School Identification and Dropping Out of School

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The purpose of this study was to explore the relationship between school identification and school dropout using data from the National Eduation Longitudinal Study of 1988 (NELS:88). School identification was conceptualized as having components of belonging (social support and participation) and value (the extent to which students value school). In addition to school identification factors, eighth grade measures of achievement, retention history, parental expectations, and demographic characteristics, which have all been shown in previous research to relate to dropout, were included in the analysis. Logistic regression analyses indicated that the set of three school identification factors made a significant contribution in predicting dropout, above and beyond the contribution made by the academic, demographic, and parental expectation variables.

One of the major concerns facing educators today is high school dropouts. Although an enormous amount of theorizing and research has been directed to the problem of school dropout, relatively few large-scale studies have examined the issue as a complex event that is embedded within a larger social context. In addition, relatively few researchers have explored the problem using longitudinal data.

The extent to which students identify with school has emerged as an important correlate of problem behaviors in school, including perhaps dropping out of school. Also described by the terms "affiliation," "involvement," "attachment," "commitment," and "bonding," or by the negative terms "alienation," "withdrawal," and "disengagement," school identification has been defined as having two components: a sense of belonging in school and valuing school-related goals and outcomes (Finn, 1989). While both of these aspects of school identification have been linked empirically to various school outcomes, including, for example, grades, educational aspirations, and dropping out, few studies have examined school belonging and valuing together as the single construct of school identification. In addition, few studies have examined the relationship between school identification and dropping out using quantitative data and methods with large national samples.

The purpose of this study was to explore the relationship between school identification and school dropout using data from the National Education Longitudinal Study of 1988 (NELS:88). School identification was conceptualized as having components of belonging (social support and participation) and value (the extent to which students value school-related goals and outcomes). Students' school dropout status was regressed onto school identification measured at the eighth grade to explore whether identification predicts dropout and thus might be useful as a way of understanding why students drop out of school. In addition, demographic information (ethnicity, gender, and urbanicity) was included in the analysis, and several correlates of school dropout were controlled, including SES, parental expectations, grade retention history, and academic achievement.

Viewed at a broad level, the theoretical framework for this study can be described as a social-ecological systems model of development, in which the individual is seen as embedded within social settings (e.g., family, school, peer groups) that can influence one another (Bronfenbrenner, 1976; Bronfenbrenner & Morris, 1998). In addition, within this systems model, there are assumed to be interactions between the individual and the social settings over time (Sameroff, 1987). Thus, dropping out of school is viewed within this framework as an interplay between the child and the school, family, and peer group settings over time. This study looked at the child within the school setting while considering the influences of peers within that setting and also the influences of the family.

Within the broad social-ecological systems paradigm, this study was framed by current research on motivation in education. Specifically, Finn (1989) has advocated a participation-identification model for understanding school dropout as a developmental process. Within this model, students' identification with school leads them to participate in school and classroom activities and, in a cyclical fashion, this participation lead them to identify even more with school. Through a cycle of non-participation and nonidentification, students may become alienated and eventually drop out of school (Finn, 1989). Goodenow has demonstrated a

positive relationship between students' sense of belonging in school and subsequent motivation and school success (Goodenow, 1993a, 1993b; Goodenow & Grady, 1993). Voelkl (1996) recently has worked to develop a rating scale to measure the degree to which students identify with or disidentify from school. This scale, the Identification with School Questionnaire, includes items measuring belonging in the school setting and valuing school-relevant outcomes. Taken as a whole, the research of Finn (e.g., Finn, 1989), Goodenow and colleagues (e.g., Goodenow, 1993a, 1993b), and Voelkl (e.g., Voelkl, 1995, 1996) provides evidence that students' identification with school may be an important factor in understanding school outcomes and especially dropping out of school.

Literature Review

At least two literatures are pertinent to the current study: literature on school identification and literature on school dropouts. Literature in these two areas is review separately below.

