations of risk for dropout. Teacher nominations, although we
may not know exactly on what basis teachers make their nominations, have the added value that they constitute perceptions presumably formed on the basis of a conglomerate of student characteristics and interactions, yet they compose a single measure. While nominations from a single teacher may be biased or based on personal differences with a particular student, the present study investigated nominations across numerous teachers, reducing the influence of this potential bias. Although Elliott and Voss (1974) have suggested that individual teachers may under-identify at-risk students, the use of nominations of dropout risk from multiple teachers in the present study was expected to minimize this concern.

Several studies have identified at-risk students on the basis of teacher nominations (Payne & Payne, 1991; Pullis & Cadwell 1985) or some form of teacher ratings (Bauwens & Hourcade, 1992; Larson, 1989; Parish & Parish, 1993; Stevens & Pihl, 1982, 1987). While a few studies have explored the predictive ability of teacher risk nominations or ratings, only one study has investigated whether teacher nominations accurately predict future dropout from school. Elliott and Voss (1974) asked teachers to identify students whom they considered to be at risk for school dropout, but did not provide specific instructions with respect to characteristics of at-risk students to be considered. Nevertheless, they found that although teachers grossly under-identified potential dropouts, their perceptions were quite accurate, obtaining an 86% overall accuracy rate in terms of students who actually graduated or dropped out. In another study of the predictive validity of teacher nominations, Stevens and Pihl (1982) asked sixth grade teachers to select 10 students considered least likely to be able to cope with high school for academic, intellectual or emotional reasons, and two or three students likely to do the best in high school. When these two groups of students were subsequently compared in terms of grades in a new school at seven months and one year later, results showed highly significant correlations indicating that teachers were able to predict which students would earn the lowest and the highest grades.
Thus, at least two studies have demonstrated that teacher nominations of risk can provide a valid assessment of dropout risk.

A recent study by O'Sullivan (1990) has also examined the relations between teacher ratings of dropout risk and alternative indices of dropout risk. Specifically, in this study, teacher ratings of student risk were compared with reported number of failing grades received 18 weeks later. Given that academic failure has been clearly linked to school dropout in previous studies (Barrington & Hendricks, 1989; Ekstrom et al., 1986), this measure provided an alternative assessment of dropout risk. Findings indicated a high correlation ($r = .62$) between teachers' ratings of student risk and number of F's. Moreover, using stepwise multiple regression analyses, O'Sullivan found that conduct, absences and teachers' at-risk ratings consistently predicted number of F's. On the basis of these findings, O'Sullivan concluded that using a combination of the three measures was a better method for identifying at-risk students than was using teachers' at-risk ratings alone. However, such a conclusion assumes that number of F's is a better predictor of future dropout than is teacher ratings of risk. This assumption appears premature insofar as there currently appears to be no data available addressing this issue. Regardless, O'Sullivan's findings do show that teachers' perceptions of risk exhibit substantial correlations with other known predictors of school dropout in addition to number of course failures: absences ($r = .29$) and ratings of poor conduct ($r = .62$).

Taken together, results from these studies provide some support for the accuracy of teacher nomination of students who are at-risk for school failure, although the general lack of the use of dropout as the criterion variable predicted indicates a need for further research in this area. The present study utilizes teacher nominations of dropout risk as the second outcome variables to be predicted by peer adjustment variables.
Measures of Peer Adjustment

A wide range of different peer adjustment variables are potentially important as correlates of dropout risk. In this study five were examined, as a step toward understanding the relationship between dropout risk and peer adjustment. It is acknowledged that other factors such as demographic variables (e.g., SES, ethnicity, parent's education, family structure), academic variables (e.g., grade retention, school value), school variables (e.g., school climate, school size) or other social variables (e.g., relationships with teachers and administrators) may account for larger portions of the variance in degree of dropout risk, but the main concern of the present study is peer influences.

First, a key variable was expected to be the degree to which one is liked rather than disliked by same grade peers. This social status information was captured in a measure termed "social preference". As reviewed earlier, previous studies generally indicated that many dropouts experienced earlier rejection by peers (i.e., during the elementary and junior high school years), but no studies to date have examined rejection in mid to late adolescents to discern whether the relationship exists concurrently (i.e., are dropouts rejected within the high school setting). Although studies have not examined the stability of social status from the elementary grades through to high school, there is some evidence to suggest that social status, particularly peer rejection is relatively stable across the elementary school years (Coie & Dodge, 1983). Therefore, it may be that students at risk for school dropout are not only rejected during the elementary (Kuhlen & Collister, 1952; Kupersmidt and Coie, 1990 Lambert, 1972) or middle grades (Kuhlen & Collister, 1952; Ullman, 1957), but continue to experience rejection during high school. Thus it was expected that students considered to be at risk for dropout would be less well accepted by their high school peers as reflected in lower social preference scores.
Second, with regard to social behavior, socially aggressive behavior was also expected to be associated with dropout risk. Although previous research has only demonstrated links between early aggression (elementary and middle school years) and future dropping out (e.g., Cairns, et. al., 1989; Ensminger & Slusarcick, 1992; Kupersmidt & Coie, 1990; ), aggression has been found to be highly stable over a range of ages (e.g., Olweus, 1979), suggesting that students at risk for dropout would likely be perceived as more aggressive. The possibility that withdrawn social behavior was related to dropout risk was also examined, although studies exploring the link between withdrawal and school dropout have been few and based on earlier withdrawn behavior (Cairns et. al., 1989; Ensminger & Slusarcick, 1992). Nevertheless, it was expected that social withdrawal among high school students would be associated increased risk for school dropout.

Third, the relation of social support to dropout was examined. A large number of researchers and theorists have contended that future dropouts and at-risk students experience low social support and feel isolated (e.g., Evans & DiBenedetto, 1990; Finn, 1989; Trusty & Dooley-Dickey, 1993; Wehlage et. al, 1989), but few have investigated this claim. Based on preliminary studies suggesting such a link, it was anticipated that students at risk for school dropout may perceive themselves as relatively unintegrated in their peer group.

Fourth, social participation (i.e., involvement in extra-curricular activities) was expected to be related dropout risk. As noted, previous research has indicated a consistent association between social participation and dropout from school (e.g., Ekstrom, 1986; Elliott & Voss, 1974; Walters & Kranzler, 1970), with dropouts exhibiting less involvement in school activities.

Finally, indications that at-risk students have friends' who hold relatively low education values (e.g., Ekstrom et. al., 1986; Hanson & Ginsburg, 1988; Hinojosa & Miller, 1984; Rumberger, 1983) suggested that ratings of how much friends' espoused
educational values and high aspirations would correlate with dropout risk. Sex, grade, and ethnicity differences among these relationships were also examined where possible.

Thus, the main research question stemming from the review of relevant literature was as follows: Do students identified as at high risk for school dropout, on the basis of either teacher nominations of dropout risk or low academic performance (GPA), experience difficulties in peer relations as assessed in terms of peer rejection, aggression, withdrawal, perceived social isolation, social participation and friends' school values.
Method

Participants

A total of 179 students (93 females, 86 males, age range 13-19 years, mean age 16 years 7 months), enrolled in grades eight through eleven in a single, inner-city high school in a large Western Canadian city participated in the present study. Data for the present study were collected as part of a larger, ongoing collaborative school-University project on school dropout. Excluded from the sample were all students who were currently identified by the school as having English as a second language, given concerns that language deficits may interfere with students' ability to comprehend and accurately complete written questionnaires. All subjects had received parental consent for participation in the study and themselves agreed to participate.

Participation rates varied across grades. In grade 8, only 26 students (15 females, 11 males) out of a possible 45 participated in the study, representing only 58% of the possible sample of eight grades. In grade 9, 39 (20 females, 15 males) out of 49 students participated, representing 71.4% of the possible sample. Among grade 10 students, 42 (27 female, 15 male) out of a possible 60 participated, representing 70.0% of the possible sample. In grade 11, 76 (31 female, 45 male) out a possible 96 students participated, representing 79.2% of the possible sample.

Given the relatively lower participation rate of grade 8 students (58%), concerns regarding representativeness of the grade 8 sample became important. As well, previous research by Crick and Ladd (1989) suggests that the accuracy of peer assessments data (particularly social preference evaluation) may be questionable when less than 70% of the possible sample are included. As a result, data obtained from the eighth grade students were not considered in subsequent analyses. Hence, the final sample consisted of 153 students (78 female, 75 male) from grades nine, ten and eleven, representing approximately 76.5% of the possible students in these grades.
Procedure

Students were initially contacted in their classrooms and given a statement describing the study (see Appendix A) and a parental permission slip which also described the study (see Appendix B) that they were asked to bring home to their parents. All students in grades 9 through 11 who received parent permission for participation and who themselves agreed to participate (see Appendix C) were subsequently involved in two group testing sessions (approximately 60 minutes) conducted about 1 week apart in their regular classrooms over a 2-week period. To encourage the return of parental permission forms, students that returned completed parent permission forms (regardless of whether consent was granted or not) were entered into a lottery from which two names for each grade were drawn and these students were presented with $15.00 gift certificates redeemable at a local music store. At least one member of the research team was present at each testing session to explain procedures, answer queries, and assist with reading difficulties. All teachers for each grade investigated completed a brief nomination form asking them to select students according to certain criteria (as described below). A detailed description of all measures follows.

Measures

The measures utilized in this study included peer nominations, teacher nominations and self-reports. In the present analysis, three sets of variables were identified: demographic, peer adjustment, and dropout risk variables. The individual measures within each set will be discussed in detail in the following sections. Because the distribution of students' scores on several measures deviated from normality (p < .001), scores from each of these measures were transformed using a square-root, logarithmic,

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1In an effort to minimize the impact of missing data, students missing only one item on a scale were given the mean, rounded to the nearest whole number, of their scores on the other items comprising the scale.
arcsine, or inverse transformation, according to the type of transformation that brought the variable closest to normality. For each variable that exhibited deviation from normality, the type of deviation (skewness versus kurtosis) and the accompanying transformation used will be noted.

For the self-report portion of the study, unless otherwise noted, students were asked to read each item of the questionnaires, and respond on a 5-point scale (YES, yes, sometimes, no, NO) in terms of how true each statement was for them:

"YES" - "Always true for you",
"yes" - "True for you most of the time",
"sometimes" - "Sometimes true for you",
"no" - "Hardly ever true for you",
"NO" - "Not at all true for you"

Responses were quantified from 5 "YES" to 1 "NO", with negatively-worded items reversed. Scale scores were derived by summing the scores on items relevant to each scale, with higher scores reflecting greater endorsement.

Demographic Variables

Gender. Previous studies show that dropout rates have been consistently higher for males (Rumberger, 1987), although this difference is not substantial (e.g., 12.6% for women versus 14.6% for men, as reported in Rumberger, 1987; 24.2% of men versus 20.4% of women, as reported in Mensch & Kandel, 1988). As well, some studies, often employing smaller samples, have failed to find significant gender differences in dropout rates (Barrington & Hendricks, 1989; Gadwa & Griggs, 1985; Howell & Frese, 1982). Accordingly, student gender was considered a potentially important factor in all subsequent analysis.

Grade level. A recent Canadian study of school dropouts (Statistics Canada, 1993) found that the highest completed grade for 32% of the school leavers was grade
9 or even less, with another 30% of early school leavers completing grade 10, and another 33% completing grade 11. Thus, the majority of school dropout (68%) occurs at some juncture after the completion of grade 10. Accordingly, investigation of students in grades 9 through 11 was considered appropriate in the present study.

**Ethnicity/race.** As noted previously, dropout rates are often higher for members of racial and ethnic minorities. For example, data from the United States has often indicated that Hispanic, and African-American people dropout in higher proportions than do Whites (Rumberger, 1987), although research by Rumberger indicates that the effect of race/ethnicity decreases when socio-economic level is held constant (Rumberger, 1983) and more recent data indicate that dropout rates do not differ significantly across ethnic groups (Center for Education Statistics, 1993). Canadian data indicate that Aboriginal groups dropout in particularly high proportion, compared to the rest of the Canadian population (Statistics Canada, 1993). Accordingly, the ethnic background of each student, as described by the students themselves, was considered in the present study. Specifically, students were asked "How do you describe yourself in terms of ethnic or cultural heritage?" A list of 8 options were then presented, including an "other" category, and students were asked to check one option. Responses to this question was used to specify three separate categories of ethnicity/race: White (n=74, 48%), Asian (n=51, 33%) and Other (n=26, 17%), and variations in both dropout risk and social adjustment as a function of ethnicity was considered in the present study.

