Exceptions to High School Dropout Predictions in a Low-Income Sample: Do Adults Make a Difference?

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Abstract

Adult–child relationship factors were examined to determine whether they differentiated between individuals who follow expected versus unexpected educational pathways. Low-income participants (96 men, 83 women) in the United States were followed from birth through age 23. Individuals were identified who followed expected versus unexpected pathways to high school graduation or dropping out based on academic achievement and behavioral problems. Patterns of parental involvement in school were significantly different between expected dropouts and unexpected graduates in middle childhood. In contrast, expected graduates had higher levels of parent involvement in middle childhood, more supportive parent–child relationships in early adolescence, and higher levels of social competence with adults than unexpected dropouts.

An important milestone on the road to educational success is high school graduation. Consequently, dropping out of high school has long been an area of concern for not only parents and teachers, but also society as a whole. This concern is particularly relevant today as the negative consequences of dropping out of high school have increased with technological advancement (Day & Newburger, 2002; Garnier, Stein, & Jacobs, 1997; McCaul, Donaldson, Coladarci, & Davis, 1992). The disparity between the earnings of high school dropouts and the earnings of those with higher educational attainment has increased in the last 30 years (Day & Newburger, 2002). Currently, individuals who graduate from high school earn, on average, 1.5 times more than high school dropouts, and individuals with a college degree earn 2.7 times more than dropouts (U.S. Census Bureau, 2005). In addition to lower lifetime earnings, dropping out has broader economic implications (Garnier et al., 1997; Rumberger, 1987). Nearly one out of every four individuals in full-time working families where the head of household had less than a high school education were living in poverty (Iceland, 2000). Correspondingly, the unemployment rate was 33% for those individuals who dropped out of high school in 2004–2005 (U.S. Department of Labor, 2006). Furthermore, recent estimates indicate that the total lifetime costs to society for each individual who drops out of high school range from $243,000 to $388,000 (RAND Corporation, 2005). These personal and societal costs underscore the need to identify the causes of dropping out of high school so that early, cost-effective interventions can be designed.

Due to the importance of this topic, numerous researchers have examined predictors of dropping out of high school (e.g., Alexander, Entwisle, & Horsey, 1997; Cairns, Cairns, & Neckerman, 1989; Croninger & Lee, 2001; Goldschmidt & Wang, 1999; Janosz, Archambault, Morizot, & Pagani, 2008; Jimerson, Egeland, Sroufe, & Carlson, 2000; Kasen, Cohen, & Brook, 1998; Rumberger, 1987; Rumberger, Ghatak, Poulos, Ritter, & Dornsbusch, 1990). This body of work has identified salient variables that differentiate dropouts from high school

graduates, including poverty, academic achievement, behavioral problems, and interpersonal relationships. Despite the plethora of research examining predictors of dropping out of high school, little research has been conducted that considers factors that may differentiate individuals who are the exceptions to the prediction from those who follow the expected pathway. This study examines aspects of adult–child relationships as possible factors that differentiate (a) individuals who are predicted to drop out of high school and do drop out (expected dropouts) from those who are predicted to drop out but complete high school (unexpected graduates) and (b) those individuals who are predicted to graduate from high school and do graduate (expected graduates) from those who are predicted to graduate but drop out (unexpected dropouts).

Factors Predicting Dropping Out of High School

Dropping out of high school is particularly problematic for low-income youth. Low-income adolescents continue to drop out of high school at higher rates than other socioeconomic groups (e.g., Boggess, 1998; Haveman, Wolfe, & Spaulding, 1991). In 2000, 10% of low-income youth dropped out of high school, twice the percentage of adolescents in the middle-income, and nearly 6 times the percentage of those individuals in the high-income bracket (U.S. Department of Education, National Center for Education Statistics, 2001). These rates have remained fairly stable since 1990 (U.S. Department of Education, National Center for Education Statistics, 2004).

Another recurrent predictor of dropping out is low academic achievement (e.g., Barrington & Hendricks, 1989; Battin-Pearson et al., 2000; Rumberger, 1987; Worrell, 1997). In a longitudinal study of a multiethnic, urban sample, Battin-Pearson and her colleagues (2000) found that poor academic achievement at age 14 significantly predicted dropping out prior to the end of 10th grade. Differential-group studies have documented generally lower grades among high school dropouts when compared with other students in the same high school (Rumberger et al., 1990) and at-risk high school completers (Worrell, 1997). However measured, low achievement differentiates dropouts from students who graduate from high school.