School Identification

School identification has been defined as having two components: (a) a sense of belonging in school and (b) valuing school-relevant goals and outcomes (Finn, 1989; Voelkl, 1996). Voelkl constructed a measure of school identification that included items measuring belonging and valuing and administered the scale to 3,539 eighth graders in 163 schools in Tennessee. Confirmatory factor analyses of responses to the rating scale revealed that a one-factor solution, reflecting school identification, was essentially equivalent, in terms of fit indices, to a two-factor solution, reflecting belonging and valuing separately. However, the comparison of the one- and two-factor models was subjective. Because the two models were not nested, an empirical comparison could not be made. Voelkl concluded that a single factor may provide the best representation of the school identification construct. However, given the lack of an empirical comparison, more research is needed to determine whether a one- or two-factor representation of school identification is most appropriate.

The first component of school identification, belonging, has long been viewed as a fundamental need. In the 1960s, Maslow identified belonging—to be accepted and respected—as a basic human need that must be met before higher goals, including the educational objectives of knowledge and understanding, can be achieved (Maslow, 1968). More recently, Ryan and Powelson (1991) identified relatedness, or the "emotional and personal bonds between individuals" (*p.* 53), as one of three basic needs necessary for motivation, with the other two being the needs for autonomy and competence.

Using labels such as "school membership" (e.g., Newmann, Wehlage, & Lamborn, 1992; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989) and "belongingness" (Weiner, 1990), other researchers more recently have examined belonging as a potentially important factor in school learning. Goodenow (1993a, 1993b) has been most prominent in delineating the concept of school belonging through the development of a measure of adolescents' perceived belonging or, as she has termed the construct, "psychological sense of school membership" (1993a). Analyses of scores on the scale have revealed dimensions of teacher support, peer support, and participation in school life (Goodenow, 1993b; Hagborg, 1994). This empirical work partially supports the conceptualization of belonging advanced by Wehlage et al. (1989), who identified attachment to adults and peers and involvement in activities as conditions of social bonding. The involvement/participation component of school belonging pertains to participation in school life generally and therefore includes both extracurricular and in-class participation. Classroom participation is often referred to as classroom engagement and has been defined as ". . . active involvement, commitment, and concentrated attention, in contrast to superficial participation, apathy, or lack of interest" (Newmann et al., 1992, *p.* 11).

The second component of school identification, valuing school, is represented by students' assessment of the general importance of schooling and the utility of school for future success (Voelkl, 1996). Based on the literature on school identification and its components of belonging and valuing, school identification can be viewed as having four elements: teacher support, peer support, and participation in school life (as indicators of school belonging) and valuing school-related goals and outcomes.

High School Dropout

Other variables have been shown to relate to dropping out of school, and any analysis of school dropout should consider these variables. The work of Grant and Sleeter (1986) and Fernandez, Paulsen, and Hirano-Nakanishi (1989) emphasized the importance of separating analyses of school dropout by both ethnicity and gender. SES has been a consistent predictor of school dropout in the literature, often accounting for most of the differences in dropout rates between ethnic groups (e.g., Rumberger, 1995). The accumulated evidence on the association between academic variables—

including achievement, aspirations, and grade retention—and school completion has also been very consistent. Students who drop out of school are more likely to have lower grades and achievement test scores (e.g., Kaufman, McMillen, & Sweet, 1996; Rumberger, 1995), to report lower educational aspirations (e.g., Ensminger & Slusarcick, 1992; Rumberger, Ghatak, Poulos, Ritter, & Dornbusch, 1990), and to have been retained in grade (e.g., Grissom & Shepard, 1989; Kaufman et al., 1996) than their graduating peers. Finally, the role of parents in their children's educations must be considered. Although equivocal with respect to the type of participation that is most helpful to children, the literature on parent involvement generally supports its positive effects on student outcomes, including staying in school. One of the more consistent findings in this literature is that parental expectations, as a proxy for parental involvement, is positively associated with staying in school (e.g., Astone & McLanahan, 1991; Ensminger & Slusarcick, 1992; Rumberger, 1995). Based on this body of research on the correlates of dropping out, the present study was designed to include demographic information (gender, ethnicity, SES, and urbanicity), academic variables (achievement, aspirations, and grade retention), and parental expectations (as a measure of parental involvement) to examine whether measures of school identification predict dropping out above and beyond these correlates.