**Peer Adjustment Variables**

**Social Status.** Students were presented with alphabetized lists of same grade peers and asked to circle the names of peers according to two separate sociometric criteria. No limit was placed on the number of peers that students could nominate. Specifically, students were asked to identify "who you like to hang around with at
school", and, "who you would rather not hang around with at school". The sociometric data collected in the present study were used to generate several distinct but related indices of social status among peers, based on previous research on sociometric assessment (e.g., Coie, Dodge, & Coppotelli, 1982; Dodge, Pettit, & Bates, 1994; Parkhurst & Asher, 1992). Peer Acceptance indices were computed in terms of the number of nominations received for the item "like to hang around with", and reflected the degree to which a given student was liked or preferred as a companion by grade mates. In contrast, Peer Rejection indices were computed in terms of the number of nominations received for the item "rather not hang around with", and reflected the degree to which a given student was rejected by grade mates. In addition, previous research by Coie, Dodge, and Coppotelli (1982) has employed two distinct indices based on a combination of Acceptance and Rejection scores: Social Preference and Social Impact. Following Coie et al., Social Preference scores were computed for each student by subtracting the Rejection score from the Acceptance score. Social Preference represented a continuous measure of social status, with higher scores indicating greater acceptance (i.e., social likability) and lower scores indicating greater rejection by peers. A Social Impact variable was also created by adding the Rejection score to the Acceptance score, with higher scores indicating greater social salience (i.e., a higher degree of being noticed by peers) and lower scores indicating less social salience.

In the interest of reducing the number of variables considered in the present study and given the potential redundancy across these various indices of social status, the interrelations among these variables were considered. Of additional concern was whether indices of social status should be based in nominations received for same-sex and opposite sex peers separately, or whether nominations received from all peers (same sex as well as opposite sex) should be considered. Although many researchers have considered social status indices on the basis of nominations from all peer (same
sex and opposite sex) (e.g., Coie, Dodge, & Coppotelli, 1982; Dodge, Pettit, & Bates, 1994; Patterson, Kupersmidt, & Griesler, 1990), others (Bukowski, Gauze, Hoza, & Newcomb, 1993) have argued for separate consideration of same sex and opposite sex social status based on findings indicating some inconsistency between same sex indices and opposite sex indices of sociometric status (Bukowski et. al., 1993). Accordingly, first considered were the correlations between same sex and opposite sex indices of each of the four indices of social status, as presented in Table 1.

### Table 1

**Correlation between Same Sex and Opposite Sex Indices for Social Status Measures**

<table>
<thead>
<tr>
<th></th>
<th>Correlation</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Acceptance</td>
<td>r = .44, p &lt; .001</td>
<td></td>
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<tr>
<td>Rejection</td>
<td>r = .38, p &lt; .001</td>
<td></td>
</tr>
<tr>
<td>Social Impact</td>
<td>r = .64, p &lt; .001</td>
<td></td>
</tr>
<tr>
<td>Social Preference</td>
<td>r = .18, p &lt; .05</td>
<td></td>
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</tbody>
</table>

*Note. df = 152 for each correlation.*

As can be seen in the table, the correlation between social status indices derived from same sex and opposite sex peers were significant for all four of the social status indices considered. However, the magnitude of these correlations was modest to low, especially in the case of Social Preference scores, suggesting a considerable degree of non-overlap across same sex and opposite sex perception of social status. Accordingly, it was deemed important to consider same sex and opposite sex indices of social status separately.

Next, the intercorrelations among the four indices of social status were examined for both same sex and opposite sex indices as presented in Table 2. Congruent with previous literature (for a review, see Newcomb, Bukowski, & Pattee,
1993), acceptance and rejection were not correlated, justifying the development of Social Impact and Social Preference scores. As would be expected given that Social Preference and Social Impact were derived from Acceptance and Rejection scores, both Social Preference and Social Impact were correlated significantly with Acceptance and Rejection indices across same sex and opposite sex peers. Thus, the correlations among social status indices reveal similar patterns for same sex and opposite sex nominations, with the exception of a significant correlation between Social Preference and Social Impact for same sex but not for opposite sex nominations. In light of the fact that pertinent information in terms of Acceptance and Rejection is captured in the Social Preference and Social Impact variables, it seemed logical to limit the number of variables involved in the study. Given that when sociometric data were available, other researchers have elected to use Social Preference as the representative variable for analyses requiring a continuous variable (e.g., Dodge, Coie, Pettit, & Price, 1990; MacKinnon-Lewis et al., 1994), for present purposes only Same Sex Social Preference and Opposite Sex Social Preference scores were utilized. Because students' scores on the Same Sex Social Preference variable exhibited significant positive skewness, scores for this variable were normalized using a logarithmic transformation. In terms of reliability, Social Preference scores have been found to be quite stable from year to year with stability coefficients ranging from .44 to .52 (Dodge, Pettit & Bates, 1994).
Table 2
Intercorrelations Among Social Status Indices for Same Sex and Opposite Sex Nominations

<table>
<thead>
<tr>
<th>Variable</th>
<th>1.</th>
<th>2.</th>
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<th>4.</th>
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<tbody>
<tr>
<td>Same Sex Nominations (n = 153)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. Acceptance</td>
<td>--</td>
<td>.00</td>
<td>.82*</td>
<td>.81*</td>
</tr>
<tr>
<td>2. Rejection</td>
<td>--</td>
<td>--</td>
<td>-.58*</td>
<td>.58*</td>
</tr>
<tr>
<td>3. Social Preference</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.33*</td>
</tr>
<tr>
<td>4. Social Impact</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Opposite Sex Nominations (n = 153)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Acceptance</td>
<td>--</td>
<td>.00</td>
<td>.70*</td>
<td>.69*</td>
</tr>
<tr>
<td>2. Rejection</td>
<td>--</td>
<td>--</td>
<td>-.72*</td>
<td>.71*</td>
</tr>
<tr>
<td>3. Social Preference</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-.03</td>
</tr>
<tr>
<td>4. Social Impact</td>
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</tr>
</tbody>
</table>

* \( p < .001 \)

Social Behavior. In order to assess peer perceptions of both aggressive and withdrawn behavior, peer assessment nominations were employed (Coie & Dodge, 1988; Graham & Hudley, 1994; Hudley, 1993; Hymel, Bowker, & Woody, 1993; Younger & Daniels, 1993). Specifically, for peer evaluations of aggression, students were presented with two separate grade lists and instructed to circle the names of grademates who: a) "start fights or arguments with others", and, b) "disrupt things in a group". These, or similar items have been used to assess aggression by numerous researchers (e.g., Coie & Dodge, 1988; Graham & Hudley, 1994; Hudley, 1993). The
two items assessing aggression were found to be highly related ($r(152) = .82, p < .001$), therefore the combination of the two items seemed justified. Within each grade, the total number of nominations received for each of the two items was averaged and divided by the number of possible nominators in order to provide comparable indices across groups which varied in terms of sex and gender composition. Thus, higher scores indicate higher peer-perceived aggressiveness.

Peer assessments of withdrawn behavior were obtained using two dimensions reflecting passive withdrawal on the part of the student. Students were asked to circle the names of classmates who: a) "prefer to stay by themselves rather than hanging around with other kids", and b) "are shy". Research utilizing similar items (e.g., Hymel, Bowker, & Woody, 1993; Younger & Daniels, 1993) suggests that these two dimensions tap the construct of withdrawal. In the present study, the two items were found to be moderately correlated ($r(152) = .52, p < .001$). On the basis of this moderate correlation and the precedence set by other researchers, the combination of these two items seemed justified. Nominations on the two items were averaged and divided by the number of possible nominators, with higher scores reflecting greater peer-perceived withdrawal.

For both Aggression and Withdrawal, composites based on nominations from same sex versus opposite sex peers were highly related (Aggression: $r(152) = .82, p < .001$; Withdrawal: $r(152) = .69, p < .001$), therefore it seemed legitimate to average across both sexes, rather than consider same sex and opposite sex nominations separately. Also, because the distribution of scores for both Aggression and Withdrawal were positively skewed and highly kurtotic, an inverse transformation was transformed on each variable. Although the transformations resulted in distributions that still deviated significantly from normal, the transformations served to substantially improve the normality of the distributions for both Aggression and Withdrawal scores.
Perceived Peer Support. Student perceptions of the social support available to them from peers was assessed using the Relational Provision Loneliness Scale developed by Hayden (1989), as presented in Appendix D. This 14-item scale, developed for use with later elementary and high school students, was designed to tap two separate indices of perceived support: Peer Group Intimacy and Peer Group Integration, with each subscale comprised of seven positively-worded items (e.g., "There is a friend at school I feel close to" for Peer Group Intimacy, and, "I feel like I fit in with other students at the school" for Peer Group Integration). Previous research has demonstrated the psychometric quality of this self-report instrument (see Hayden, 1989). Following procedures outlined in Hayden, student responses to relevant items on each subscale were summed to compute separate indices of perceived Peer Group Intimacy and Peer Group Integration for each student. Scores on each subscale could range from 7 to 35, with higher scores indicating greater or more positive perceptions of peer support in each case. In the present sample, internal consistency for each subscale was found to be quite high: .91 for Peer Group Intimacy and .88 for Peer Group Integration. Because the distribution of scores for Peer Group Intimacy was negatively skewed, scores were normalized using a square root transformation.

Social Participation. Participation in extra-curricular school activities was assessed using a measure adapted from Elliott and Voss' (1974) Social Isolation in School Scale. Although the original version of this self-report scale contained five items, two of the items were eliminated due to the fact that they questioned areas not directly tapping social participation (e.g., perceptions of teacher support, and feelings of school involvement). Accordingly, in the present study, self-reported social participation was assessed by students' responses to three items, a) "Since school started in September, how many different school clubs do you belong to?" b) "Not counting clubs, how many different kinds of school activities have you taken part in
since September (not counting regular classroom activities)?

c) During an average week, how many hours do you spend taking part in school clubs or school activities (not counting regular classroom activities)?

Because response formats varied such that the first two questions had 4 possible choices, while the third question had 6 possible choices, each item was first standardized. Subsequently, a total Social Participation score was derived for each participant by summing the standardized responses to each of the three items, with higher scores indicating greater levels of participation. A mean alpha coefficient of .75 was obtained for the three-item scale in the present sample, suggesting sufficiently high internal reliability to warrant its use as an index of Social Participation. Because the distribution of scores for Social Participation was positively skewed, a logarithmic transformation was performed, serving to normalize the variable.

**Friends' School Value.** A scale tapping friends' educational expectations and views of school's worth was developed for the present study. Although the exact items included in this scale have not been utilized before, questions similar to these have been asked by other previous researchers, though usually in a single-item format rather than a multiple-item scale, but with results nevertheless indicating that such questions are effective in differentiating dropouts from persisters. For example, Alpert and Dunham (1986) in an ex-post-facto study asked what proportion of close friends dropped out of school and found that responses to this single-item measure significantly discriminated between dropouts and students who remained in school. Similarly, Elliott and Voss (1974) used longitudinal data to show that having friends who had dropped out was predictive of later dropping out. Other researchers have also asked about the educational aspirations of friends in longitudinal studies of school dropout (Rumberger, 1983; Hanson & Ginsburg, 1988). Specifically, Hanson and Ginsburg (1988), using the HSB data, combined three questions regarding closest friend's class attendance,
plans to go to college, and feelings concerning students with good grades, as predictors of dropout versus graduation. In a multivariate model, they found that friend's values significantly added to the prediction of those who graduated versus those who dropped out. Further, Hinojosa and Miller (1984) found that having friends who like school was significantly correlated with higher grade level attainment. On the basis of these findings, several items were created to assess Friends' School Value in the present study.

Specifically, the Friends' School Value scale employed in the present study consisted of four self-report items. The first two items, one negatively-worded, the other positively-worded, concerned educational expectations for friends (i.e., "A number of my friends might not finish high school" and "All of my friends will be going to college or university"). Two additional items, one positively-worded, the other negatively-worded, concerned the worth friends' placed on school (i.e., "My friends think what they are learning in school is important" and "Most of my friends think school is a waste of time"). In order to verify the factorial integrity of this newly-developed self-report scale, a principal components analysis with varimax rotation was conducted using student responses to the Friends' School Value scale in the present study. Results indicated that a single factor emerged, suggesting that together, the items form a unified scale. The internal consistency (Cronbach's alpha) for the scale was .81 in the present sample. Accordingly, student responses to these four items were summed to create a single index of Friends' School Value, for which school range from 4 to 20, with higher scores indicating that friends' placed higher value on school.

Risk for School Dropout

Teacher Nominations of Dropout Risk. As noted in the introductory review, longitudinal research studies have provided support for the accuracy of teacher nomination of students who are at-risk for school failure (e.g., Elliott & Voss, 1974;
Stevens & Pihl, 1982). To avoid problems arising from having a single teacher assessing many students (e.g., serial correlation, increased risk of bias), teacher nominations of dropout in the present study were obtained by asking all teachers in each grade to assess the dropout potential of the students whom they taught. Teachers of students in grades 8 through to 11 were presented with a list with the names of students (by grade) and asked to circle the names of students whom they felt were at risk for dropping out. Thus, teacher nominated risk is considered to be a continuous variable indicating the number of risk nominations in proportion to the total number of teachers involved in nominating the students. Higher scores indicate more risk nominations and hence greater dropout risk. Because the distribution of scores for Teacher Nominations of Dropout Risk was positively skewed, scores were transformed using an arcsine transformation. Although the transformation resulted in a distribution that still deviated significantly from normal, the transformation served to substantially improve the normality of the distribution.