Behavior problems also differentiate graduates from dropouts (e.g., Goldschmidt & Wang, 1999; Kasen et al., 1998; Rumberger, 1987). Rumberger and colleagues (1990) matched a group of dropouts with continuing students on the basis of a number of demographic variables, including academic achievement, and found that those students who dropped out of high school had more severe behavior problems than the other students. In analyses from the first three waves of the National Educational Longitudinal Study (NELS), misbehavior significantly increased the odds of a student dropping out of high school, even after controlling for academic achievement (Goldschmidt & Wang, 1999). Data from a community sample further showed that childhood behavior problems contributed independently to high school dropout (Kasen et al., 1998). Thus, poverty, low achievement, and high behavior problems all significantly forecast dropping out of high school.

Deviations from Expected Educational Pathways

Many high-risk, low socioeconomic (SES) youth do complete high school, however, and some individuals drop out of high school despite doing well academically. Although much research has been done investigating predictors of dropping out of high school, few studies have attempted to explore factors that influence students who are at risk of dropping out to stay in school or influence students who are not at risk to drop out of high school. Social contexts, including interpersonal relationships, may contribute to such deviations from expected educational pathways.

Many researchers have found associations between family factors and teacher–child relationship factors and academic performance and school outcomes, respectively (e.g., Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Hamre & Pianta, 2001; Jimerson et al., 2000; Tucker et al., 2002; Vitaro, Larocque, Janosz, & Tremblay, 2001). Family factors specifically have been found to predict high school graduation or dropping out. For instance, parental involvement in school has emerged in a number of studies as a significant predictor of high school graduation status (Alexander, Entwisle, & Kabbani, 2001; Eckstrom, Goertz, Pollack, & Rock, 1986; Jimerson et al., 2000; McNeal, 1999; Rosenthal, 1998; Rumberger et al., 1990). Parent–child relationship factors including caregiving quality, parental support (instrumental and emotional), hostility and rejection, and parent–child communications are also significant predictors of high school graduation status (Brewster & Bowen, 2004; Catterall, 1998; Ensminger & Slusarcick, 1992; Gregory, 1995; Jimerson et al., 2000; McNeal, 1999; Rosenfeld, Richman, & Bowen, 1998; Rosenthal, 1998; Younge, Oetting, & Deffenbacher, 1996). For instance, Jimerson and his colleagues (2000) found that an early caregiving composite variable added significant variance to the prediction of dropping out of high school at age 19. Moreover, significantly higher maternal rejection and hostility scores have been reported by male dropouts compared to academically at-risk adolescents and academically competent youth (Younge et al., 1996). Teacher–child relationship factors also predict high school graduation or dropping out: Students who have positive relationships with their teachers; feel motivated and supported by their teachers; perceive their teachers as caring, encouraging, and responsive; and receive guidance and assistance from their teachers are less likely to dropout of high school (Brewster & Bowen, 2004; Catterall, 1998; Croninger & Lee, 2001; Gregory, 1995; Lee & Burkam, 2003). Despite studies examining the impact of parent–child and teacher–child relationship factors on dropout behavior, few researchers have considered the processes by which social contexts may account for exceptions to predicted educational outcomes.

Some researchers have compared students who are at risk for dropping out but stay in school with students who drop out (Catterall, 1998; Croninger & Lee, 2001; Rumberger et al., 1990; Worrell, 1997). Both Rumberger et al. (1990) and Croninger and Lee (2001), using academic achievement to identify high-risk students, found that levels of parental involvement (Rumberger et al., 1990) and the quality of teacher–child relationships (Croninger & Lee, 2001) differentiated high-risk students who dropped out of school from those who continued. Catterall (1998) also found that teacher–child relationships and family support for education were important factors in predicting students who were more academically competent in 10th grade compared to 8th grade.