Method

Data and Samples

The data for this study came from the National Education Longitudinal Study of 1988 (NELS:88), which is a major longitudinal study sponsored by the National Center for Education Statistics, U.S. Department of Education. The base year survey was conducted in the spring term of the 1987-88 school year, with followups conducted in 1990, 1992, and 1994. The 8th through 12th grade longitudinal panel sample includes 16,489 students; this sample served as the basis for the present study. Due to insufficient sample sizes, Asian and Native American students were not included in the analyses. Dropping these students resulted in a sample size of 15,303. The 15,303 cases in the data set were randomly divided into two samples. Sample 1 (n=5,107) was used for exploratory factor analyses. Sample 2 (n=10,196) was used to confirm the scales developed with Sample 1 and to perform the logistic regression.

Variables

The dependent variable in this study was the dichotomous variable school dropout (a student is classified as either having dropped out or not having dropped out). For the purposes of this study, the dropout category consisted of any student who at any time during the first three waves of the NELS:88 data collection period (from March 1989 on) dropped out of school. This categorization included students who dropped out but later re-enrolled (termed "stopouts" in NELS:88 parlance) as well as students who were enrolled in or had already completed an alternative program (e.g., General Educational Development or other equivalency programs). The rationale for incorporating this more inclusive definition stems from the purposes of the study. I was interested in exploring how students' identification with school may be related to school dropout. Therefore I was interested in any occurrence of leaving school to explore whether the construct of identification may be of value in explaining school dropout. For the purposes of this study, I was not interested in whether students eventually become "completers," either through re-enrollment or finishing the requirements of an alternative program. I was interested in the phenomenon of school leaving and therefore used a broad definition of school dropout. The NELS:88 data set includes a variable indicating whether the student has ever dropped out. For the present study, this variable was coded as 1=never dropped out, 0=has dropped out.

The main independent variable of interest in the study was school identification. Based on the literature, this broad construct consisted of two components: (a) belonging, made up of social support (peer and teacher relationships) and participation (classroom and extracurricular participation) and (b) valuing school (the extent to which students value school and school-related outcomes). In the final analysis, factor scores were used to represent school identification. Using Sample 1 (n=5,107), I performed an exploratory factor analysis on the set of school identification items. Three school identification factors were found: (a) teacher supportiveness, (b) classroom participation, and (c) valuing school. These three factors were confirmed with Sample 2 (n=10,196), and the equality of the factor structure and loadings was confirmed across gender/ethnic, urbanicity, and SES subgroups. After conducting the confirmatory analysis, I used factor scores to represent school identification in the regression analysis, which was performed using Sample 2.

Demographic information also was included in the analysis to examine main effects for

demographic characteristics as well as two-way interactions among the demographic characteristics and school identification in predicting school dropout. The interactions were included to determine whether school identification was operating differently in predicting dropout for males versus females and for the different ethnic groups. On the NELS:88 questionnaire, students indicated their race as one of the following: 1=Asian/Pacific Islander, 2=Hispanic, 3=Black, not Hispanic, 4=White, not Hispanic, or 5=American Indian/Alaskan Native. As indicated previously, because of small sample sizes, only three of these groups were included in the analysis: Hispanic, Black, and White students. These categories were dummy coded into two variables: 1=White, 0=other and 1=Black, 0=other. (The Hispanic category did not have a dummy variable of its own but was the reference category.) Students' gender was dummy coded as 1=female, 0=male. The geographic location of the students' eighth-grade school was originally coded in the NELS:88 data set as 1=urban, 2=suburban, or 3=rural. These categories were dummy coded into two variables: 1=suburban, 0=other and 1=rural, 0=other, with urban being the reference category. Finally, students' socioeconomic status (SES) was included as a control variable in the analysis. A continuous SES variable is included in NELS:88 and was constructed using data from the base year parent questionnaire or the base year student questionnaire. Student SES was estimated from father's and mother's educational levels, father's and mother's occupations, and family income. The SES variable is a *z*-score (i.e., it has a mean of 0 and a standard deviation of 1).