Low achievement. As a measure of academic performance, grade point average (GPA) is a common predictor of future dropping out (e.g., Ekstrom et al., 1986) and at-risk students are often defined in terms of low grades (e.g., Loughrey & Harris, 1990; Sansome & Baker, 1990). In the present study, overall GPA for each participating student was obtained from school records. The grades students received from all subject areas (Mathematics, English, Social Studies, Sciences, and all options) over the past school year were quantified as follows: F=1, D=2, C=3, B=4, A=5, with higher scores reflecting greater achievement in each case. Grades across each completed subject area were averaged together to produce an overall rating of academic achievement for each student with higher averaged scores reflecting better academic performance.
RESULTS

Overview

Preliminary analyses were conducted to investigate the intercorrelations among peer adjustment variables. The intercorrelation between the two dropout risk indices was examined as well. A final series of preliminary analyses examined the whether indices of dropout risk as well as indices of peer adjustment varied significantly as a function of general participant characteristics (sex, grade level, and ethnicity). Primary analyses were then conducted, beginning with the correlations between the peer adjustment variables and the dropout risk indices for the overall group as well as broken down by sex, grade level, and ethnicity. A sample matched on sex, grade, and dropout risk index was then drawn to explore group differences on the peer adjustment variables between students at high, modest and low risk for school dropout. Finally, a stepwise, hierarchical regression analysis was performed to examine the effectiveness of the peer adjustment variables to add to the prediction of dropout risk as determined by teacher nominations. Because transformations performed on many of the variables often inverted scores, interpretation of results may be confused if transformed scores were reported. Therefore, to simplify interpretation, relevant means and standard deviations are reported for untransformed scores, but all analyses were conducted (with the exception of correlations) with transformed scores.

Preliminary Analyses

Intercorrelations Among Peer Adjustment Variables. Preliminary analyses were conducted in order to examine the intercorrelations among the eight different peer adjustment variables considered in the present study: Same Sex (SS) Social Preference, Opposite Sex (OS) Social Preference\(^2\), Aggression, Withdrawal, Peer Group

\(^2\) Same Sex Social Preference and Opposite Sex Social Preference will hereafter be denoted Social Preference (SS) and Social Preference (OS), respectively.
Integration, Peer Group Intimacy, Social Participation, and Friends' School Value, as presented in Table 3. As may be viewed in the table, the majority of correlations among the various peer adjustment variables were found to be nonsignificant, and those correlations which did reach significance were modest (e.g., the largest correlation was found between Peer Group Intimacy and Peer Group Integration, $r(151) = .45, p < .001$). Given the modest to nonexistent overlap among the peer adjustment variables, consideration of each as a distinct index of peer adjustment was deemed appropriate. Thus each of the eight peer adjustment measures was included in subsequent analyses.

Table 3
Intercorrelations Among Peer Adjustment Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>1.</th>
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<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
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<td>Sociometric Status</td>
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<tr>
<td>1. Social Preference (SS)</td>
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<tr>
<td>2. Social Preference (OS)</td>
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</tr>
<tr>
<td>3. Aggression</td>
<td>.06</td>
<td>.06</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Withdrawal</td>
<td>-.18*</td>
<td>-.30***</td>
<td>-.14</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Peer Group Integration</td>
<td>-.13</td>
<td>.25**</td>
<td>.25**</td>
<td>-.26**</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Peer Group Intimacy</td>
<td>.27**</td>
<td>.03</td>
<td>.06</td>
<td>-.14</td>
<td>.45***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Social Participation</td>
<td>.19*</td>
<td>.15</td>
<td>.17*</td>
<td>.17*</td>
<td>.32***</td>
<td>.11</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>8. Friends' School Value</td>
<td>-.13</td>
<td>-.23**</td>
<td>-.34***</td>
<td>.13</td>
<td>-.05</td>
<td>.05</td>
<td>-.03</td>
<td>---</td>
</tr>
</tbody>
</table>

Note. Variables were not transformed; two tailed probabilities were used.
*p < .05
**p < .01
***p < .001
Intercorrelation Among Risk Indicators. The intercorrelation between the two indicators of dropout risk, Teacher Nominations and GPA, was also examined. Not surprisingly, the correlation between the two variables was found to be substantial ($r(150) = -.59, p < .001$), indicating that the more teacher nominations of dropout risk received, the lower the GPA on average. Although the degree of overlap between the two indicators of dropout risk was sizable, there was also substantial non-overlap indicating that the two variables estimate dropout risk somewhat differently from each other. Hence, for the remaining analyses, Teacher Nominations of Dropout Risk and GPA were considered as distinct indicators of dropout risk.

Do Dependent Variables Differ as a Function of Sex, Grade and Ethnicity? A final series of preliminary analyses were conducted to examine whether indices of dropout risk as well as indices of peer adjustment varied significantly as a function of general participant characteristics. In particular, these analyses were designed to examine whether indices of dropout risk (GPA, Teacher Nominations of Dropout Risk) and peer adjustment (Same Sex Social Preference, Opposite Sex Social Preference, Aggression, Withdrawal, Peer Group Integration, Peer Group Intimacy, Social Participation, and Friends' School Value) varied as a function of sex (males versus females), grade (9, 10, and 11), or ethnic background (White, Asian and Other).

First, a series of one-way analyses of variance were conducted to examine whether male and female students differed significantly in terms of either indices of dropout risk (GPA, Teacher Nominations of Dropout Risk) or indices of peer adjustment (Same Sex Social Preference, Opposite Sex Social Preference, Aggression, Withdrawal, Peer Group Integration, Peer Group Intimacy, Social Participation, and Friends' School Value). Relevant means and standard deviations are presented in Table 4 below. Results indicated no significant sex differences in terms of the two indices of dropout risk considered in the present study: GPA ($F(1, 150) = 1.58, \text{NS}$)
or Teacher Nominations of Dropout Risk ($F(1, 151) = 0.06, NS$). With regard to peer adjustment variables, results indicated significant differences between males and females for three of the eight indices of peer adjustment: Same Sex Social Preference ($F(1, 151) = 10.90, p < .01$), Opposite Sex Social Preference ($F(1, 151) = 4.02, p < .05$), and Peer Group Intimacy ($F(1, 151) = 16.67, p < .001$). As can be seen in Table 4, females received significantly more positive (higher) peer evaluations of social preference from same sex peers than did males, while males received significantly more positive (higher) peer evaluations of social preference from opposite sex peers than did females. That is, in terms of social preference, female students provided more positive nominations than did male students. In addition, females reported significantly higher levels of Peer Group Intimacy than did males. No significant differences between males and females were evident for Aggression, Withdrawal, Peer Group Integration, Social Participation, and Friends' School Value.
Table 4

Sex Differences in Risk Variables and Peer Adjustment Variables

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 77-78)</td>
<td>(n = 74-75)</td>
</tr>
<tr>
<td><strong>Risk Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td>3.15 (.90)</td>
<td>2.96 (.89)</td>
</tr>
<tr>
<td>Teacher Nominated DO Risk</td>
<td>.08 (.12)</td>
<td>.07 (.09)</td>
</tr>
<tr>
<td><strong>Peer Adjustment Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same Sex Social Preference**</td>
<td>.04 (.18)</td>
<td>-.05 (.17)</td>
</tr>
<tr>
<td>Opposite Sex Social Preference*</td>
<td>-.09 (.16)</td>
<td>-.04 (.14)</td>
</tr>
<tr>
<td>Aggression</td>
<td>.09 (.13)</td>
<td>.11 (.18)</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>.11 (.16)</td>
<td>.11 (.13)</td>
</tr>
<tr>
<td>Integration</td>
<td>25.29 (5.79)</td>
<td>25.69 (5.86)</td>
</tr>
<tr>
<td>Intimacy***</td>
<td>28.9 (6.40)</td>
<td>24.31 (7.76)</td>
</tr>
<tr>
<td>Social Participation</td>
<td>-.04 (.77)</td>
<td>.04 (.88)</td>
</tr>
<tr>
<td>Friends' School Value</td>
<td>13.19 (.43)</td>
<td>12.80 (.44)</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01. ***p<.001.

Next, variations across the three grade levels of students (i.e., grades 9, 10, and 11) were examined through a series of analyses of variance and post hoc tests (Newman Keuls) to see if they differed in terms of dropout risk indices (GPA, Teacher Nominations of Dropout Risk) or indices of peer adjustment (Same Sex Social Preference, Opposite Sex Social Preference, Aggression, Withdrawal, Peer Group Integration, Peer Group Intimacy, Social Participation, and Friends' School Value). Table 5 displays the relevant means and standard deviations. With respect to dropout
risk indicators, results indicated that the three grade levels did not differ significantly in terms of GPA ($F(2, 149) = 0.41$, NS), or Teacher Nominated Dropout Risk ($F(2, 150) = 2.45$, NS). However, in terms of grade differences among the peer adjustment variables, significant differences were observed for six of the eight variables. In particular, results indicated significant differences among the three grade levels (grade 9, 10, and 11) for the following variables: Same Sex Social Preference ($F(2,150) = 5.58$, $p < .01$), Opposite Sex Social Preference ($F(2,150) = 14.80$, $p < .001$), Aggression ($F(2,150) = 21.58$, $p < .001$), Withdrawal ($F(2,150) = 16.67$, $p < .001$), Peer Group Integration ($F(2,150) = 3.18$, $p < .05$), and Friends' School Value ($F(2,148) = 4.91$, $p < .01$). To further explore the nature of these differences among grade levels, follow-up Newman-Keuls analyses were performed for each of the six measures. Post-hoc analyses revealed that as compared to grade tens and elevens, grade nines received more positive (higher) scores on Same Sex Social Preference, and reported higher levels of Peer Group Integration and lower levels of Friends' School Value. Further, both grade nines and elevens received more positive (higher) evaluations of Opposite Sex Social Preference than did grade tens. In terms of social behavior, each grade differed from each other, such that grade elevens received proportionately the least number of peer nominations of Aggression and Withdrawal, grade tens received significantly more nominations (proportionately) of Aggression and Withdrawal than the grade elevens, and grade nines still more nominations (proportionately) than either the grade tens or elevens.
Table 5

Grade Differences in Risk Variables and Peer Adjustment Variables

<table>
<thead>
<tr>
<th></th>
<th>Grade 9 (n = 34-35)</th>
<th>Grade 10 (n = 41-42)</th>
<th>Grade 11 (n = 76)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk Variables</strong></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>GPA</td>
<td>3.11 (1.00)</td>
<td>3.14 (.91)</td>
<td>2.99 (.85)</td>
</tr>
<tr>
<td>Teacher Nominated DO Risk</td>
<td>.10 (.13)</td>
<td>.10 (.13)</td>
<td>.05 (.08)</td>
</tr>
<tr>
<td><strong>Peer Adjustment Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Preference (SS)***</td>
<td>.10 (.26)a</td>
<td>-.04 (.17)b</td>
<td>-.03 (.11)b</td>
</tr>
<tr>
<td>Social Preference (OS)***</td>
<td>-.03 (.20)a</td>
<td>-.16 (.13)b</td>
<td>-.03 (.10)a</td>
</tr>
<tr>
<td>Aggression***</td>
<td>.22 (.23)a</td>
<td>.10 (.12)b</td>
<td>.04 (.10)c</td>
</tr>
<tr>
<td>Withdrawal***</td>
<td>.20 (.21)a</td>
<td>.14 (.15)b</td>
<td>.06 (.06)c</td>
</tr>
<tr>
<td>Integration*</td>
<td>27.63 (4.80)a</td>
<td>24.98 (7.26)b</td>
<td>24.79 (5.14)b</td>
</tr>
<tr>
<td>Intimacy</td>
<td>26.83 (7.70)</td>
<td>26.93 (8.01)</td>
<td>26.41 (7.08)</td>
</tr>
<tr>
<td>Social Participation</td>
<td>.23 (.88)</td>
<td>-.16 (.76)</td>
<td>-.02 (.81)</td>
</tr>
<tr>
<td>Friends' School Value**</td>
<td>11.26 (4.21)a</td>
<td>13.44 (3.59)b</td>
<td>13.54 (3.45)b</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.

Note. Different subscripts (a, b, or c) indicate significant post-hoc (Newman-Keuls) differences.