Findings from these and other studies (e.g., Gregory, 1995; Jimerson et al., 2000; McNeal, 1999; Rumberger et al., 1990; Younge et al., 1996) raise the possibility that children's networks of social relationships, especially adult–child relationships, may be a prominent determinant of educational success or failure. For those high-risk youth who are on a pathway of academic failure, positive adult–child relationships and support from adults may serve as powerful forces to alter their pathways to educational success. Alternatively, negative adult–child relationships and a lack of support may undermine those adolescents who appear to be on a pathway toward high school graduation leading them to change their course and drop out of school. Studying whether adult–child relationship factors impact individuals who deviate from the expected educational pathway can enlighten educators and parents regarding their influence on children's dropout behavior and may provide the impetus for the development of educational programs that take into account those adolescents who are the exceptions rather than the rule.

Research Question

In this study we investigate whether parent–child and teacher–child relationship factors significantly differentiate between low-income individuals in the Midwest United States who follow expected versus unexpected educational pathways (see Feinstein & Peck, 2008, for further discussion of expected vs. unexpected pathways). Our expectations of participants' educational pathways were based on measures of academic achievement and behavior problems at both ages 12 and 16 due to the salience of these factors as predictors of high school graduation. We used two comparisons to examine differences in adult–child relationship factors: (a) youth predicted to graduate from high school and do graduate (expected graduates) are compared with youth predicted to graduate and drop out (unexpected dropouts), and (b) youth predicted to drop out of school and do drop out (expected dropouts) are compared with youth predicted to drop out of school and graduate (unexpected graduates).

We hypothesized that (a) unexpected graduates (low academic achievement and high behavioral problems) would have significantly more positive adult–child relationships (parent, teacher, or both) compared to expected dropouts, and (b) unexpected dropouts (high academic achievement and low behavioral problems) would have significantly more negative adult–child relationships (parent, teacher, or both) compared to expected graduates.

Method

Participants

Participants (96 men, 83 women) were followed from birth through age 23. All are first-born children of mothers of initially low SES in the United States. Mothers were originally recruited from Minneapolis Public Health Clinics when they were in their third trimester of pregnancy. The original sample included 267 mothers and their first-born children. The current sample does not differ significantly from the attrition group with respect to mother's SES, age, marital status, or risk status at the time of the child's birth. At the child's birth, the majority of the mothers of the current participants were single (60%), 37% were married, and the remaining 3% were divorced, widowed, or separated. Of these mothers, 36% had not completed high school at the time of their baby's birth, 46% were teen mothers ($M = 20.54$ years, $SD = 3.58$, range = 15 to 34 years), and many had experienced a high degree of life stress. The races of the current participants are as follows: 67% are European American, 11% are African American, 16% are mixed ethnicity, 2% are other (e.g., Native American, Hispanic); data on the fathers' ethnicity are not available on 4% of the participants.

Measures

High School Dropout Status

High school dropout status was determined based on a review of participant interviews conducted at age 19 and 23 and school data obtained from participants' high schools. Individuals who either obtained their General Educational Diploma (GED) within 1 year of expected graduation or graduated from high school (based on all available data) were included in the graduated group ($n = 128$). Twenty-eight percent of the participants did not obtain their GED within 1 year of expected graduation or graduate from high school and were included in the dropout group ($n = 51$).

Measures Predicting Dropout Status

Because we were interested in examining individuals who were on educational pathways leading to high school graduation or dropping out, we included measures of academic

achievement and behavioral problems at two points in time rather than just one (ages 12 and 16).

Academic achievement, age 12—At age 12 each participant was administered the Peabody Individual Achievement Test (PIAT; Dunn & Markwardt, 1970), yielding a general achievement score. The total grade standard score was used for data analyses ($M = 100.32$, $SD = 9.9$). Test-retest reliability for the total score is .89 (Dunn & Markwardt).

Academic achievement, age 16—At age 16, the Woodcock Johnson Psycho-Educational Battery–Revised (Woodcock & Mather, 1989) passage comprehension ($M = 103.5$, $SD = 14.8$) and calculation ($M = 100.4$, $SD = 15.3$) tests were administered to our participants. Standardized scores were used for data analysis; the Passage Comprehension and Calculation scores were added together and an average score for the entire assessment was calculated for data analysis purposes ($M = 101.33$, $SD = 13.11$).

Behavioral problems, ages 12 and 16—In the spring of the school years when each participant reached his or her 12th and 16th birthdays, one of their teachers completed the Child Behavior Checklist–Teacher Report Form (TRF; Achenbach, 1991; Achenbach & Edelbrock, 1986). When the participants were 12 years old, the teacher who spent the most classroom time with the participant completed the checklist; when the participants were 16 years old, their English teachers completed the checklist. The TRF is a standardized measure of students' behavioral problems. The total problem score (T-score) for both 12 years and 16 years was used in data analysis (12 years: $M = 55.98$, $SD = 9.1$; 16 years: $M = 55.45$, $SD = 8.5$).

