Contribution of Student and Instructor Relationships and Attachment Style to School Completion

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ABSTRACT. The authors investigated how student–student friendships, student–teacher relationships, and attachment styles link to General Educational Development program completion among 127 women and 117 men. Students’ relationships with students and instructors, as well as secure attachment style were positively associated with earning a GED. After statistical control for demographic variables, hierarchical logistic regression analyses demonstrated that both student–student friendships and student–instructor relationships positively predicted attachment and subsequent General Educational Development program completion. The overall model, which correctly classified 85.7% of the cases, was statistically reliable in distinguishing between those people who earned GEDs and those who did not. In addition, 2-way analyses of variance revealed that those who had secure attachment styles had better relationships with their fellow students and instructors. The results extend J. Bowlby’s (1969, 1973, 1988), M. D. S. Ainsworth’s (1989), and T. Hirschi’s (1969) theoretical notions that attachment positively influences learning-related outcomes. Educational professionals can use these results to inform instructional efforts and promote optimal learning environments.

Keywords: attachment, dropouts, friendships, instructor relationships, school completion

THE CONTRIBUTION OF ATTACHMENT THEORY to understanding healthy human functioning has been vital (Moore & Leung, 2002). Attachment is the emotional and social bonding between children and parents, and a determinant of relating patterns in adolescence and adulthood (Muris & Maas, 2004). Whereas the bulk of attachment research has focused on infants and elementary school

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children, researchers have studied adolescent and adult attachment because of its association with socioemotional functioning, as in developing friendships, managing stress, and regulating one’s emotions and self-esteem (Bifulco, Moran, Ball, & Berzazzani, 2002).

One relatively recent research area in the attachment literature addressed the relation between attachment and school completion. Earning a high school degree is increasingly crucial for accessing the labor force, furthering one’s education and training, and maintaining financial and social well-being (Lee & Burkam, 2003). In 2003, those people who did not finish high school earned an average of $6,780 less per year than did high school graduates (Children’s Defense Fund [CDF], 2005). Dropouts cost the United States billions of dollars annually in welfare, lost wage revenue, unemployment, and crime prevention (Christenson & Thurlow, 2004; Dunn, Chambers, & Rabren, 2004).

Of all youths in the United States between the ages of 16 and 24 years, 20% are classified as dropouts, with slightly higher rates in Canada (Vitaro, Larocque, Janosz, & Tremblay, 2001). The societal and individual consequences of not completing school are profound. It is alarming that more than 400,000 U.S. students dropped out of school between October 2004 and October 2005 (CDF, 2005). Of these dropouts, historically only 10% return by the age of 20 years to complete their high school education. With this in mind, we examined the possible role of attachment in GED attainment among 16–19-year-old dropouts enrolled in General Educational Development completion programs.

**Toward a Broader View of Attachment**

Attachment can be viewed from many perspectives, including Bowlby’s (1969, 1973, 1988) theories, Ainsworth’s (1989) attachment theory, and Hirschi’s (1969) social control theory. According to Bowlby (1969, 1973, 1988), attachment experiences become internalized as expectations about whether other important experiences are reliably helpful in coping with distress and about whether oneself is worthy of love throughout the life span.