Finally, variations across ethnic groups (White, Asian, and Other) were examined through a series of analyses of variance and post hoc tests (Newman Keuls) to see if they differed in terms of dropout risk indices (GPA, Teacher Nominations of Dropout Risk) or indices of peer adjustment (Same Sex Social Preference, Opposite Sex Social Preference, Aggression, Withdrawal, Peer Group Integration, Peer Group
Intimacy, Social Participation, and Friends' School Value. Table 6 displays the relevant means and standard deviations. Results indicated that although the three ethnic groups did not significantly differ in terms of GPA ($F(2, 147) = 1.71$, NS), significant differences were observed across the ethnic groups with respect to Teacher Nominations of Dropout Risk ($F(2, 148) = 5.82$, $p < .01$). Post hoc (Newman-Keuls) results indicated that Asian students were less likely to be nominated as at-risk for dropping out than were White students and students from other ethnic backgrounds. In terms of peer adjustment, significant variations across ethnic groups were observed on only two of the eight peer adjustment variables: Aggression ($F(2,150) = 7.31$, $p < .001$), and Friends’ School Value ($F(2,148) = 11.97$, $p < .001$). Post-hoc follow-up analyses (Newman-Keuls) revealed that Asians received fewer nominations for Aggression and reported higher Friends’ School Value as compared to White students and students of other ethnicities.
Table 6

Ethnicity Differences in Risk Variables and Peer Adjustment Variables

<table>
<thead>
<tr>
<th></th>
<th>White (n = 71-72)</th>
<th>Asian (n = 51)</th>
<th>Other (n = 26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Teacher Nominated DO Risk**</td>
<td>.09 (.12)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.03 (.07)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.10 (.12)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Peer Adjustment Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Preference (SS)</td>
<td>.00(.21)</td>
<td>.00(.15)</td>
<td>.01(.16)</td>
</tr>
<tr>
<td>Social Preference (OS)</td>
<td>-.05(.15)</td>
<td>-.09(.12)</td>
<td>-.06(.19)</td>
</tr>
<tr>
<td>Aggression***</td>
<td>.13(.20)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.04(.06)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.12(.13)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>.11(.13)</td>
<td>.11(.16)</td>
<td>.12(.16)</td>
</tr>
<tr>
<td>Integration</td>
<td>25.59(6.72)</td>
<td>24.90(4.68)</td>
<td>26.19(5.08)</td>
</tr>
<tr>
<td>Intimacy</td>
<td>25.97(8.31)</td>
<td>27.06(5.88)</td>
<td>28.19(7.55)</td>
</tr>
<tr>
<td>Social Participation</td>
<td>.09(.87)</td>
<td>-.20(.65)</td>
<td>.18(.93)</td>
</tr>
<tr>
<td>Friends' School Value***</td>
<td>11.81(3.69)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>14.92(3.07)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12.96(3.64)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01. ***p<.001.

Note. Different superscripts (a, b, or c) indicate significant post-hoc (Newman-Keuls) differences.

Thus, results indicate that, in many instances, indices of peer adjustment vary as a function of general participant characteristics, whereas, only once did indices of dropout risk vary as a function of general participant characteristics. In particular, sex (male versus female) differences were observed for three social adjustment variables (Same Sex Social Preference, Opposite Sex Social Preference, and Peer Group
Intimacy), grade (9, 10, or 11) differences were observed for six peer adjustment variables (Same Sex Social Preference, Opposite Sex Social Preference, Aggression, Withdrawal, Peer Group Integration, and Friends' School Value), and ethnicity (White, Asian, or Other) differences were observed for two peer adjustment variables (Aggression and Friends' School Value). In contrast, there were no sex or grade differences observed for the dropout risk indices (GPA, Teacher Nominations of Dropout Risk), although ethnicity differences were observed for Teacher Nominations of Dropout Risk. In light of the main effects of general participant characteristics, it was deemed important to consider the potential effects of sex, grade, and ethnicity within all subsequent analyses. A difficulty arose, however, in that the sample size limited the number of variables that could be analyzed with confidence. Therefore, participant characteristics were considered only to the extent that sample size in the given analysis reasonably allowed.

**Primary Analyses**

In order to determine the pattern of relationships between peer adjustment variables and the two indices of dropout risk (GPA and Teacher Nominations of Dropout Risk) across demographic subgroups, Pearson Correlation Coefficients were calculated within each sex, grade level, and ethnicity group. First considered are the peer adjustment correlates of dropout risk indices for females and males, as presented in Table 7.

In terms of the peer adjustment correlates of dropout risk variables among females, results indicated that females who academically performed more poorly in school (i.e., lower GPA) were significantly more likely to be rated by peers as aggressive, and to report lower (less positive) value for school among their friends (see Table 7). Similarly, using Teacher Nominations of Dropout Risk as an index of dropout risk, results indicated that females who were viewed by teachers as at greater
risk for dropout were significantly more likely to be viewed as aggressive by peers and to report lower school value among friends. Contrary to expectations, females who achieved lower grades in school and who were viewed by teachers as at greater risk for dropping out were significantly more likely to perceive themselves as integrated in their peer group and significantly less likely to be viewed by peers as withdrawn. Also contrary to expectations, females who achieved lower grades were significantly more likely to be liked by female peers (higher Same Sex Social Preference). No significant relationships were found between either of the dropout risk indices and the remaining peer adjustment variables (Opposite Sex Social Preference, Peer Group Intimacy).
Table 7

Correlations (One-Tailed) Between Peer Adjustment Variables and Dropout Risk Indicators for Females and Males.

<table>
<thead>
<tr>
<th>Peer Adjustment Variables</th>
<th>GPA Females</th>
<th>GPA Males</th>
<th>Teacher Nominated Risk Females</th>
<th>Teacher Nominated Risk Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same Sex Social Preference</td>
<td>-.21*</td>
<td>.45***</td>
<td>.08</td>
<td>-.22*</td>
</tr>
<tr>
<td>Opposite Sex Social Preference</td>
<td>-.11</td>
<td>-.20*</td>
<td>-.04</td>
<td>.06</td>
</tr>
<tr>
<td>Aggression</td>
<td>-.20*</td>
<td>-.22*</td>
<td>.40***</td>
<td>.52***</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>.23*</td>
<td>.10</td>
<td>-.26*</td>
<td>.08</td>
</tr>
<tr>
<td>Peer Group Integration</td>
<td>-.21*</td>
<td>.13</td>
<td>.13</td>
<td>-.09</td>
</tr>
<tr>
<td>Peer Group Intimacy</td>
<td>-.18</td>
<td>.09</td>
<td>.14</td>
<td>-.02</td>
</tr>
<tr>
<td>Social Participation</td>
<td>-.02</td>
<td>.17</td>
<td>-.06</td>
<td>-.21*</td>
</tr>
<tr>
<td>Friends' School Value</td>
<td>.24*</td>
<td>.16</td>
<td>-.25*</td>
<td>-.36**</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.

For males, results indicated that when GPA was used as a dropout risk indicator, males who achieved lower grades were significantly more likely to be rated by peers as aggressive and, in marked contrast to females, to be more rejected by same sex peers (lower Same Sex Social Preference). Similarly, using Teacher Nominations of Dropout Risk as the dropout risk indicator, results indicated that males who were viewed by teachers as at greater risk for dropping out were significantly more likely to be rated by peers as aggressive and to be more rejected by male peers (lower Same Sex...
Social Preference). Other findings indicated that males who were viewed by teachers as greater risk for school dropout were significantly more likely to report lower participation in extra-curricular social activities and to report lower school value among their friends. Contrary to expectations, males who achieved lower grades were more likely to be accepted by female peers (higher Opposite Sex Social Preference scores). The remaining peer adjustment variables (Withdrawal, Peer Group Integration, Peer Group Intimacy) did not exhibit significant relationships with either of the dropout indices.

Next considered are the peer adjustment correlates of dropout risk indices for students in grades 9, 10 and 11 (see Table 8). Substantial variation across the grade levels was observed. It should be noted that although only the significant results are reported in the text, different sample sizes for each grade level affected the comparability of significance levels (i.e., grade 11 students were more likely than grade 9 or 10 students to obtain significant correlations due to their larger sample size).

Looking first at the grade 9 students, results indicated that grade 9 students who achieved lower grades were significantly more likely to be viewed by peers as aggressive, and to report lower school value among their friends. Using Teacher Nominations of Dropout Risk as an index of dropout risk, results were similar to the findings for GPA such that grade 9 students who were viewed by teachers as at greater risk for dropping out of school were significantly more likely to be viewed as aggressive by peers and to report less positive value for school among their friends. Contrary to expectations, grade 9 students with lower academic achievement (GPA) were significantly more likely to be accepted by opposite sex peers (Opposite Sex Social Preference) and grade 9 students who were viewed by teachers as at greater risk for dropping out were significantly less likely to be viewed by peers as withdrawn.
Table 8

Correlations (One-Tailed) Between Peer adjustment Variables and Dropout Risk Indicators for Grades 9, 10, and 11.

<table>
<thead>
<tr>
<th>Peer adjustment Variables</th>
<th>GPA</th>
<th>Teacher Nominated Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gr. 9</td>
<td>Gr. 10</td>
</tr>
<tr>
<td>Same Sex Social Preference</td>
<td>.08</td>
<td>.12</td>
</tr>
<tr>
<td>Opposite Sex Social Preference</td>
<td>-.36*</td>
<td>-.03</td>
</tr>
<tr>
<td>Aggression</td>
<td>-.41**</td>
<td>-.11</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>.19</td>
<td>.26</td>
</tr>
<tr>
<td>Peer Group Integration</td>
<td>-.04</td>
<td>-.18</td>
</tr>
<tr>
<td>Peer Group Intimacy</td>
<td>-.19</td>
<td>-.34*</td>
</tr>
<tr>
<td>Social Participation</td>
<td>.23</td>
<td>.00</td>
</tr>
<tr>
<td>Friends’ School Value</td>
<td>.44**</td>
<td>.13</td>
</tr>
</tbody>
</table>

* p < .05. ** p < .01. *** p < .001.

The only correlation to reach significance among grade 10 students was counter to expectations. Results indicated that those grade 10 students who achieved a lower GPA were significantly more likely to report a higher degree of intimacy with peers. No significant correlations were found between Teacher Nominations of Dropout Risk and any of the peer adjustment variables.

For grade 11 students, peer nominations of aggression were significantly related to both dropout indices. Thus, students who were achieved lower grades or who were viewed by teachers as at greater risk for dropping out were significantly more likely to be viewed by peers as aggressive. Unlike the grade 10’s and consistent with
expectations, grade 11 students who achieved lower grades were significantly more likely to report less intimacy with peers. Further, grade 11's who were viewed by teachers as at greater risk for dropping out were significantly more likely to report less positive school values among their friends.

Next considered are the peer adjustment correlations of Teacher Nominations of Dropout Risk for the three Ethnic groups considered in this study: Whites, Asians, and students from other Ethnic backgrounds (see Table 9). The note above indicating that differences in group sample sizes will affect which correlations reach significance and thus reduce comparability across the groups applies for the three Ethnic groups as well, such that the White group was larger than the Asian group, which was in turn larger than the group containing other ethnicities. With respect to White students, both dropout risk indices were related significantly with Aggression and Friends' School Value. Thus, those White students who achieved lower grades or those who were viewed by teachers as at greater risk for dropping out were significantly more likely to be viewed by peers as aggressive and to report lower (less positive) value for school among their friends. As well, results also indicated White students who were viewed by teachers as at greater risk for dropping out were more likely to be seen as aggressive by their peers. Contrary to expectations, White students who obtained lower grades (GPA) were significantly less likely to be viewed as withdrawn by peers and significantly more likely to be accepted by opposite sex peers (higher Opposite Sex Social Preference scores).
### Table 9

Correlations (One-Tailed) Between Peer adjustment Variables and Dropout Risk Indicators for Whites, Asians and Other Ethnicities

<table>
<thead>
<tr>
<th>Peer Adjustment Variables</th>
<th>GPA</th>
<th>Teacher Nominated Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
<td>Asian</td>
</tr>
<tr>
<td></td>
<td>n = 71-73</td>
<td>n = 51</td>
</tr>
<tr>
<td>Same Sex Social Preference</td>
<td>.01</td>
<td>.20</td>
</tr>
<tr>
<td>Opposite Sex Social Preference</td>
<td>-.34**</td>
<td>-.19</td>
</tr>
<tr>
<td>Aggression</td>
<td>-.23*</td>
<td>.01</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>.30*</td>
<td>.19</td>
</tr>
<tr>
<td>Peer Group Integration</td>
<td>-.19</td>
<td>.14</td>
</tr>
<tr>
<td>Peer Group Intimacy</td>
<td>-.19</td>
<td>.21</td>
</tr>
<tr>
<td>Social Participation</td>
<td>.01</td>
<td>-.03</td>
</tr>
<tr>
<td>Friends' School Value</td>
<td>.28*</td>
<td>-.12</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.

Among Asian students, there were no significant correlations between peer adjustment indices and academic achievement, when GPA was used as a index of dropout risk. However, when Teacher Nominations of Dropout Risk functions as an index of dropout risk, results indicated that those Asian students who were viewed by teachers as at greater risk for dropping out of school were significantly more likely to be viewed as aggressive in social behavior by peers and to be rejected by opposite sex peers (lower Opposite Sex Social Preference).

For students from other ethnic backgrounds, only one peer adjustment index was significantly correlated with the two dropout risk indices. Results indicated that students from other ethnic backgrounds who achieved lower grades and were viewed
by teachers as at greater risk for dropping out were significantly less likely to report participation in the social activities of the school.