Accounting for Exceptions to Predicted Outcomes: Parent-Child Measures

Early childhood variables—When the children were 42 months old, mother and child pairs were videotaped participating in four developmentally appropriate problem-solving tasks (Egeland et al., 1995). Two independent coders viewed the entire procedure and rated the mothers on a set of scales: quality of instruction, supportive presence, structure and limit setting, and hostility, all coded on 7-point scales. High ratings (e.g., a 6 or 7) on the scales reflect a high degree of the specific aspect of the relationship being rated; a low rating (e.g., 1 or 2) reflects a low occurrence of that dimension. The quality of instruction scale measured the mother's structuring of the situation and her ability to coordinate her behavior with the child's activity. The supportive presence scale measured the emotional support provided by the mother to the child. The structure and limit setting scale measured the extent to which the mother structured the situation in order to accomplish the tasks and set appropriate limits. The hostility scale reflects the mother's expression of anger, discounting, or rejection of the child. A composite rating (range = 2 to 14) was obtained by summing the rating scores for two observers.

Middle childhood variables—When the children were 7, 8, and 9 years old interviews were conducted with each child's teacher. As part of these interviews, teachers were asked whether they knew the child's parents, the level of concern and interest the parents demonstrated in the child's school work, and the parents' participation in meetings with the teacher, including parent–teacher conferences. From the teachers' responses, independent raters coded level of parental involvement on a 5-point scale, with 1 being *not involved* and 5 being *very involved*. Inter rater reliability was 77% exact agreement and was computed based on 19% of the cases.

Early adolescent variables—When the participants were 13 years old, they participated in a series of video-taped problem-solving tasks with their parents. The videotapes were coded on a number of 7-point scales, including three balance scales: (a) balance within the relationship between self-assertion versus concealment (balance I), (b) balance within the relationship

between development of the relationship versus development of the individual (balance II), and (c) balance in the relationship between the relationship and the outside world (balance III). Balance I ranged from low scores indicating avoidance and apprehension in the relationship, high levels of anxiety, and minimal interaction to high scores indicating confidence, openness, spontaneity, and self-assertion shown in the tasks. Scores on the balance II scale ranged from low scores indicating high levels of loneliness and estrangement so that the relationship is detrimental or destructive to personal development to high scores indicating that the relationship enhances both the child and the parents. The third balance scale focused on task competence with low scales indicating an inability to participate or complete the tasks and high scales indicating a smooth, productive, and fun process where the parents and child worked together.

Teacher–Child Measures

Positive toward teacher—When the participants were 9 years and 12 years of age their teachers completed the Devereux Elementary School Behavior Rating Scale II (DESB-II; Swift, 1982). The DESB-II identifies classroom behaviors and comprises 10 behavior factors derived from 50 individual items. The behavior factor examined in this study, "positive toward teacher," consists of four behaviors focused on the extent to which the child's relationship with the teacher is warm and friendly.

Overall social competence in interactions with adults—As part of the teacher interview conducted when the participants were 9 years, 12 years, and 16 years of age, the teachers were asked to rate the child's social and emotional behavior in interactions with adults. At 9 years and 12 years, the ratings were on a 5-point scale (1 = *poor* to 5 = *excellent*), and, at 16 years, the rating was on a 7-point scale (1 = *very low* to 7 = *excellent*). These scales were not standardized prior to data analysis, therefore, the higher means reported in Table 3 for age 16 compared to ages 9 and 12 are due to scaling differences, not an increase in mean differences at these age points.

Missing Data Analysis

Missing data points (7%) for the predictor variables (family variables and teacher–child relationship) were imputed using the expectation-maximization (EM) algorithm in Prelis 2.80.

Results

Logistic Regression Identifying Expected and Unexpected Educational Pathway Groups

The first step of analysis determined groups predicted to drop out of high school based on a binary logistic regression (Garson, 2006) including academic achievement and behavioral problems at 12 and 16 years predicting to high school dropout status (see Table 1). The model was 80% accurate in prediction and produced four groups (see Table 2).