Building on Bowlby’s (1969, 1973) seminal work, Ainsworth, Blehar, Waters, and Wall (1978) provided empirical support for the classifications of child attachment styles. Ainsworth (1989) perceived the nature of the relationship between mother and infant as generalizing to the child’s later relationships with other individuals, including friends and intimates. Through observations of infant behavior patterns in the strange situation test, Ainsworth identified three types of attachment responses: secure, avoidant, and anxious/ambivalent. This test is an observation procedure in which the infant is brought to an unfamiliar room and exposed to periods of brief separations and reunions with its mother. When distressed, secure infants grow to perceive others as a secure base and source of comfort and trust, whereas avoidant and anxious/ambivalent infants grow to feel insecure about others’ responsiveness.
Embracing a life span perspective of attachment, Hazan and Shaver (1987, 1990, 1994) extended Bowlby’s (1969, 1973, 1988) ideas about working models of attachment experiences and Ainsworth, Blehar, Waters, and Wall’s (1978) three attachment classifications to late adolescence and adulthood. One underlying assumption of Hazan and Shaver’s work is that attachment largely defines affectionate relationships, in that one can infer attachment style from an individual’s way of managing close relationships with friends and significant others. By developing a descriptive, categorical instrument to measure attachment patterns that correspond to the three attachment classifications, they stimulated considerable attachment research throughout the life span. Researchers have widely used this measure and have demonstrated it to have acceptable reliability and validity (Crowell, Fraley, & Shaver, 1999). For instance, in a study of attachment and exploration with university undergraduates—as predicted by attachment theory—secure participants tended to report a higher need for achievement and a lower fear of failure, and adopted more mastery-approach and less performance-avoidance goals than did either avoidant or anxious-ambivalent participants (Elliot & Reis, 2003). These same results were replicated when attachment was operationalized as a continuous variable with a different group of college students.

Hirschi’s (1969) sociological theory also describes how children’s and adolescents’ attachment to their parents affects their relationships with subsequent intimates. However, Hirschi’s theory extends these relationships beyond their parents to groups, society, and social institutions such as school. Thus, Hirschi’s attachment is more global than those of Bowlby (1969) and Ainsworth (1989), with broader emotional relationships to groups and social institutions (Sims, 2002). Hirschi focused on four elements that were vital to the social bond: attachment, commitment, involvement, and belief. Individuals are likely to follow societal norms if they exhibit concern about the opinion of others regarding behavior, commit to behaving in an acceptable manner, commit their time and energy to positive behaviors, and believe that the principles fostered by social institutions are valid. According to Hirschi, when attachment is strong, individuals bond with their family, school, and community; however, when it is weak, they are more likely to engage in socially inappropriate or delinquent behaviors such as vandalism, bullying, theft, and drug experimentation. By extension, adolescents are more likely to complete school when they have positive feelings of attachment toward their peers, teachers, and school.

Demographic (e.g., ethnicity) and environmental (e.g., school characteristics) issues are also relevant risk factors when studying attachment and students’ decisions to complete school (Christenson & Thurlow, 2004). For example, Hunt et al. (2002) found that school employees regarded ethnic minority status as a contributor to school dropout. In a study comparing differences for leaving school among Hispanic and non-Hispanic students, Hispanic students were more likely to leave school for family reasons (Aloise-Young & Chavez, 2002). Further, when analyzing data from the National Longitudinal Study of Adolescent
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Health (14,966 students across 84 schools), Crosnoe, Johnson, and Elder (2004) ascertained that after controlling for family background, the magnitude of racial or ethnic differences in school attachment and student–teacher bonding depended on the characteristics of the schools but not on school size. Thus, increases in school size did not have greater negative implications for school attachment or student–teacher bonding for any race or ethnic group, but the magnitude of effect varied widely by school. Other variables that were predictive of school dropout are the following: having low SES, being male, having previous academic failure, and experiencing negative peer influences (Dunn et al., 2004; Lan & Lanthier, 2003). Thus, researchers have established that many demographic and environmental variables likely influence students’ attachment patterns and decisions about completing school.

In the present study, we used an extended definition of the term attachment that united these theories (Marcus & Sanders-Reio, 2001). This broader frame allowed us to draw from a wider theoretical context and generalize these findings to school completion and its relation to the educational settings in which students participate. Overall, we posited that positive peer friendships and instructor relationships shape the style and pattern of attachment and school engagement as students develop in school (Christenson & Thurlow, 2004).