Three additional variables known to be correlates of dropping out were included in the analysis. First, students' retention history was included. Research has shown that students who have been held back a grade or more are at an increased risk of dropping out of school (e.g., Roderick, 1994). Therefore, a dichotomous variable (0=held back once or more, 1=never held back) was included in the analysis. The NELS:88 data set includes both a student report and a parent report of grade retention. These two reports were compared, and 524 cases of inconsistent reports were found. However, these 524 cases were almost evenly divided between parents indicating a grade retention/students reporting no retention and parents reporting no retention/students indicating a retention. Therefore, it was arbitrarily decided to use the parent report as the primary data source, and to use the student report if the parent report was missing. Second, students' academic potential, consisting of their achievement and aspirations, was included as a control variable in the analysis. Using Sample 1, five achievement items—self-reported grades and achievement test scores in the areas of reading comprehension, mathematics, science, and history-citizenship-geography—and one aspirations item were analyzed with exploratory factor analysis techniques. A single academic potential factor was found consisting of the five achievement items. Using Sample 2 (n=10,196), this factor was confirmed, and the equality of the factor structure and loadings was confirmed across gender/ethnic, urbanicity, and SES subgroups. A factor score was then used as a measure of academic potential in the final analysis. Finally, parental involvement was included as a predictor variable in the analysis. Inconsistent findings have been reported in the literature about which types of parental involvement relate to student outcomes. However, one variable that has been consistently shown to relate positively to student success in school is parental expectations for their children. Therefore, a measure of parental expectations, from the parent data file, was included as a measure of parental involvement. This variable asked parents how far in school they expected their child to go, from 1=less than a high school diploma to 12=Ph.D. or M.D. level.

Models and Statistical Techniques

Exploratory and confirmatory factor analyses of the school identification variables were conducted to create school identification scales from individual NELS:88 items. Three school identification factors were found: (a) teacher supportiveness, (b) classroom participation, and (c) valuing school. In addition to the three school identification factors, eighth grade measures of academic potential (factor score), retention history, parental expectations, and demographic characteristics, which have all been shown in previous research to relate to dropout, were included in the analysis. Students' dropout status as of the 12th grade was regressed onto these 8th grade measures along with the three school identification factors using logistic regression.

Results

Descriptive statistics for the variables analyzed in the logistic regression are provided in Table 1. After deletion of cases with missing values, data from 8,291 students were available for the logistic regression analysis. This indicated that approximately 19% of the sample was not available for the analysis because of missing data. Analyses indicated that the data were not missing at random. A model predicting missing data from a set of demographic characteristics and dropout status revealed that the odds of having missing data were

Table 1. Descriptive Statistics for Variables Analyzed in the Logistic Regression (n=8,291)

Variable	*M*	*SD*	%
Academic Potential	0.07527	0.94430	
Parental Expectations	8.67351	2.76045	
SES	-0.00745	0.76770	
Classroom Participation	.00859	0.81481	
Teacher Support	-0.00512	0.85014	
Valuing School	-0.00434	0.79145	
Not Retained			83.7
Female			50.7
Black			11.6
White			78.9
Rural			32.6
Suburban			44.8
Dropout			15.2

greater for Black students versus Hispanics, for Hispanics versus Whites, for males, for students from lower SES backgrounds, for urban students, and for students who dropped out. The largest predictor of missing data in this model was dropout status—for students who dropped out, the odds of having missing data and thus not being available for analysis in the logistic regression were 1.8 times greater than for nondropouts.