Comparing Expected Versus Unexpected Groups on Relationship Variables

In Step 2 of the analyses, two separate sets of comparisons were conducted based on groups formed from the logistic regression model. In the first set of comparisons, both unexpected graduates and expected dropouts were compared based on relationship variables; in the second set of comparisons, both expected graduates and unexpected dropouts were compared on relationship variables (see Table 2). Descriptive statistics are reported in Table 3. Repeated measures ANOVAs were conducted separately on parental involvement, social competence with adults, and positive toward teacher variables (see Tables 4 and 5). We also conducted separately by comparison group MANOVA on the remaining parent–child variables. If the overall *F* test from the MANOVA was significant, we conducted post hoc univariant *F* tests

examining mean differences in each variable using a modified Bonferroni correction (Holm procedure) for multiple comparisons to control for Type I error (Jaccard & Guilamo-Ramo, 2002; see Table 6).

Comparison of Predicted to Dropout Groups

The repeated measures ANOVA for parental involvement (see Table 4) indicated that parental involvement changed over time for both of the predicted to dropout groups but that the pattern of change was different for the two groups. Parental involvement increased from age 8 to age 9 for expected dropouts whereas parental involvement decreased over this time period for unexpected graduates. There was not a significance difference in mean level of parental involvement between the predicted to dropout groups. No other significant differences were found between these two groups on any of the analyses.

Comparison of Predicted to Graduate Groups

The set of comparisons conducted for the two predicted to graduate groups (expected: graduated vs. unexpected: dropouts) revealed a number of significant differences. The repeated measures ANOVA for parental involvement (see Table 5) indicated that the expected graduates have significantly higher mean levels of parental involvement than the unexpected dropouts. The repeated measures ANOVA for social competence with adults revealed that social competence changes over time for both groups, but the pattern of change was not significantly different across the two groups. Both groups' mean level of social competence with adults increased at age 16; however, the expected graduates mean level of social competence with adults was significantly higher than the unexpected dropouts. The repeated measures ANOVA for positive toward teacher indicated that both groups became more positive toward their teachers over time. In addition, the post hoc tests (see Table 6) revealed that unexpected dropouts had poorer relationships with their parents in early adolescence, as indicated by higher levels of loneliness and estrangement within the relationship (Balance II), and an inability of the parent and adolescent to work together to accomplish tasks (Balance III), compared to expected graduates.

Discussion

Examining the impact of adult–child relationships on expected and unexpected pathways to high school graduation or high school drop out revealed few significant differences between individuals who either dropped out or completed high school when they had been predicted to drop out on the basis of earlier academic achievement and behavioral problems. Thus, it appears that relationships with parents and teachers have little to do with accounting for why some adolescents who were predicted to drop out remain in school and graduate. However, we found numerous differences between participants who were predicted to graduate and dropped out compared to individuals who were predicted to graduate and did follow the expected pathway. These findings are distinctive because much of the previous research on factors influencing deviations from expected educational pathways compared dropouts with adolescents who were at risk of dropping out but stayed in school and failed to explore how those individuals who are expected to graduate may be diverted from a successful educational path to one of failure.

The importance of both parent–child relationships and teacher–child relationships for children's later academic success or failure is clearly evident in these results. Parenting behavior differentiated children who would stay on a trajectory of academic success from those who were the exceptions to the prediction of high school graduation: Children whose parents were involved in their school in middle childhood and who experienced good parent–child relationships in early adolescence were more likely to continue on a positive trajectory toward academic success. By contrast, those who had poor relationships with their parents were more

likely to drop out of high school despite doing well academically and behaviorally. This finding suggests that youth who are academically and behaviorally competent rely on their parents as an important source of support for their continued educational success; without parental support, academically able adolescents may divert from a successfully educational pathway to one of failure. One implication of these findings is that parent education programs focused on the development of positive and supportive parenting behaviors may be important components of a comprehensive approach to drop out prevention. Our findings suggest that programs that contribute to positive parent–child relationships should provide support to parents throughout childhood and into adolescence; they should also not be limited to parents of academically at-risk youth.