Attachment and Social Support for Education

Research on friendship and school completion revealed that traditional students who graduate have different types of peer relationships than do those who do not complete school. One group of studies on peer relationships in school indicated that students who leave school are loners with fewer school friends and have less favorable relationships with these friends (Vitaro et al., 2001). Children with learning disorders experience more adjustment problems and peer rejection in school than do their typically developing peers (Morrison & Cosden, 1997). Rumberger’s (1995) study of the 1988 National Educational Longitudinal Study data also indicated that those students who believed that other students perceived them as troublemakers or poor students were 50% more likely not to complete school.

Consequently, peer relationships contribute to school completion. Secure affiliations with peers who are committed to school foster attachment to and engagement in school from the earliest grades. In elementary school, these friendships appear to foster school adjustment and learning, whereas in middle and high schools, friendships foster comfort, learning motivation, and academic achievement.

Attachment and Cognitive Support for Education

Attachment provides cognitive and social supports to education and schooling. For Vygotskians, a lack of attachment is linked to one’s inability to form future
relationships and learn, and it deprives the individual of the cognitive interactions essential to mental life. Without attachment, the individual cannot engage in shared activities, and that inability negatively influences the acquisition of higher mental functions. Vygotsky (1978) proposed that meaningful learning and development occurs in an individual’s zone of proximal development in the context of a relationship.

In elementary (e.g., Pianta, 1999), middle (e.g., Wentzel, 1997), and high (e.g., Crosnoe, 2006) school classrooms, the nature of children’s and adolescent’s attachment to their primary caregivers generalizes to their relationships with their teachers (Bowlby, 1969, 1973). To learn from a teacher, children must be able to enter a relationship with and focus on the teacher and to respond to the teacher’s cues (Al-Yagon & Mikulincer, 2004; Pianta). Likewise, in adult and continuing education settings, the nature of students’ attachment to significant others generalizes to their relationships with peers and teachers. Because instruction tends to be less teacher-centered in such classrooms (Knowles, 1990), students’ relationships with their classmates may take on greater importance for learning than they do in K–12 classrooms. According to Knowles, the learners themselves are often the most valuable resources in the adult classroom because of the breadth and depth of their knowledge and experience.

We focused on adult educational settings because researchers have not yet adequately researched this learning context. Yet, according to the 2005 National Household Education Survey (NHES), an astounding 44% of people in the United States who are older than 18 years of age participate annually in adult educational activities (O’Donnell, 2006). Examples of the range of adult educational activities include a 16-year-old parent-to-be taking a Lamaze class, a 17-year-old student taking a GED preparatory class (as in the present study), a recently laid-off auto worker updating his or her computer skills in a course at the local adult education center, and a farmer attending a cooperative extension agent’s field demonstration of improved irrigation techniques (Knowles, 1990).

When learners build positive relationships with their fellow students and instructors, they are more likely to feel a stronger attachment to the classroom group and school, assuring optimal student engagement (Al-Yagon & Mikulincer, 2004; Davis & Dupper, 2004; Hirschi, 1969). In contrast, difficult interactions with either peers or teachers may predict poor attachment to the group, less student engagement, and a greater likelihood of not completing school. Although evidence has indicated that the presence of positive school relationships among K–12 students may be a key requirement for learning and academic achievement (e.g., Ladd, 2000), little information exists on this interesting notion with adolescents returning to school.

There is insufficient information on the possible relations among student–student friendships, student–instructor relationships, attachment, and school completion (Christenson & Thurlow, 2004). By studying adolescents returning to complete school, we attempted to extend theoretical and empirical understandings of attachment and its possible learning-related outcomes.
Purpose and Research Hypotheses

The purpose of our exploratory study was to investigate the possible influence of student–student friendships, student–instructor relationships, and attachment style on adolescents’ successful completion of a General Educational Development program at an adult education center. In particular, we investigated the possibility that student–student friendships, student–instructor relationships, and attachment predicted staying in the program and earning a GED. We collected theoretically relevant demographic data to control for confounding relations among the variables of interest (Lan & Lanthier, 2003; Vitaro et al., 2001).