Finally considered are the overall peer adjustment correlates of the dropout risk indices. In terms of Teacher Nominations of Dropout Risk, students who were viewed by teachers as at greater risk for dropping out (see Table 10) were significantly more likely to be rated by peers as aggressive in social behavior and were also significantly more likely to report lower (less positive) value for school among their friends. Similarly, when GPA was considered as an index of dropout risk, results indicated that students who performed more poorly in school (i.e., lower GPA) were significantly more likely to be viewed as aggressive by peers and to report less positive school value among their friends. Thus, as predicted, students at risk for dropout were more likely to be viewed by peers as aggressive and to report lower (less positive) school value among their friends. In addition, however, students with lower GPA were also viewed by peers as less social withdrawn and were generally more liked by opposite sex peers (higher Social Preference scores).
Table 10
Correlations (One Tailed) Between Peer Adjustment Variables and Dropout Risk Indicators.

<table>
<thead>
<tr>
<th>Peer Adjustment Variables</th>
<th>GPA</th>
<th>Teacher Nominated Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 150-152</td>
<td>N = 151-153</td>
</tr>
<tr>
<td>Same Sex Social Preference</td>
<td>.12</td>
<td>-.03</td>
</tr>
<tr>
<td>Opposite Sex Social Preference</td>
<td>-.16*</td>
<td>-.01</td>
</tr>
<tr>
<td>Aggression</td>
<td>-.21**</td>
<td>.43***</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>.17*</td>
<td>-.13</td>
</tr>
<tr>
<td>Peer Group Integration</td>
<td>-.05</td>
<td>.04</td>
</tr>
<tr>
<td>Peer Group Intimacy</td>
<td>-.00</td>
<td>.08</td>
</tr>
<tr>
<td>Social Participation</td>
<td>.07</td>
<td>-.13</td>
</tr>
<tr>
<td>Friends' School Value</td>
<td>.21**</td>
<td>-.29***</td>
</tr>
</tbody>
</table>

*p < .05.  **p < .01.  ***p < .001.

To summarize, when the relationships between peer adjustment indices and indices of dropout risk were examined over all subjects and as a function of demographic variables, variable patterns were observed. First, when sex differences were examined, females at greater risk for dropping out, as measured both by teacher nominations of dropout and by lower GPA, were found to be significantly more likely to be rated by peers as aggressive, to report lower (less positive) value for school among their friends and, counter to expectations, to be less likely to be assessed by peers as withdrawn. With GPA as the dropout risk index, females achieving lower grades were significantly more likely to be liked by female peers (higher Same Sex Social Preference), also contrary to expectations. Among males, those who obtained
more teacher nominations of dropout risk or had a lower GPA were significantly more likely to be viewed by peers as aggressive and significantly less likely to be liked by male peers (lower Same Sex Social Preference).

In terms of grade level differences, grade 9 and 11 students with lower GPA or who were viewed by teachers as at greater risk for dropping out of school were significantly more likely to be viewed by peers as aggressive. Grade 9 students at greater risk as indicated by either dropout index and grade 11 students who were viewed by teachers at greater risk for dropping out were also significantly more likely to report less positive school value among their friends. Grade 11 students with lower GPA were significantly more likely to report less intimacy with peers. A number of findings also ran counter to expectations: Grade 9 students with lower academic achievement were more likely to be accepted by opposite sex peers; Grade 9 students viewed by teachers as having greater dropout risk were less likely to be perceived by peers as withdrawn; and Grade 10 students who obtained lower grades were more likely to report a higher degree of intimacy with peers.

In terms of ethnicity, White and Asian students who were viewed by teachers as at greater risk for dropping out were more likely to be viewed as aggressive by peers. White students who were at greater risk, as indicated by either dropout index, were more likely to report lower (less positive) school value among their friends. Asian students who were viewed by teachers as at greater risk for dropping out were more likely to be accepted by opposite sex peers. Students from other ethnic backgrounds who achieved lower grades were less likely to report involvement in the social activities of the school. Contrary to expectations, White students who achieved lower grades were more likely to be accepted by opposite sex peers and less likely to be viewed by peers as withdrawn.

When the overall correlations were examined, relationships between dropout indices and various peer adjustment variables were observed. Specifically, results
indicated that students at risk for dropout (as indicated by both dropout indices) were more likely to be viewed by peers as aggressive and to report lower (less positive) school value among their friends. Furthermore, counter to expectations, students who achieved lower grades were more accepted by opposite sex peers, and less likely to be viewed by peers as withdrawn.

As with all statistical analyses, certain benefits may be gained by taking a correlational approach to data analysis and certain drawbacks may limit the findings. Correlational analyses are effective in evaluating the size and direction of linear relationship between two variables. In doing so, correlational analyses take into account the magnitude of association across all levels of two variables. When the two variables are continuous, there is greater sensitivity in the association because the analysis takes into account the full range of variability between the two variables. Moreover, for the present study, given that there is no established criteria or cut-off in the literature (as discussed above) for determining of which students at "at-risk" and which are not, taking a correlational approach provides the added benefit of not requiring cut-off score; instead, the degree of risk is examined.

However, certain limitations are experienced with a correlational approach. Because correlational analyses are sensitive to the degree of association between two variables (i.e., the amount two variables vary in the same or opposite direction) on the basis of all subjects, the analyses may mask the degree of relationship at the extremes or at a certain level of one of the variables. For example, it is possible that a certain group of subjects who obtain a certain score on one variable score at a similar level on the other variable while the rest of the subjects show little pattern in their scores on the two patterns. In this case, the relationship between the two variables may be sizable for a specified sub-group of subjects, despite the fact that overall correlation between the variables may be minimal (depending on the number within the group versus the total number). Another problem for the present correlational approach is that group
size often differed (e.g., White versus Asian students), making it more likely for the larger group to obtain a significant correlation. This reduced the comparability of the findings across the groups in that two correlations could be equal in size but due to group size differences, only one may have reached significance. Furthermore, in reality, just as school dropout is essentially an all-or-none phenomenon (either dropped out or still in school), at-riskness is also often viewed in "either-or" terms (either at-risk or not at-risk). For example, programs are established for "at-risk" students, and researchers generally compare "at-risk" students with students not considered "at-risk" (e.g., Bauwens & Hourcade, 1992; Nunn & Parish 1992; Sansone & Baker, 1990; Stevens & Pihl, 1982, 1987). Therefore, because schools as well as previous research generally does not use risk as a continuous scale, it was decided that students would be grouped in terms of their risk for dropping out.

**Extreme Group Mean Comparison**

Because correlational analyses take into account variation across all levels, and may mask differences at the extremes or at certain levels, extreme group mean comparisons were employed to examine whether students considered to be highly at-risk for dropping out differed from other groups in terms of their peer adjustment. Thus, three groups were created for each of the two risk indicators: High, Modest, and Low Dropout Risk. Because the preliminary analyses indicated numerous sex and grade differences for the risk indicators and peer adjustment variables, samples matched on grade, sex and risk level were drawn to control for sex and grade.

First, using Teacher Nominations of Dropout Risk, all participants were initially divided into one of three groups on the basis of the number of nominations received regarding dropout risk. Specifically, students who received no nominations from any teacher as at risk for dropping out were included in a Low Dropout Risk
group (n = 9 males, 14 females), while students who received nominations from only one or two teachers as at-risk for dropping out were included in a Modest Dropout Risk group (n = 9 males, 14 females), and students who received nominations from three or more teachers as being at risk for dropout were included in a High Dropout Risk group (n = 9 males, 14 females).

The latter (High Risk) group was considered to be of particular interest to the present study as this group included those students who teachers collectively viewed as at greatest risk for subsequent dropout. Accordingly, subsequent analyses were conducted to compare students in the High, Modest and Low Risk groups in terms of all eight indices of peer adjustment (Same Sex Social Preference, Opposite Sex Social Preference, Aggression, Withdrawal, Peer Group Integration, Peer Group Intimacy, Social Participation, and Friends' School Value). However, given the unequal sample sizes apparent across these three groups as well as findings reported above indicating that scores on several of the peer adjustment variables differed in terms of both sex and grade level, a matched-sample comparison was deemed most appropriate.

Accordingly, for each student in the High Risk group, a comparison peer of the same grade and sex was randomly selected from both the Modest and Low Risk groups for comparison purposes. Because the matching process was performed on the basis limited numbers in each group, the least number in a given group (whether High, Modest or Low Risk) dictated the number of same grade and sex students eligible to be randomly selected from each of the remaining two groups.

A series of one-way ANOVAs were conducted in order to examine differences among the three matched groups (High Risk, Modest Risk and Low Risk) in terms of

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3Analyses using the total sample were also conducted with results showing similar patterns to those reported for the matched sample. Therefore, they will not be reported here. However, a table of the results of these analyses is included in Appendix E for the interested reader.

4Although the preliminary analyses indicated differences in terms of grade and sex as well as ethnicity, students were matched only on the basis grade and sex (and not ethnicity) because also matching on the basis of ethnicity substantially reduced sample size (10 females and 6 males in each of the three groups), making results less credible.
each of the eight peer adjustment indices (Same Sex Social Preference, Opposite Sex Social Preference, Aggression, Withdrawal, Peer Group Integration, Peer Group Intimacy, Social Participation, and Friends' School Value). A univariate approach to data analysis was employed, given that according to Huberty and Morris (1989), a univariate approach is appropriate when research questions are not concerned with underlying constructs or linear composites of outcome measures. Although the outcome measures (the two indices of dropout risk) in the present study are related, they are considered to be independent and individually relevant. Thus, ANOVA's rather than a MANOVA were analyses of choice. Results indicated significant differences among the three teacher nominated risk groups for three of the eight peer adjustment variables: aggression, $F(2, 66) = 8.56, p < .001$, withdrawal, $F(2, 66) = 8.15, p < .001$, and friends' school value, $F(2, 65) = 3.83, p < .05$. Relevant means and standard deviations for these analyses are presented in Table 11 below. Post hoc analyses (Newman-Keuls) were conducted to examine the nature of these differences.
### Table 11

Mean Differences Among Teacher Nomination Dropout Risk Groups in Terms of Peer Adjustment Variables

<table>
<thead>
<tr>
<th>Peer adjustment Variables</th>
<th>Low Risk $(n = 23)$</th>
<th>Modest Risk $(n = 23)$</th>
<th>High Risk $(n = 23)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociometric Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Same Sex Social Preference</td>
<td>0.04 (0.21)</td>
<td>0.02 (0.17)</td>
<td>-0.00 (0.16)</td>
</tr>
<tr>
<td>2. Opposite Sex Social Preference</td>
<td>-0.09 (0.12)</td>
<td>-0.07 (0.16)</td>
<td>-0.08 (0.16)</td>
</tr>
<tr>
<td>Social Behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Aggression***</td>
<td>0.05 (0.08)$^a$</td>
<td>0.11 (0.15)$^a$</td>
<td>0.26 (0.27)$^b$</td>
</tr>
<tr>
<td>4. Withdrawal***</td>
<td>0.16 (0.18)$^a$</td>
<td>0.07 (0.06)$^b$</td>
<td>0.04 (0.05)$^b$</td>
</tr>
<tr>
<td>Perceived Social Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Integration</td>
<td>25.00 (4.02)</td>
<td>27.65 (4.90)</td>
<td>26.39 (5.11)</td>
</tr>
<tr>
<td>6. Intimacy</td>
<td>26.96 (6.19)</td>
<td>29.22 (6.83)</td>
<td>28.52 (7.29)</td>
</tr>
<tr>
<td>7. Social Participation</td>
<td>-0.07 (0.91)</td>
<td>-0.13 (0.74)</td>
<td>0.06 (0.91)</td>
</tr>
<tr>
<td>8. Friends' School Value*</td>
<td>13.90 (3.84)$^a$</td>
<td>12.74 (4.31)</td>
<td>10.78 (3.29)$^b$</td>
</tr>
</tbody>
</table>

*p < .05.  **p < .01.  ***p < .001.

Note. Different superscripts (a or b) indicate significant post-hoc (Newman-Keuls) differences.

Results suggested that students perceived by teachers as at high risk for dropping out can be distinguished from the other groups in terms of some peer adjustment variables. With respect to peer perceptions of aggression, the High Risk group was assessed as significantly more aggressive than the other two groups, which did not differ significantly from one another. In addition, High Risk students rated
their friends' school value lower than did students in the Low Risk group. Students in
the Modest Risk group did not differ significantly from the either of the other groups.
Students in the Low Risk group were viewed by peers as significantly more withdrawn
in their social behavior than were students in the Modest Risk or High Risk groups, the
latter two groups not differing significantly from one another. No significant
differences between the High, Modest and Low Risk groups were observed for the
remaining peer adjustment variables (Same Sex Social Preference, Opposite Sex Social
Preference, Social Participation, Perceived Peer Group Integration, Perceived Peer
Group Intimacy).