The link between positive parent–child relationships, school success, and likelihood of high-school completion may be mediated by teacher–child relationship quality and attitudes toward school. The association between early parent–child relationships and later teacher–child relationships is documented (e.g., Howes & Hamilton, 1992; Pianta, Hamre, & Stuhlman, 2003; Pianta, Nimetz, & Bennett, 1997). Children identified by teachers as having positive attitudes towards their teachers and school and as more socially competent with adults were more likely to continue to succeed academically. By contrast, although children who are academically able and who do not have emotional or behavioral problems are in a position to benefit from their school experiences and typically appear to be on a pathway toward educational success, they are likely to flounder and not realize their academic potential if their relationships with significant adults are negative. These are the children who fall between the cracks. They are not identified as being at risk of dropping out because they are doing fine academically and are not problems for the teacher, but they are vulnerable under conditions of higher academic and social demands because of the legacy of negative relationships in earlier periods, as well as currently. This finding suggests that one component of interventions to prevent dropping out should be efforts to support teachers in developing and maintaining positive relationships with children. Given that there is much evidence that teacher–child relationships are especially important for children's success in school (Hamre & Pianta, 2006), teacher education programs as well as in-service professional development should include the study of the role of teacher–child relationships in children's academic competence as well as specifics on the formation and maintenance of positive relationships between teachers and children. In addition, the climate and organization of schools in particular and educational policy more generally need to support positive teacher–student relationships. Some possible ways to support these relationships are through lower child–teacher ratios, decreasing children's transitions between adults, and the development of supportive social networks within schools (Pianta, 1999).

As with any research, there are limitations to this study. One important limitation is the sample size. Although a considerable strength of this study is its prospective and longitudinal design, it also provides a limitation in that the participants were not selected based on their dropout status, leaving us with small subsamples, especially for the predicted to dropout groups. Despite reduced power due to the small number of participants, replications would be necessary even if the groups were large and we had considerable power in our analyses since the results of our study may not generalize to individuals who are disparate from our participants. We originally selected our sample based on poverty and risk status. Results might be different for those individuals who are not low income or those from dissimilar ethnic or racial groups or from countries other than the United States.

An important implication of these findings is that students' academic success across development is embedded in their interactions with parents and teachers. These results suggest that it is important to build and maintain policies that reinforce, and mechanisms that fund, the development of positive and supportive adult–child relationships across development. It would

be a disservice to future generations to only support the development of academic competencies and ignore the importance of interpersonal relationships for educational attainment. It is essential for children's educational success that both parents and teachers receive the support they need to develop positive interpersonal relationships with children; this is true not only for children who are at high risk of educational failure, but also those children who appear to be doing well academically and behaviorally.

Acknowledgments

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Table 1

Summary of Logistic Regression Analysis for Variables Predicting Graduate from High School or Dropout

Predictors	b	SE b	OR
Academic achievement (12 years)	−.03	.03	.97
Academic achievement (16 years)	.06[*]	.03	1.06
Behavior problems (12 years)	−.06[*]	.03	.94
Behavior problems (16 years)	−.14[***]	.03	.87
Constant	9.02[**]		

Note. Likelihood ratio χ^2 test = 56.78, p <.001; overall percentage correctly classified = 79.9%; pseudo R^2 (Nagelkerke) =.39; OR, odds ratio.

[*] p <.05,

[**] p <.01,

[***] p <.001.

Table 2

Classification of Expected and Unexpected Educational Pathway Groups

Predicted	Actual			Total
	Graduated		Dropped out	
Predicted to graduate	118 Expected graduates	↔	26 Unexpected dropouts	144
Predicted to drop out	10 Unexpected graduates	↔	25 Expected dropouts	35
Total	128		51	

Note. Arrows indicate comparison groups.