In the present article, we answer three calls for research. First, we answer Bifulco et al.’s (2002) call for more research on attachment relationships in developmental periods other than childhood, specifically adolescence. Second, to extend theory and inform best educational practice, we respond to Smith and Reio’s (2006) call for additional research in developmental and educational psychology that deals specifically with adolescents outside of traditional school settings. Because of their strong theoretical and analytical bases, developmental and educational psychology can enhance the ability to meet the educational challenges of all students (i.e., children, adolescents, adults). Third, we respond to Marcus and Sanders-Reio’s (2001) call for empirical research to clarify the role of student–student and student–instructor relationships, and the quality of the attachment patterns among those people who do or do not complete high school. Thus, we proposed:

Hypothesis 1 ($H_1$): There is a statistically significant relationship between student–student friendships, student–instructor relationships, attachment style, and school completion.

$H_2$: After statistical control for salient demographic variables (e.g., visits to education center), student–student friendships, student–instructor relationships, and attachment predict unique, statistically significant variance in school completion.

$H_3$: There are statistically significant differences between high and low student–student friendship and student–instructor relationship groups regarding attachment in our sample of adolescents in nontraditional adult educational settings.

Method

In our cross-sectional and correlational study, we used a survey to investigate the possible relations among demographic, student–student friendship, student–instructor relationship, attachment, and school completion variables. In the following sections, we present the procedures for selecting the participants and measures as well as collecting and analyzing the data.
Procedure

Participants. After obtaining appropriate guidance from the Institutional Review Board, we solicited participants ($N = 266$) from a convenience sample of volunteers who were attending GED educational classes at six adult education centers in the midcentral region of the United States. We tested all participants in a single administration at each of the test centers. In all, 4 adults at one site declined to participate because of time issues. Another 18 participants did not complete the entire test battery, resulting in 244 final participants. We ensured confidentiality of all participants. We collected the battery of tests—a large part of which were the paper-and-pencil instruments that we examined—and demographic data at the respective education centers, with an overall administration time of approximately 30 min. Consistent with previous research that examined students’ decisions to complete school (Dunn et al., 2004), we examined archival records for evidence of General Education Development program completion and GED attainment 12 months later.

In our study, the cross-sectional sample comprised 127 women and 117 men. The mean age was 18.6 years ($SD = 0.55$ years). Regarding ethnicity, 81% classified themselves as Caucasian ($n = 197$), 12% as African American ($n = 29$), 3% as Hispanic ($n = 7$), 1% as Asian ($n = 3$), and 3% as other ($n = 8$). The composition of ethnic background data was similar to the population of the geographic region in which we collected the data. The annual household income for the majority (71%; $n = 174$) was less than $25,000, and all participants earned less than $30,000. Of participants, 65% ($n = 159$) earned a GED in 12 months, whereas 35% did not ($n = 85$). Of those who did not earn a GED, each had taken the GED examination no more than once during the 12-month period of the study. Participants reported visiting the education center approximately 12 times during the previous year ($M = 11.96, SD = 3.24$).

Combination of the sample. Before combining the samples from the six education centers, we investigated the patterns of relations among the research variables for each respective group. Also, we conducted a one-way multivariate analysis of variance (MANOVA) for each of the research variables by education center. Box’s test demonstrated that equal variances could be assumed ($p = .41$); thus, we used Wilks’s lambda to assess the test statistic (Tabachnick & Fidell, 2001). The Wilks’s lambda criteria suggested no significant group differences by site regarding the dependent variables, Wilks’s $\Lambda = .089, F(24, 204) = 0.63, p > .10$. We factor-analyzed the student–student friendship and student–instructor relationship scales by gender and found that the item loadings were nearly identical. On the basis of this convergent evidence, we pooled the six groups into one larger sample to increase statistical power (Cohen & Cohen, 1983).
Instrumentation

We used the participants’ self-reported perceptions of their relationships with their fellow students and instructors on the basis of the recommendations of Lynch and Cicchetti (1997); we also used their self-reports of the demographic variables to facilitate comparison with previous research. Each potential respondent received a packet of the research instruments, which also included a demographic measure. We determined total scale scores for each measure by summing the appropriate item scores to yield participant perceptions of their relationships with their fellow students and instructors.