Using achievement in terms of grades as the index of dropout risk, another
three groups were created. All participants were divided into one of the three groups
based on their GPA, and the three GPA groups were classified on the basis of a one
standard deviation split. Students whose GPA was greater than or equal to one
standard deviation above the mean were included in a Low Risk group (n = 12 males,
11 females), students whose GPA was within one standard deviation of the mean were
included in a Modest Risk group (n = 12 males, 11 females), and students whose GPA
was one standard deviation below the mean or less were included in a High Risk group
(n = 12 males, 11 females). The one standard deviation cutoff translated to having a
GPA of 1.73 or less (on a four point scale) for the High Risk group, which is in line
with Barrington & Hendricks (1989) cutoff score in their study of dropout risk.

As above, analyses were conducted to compare the students in the High,
Modest, and No Risk groups in terms of all eight indices of peer adjustment. A
matched-sample comparison was again utilized in order to create equal sample sizes
and to control for sex and grade (ethnicity was not used as a matching variable because
it would have substantially reduced the group size). Hence, same-sex and same-grade

5The concordance between the two extreme group measures of risk for the overall sample (before
matched samples were drawn) was 50%. Thus, one half of the students fell within the same risk group
regardless of whether they measured according to GPA or to teacher nominations of risk.
comparison peers from the Modest and Low Risk groups were randomly drawn for each student in the High Risk group.

When the three GPA groups were compared, no significant differences emerged in terms of any of the peer adjustment variables (see Table 12). Given the results reported above regarding the correlations between GPA and peer adjustment variables showing a highest correlation of \( r = .21 \), it is not especially surprising that there were no differences between extreme groups.

Table 12
Mean Differences Among GPA Dropout Risk Groups in Terms of Peer Adjustment Variables

<table>
<thead>
<tr>
<th>Peer adjustment Variables</th>
<th>No Risk (n = 23)</th>
<th>Modest Risk (n = 23)</th>
<th>High Risk (n = 23)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociometric Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Same Sex Social Preference</td>
<td>-0.01 (.21)</td>
<td>-0.06 (.17)</td>
<td>-0.04 (0.22)</td>
</tr>
<tr>
<td>2. Same Sex Social Preference</td>
<td>-0.13 (.13)</td>
<td>-0.06 (.15)</td>
<td>-0.05 (.16)</td>
</tr>
<tr>
<td>Social Behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Aggression</td>
<td>0.07 (0.09)</td>
<td>0.11 (0.18)</td>
<td>0.12 (0.20)</td>
</tr>
<tr>
<td>4. Withdrawal</td>
<td>0.18 (0.20)</td>
<td>0.14 (0.17)</td>
<td>0.13 (0.22)</td>
</tr>
<tr>
<td>Perceived Social Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Integration</td>
<td>24.00 (5.89)</td>
<td>25.26 (5.97)</td>
<td>24.00 (6.19)</td>
</tr>
<tr>
<td>6. Intimacy</td>
<td>25.04 (8.18)</td>
<td>24.09 (8.71)</td>
<td>25.09 (7.51)</td>
</tr>
<tr>
<td>7. Social Participation</td>
<td>0.13 (0.89)</td>
<td>-0.07 (0.83)</td>
<td>0.01 (0.79)</td>
</tr>
<tr>
<td>8. Friends' School Value</td>
<td>13.64 (3.03)</td>
<td>12.41 (4.54)</td>
<td>12.52 (4.25)</td>
</tr>
</tbody>
</table>

In sum, samples matched according to degree of risk (as well as grade and sex) were compared in terms of the eight peer adjustment variables. When students were
matched in terms of teacher nominations of dropout risk, students who were perceived by teachers as at high risk for dropping out were more likely than students perceived as at a modest or low dropout risk to be viewed by peers as aggressive, and were more likely to rate their friends' school value lower than the did the Low Risk group. As well, as compared to the High and Modest Risk groups, students in the Low Risk group were viewed by peers as significantly more withdrawn in their social behavior. When students were placed in High, Modest and Low Risk groupings according to GPA, no differences in terms of any the peer adjustment variables were observed.

**Multiple Regression Analysis**

To further examine the relationship between social variables and academic variables, a final analysis using multiple regression techniques was employed. Because differences in GPA showed little relationship with peer adjustment variables in the preceding analyses, despite manifesting a high degree of relationship with teacher nominations of dropout risk, the question became do peer adjustment variables add to the predictive value of teacher nominations even after GPA has been accounted for? Specifically, of interest was the relative and combined influence of peer adjustment variables on teacher nominations of dropout risk beyond that explained by GPA and demographic variables. To address this question, a stepwise hierarchical regression analysis was performed with teacher nominations of dropout risk as the dependent variable. In hierarchical regression analyses, order of entry of the independent variables is made a priori by the researcher on the basis of conceptual considerations. Moreover, the independent variables can be entered either one at a time or in blocks, as was the case in this analysis. Independent variables are entered simultaneously within blocks when there is no theoretical basis on which to determine order of entry (Tabachnick & Fidell, 1989). At each step in a hierarchical regression, it is possible to determine the percentage of
variance accounted for by the entered variables. If a variable was not a significant contributor, it was eliminated from the regression equation. A benefit of employing this analysis is that it permits examination of the relative influence of all the social variables (if they were significant) simultaneously in that they are entered into the regression equation in a single block.

The rationale for entering the variables in ordered blocks was based on the fact that the preliminary analyses showed some sex, grade and ethnicity differences for the relationships between some of the peer adjustment variables and both dropout indices. Therefore, because these background variables (sex, grade and ethnicity) were more stable than and were chronologically prior to the peer adjustment variables, it was important to control for their effect (if significant) and leave for a subsequent block the peer adjustment variables (which may be amenable to intervention). Controlling the order in this way assigns any joint prediction (multicolinearity) to the earlier blocks, so that variables in the earlier blocks function as control variables (covariates) for the later blocks. GPA was the sole variable entered in the second block. Given the interest of determining what kind of impact the peer adjustment variables would have on Teacher Nominations of Dropout Risk after the effect of GPA was controlled, GPA was entered in the second block. The peer adjustment variables were of primary interest; they entered the regression in the third block. In the fourth block, the interactions between sex and peer adjustment variables were entered into the regression equation. Due to sample size limitations, other interactions (e.g., between peer adjustment variables and grade level or ethnicity) could not be examined in this regression equation. Thus, Teacher nominations of dropout risk were regressed on demographic variables (sex, grade, and ethnicity) in the first block, GPA in the second block, peer adjustment variables (Same Sex Social Preference, Opposite Sex Social Preference, Aggression, Withdrawal, Peer Group Integration, Peer Group Intimacy, Social Participation, and Friends’ School Value) in the third block, and interactions between sex and peer
adjustment variables in the fourth block. The regression analysis for the entire sample depicting the respective contribution of each independent variable is contained in Table 14.

Results indicated that while none of the demographic variables or interactions entered significantly into the regression, GPA and two peer adjustment variables exhibited independent associations with risk nominations. As shown in Table 14, 43% of the variance in teacher nominations was attributable to GPA, an additional 9% was attributable to aggression, and another 2% was added by social participation. In total, 54% of the variance in teacher nominations of dropout risk was accounted for by these three variables. Thus, students perceived by more teachers as being at risk for dropping out tended to perform more poorly in terms of academic achievement (GPA), were viewed by peers as displaying more aggression and themselves reported less social participation at school. Interestingly, as reported above, participation was not significantly correlated with teacher nominations ($r=-.13$), but in the present analysis it contributed significantly to the prediction of teacher nominations, suggesting the presence of a suppressor variable. To explore the suppressor variable, further analyses were conducted. Following procedures outlined by Tabachnick and Fidell (1989), a series of regressions were run, systematically leaving out of the equation each peer adjustment variable one at time in order to examine the changes in regression coefficients. Results of these analyses showed that when aggression was removed from the analysis, social participation failed to contribute to the regression equation, indicating that aggression enhances the importance of social participation by

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6An alternative to the stepwise approach (in which variables are enter the regression equation only if they make a significant contribution) is to force the entry of all variables in a given block into the equation, regardless of whether they are significant or not. An advantage to this method in the present case is that it ensures that the influence of GPA, and demographic variables (sex, grade level and ethnicity) is controlled because they are forced to enter the equation. When this method of analysis was conducted, results were quite similar to the stepwise results and can be viewed in Appendix F for the interested reader. The stepwise results are reported in the text because they are more parsimonious than the forced entry results, and yet they capture the essence of the substantial findings.
suppressing irrelevant variance in either social participation or teacher nominations of dropout risk.

Table 14
Hierarchical Regression (Stepwise Within Blocks) of Background Variables in the First Block, GPA in the Second Block, Peer Adjustment Variables in the Third Block, Interactions between Sex and Peer Adjustment Variables in the Fourth Block on Teacher Nominations of Dropout Risk

<table>
<thead>
<tr>
<th>Step</th>
<th>Multiple R</th>
<th>R²</th>
<th>Adj. R²</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td>.65</td>
<td>.43</td>
<td>.42</td>
<td>109.64</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggression</td>
<td>.72</td>
<td>.52</td>
<td>.51</td>
<td>26.67 (change)</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation</td>
<td>.73</td>
<td>.54</td>
<td>.53</td>
<td>7.14 (change)</td>
<td>p &lt; .01</td>
</tr>
</tbody>
</table>
Discussion

Overview

Despite some notable exceptions, to date research has generally failed to consider how poor peer adjustment may put students at risk for dropping out. Therefore, the primary purpose of the present study was to investigate whether various peer adjustment variables were related to dropout risk indices. Five areas of peer adjustment (eight different measures) were identified from the dropout and dropout risk literature as potentially exhibiting substantial relationships with measures of dropout risk. While some of the social adjustment measures had previous research to draw upon, other measures were speculated to be related to dropout or dropout risk although no previous study has specifically examined them. Few of the eight peer adjustment measures have been studied concurrently with dropout and very few studies have examined more than one type of peer adjustment at a time. A unique feature of the present study was that it made use of two dropout risk indices, Teacher Nominations of Dropout Risk and GPA, that had some precedence in the literature, although no consensus on how dropout risk should be measured has yet been attained within the literature.

Three sets of analyses (correlations, ANOVAs, Multiple Regression) were conducted to explore the relationship between the peer adjustment measures and the dropout risk indices. Each of the eight peer adjustment measures are discussed in turn. Although results are presented in terms of significance tests, it should be noted that one would be in error to conclude that because there were no statistically significant findings on many of the significance tests, there was no effect (i.e., no relationship or no significant group differences). As demonstrated by Schmidt (1996), such a conclusion is erroneous in that without a large sample size, most studies have a relatively high probability of committing a type II error (i.e., concluding that there is no relation or effect when there is). For example, in the present study, given a
estimated relationship of $r = .20$, and the overall sample size of 153, the power would be approximately $.67$ with a two-tailed test, meaning that there would be a $33\%$ chance of incorrectly concluding that there is no effect when there is an effect. As subsamples are examined, the probability of committing a type II error increases due to the smaller $N$.

**Social Preference**

Several but not all previous studies have shown that early rejection predicts subsequent dropout (Barclay, 1966; Gronlund & Holmlund, 1958; Kuhlen & Collister, 1952; Lambert, 1972; Ullmann, 1957), although concurrent relations between dropout and rejection have not been examined to date. In the present study, results from across analyses generally failed to find that students at risk for dropping out were more likely to be rejected by their same sex peers. The only exception here was that when females and males were considered separately, correlational results showed that males at risk for dropping out, as assessed by both teacher nominations and by lower grades, were more likely to be rejected by other males whereas females with lower GPA were more likely to be liked by other females. No significant correlations between Dropout Risk and Same Sex Social Preference were observed when each of the three grade levels (9, 10, 11) were considered separately, nor when each of the three ethnic groups (White, Asian, Other) were considered separately. Furthermore, no significant correlations between Dropout Risk and Same Sex Social Preference were observed for the overall group. When analyzed with ANOVA, Same Sex Social Preference did not distinguish high risk students from low risk students. When analyzed with regression techniques, Same Sex Social Preference did not emerge as a significant predictor of dropout risk of Teacher Nominations of Dropout Risk, after GPA was taken into account. Thus, overall, it does not appear that students at high risk for school dropout are concurrently rejected by their peers, although this may be the case for males.
With regard to Opposite Sex Social Preference, there was no evidence to suggest that students perceived by teachers as at risk for dropout were more liked or disliked by their opposite sex peers, regardless of the analyses considered. However, in simple correlational analyses, there was some evidence to suggest that students with poor achievement (low GPA) were more accepted or liked by opposite sex peers, although this appeared to be primarily true for male students, for grade nine students, and for White students. Moreover, when more extensive analyses were conducted (ANOVA’s, regressions), these relationships were not maintained. Thus, although there may be some status gained among opposite sex peers for poor achievement, especially among male, White and ninth grade students, it would not appear that status among opposite sex peers is significantly related to dropout risk.