Logistic regression uses maximum likelihood estimation, which produces parameter estimates that make the observed data most likely, i.e., these estimates maximize the likelihood of observing the data that were actually observed. The predictor variables for the logistic regression analysis were entered sequentially into the model as three blocks. First, variables that have been shown in the literature to be correlates of dropping out were entered. These variables included academic potential, retention, parental expectations, SES, gender, ethnicity, and urbanicity. Next, the three school identification factors were entered to examine whether these variables made a significant contribution to the prediction of school dropout, above and beyond that of the other variables. Finally, interaction terms of gender and ethnicity with the school identification factors were entered to explore whether there were differences among these groups in how the variables predict dropping out.

Model fit was initially assessed with χ^2 statistics, which measure the agreement of observed and modeled values. A test of the model with the academic, demographic, and parental expectations variables against a constant-only model was statistically reliable, $\chi^2_{(9)} = 1441.86$, $p < .0001$. This indicates that these predictors, as a set, reliably distinguished between dropouts and nondropouts. A test of this model against the model with the addition of the three school identification factors was also statistically reliable, $\chi^2_{(3)} = 84.94$, $p < .0001$. This χ^2 tested the null hypothesis that the coefficients for the school identification variables were zero. Comparing this model against a model that also included two-way interaction terms between (a) gender and the school identification factors and (b) ethnicity and the school identification factors returned a $\chi^2_{(9)}$ of 9.667, which was not significant ($p < .3781$). Therefore, the interaction terms were dropped, and the model with the set of academic, demographic, and parental expectations variables and the set of school identification factors was retained for interpretation.

In addition to the χ^2 statistics reported above, another measure of model adequacy involves examining a classification table, which is presented as Table 2. Prediction success for this model was mixed: 97% of nondropouts were correctly predicted, but only 23% of dropouts were correctly predicted, for an overall success rate of 86%. Hosmer and Lemeshow (1989) noted that this may be typical of many classification tables seen in applications of logistic regression. As they stated, "Classification is sensitive to the relative sizes of the two component groups and will always favor classification into the larger group, a fact that is also independent of the fit of the model" (p. 147). Thus they recommend using classification only as a supplement to more rigorous fit indices, such as the χ^2 reported above.

When assessing a model, it is also useful to examine how well the model fits each case and how much influence each case has on parameter

estimates. Four diagnostic measures were used to assess the adequacy of the model: residuals, leverage, Cook's D, and DfBetas. Residuals for each case are differences between the observed probability of an event and the predicted probability based on the model. Leverage values are used to detect cases that have a large impact on predicted values. They are somewhat analogous to leverage values in least-squares regression, but in logistic regression, leverage values depend on both the dependent variable scores and the design matrix. Cook's D is another measure of the influence of a case; it indicates the effect of deleting a case on residuals. DfBetas can be calculated for each coefficient and represent the change in logistic regression coefficients when a case is deleted from the model. Plots of residuals, leverage, Cook's D, and DfBetas were visually inspected as an assessment of model adequacy. Several cases had residuals with absolute values greater than 3, which indicates that the model does not fit well for some cases. The leverage, Cook's D, and DfBeta plots revealed that many cases exerted influence on the model, with a small number that appeared to be extreme, but given the large sample size, this might be expected. Given the overall χ^2 statistics and the logistic regression diagnostics, the model appeared to provide a satisfactory fit to the data.