**Student–student friendships.** We assessed friendships with other students at the centers using Griffin’s (2001) 4-item subscale ($M = 14.3$, $SD = 3.0$) measuring the degree to which respondents believed that they had developed friendships while participating in activities at the centers (e.g., “You have developed: friends with whom you study and learn”). Griffin developed the peer relationship subscale specifically for use with individuals who were participating in adult educational programs similar to the ones that we studied ($\alpha = .72$). Participants rated items on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree); the scores on the measure ranged from 5 to 20 (4–20 were possible). After a principal component analysis (PCA) of this research variable, only one component emerged. Scrutiny of the scree plot supported the one-component interpretation.

**Student–instructor relationships.** We assessed relationships between students and instructors ($M = 24.0$, $SD = 5.4$) using Griffin’s (2001) 3-item subscale ($\alpha = .77$), measuring the degree to which respondents believed they had developed relationships with the classroom instructors at the center (e.g., “I often have: personal contact with my instructors”). Participants rated items on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree), and the scores on the measure ranged from 3 to 15 (3–15 were possible). As with the student–student friendship variable, a PCA revealed one component. Inspection of the scree plot also supported the one-component interpretation.

**Attachment style.** We determined style of attachment using a modified version of Hazan and Shaver’s (1990) forced-choice instrument. We selected this measure because of its demonstrated reliability, validity (Crowell et al., 1999; Elliot & Reis, 2003), and brevity. We measured attachment style by asking the respondents to circle one of the following three choices: (a) “I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don’t often worry about someone getting too close to me” (secure); (b) “I am somewhat uncomfortable being close to others; I find it difficult to trust them completely and to allow myself to depend on them. I am nervous when anyone gets too close” (avoidant); (c) “I find that others are reluctant to get as close as I
would like” (anxious/ambivalent). Because the original measure was designed to measure love relationships, we modified the instrument slightly to delete any specific reference to love and partners. However, the secure attachment style question remained the same as Hazan and Shaver’s question. In essence, attachment style was measured by a single item, which has demonstrated reliability and validity in the bulk of the attachment literature (e.g., Crowell et al.; Elliot & Reis).

School completion. We measured General Educational Development program completion and GED attainment by examining archival records at the respective centers. We coded the data as 0 for program completion or GED attainment and 1 for program noncompletion.

Results

The findings support each of the three hypotheses. Table 1 shows the zero-order intercorrelations; Table 2 shows the final hierarchical logistical regression summary.

Attachment Style Classifications

Of participants, 57% classified themselves as secure (n = 139), 42% as avoidant (n = 102), and 1% as anxious/ambivalent (n = 3). The relative numbers of secure and avoidant attachment types are roughly consistent with those found in previous research (e.g., Hazan & Shaver, 1990), yet the anxious/ambivalent type is underrepresented. This result may reflect the lack of sufficient clarity between the anxious and avoidant styles that many previous researchers reported (Bifulco et al., 2002; Feeney, Noller, & Callan, 1994). Stein et al. (1998) argued that only a secure–insecure dimension remains stable across measurement systems. With this observation in mind, we recoded the attachment variable and made it dichotomous; that is, we coded 1 as secure and 2 as insecure.

Analysis of the interrelationships among the research variables. We examined the strength, direction, and patterns of the relations among the research variables (see Table 1) and calculated the coefficients of determination ($r^2$) to facilitate effect size comparisons for the main research variables (Callahan & Reio, 2006).