Although previous studies have generally linked early peer rejection with subsequent dropping out (Barclay, 1966; Gronlund & Holmlund, 1958; Kuhlen & Collister, 1952; Lambert, 1972; Ullmann, 1957), not all studies have demonstrated such associations (Cairns, Cairns & Neckerman, 1989; Kupersmidt & Coie, 1990). In the present study, the generally null findings obtained for both Same Sex and Opposite Sex Social Preference would suggest that students at risk for school dropout are not necessarily more rejected by peers, same-sex or opposite-sex. Given the relatively small sample size considered in the present study, future replication of this finding is certainly warranted. However, the general failure to demonstrate consistent or substantial associations between current social status and dropout risk in the present study calls into question the notion that dropouts are somehow alienated or ostracized by the peer group. As Hymel, Comfort, Schonert-Reichl, and McDougall (1996) suggest, early peer rejection may well be a factor in a cycle in which students become increasingly disenfranchized from the mainstream school system, but this does not necessarily imply that dropouts are rejected at the time they decide to leave school, nor that peer rejection per se is a major concurrent cause of dropping out.
Peer perceptions of aggression and peer perceptions of withdrawal served as the two social behavior variables considered in the study. With respect to aggression, results across different types of analyses consistently indicated that students at higher risk for dropping out were often viewed by peers as significantly more aggressive than low risk students. Thus, congruent with previous studies within the dropout literature (Cairns et al., 1989; Ensminger & Slusarcick, 1992; Kuhlen & Collister, 1952; Kupersmidt & Coie, 1990; Lambert 1972) showing that earlier ratings of aggressiveness are related to subsequent dropout, the present findings provide support for the notion that students at risk for dropping out tend to be viewed by peers as aggressive. The present study adds to the previous literature by demonstrating that the relationship between dropout risk and aggression can be observed concurrently. That is, at the ages when most dropping out occurs, at-risk students are often viewed as aggressive by peers. Moreover, by way of implication, the indication of a concurrent relationship between dropout risk and aggression suggests that research is needed to determine whether aggressive behavior may prove to be an appropriate target (perhaps as in addition to the more obvious target of improved achievement) for intervention within a dropout-prevention program.

Contrary to expectations, the results of the present study offered no support for the notion that dropouts are more withdrawn in their social behavior. Indeed, there was some evidence to suggest that students at greater risk for dropout were less likely to be perceived as withdrawn by peers, which is consistent with recent findings of a link between peer nominations of isolation and higher academic achievement rather
than with lower achievement among grade nine students (Luthar and McMahon, 1996). When longitudinal studies have examined peer-perceived withdrawal and subsequent dropout they have provided equivocal evidence for such a relationship. Whereas Bowman and Matthew (cited in Parker and Asher, 1987) found that grade 9 students viewed by teachers or peers as withdrawn were more likely to subsequently drop out, other studies have found no significant relationship between withdrawal and subsequent dropout (Cairns et. al., 1989; Ensminger & Slusarcick, 1992). Thus, while it remains unclear as to whether students viewed earlier as withdrawn are at risk for subsequent dropout, the null findings in the present study suggest that when studied concurrently, students who are at-risk for dropping out are viewed as no more withdrawn than their peers and in some instances, may be viewed as less withdrawn. Future research exploring the developmental trajectories of withdrawal may serve to explicate the nature of the relationship between early withdrawal and subsequent dropout. In sum, the present findings pertaining to social behavior suggest that according to their peers, students at high risk for dropping out tend to be aggressive rather than withdrawn.

**Social Support**

In the present study, student perceptions of available peer social support were assessed using two self-report measures: Perceived Peer Integration and Perceived Peer Intimacy. Taken together, the results of the present study provide little support for the notion that potential dropouts feel isolated and unsupported by peers (i.e., lack of peer integration and/or intimacy), which is somewhat surprising given the many theorists suggesting such a relationship (e.g., Calabrese, 1987; Ekstrom et al., 1986; Elliott & Voss, 1974; Finn, 1988; Flake, 1990; Whelage & Rutter, 1986). Such a conclusion contrasts many of the retrospective studies which have found that dropouts report more feelings of alienation and rejection than do graduates (Dohn, 1991; Fagan & Pabon, 1990; Seidel & Vaughn, 1991; Valverde, 1987; Williams, 1987), but is congruent with other retrospective studies indicating that only a small portion of
dropouts report that difficulties with other students was a cause for their leaving school (Gastright, 1987; McCaul, 1989). Thus, despite persistent claims that potential dropouts feel alienated, isolated, and a lack of support from their peers, present findings provide very little support for this claim and may in general reflect the inconclusive nature of results occurring in the literature. An implication emerging from these results is that it is important that dropout prevention programs do not blindly implement social skills training programs or programs aimed at developing peer support before establishing that the potential dropouts do indeed lack those social skills and/or supportive relationships.

Social Participation

Another aspect proposed by theorists (e.g., Kelly & Pink, 1972; Tinto, 1975) to be reflective of students' social integration within a school context is their participation in the social events of the school. In the present study, there was some suggestion that social participation was linked to dropout risk, although this result was not consistent across analyses. Results of correlational analyses indicated that males and students of other ethnic backgrounds (i.e., other than White or Asian) at greater dropout risk, as assessed by teachers, were less likely to report participation in school social activities. Moreover, in Analyses of Variance comparing high, modest, and low risk groups, Social Participation did not emerge as a variable which distinguished any of the risk groups. However, Social Participation did emerge as a significant predictor of Teacher Nominations of Dropout Risk in the regression equation after the effects of GPA were removed. It is important to note that peer nominations of aggression acted as a suppresser variable such that when it was present in the equation, Social Participation made a significant contribution to the prediction equation. When Aggression was removed from the analysis, Social Participation failed to significantly contribute to the regression equation. Thus, in the present study it appears that Social Participation makes a significant contribution to the prediction of Teacher Nominated Dropout Risk.
only in the presence of Aggression, suggesting that students at high risk for dropping out may be those who are aggressive and who do not participate in school social activities. Given the consistency of previous studies reporting a significant relationship between involvement in the organized social aspects of school and subsequent dropout (Ekstrom et al., 1986; Elliott & Voss, 1974; Hinojosa & Miller, 1984; Kelly & Pink, 1972; Pittman, 1991; Smith, Tseng & Mink, 1971; Statistics Canada, 1993; Walters & Kranzler, 1970), it is surprising that Social Participation did not show a stronger relationship with dropout risk in the present study. It is difficult to explain the null findings for some of the analyses but it may be possible that a lack of opportunity for organized social activities in the school may be at least in part responsible for this finding. When informally asked about the organized social activities and clubs of the school, students responded that there were few such opportunities. If their perceptions are accurate, the relatively minimal opportunity for social involvement in activities could have affected the results in that the bulk of the student population may not have been involved in organized school activities and clubs.

Friends’ School Value

The final peer adjustment variable included in the study was Friends’ School Value. Results of correlational analyses indicated significant correlations between perceived Friends’ School Value and both indices of dropout (GPA and Teacher Nominations of Dropout Risk), such that students at greater risk for dropping out were more likely to report lower value for school among their friends. This finding seemed particularly evident among White students rather than Asian students and students from other ethnic backgrounds, a finding which underscores the need to examine predictors of school dropout within various cultures. Moreover, Friends’ School Value was one of the two variables which significantly distinguished High and Low Dropout Risk groups. Although Friends’ School Value did not add significantly to the prediction of dropout risk in the regression analyses, the correlation and extreme group comparisons
clearly demonstrate the potential importance of this social factor in early school leaving.

The general findings of a relationship between dropout risk and lower school value among friends is consistent several studies indicating that students who subsequently drop out tend to report negative school values and lower educational expectations among their friends (e.g., Ekstrom et al., 1986, Pittman, 1991; Rumberger, 1983). Delgado-Gaitan's (1986) qualitative study takes a further step to posit mechanisms by which peers may influence a student's decision to drop out. For example, using a contextual model, she observed that students who went on to drop out tended to shift peer group affiliation from a group that was more school-oriented to one that was less interested in school and that this switch in peer group affiliation was often precipitated by a crisis at home or at school and a perception of lack of adult support. Together, these results suggest that a potential danger of dropout intervention programs in that a program may provide the opportunity for at-risk students to forge relationships with other at-risk students and together they may negatively influence each other. Indeed, in a study finding no effects of dropout intervention program, Catterall (1987) concluded that programs should not isolate potential dropouts into totally self-contained programs because the students may be negatively influenced by each other.

It is also interesting that the present results indicated that after other variables were taken into account, lower school value among friends failed to add significantly to the prediction of Teacher Nominated Dropout Risk, suggesting that for students in this study, the value that their friends place on school did not exert a great deal of influence on their degree of risk. The strength and type of influence provided by friends deserves further study. For example, determining peer group membership and subsequent dropout may be a productive avenue of research. Examining potential moderators such as friendship quality and perceived support from other sources (such
as parents and teachers) may also shed light on the relationship of school value of friends with degree of dropout risk.

Conclusion

In conclusion, the decision to dropout out of school appears to involve an interplay of academic, familial, school and social factors. In the present study, the role of peers in this process has been highlighted based on the argument that peer influences have been relatively neglected within the dropout literature to date. The results of the present study provide support for the thesis that students at risk for dropping out concurrently exhibit certain types of peer adjustment difficulties. The association between aggression and school dropout risk appears robust: according to various analyses, the greater a person's risk of dropping out, the more aggressive they were viewed by peers. Within the dropout process, the potential importance of friends' value for school was demonstrated in that univariate (although not multivariate) analyses revealed a relationship between dropout risk and lower value for school held by friends. Moreover, the present results showed some support, albeit limited, for the idea that students at risk for school dropout evidence less participation in the social aspects of school. However, peer adjustment in other areas may not play a large role within the dropout process. Results of the present study indicated that for certain types of peer adjustment difficulties thought to be related to dropout risk, little evidence of such relationship was found. Specifically, results generally showed no significant relationship between risk for school dropout and rejection by same- or opposite-sex peers, peer-perceived withdrawal, or a lack of peer group intimacy or integration.

Several implications and directions for future research can be derived from this study. The results reported present a first step in examining how various aspects of peer adjustment may be related to risk for school dropout. Further, the study illustrates the need for educators and researchers to examine multiple dimensions of
social adjustment in order to establish their relative importance among potential dropouts. However, confirmatory data is needed. A next step would be to examine peer adjustment measures in relation to school dropout, rather than dropout risk per se, in order to verify that the findings hold true for the central outcome we are trying to understand and curb. The present study also frequently noted the lack of concurrent research within the dropout literature and therefore examined peer adjustment and dropout risk concurrently. As noted above, present results showed that a number of aspects of peer adjustment exhibit little relationship to dropout risk when viewed concurrently. However, such a finding does not suggest that early peer adjustment difficulties in those areas is unrelated to subsequent risk for dropping out. Therefore, in order to examine the developmental trajectories as well the more concurrent relationships of various social adjustment indices to school dropout, more long-term longitudinal studies are also needed. For example, if social adjustment factors were measured in elementary, junior and senior high level, future researchers could use event history analysis (see Willett and Singer, 1991, for a review) to determine whether the effect of the social adjustment factors are stronger earlier on or closer to the time that dropping out actually occurs.

Furthermore, the present study, in combination with other studies (e.g., Catterall, 1987), attests to the need to establish that students indeed are deficient in the hypothesized peer adjustment area before attempting to intervene upon that deficit. To illustrate, whereas some theorists have argued that potential dropouts are frequently alienated from their peers, the present study indicated that students at risk for dropping out are as well integrated in their peer group as are most students. Therefore, if one were to implement a dropout program for this group, intervention aimed at reducing alienation from peers would seem pointless.

Although the present study was unique in exploring multiple aspects of peer adjustment stemming from previous research within the dropout literature, it certainly
did not exhaust all possible areas of peer adjustment that could be examined. For example, studying peer group affiliation in relationship to school dropout or dropout risk could potentially broaden our understanding of the group dynamics involved in peer adjustment and school dropout. Moreover, the potentially positive influence of peers in fostering school value and engagement among other students deserves further study. For as we begin to appreciate the impact of peers on school dropout, we may be able to nurture and accentuate the positive influence of peers upon school engagement.

Limitations

Several limitations in the present study are worthy of mention. First, the study was weighted more heavily in terms of grade eleven students because there were substantially fewer students in grades nine and ten, raising the question of representativeness of the sample in that few grade eleven students may be at-risk for dropping out. However, according to a recent Canadian study of early school leavers, 68% of dropouts left school at some point after completing grade ten (Statistics Canada, 1993). Therefore, concerns of representativeness may be quelled in that the majority of dropout occurs after grade ten.

A second limitation is that the study only examined students from only one, small, inner-city school, with a fairly low dropout rate (not precisely known, but estimated at approximately 10%). Thus, the generalizability of findings to other schools should be considered cautiously.