The parameter estimates for this model are presented in Table 3. The Wald statistic tests the hypothesis that the coefficient for a particular variable is 0 and thus indicates which variables reliably predicted dropout status. The asterisks indicate that all of the variables in the model with the exceptions of ethnicity (White versus Hispanic) and valuing school reliably contributed to the prediction of dropping out. The column in the table labeled "R" contains the partial correlations between the dependent variable and each of the independent variables. The small values for R in the table indicate that the variables each had a small partial contribution to the model. The final column of the table contains the antilog of the coefficient estimate, which is the factor by which the odds change when the particular independent variable increases by one unit. (The odds of an event occurring are defined as the probability of the event occurring divided by the probability that it will not occur.) For example, holding all other variables constant, when the gender variable changes from 0 (male) to 1 (female), the odds of staying in school are decreased by a factor of .6558 (the odds of dropping out are greater for females than for males). Stated another way, the odds in favor of dropping out are 1.52 times greater for females than for males. For the school identification factors, the Wald statistic indicated that the valuing school factor was not significant in the prediction of school dropout. The other two factors, teacher support and classroom participation, each had significant coefficients. Holding all other variables constant, a change of one unit in each of these variables improves the odds in favor of staying in school by a factor of about 1.3 (1.28 and 1.29 for classroom participation and teacher support, respectively) (in other words, the odds of staying in school increased 30% with a one unit increase in each of these variables).

Table 2. Classification Table for Observed Versus Predicted Dropout.

	Predicted		
Observed	Dropped Out	Has Not Dropped Out	% Correct
Dropped Out	295	965	23.41%
Has Not Dropped Out	206	6825	97.08%
		Overall	85.88%

Discussion

The two school identification factors of teacher support and classroom participation were significant in predicting high school dropout. The coefficient for the valuing school factor was not significant. The teacher support and classroom participation factors each had about the same effects on the odds of dropping out. For a one unit increase in each of these variables, the odds of staying in school increased by a factor of about 1.3, net of the effects of the other variables in the model.

Previous research has found that valuing school is important in students' decisions to drop out. For example, Pittman (1991) found that 10th-grade students' perceptions of how useful math, English, and trade/business courses were for their futures had a significant effect on dropping out. In the present study, students' perceptions of valuing school were measured in the eighth grade. It may be that the eighth grade was too early to ask students about the utility of subjects for their futures. Such questions may have been too abstract at this grade level, which might explain the lack of relationship between valuing school and dropping out in this study. In addition, it may be that there are important differences in perceptions of valuing school in a general sense and the specific valuing of subject

Table 3. Logistic Regression Analysis of Dropout Status as a Function of Demographic, Academic, Parental Expectation, and School Identification Variables (n=8,291)

Variable	B	S.E.	Wald[a]	R[b]	Exp(B)[c]
Academic Potential	.6263	.0504	154.2086*	.1645	1.8706
Retention	1.1670	.0781	223.1009*	.1983	3.2122
Parental Expectations	.0978	.0124	61.8121*	.1031	1.1027
SES	.5361	.0555	93.2957*	.1274	1.7093
Race (Black)	-.2801	.1292	4.7024*	-.0219	.7557
Race (White)	-.0686	.1138	.3627	.0000	.9337
Gender (Female)	-.4219	.0719	34.4669*	-.0760	.6558
Rural	.2178	.0950	5.2614*	.0241	1.2434
Suburban	.2414	.0915	6.9525*	.0297	1.2730
ClassroomParticipation	.2443	.0446	30.0670*	.0707	1.2767
Teacher Support	.2539	.0506	25.1931*	.0642	1.2890
Valuing School	-.0699	.0527	1.7569	.0000	.9325
Constant	.5146	.1756	8.5875*		

Note: [a]The Wald statistic tests the null hypothesis that a coefficient is 0. [b]The R statistic is the partial correlation between the dependent variable and each independent variable. [c]Exp(B) is the change in odds associated with a one unit increase in each independent variable. * $p < .05$.

matter courses for the future. A student may strongly believe that education is important in a global sense, but may still not see the value of math, for example, for his or her future. Future research should explore the nature of valuing school and its association with dropping out.