Supporting $H_1$, student–student friendships had a positive, moderate, statistically significant relation with gender ($r^2 = .03$), frequency of attending education center ($r^2 = .05$), student–instructor relationships ($r^2 = .23$), and school completion ($r^2 = .07$), suggesting that if positive peer friendships developed while attending the education center, the learners were more likely to be female, attend the center more frequently, have better relationships with their instructors, and complete the General Educational Development program (medium effect sizes; Cohen, 1988). There was a negative relation between age and student–student...
### TABLE 1. Intercorrelations Among Demographic, Student–Student Friendship, Student–Instructor Relationship, and School Completion Variables (N = 244)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
<th>6</th>
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<th>8</th>
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<td>1. Age</td>
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<td>2. Sex</td>
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<td>−.13*</td>
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<tr>
<td>3. Income</td>
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<td>−.17**</td>
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<td>4. Attendance</td>
<td>.23**</td>
<td>.00</td>
<td></td>
<td>.01</td>
<td></td>
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<tr>
<td>5. Student–student friendship</td>
<td>−.25**</td>
<td>.18*</td>
<td>.08</td>
<td>.22**</td>
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<tr>
<td>6. Student–instructor relationship</td>
<td>.01</td>
<td>.20*</td>
<td>.36**</td>
<td>.29**</td>
<td>.48***</td>
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<td>7. Attachment</td>
<td>−.19*</td>
<td>.08</td>
<td>.25**</td>
<td>−.15*</td>
<td>−.23**</td>
<td>−.33**</td>
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<td>8. Dropout</td>
<td>.02</td>
<td>−.19**</td>
<td>−.28**</td>
<td>−.18*</td>
<td>−.26**</td>
<td>−.18*</td>
<td>−.49***</td>
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</tbody>
</table>

*p < .05. **p < .01. ***p < .001.
TABLE 2. Hierarchical Logistic Regression, With Variables Predicting School Completion (N = 244)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Wald</th>
<th>df</th>
<th>( \chi^2 )</th>
<th>p</th>
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<td><strong>Step 2</strong></td>
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<td>Student–student friendship</td>
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<tr>
<td>Model</td>
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<td>85.03</td>
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</table>

Note. Total Nagelkerke \( R^2 = .709 \). Classification rate was 85.7% correct for completion and noncompletion.

\( ^a \Delta R^2 = .178; ^b \Delta R^2 = .131; ^c \Delta R^2 = .40. \)
friendships ($r^2 = .06$), indicating that older participants were less likely to form student friendships while attending the education center, yet they were more likely to have a secure attachment style. One-way analyses of variance illustrated the lack of ethnic differences on the research variables, $F$s($4, 229) < 1.91, $p$s $> .11$. Besides demonstrating statistically significant relations with the demographic (e.g., gender, $r^2 = .04$; income, $r^2 = .13$; frequency of attending center, $r^2 = .08$) and student–student friendship variables, student–instructor relationships were also related statistically significantly to attachment ($r^2 = .11$) and school completion ($r^2 = .03$), meaning that secure attachment style and school completion were linked to better relationships with instructors. Last, attachment had a statistically significant relation with frequency of attending education center ($r^2 = .03$) and school completion ($r^2 = .24$; medium to large effect size), suggesting that participants with secure attachment styles were more likely to complete the General Educational Development program. In almost all cases, the independent variables had a moderate magnitude of effect on the dependent variable, indicating preliminarily that increased school program completion in our sample of adolescent learners was related moderately and positively to student–student friendships, student–instructor relationships, and secure attachment style.

**Hierarchical Logistical Regression Analyses**

We conducted a hierarchical logistical regression analysis to test our conceptual model of school program completion among previous 16–19-year-old high school dropouts. In this analysis, we hypothesized systematic relations among the demographic variables, student–student friendships, student–instructor relationships, attachment style, and GED attainment ($H_2$). Guided by theory and empirical research, we entered the variables into the regression equations in a specified order to test our a priori model of the variables that contributed uniquely and statistically significantly to school completion (Cohen & Cohen, 1983). To evaluate possible multicollinearity effects, we calculated the variance inflation factor (VIF; Stevens, 2001). Each VIF value was less than 2.11, providing no evidence of multicollinearity (values less than 10 are desirable).