A final limitation is that the study relies on imperfect measures of risk. As noted earlier, there are benefits to studying dropout risk as opposed to dropout, but a drawback is that no established measure of dropout risk exists. Moreover, the two measures of dropout risk (GPA and Teacher Nominations of Dropout Risk) are by no means perfect predictors of school dropout. Indeed, in the present study, the variable, Teacher Nominated Dropout Risk was somewhat restricted in variability (i.e., many
students were not seen as at-risk), which limits the sensitivity of correlational and regression analyses. More generally, the utility of Teacher Nominations of Dropout Risk as a dropout risk index has received very little research in terms of its accuracy in predicting school dropout. Moreover, there are numerous methods of measuring dropout risk, including peer assessments, self-reports or using a combination of risk indicators which, after further study is devoted to the issue, may yield a more accurate evaluation of risk.

Thus, future research should be directed toward an examination of the validity of dropout-risk measures.
References


Dear Student:

You have been selected to be a participant in a research project that we are conducting at King George Secondary entitled "Promoting School Success During Adolescence." This study is being organized by Dr. Kim Schonert-Reichl and Dr. Shelley Hymel at the University of British Columbia and the staff at King George. The purpose of this study is to identify the social, emotional, and motivational factors that are related to school success among teenagers. It is not a test and there are no right or wrong answers – just your answers. There is very little research about Canadian teenagers. More research is needed and you can help us understand teenagers better by being a participant in this research study. It is hoped that the results of this study will help teachers and parents better understand teenagers and improve education for all. IF YOU RETURN YOUR PERMISSION SLIP, YOU WILL HAVE A CHANCE OF WINNING A $15.00 GIFT CERTIFICATE FOR A&B SOUND. ONE STUDENT'S NAME WILL BE RANDOMLY DRAWN IN EACH CLASS.

If you decide to participate in this study, you will be asked to fill out 3 sets of questionnaires. One set of questionnaires asks you questions about your background and about how you feel about yourself, a second set of questionnaires asks you about your attitudes toward school and your motivation, and a third set of questionnaires asks you about your friends and classmates. Your name will NOT be kept with your answers so that no one but the researchers will know who answered the questions. All of your answers will be completely confidential. This means that your answers will not be available to your teachers, parents, or any other school personnel. Those students who choose not to participate will be given something else to do in their class related to their regular classroom instruction. A small subsample of students (approximately 20) will be individually interviewed about their perceptions of school in order to provide an in-depth look at teenagers' understanding of the factors that affect school success. These individual interviews will be audiotaped so that answers can be transcribed later and will take approximately 30 minutes.

In order for you to participate in the study, you need to take home the attached permission slip and give it to your parents so that they may sign it. Please do your best to return the permission slip to your teacher by TOMORROW. Thank you for considering this request.

We hope you agree to participate!

Sincerely,

Kimberly A. Schonert-Reichl, Ph.D.
Assistant Professor

Shelley Hymel, Ph.D.
Associate Professor
Dear Parent or Guardian:

We are writing to request your permission for your son or daughter to participate in a research project that we are conducting in King George Secondary School entitled "Promoting School Success During Adolescence." The purpose of this study is to identify the social, emotional, and motivational factors associated with school success among adolescents. It is hoped that the results of this study will help parents and educators better understand the factors that promote school success for secondary school students and therefore be better equipped to design appropriate educational interventions and improve education for all. Listed below are several aspects of this project that you need to know. It is important to note that this project is a research partnership that was developed between Dr. Kim Schonert-Reichl and Dr. Shelley Hymel at the University of British Columbia and the staff of King George Secondary and was designed to address issues related to optimizing school success during the adolescent age-period.

Students who participate in this study will be asked to fill out 3 sets of questionnaires in their classrooms. One set of questionnaires asks questions about students' background and their feelings about themselves. A second set of questionnaires asks questions about students' perceptions and attitudes toward school and their educational motivation. A third set of questionnaires asks students about their friends and peers. The entire session will take approximately two class periods to complete. A small subsample of students (approximately 20) will be individually interviewed about their perceptions of various social relationships, the school environment, and their academic and social motivation. These interviews will be audiotaped so that answers can be transcribed later and will take approximately 30 minutes. Information relating to school achievement (e.g., marks, achievement test information), school absenteeism, and academic difficulties (truancy, suspension) will be collected from students' school records. Participation in the study is entirely voluntary and withdrawal from the research study or refusal to participate will not jeopardize class standing in any way. All information collected will be strictly confidential and will not be available to students' teachers, parents or other school personnel. Students who do not participate will be given an activity to do that is related to a topic being covered in their regular class.

Needless to say, we would be extremely pleased if your son or daughter does decide to participate and, if you are willing, to give him or her permission to do so. If you have any questions and wish to further to discuss this project, feel free to call Dr. Kim Schonert-Reichl at 822-2215 or Dr. Shelley Hymel at 822-6022. Please keep a copy of this request and all attachments for your records. We would appreciate it if you would indicate on the slip provided on the attached page whether or not your son/daughter has permission to participate. Would you then kindly sign and date the slip and have your son/daughter return it to school as soon as possible. It should be noted that students who return permission slips will have the opportunity to win a $15.00 gift certificate for A&B Sound. Thank you very much for considering this request.

Sincerely,

Kimberly A. Schonert-Reichl, Ph.D.
Assistant Professor

Shelley Hymel, Ph.D.
Associate Professor
PARENT CONSENT FORM

Study Title: "Promoting School Success During Adolescence"

Researchers: Kimberly A. Schonert-Reichl, Ph.D.  Shelley Hymel, Ph.D.
Assistant Professor  Associate Professor
Department of Educational Psychology
and Special Education
University of British Columbia
2125 Main Mall
Vancouver, B.C.  V6T 1Z4

I have read and understand the attached letter regarding the study entitled "Promoting
School Success During Adolescence."

I have also kept copies of both the letter describing the study and this permission slip.

_____ Yes, my son/daughter has my permission to participate.

_____ No, my son/daughter does not have my permission to participate.

Parent’s Signature

Son or Daughter’s Name

Date
Student Consent Form

The purpose of this form is to give you the information you need in order to decide whether or not you want to participate in this research study which is entitled: "Promoting School Success During Adolescence." You may choose not to participate in this study now or at any point during the study and there will be absolutely no penalty for withdrawing. If you choose not to participate, that choice will not in any way effect your class standing or your marks.

The purpose of this study is to find out about your views about school, your classmates, and yourself. In order to accomplish this purpose, you will be asked to fill out three sets of questionnaires during class time (two class periods). One set of questionnaires asks you questions about your background and about how you feel about yourself. A second set of questionnaires asks you about your attitudes toward school and your motivation. Finally, a third set of questionnaires asks you about your friends and classmates. A small number of students (approximately 20) will be individually interviewed and asked to share their opinions about school. These interviews will take approximately 30 minutes and will be audiotaped so that answers can be later written down.

THIS IS NOT A TEST. There are no right or wrong answers - just what you think. Please answer all questions if you can.

Your name will NOT be kept with your answers so no one but the researchers will know who answered the questions. All answers are completely confidential. No one at your school or in your community (not even your parents) will ever see your answers, so please answer honestly.

We will be happy to answer any questions you have before signing or later. If you have any questions, call Dr. Kim Schonert-Reichl at 822-2215 or Dr. Shelley Hymel at 822-6022.

If you wish to participate, please acknowledge that you have read this form and had any questions answered and then sign your name on the line below. You may keep a copy of this consent form for your records.

Thank you for your help.

DATE

NAME (please print)

SIGNATURE
Appendix D

Perceived Social Support (items 17-30), from Hayden, 1989

17. I feel part of a group of friends at school that does things together. YES yes sometimes no NO
18. There is someone near my age at school I can turn to. YES yes sometimes no NO
19. I have a lot in common with other students in the school. YES yes sometimes no NO
20. There is someone near my age at school that I could go to if I were feeling down. YES yes sometimes no NO
21. I feel like I fit in with other students at the school. YES yes sometimes no NO
22. I have at least one really good friend at school that I can talk to when something is bothering me. YES yes sometimes no NO
23. I feel like other students in the school want to be with me. YES yes sometimes no NO
24. I have a friend in school who is really interested in hearing about my private thoughts and feelings. YES yes sometimes no NO
25. I feel that I usually fit in with other students around me at school. YES yes sometimes no NO
26. I have a friend at school that I can tell everything to. YES yes sometimes no NO
27. When I want to do something for fun, I can usually find friends at school to join me. YES yes sometimes no NO
28. There is somebody near my age at school who really understands me. YES yes sometimes no NO
29. When I am with other students at school, I feel like I belong. YES yes sometimes no NO
30. There is a friend at school I feel close to. YES yes sometimes no NO
Note: For clarity of interpretation, the means and standard deviations are presented for untransformed variables.

Mean Differences Among Teacher Nomination Dropout Risk Groups in Terms of Peer Adjustment Variables For the Overall Sample

<table>
<thead>
<tr>
<th>Peer Adjustment Variables</th>
<th>Low Risk</th>
<th>Modest Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 76-78)</td>
<td>(n = 40)</td>
<td>(n = 35)</td>
</tr>
<tr>
<td>Sociometric Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Same Sex Social Preference</td>
<td>.01(.20)</td>
<td>-.00(.15)</td>
<td>-.02(.18)</td>
</tr>
<tr>
<td>2. Opposite Sex Social Preference</td>
<td>-.06(.15)</td>
<td>-.05(.14)</td>
<td>-.08(.17)</td>
</tr>
<tr>
<td>Social Behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Aggression***</td>
<td>.05(.07)a</td>
<td>.08(.13)a</td>
<td>.23(.24)b</td>
</tr>
<tr>
<td>4. Withdrawal*</td>
<td>.14(.17)a</td>
<td>.07(.06)b</td>
<td>.10(.15)</td>
</tr>
<tr>
<td>Perceived Social Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Integration</td>
<td>25.05(6.00)</td>
<td>26.2(5.19)</td>
<td>25.66(6.13)</td>
</tr>
<tr>
<td>6. Intimacy</td>
<td>26.45(7.16)</td>
<td>26.2(7.77)</td>
<td>27.6(7.80)</td>
</tr>
<tr>
<td>7. Social Participation</td>
<td>.10(.85)</td>
<td>-.16(.69)</td>
<td>-.03(.88)</td>
</tr>
<tr>
<td>8. Friends' School Value**</td>
<td>13.83(3.75)a</td>
<td>13.05(3.80)a</td>
<td>11.14(3.15)b</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.

Note. Different superscripts (a or b) indicate significant post-hoc (Newman-Keuls) differences.
### Mean Differences Among GPA Dropout Risk Groups in Terms of Peer Adjustment Variables For Overall Sample

<table>
<thead>
<tr>
<th>Peer Adjustment Variables</th>
<th>Low Risk (n = 26-27)</th>
<th>Modest Risk (n = 92-93)</th>
<th>High Risk (n = 32)</th>
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<tbody>
<tr>
<td>Sociometric Status</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. Same Sex Social Preference</td>
<td>-.00(.20)</td>
<td>.02(.17)</td>
<td>-.04(.20)</td>
</tr>
<tr>
<td>2. Opposite Sex Social Preference</td>
<td>-.11(.14)</td>
<td>-.06(.15)</td>
<td>-.04(.15)</td>
</tr>
<tr>
<td>Social Behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Aggression</td>
<td>.06(.09)</td>
<td>.10(.16)</td>
<td>.13(.19)</td>
</tr>
<tr>
<td>4. Withdrawal</td>
<td>.17(.19)</td>
<td>.10(.11)</td>
<td>.11(.19)</td>
</tr>
<tr>
<td>Perceived Social Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Integration</td>
<td>23.85(5.84)</td>
<td>26.12(5.50)</td>
<td>25.53(6.00)</td>
</tr>
<tr>
<td>6. Intimacy</td>
<td>25.70(7.85)</td>
<td>27.35(6.99)</td>
<td>26.00(7.70)</td>
</tr>
<tr>
<td>7. Social Participation</td>
<td>.07(.86)</td>
<td>.01(.80)</td>
<td>-.06(.86)</td>
</tr>
</tbody>
</table>

Note. No significant differences were found.
Appendix F

Hierarchical Regression of Background Variables in the First Block, GPA in the Second Block, Peer Adjustment Variables in the Third Block, Interactions between Sex and Peer Adjustment Variables in the Fourth Block on Teacher Nominations of Dropout Risk

<table>
<thead>
<tr>
<th>Step</th>
<th>Variables</th>
<th>Cumul $R^2$</th>
<th>$R^2$ Change</th>
<th>$F$</th>
<th>$R^2$ Change</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Demographic Variables)</td>
<td>.03</td>
<td>.03</td>
<td>1.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>(GPA)</td>
<td>.47</td>
<td>.44</td>
<td>31.72***</td>
<td>-.60***</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(Peer Adjustment Variables)</td>
<td>.57</td>
<td>.106</td>
<td>15.28***</td>
<td>-.22*</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>(Interactions)</td>
<td>.60</td>
<td>.02</td>
<td>9.44***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. The reported Betas are computed when all the independent variables had been entered into the equation in order to evaluate the unique contribution of each dimension.

*p < .05.  **p < .01.  ***p < .001.