Table 3

Descriptive Statistics

	Mean scores (*SD*) for predicted to dropout groups		Mean scores (*SD*) for predicted to graduate groups	
	Dropouts (*n* = 25)	Graduates (*n* = 10)	Dropouts (*n* = 26)	Graduates (*n* = 118)
Parent–child variables				
Quality of instruction (42 mos)	8.12 (2.71)	9.20 (2.82)	8.69 (2.69)	9.27 (2.70)
Supportive presence (42 months)	8.12 (3.05)	9.10 (3.28)	8.62 (3.03)	9.03 (3.19)
Structure & limit setting (42 mos)	8.76 (2.54)	9.30 (3.50)	8.77 (2.69)	9.86 (2.76)
Maternal hostility (42 mos)	3.96 (2.19)	2.20 (.63)	3.58 (2.93)	2.83 (1.48)
Parent involvement (7 yrs)	3.24 (1.13)	3.70 (.67)	3.19 (1.02)	3.64 (.88)
Parent involvement (8 yrs)	2.88 (1.13)	2.90 (.88)	2.88 (1.11)	3.47 (1.04)
Parent involvement (9 yrs)	3.36 (.95)	2.60 (.70)	3.00 (1.02)	3.47 (1.11)
Family balance scale I (13 yrs)	4.86 (.85)	4.40 (1.01)	4.73 (.91)	3.47 (1.11)
Family balance scale II (13 years)	4.23 (.91)	4.02 (.54)	3.79 (1.06)	5.13 (.91)
Family balance scale III (13 yrs)	4.45 (.85)	4.28 (.55)	4.25 (1.03)	4.79 (.89)
Teacher–child variables				
Positive toward teacher (9 yrs)	15.16 (4.13)	16.00 (2.91)	15.00 (4.47)	15.49 (3.96)
Positive toward teacher (12 yrs)	14.88 (3.99)	13.50 (2.80)	13.00 (3.62)	15.25 (3.83)
Social competence with adults (9 yrs)	2.68 (.95)	2.70 (.95)	2.85 (.88)	3.29 (1.01)
Social competence with adults (12 yrs)	2.72 (.89)	2.80 (.79)	2.65 (1.02)	3.39 (.99)
Social competence with adults (16 yrs)	3.32 (1.31)	3.00 (1.25)	4.00 (1.30)	4.86 (1.29)

Table 4

Repeated Measures ANOVA Results for Parental Involvement by Predicted to Dropout Groups and Teacher–Child Measures by Predicted to Dropout Groups

Variable	df	Error df	F	Partial η^2
Parental involvement				
Within subjects				
Parental involvement	2	66	4.62[*]	.12
Involvement × dropout group	2	66	4.53[*]	.12
Between subjects				
Dropout group	1	33	.11	.00
Social competence with adults				
Within subjects				
Social competence with adults	2	66	2.15	.06
Social competence × dropout group	2	66	.39	.01
Between subjects				
Dropout group	1	33	.07	.00
Positive toward teacher				
Within subjects				
Positive toward teacher	1	33	2.56	.07
Positive to teacher × dropout group	1	33	1.63	.05
Between subjects				
Dropout group	1	33	.06	.00

[*]
Note. $p < .05$.

Table 5

Repeated Measures ANOVA Results for Parental Involvement by Predicted to Graduate Groups and Teacher–Child Measures by Predicted to Graduate Groups

Variable	df	Error df	F	Partial η²
Parental involvement				
Within subjects				
Parental involvement	2	284	1.86	.01
Involvement × dropout group	2	284	.17	.00
Between subjects				
Dropout group	1	142	9.55**	.06
Social competence with adults				
Within subjects				
Social competence with adults	2	284	60.55***	.30
Social competence × dropout group	2	284	1.11	.33
Between subjects				
Dropout group	1	142	16.39***	.10
Positive toward teacher				
Within subjects				
Positive toward teacher	1	142	5.22*	.04
Positive to teacher × dropout group	1	142	3.19	.02
Between subjects				
Dropout group	1	142	3.88	.03

*
Note. p <.05,

**
p <.01,

***
p <.001.

Table 6

Multivariate Analysis of Variance for Parent–Child Variables by Groups

Variable	Predicted to dropout groups				Predicted to graduate groups			
	df	Error df	F	Partial η^2	df	Error df	F	Partial η^2
Overall multivariate test	7	27	1.37	.26	7	136	2.77	.13[**]
Early childhood								
Quality of instruction (42 mos)					1	142	.98	.01
Supportive presence (42 mos)					1	142	.36	.00
Struct. & limit setting (42 mos)					1	142	3.33	.02
Maternal hostility (42 mos)					1	142	3.58	.03
Early adolescence								
Family balance scale I (13 yrs)					1	142	4.09	.03
Family balance scale II (13 yrs)					1	142	8.68[***]	.05
Family balance scale III (13 yrs)					1	142	7.33[***]	.05

Note. Post hoc univariate tests not reported for analysis with nonsignificant results from multivariate test.

[**]
$p < .01$; Holm modified Bonferroni correction applied:

[***]
$p < .008$ (.05/7).