The predictor with the largest effect on dropout status in the model was previous retention. For students who had not been retained, the odds of staying in school were 3.2 times greater than for students who had been retained. In addition, a one unit increase in the academic factor, consisting of achievement test scores and self-reported grades, increased the odds of staying in school by a factor of 1.87. Parental expectations also predicted dropping out. For a one unit increase in parental expectations, the odds of staying in school increased by a factor of 1.10, a small but statistically significant effect.

Previous literature has suggested that males drop out at higher rates than females, but that was not the case in the present model. Holding all other variables constant, the odds of dropping out were 1.52 more for females than for males. The difference between this model and previous literature in terms of gender and dropping out may stem from the manner in which dropouts were defined for this study. For the purposes of this study, a student was considered a dropout if s/he left school at any point before the spring term of the 12th grade during the NELS:88 study period, even if that student eventually returned to school or completed an alternative program (e.g., General Educational Development or other equivalency program). With this broad definition of dropouts, it may be hypothesized that because of pregnancies, females left school at higher rates than males. If females had later returned to school or completed alternative

programs, then they would not have been considered dropouts under other definitions. There is some support for this hypothesis in an analysis of NELS:88 data that did not count alternative program completers as dropouts. This study reported no significant difference in the dropout rates of males and females (Kaufman et al., 1996). It would appear then that the male-female discrepancy in dropout rates may no longer exist, and that females drop out at the same rate as males. Because the goal of the present study was to predict high school dropout from eighth grade measures, pregnancy was not included in the model, and therefore its effect on school leaving was not explored. However, future research should explore the consequences for students, perhaps especially females, of leaving school for a period of time to later return (stopping out). Research has examined the issue of stopouts from college, especially community college, but little research has looked at the long-term consequences for stopouts at the high school level.

Previous data have shown that non-Asian minority students consistently drop out at higher rates than White students. However, research has revealed that some of these differences in dropout rates become insignificant when family background variables, especially SES, are controlled (e.g., Rumberger, 1995; Velez, 1989). The results of the present study confirmed these earlier findings. After controlling for the other variables in the model, the odds of staying in school were the same for White and Hispanic students. However, the odds of staying in school were .756 less for Black students than for White and Hispanic students (in other words, the odds in favor of dropping out were 1.32 times greater for Black students than for other students). Thus, controlling for SES and the other demographic and academic variables in the model equalized the odds for Hispanic and White students, but Black students were still more likely to drop out. Rumberger (1995) found that the odds of dropping out for Black students remained higher than other students until a wide range of family background, parental involvement, academic, student attitude, and student behavior variables were controlled. It seems clear from this study and previous research that a gap remains between the educational outcomes of Black students and other students. What is not clear from this study are the reasons why this might be the case. Interactions between ethnicity and school identification were included in the analysis to explore whether differences in levels of identification might explain the disparity in dropout rates, but these interactions were not significant. Thus school identification factors were not operating differently across ethnic groups in the prediction of school dropout. Future work is called for in this area.

The results of the logistic regression must be considered in light of a relatively high percentage of missing data (19% of the sample) that was not available for the analysis. An examination of the missing data revealed that they were not missing at random and thus there might have been important differences between the cases excluded from the analysis and those included. In Sample 2, the sample used for the logistic regression, the percentage of students who dropped out was 17.7%. However, for the cases included in the analysis, the percentage who dropped out was 15.2%, while for the cases excluded because of missing data the percentage was 28.7%. It would seem that missing data, in and of itself, should have been included in the model as a predictor of dropping out. It could be argued that nonresponse on a questionnaire about educational experiences, administered at school during the school day, could be an indicator of disengagement from school. The majority of the cases excluded from the logistic regression analysis were missing data on the school identification factors, which means that these students failed to respond to one or more items in the set of nine teacher relationship, valuing school, and classroom participation items that were analyzed in the factor analysis. Because the students excluded from the analysis due to missing data were more likely to drop out, a complete picture of the dropout phenomenon cannot be pieced together from this study. Missing data unfortunately are an inherent part of research on dropouts. It is difficult to collect data on individuals who leave the school setting, and from this study, it appears that it is difficult to collect information from them even before they actually leave (i.e., in the eighth grade).

The results of the study imply that one strategy for reducing dropout rates would be to improve students' perceptions of teacher supportiveness and encourage classroom participation. Evidence suggests that these two elements, teacher support and classroom engagement, are reciprocally related in that they represent an exchange of commitments between teachers and students (Wehlage et al., 1989). Other researchers have explored the notion of teacher supportiveness as a sense of caring (e.g., Noblit, 1993; Noddings, 1988). The present study suggests that caring may serve as a protective factor against dropping out of school. In this study, teacher support and classroom participation had a positive correlation of about .25. While this is not a large amount of shared variance, the results suggest that adult behaviors that communicate respect and caring for students will increase students' classroom

engagement, and that both of these factors may help keep students from dropping out. Caring makes a difference.

Educators need to explore ways of creating a more caring culture in classrooms and schools. Writers have cautioned, however, that culture is not easy to create, and that caring is more than a set of activities or a particular program (Meier, 1993; Noblit, Rogers, & McCadden, 1995). Noblit et al. (1995) suggested that teachers "consider how helping, talking, and touching can be used to construct a caring culture" (p. 684). Newberg (1995) and Meier (1993) both championed the cluster model, in which students stay with the same small clusters of teachers for several consecutive years, perhaps even across school boundaries (e.g., from middle school to high school). The cluster model promotes a collective responsibility for student learning and offers continuity and the context for caring.

This study makes several important contributions to existing research. First, within the field of education, the research literature addressing the causes of school dropout generally can be described as either psychological, focusing on the individual, or sociological, looking at broader group, school, or societal forces. The present study represented an intersection between these two models in that it looked at student perceptions of the social context and thus offered a way of understanding the process by which broader social forces might influence individual student behaviors, in this case, dropping out of school. Second, much of the research on school dropout has focused on individual factors that are difficult if not impossible to change, including, for example, students' SES or family structure. This study controlled for some of these variables, but focused more specifically on school identification, a school social context variable that may be more amenable to change through school programs and policies that promote identification among students. Finally, this study furthered understanding of the construct of school identification. Finn (1989) delineated the concept as having the two components of belonging and valuing. Voelkl (1996) concluded that a single factor, rather than two separate factors of belonging and valuing, provided the best representation of the construct. The current study provided evidence concerning the structure of school identification, in addition to exploring whether the concept offers a valuable way of understanding school dropout.

This study also pointed to the need for further research on the causes of dropping out. While the model tested in this study showed that eighth grade measures of school identification were statistically significant in predicting dropout, the effects were quite modest. Clearly, other factors, not included in the model, are influencing students' decisions to leave school early. The adverse personal, social, and economic consequences of dropping out of school dictate that researchers continue to explore the factors that influence dropout behavior. Research should also focus on the subgroups that continue to drop out at higher rates than other students, including Black and lower-SES students. SES is consistently a strong predictor of dropping out, but many of the mechanisms that lead to higher rates of dropping out among this group are not known. It may be that there is an interaction between SES and school identification, and that this interaction helps explain dropout behavior. While this study focused on individual students and their perceptions of their social contexts, future research should also explore community-, school-, and individual-level factors that contribute to the decision to drop out.

A goal of this study was to contribute to the understanding of high school dropout. The construct that was hypothesized to help explain students' decisions to drop out, school identification, was indeed predictive of dropping out. However, the contribution that school identification made in the prediction model was modest. In addition, the original construct was proposed as consisting of aspects of belonging and valuing school, but the valuing school component was not significant in predicting dropout. While this study partially achieved its goal, it raised many more research questions about the components of school identification, the nature of this construct for different students, and the many complex factors that contribute to individual students' decisions to leave school early. As we have seen from this study, school identification components helped explain high school dropout, but much work remains to be done to advance our understanding of this complex event so that we can work to reduce the rates of dropping out in our schools.

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