Supporting $H_2$, each of the research variables predicted incremental variance in the dependent variable after statistical control for the influences of the demographic variables. Table 2 presents the results. The overall model was statistically reliable, $\chi^2(7, N = 244) = 85.03, p < .001$; goodness of fit $= 32.61$; $–2$ log likelihood $= 55.90$; and classification rate $= 85.7%$. The demographic variables (age, gender, household income, frequency of attending center), entered as a block in Step 1 of the regression equation, reached statistical significance, $R^2 = .18, p = .003$ (69.9% were correctly classified). The Wald statistics results suggested that age, gender, income, and frequency of attending the center attained statistical significance. The demographic results illustrate that being older and female, having a higher annual household income, and attending the center more
often predicted program completion. In Step 2 of the analysis, we entered the student–student friendship and student–instructor relationship variables as a block, with each variable significantly and uniquely predicting school completion, $R^2 = .13, p = .004$ (75.5% were correctly classified). The results revealed that positive student–student friendships and student–instructor relationships positively predicted school completion. In Step 3 of the logistic regression equation, attachment made a unique statistically positive contribution to predicting school completion, $R^2 = .40, p < .001$ (85.7% were correctly classified). Hence, those who had secure attachment styles were more likely to have completed the General Educational Development program. Step 3 of our conceptual model reflects our view that peer friendships and instructor relationships can shape attachment patterns and style, which supports a broader interpretation of attachment as something that can be developed through participation in school-related activities (Christenson & Thurlow, 2004; Grossman, Grossman, & Zimmerman, 1999; Hirschi, 1969).

Overall, the conceptual model was statistically reliable in distinguishing between those who completed their GEDs and those who did not. The model correctly classified 85.7% of the cases and explained 70.9% of the variance in the dependent variable (Nagelkerke $R^2$), demonstrating that after statistical control for relevant demographic variables, positive student–student friendships and student–instructor relationships, and secure attachment style were unique and positive predictors of school completion with this sample of adolescent learners.

**Attachment Style, Student–Student Friendships, and Student–Instructor Relationships**

Following the procedures of previous studies of learning-related variables (e.g., Reio & Sanders-Reio, 2006), individuals with scores above the median were placed in a high student–student friendship (51.3%) or a high student–instructor relationship (52.0%) group, and those who had scores below the median were placed in a low student–student friendship or a low student–instructor relationship group. We compared the high and low groups regarding their mean secure and insecure attachment scores. In support of $H_3$, a significant main effect was demonstrated where the high student–student friendship group differed from the low student–student friendship group. Two-way ANOVA results revealed that those belonging to the high student–student friendship group were more likely to have a secure attachment style, $F(1, 232) = 6.37, \eta^2 = .05, p < .001$. The interaction between factors was statistically nonsignificant. In further support of $H_3$, the high student–instructor relationship group differed significantly from the low student–instructor relationship group, $F(1, 232) = 9.31, \eta^2 = .08, p < .001$, suggesting that those students who had stronger relationships with their instructors were also more likely to have a secure attachment style. The interaction between these factors was also statistically nonsignificant.
Overall, the results strongly support our three hypotheses. First, the relations among student–student friendships, student–instructor relationships, attachment, and school program completion were statistically significant, with each demonstrating a medium to strong magnitude of effect ($r^2$). Second, after control for the demographic variables, student–student friendships, student–instructor relationships, and attachment predicted unique statistically significant variance in the dependent variable. The magnitude of effect for most of the variables ranged from medium to large, according to Cohen’s (1988) classification system. The magnitude of effect demonstrated by these findings suggests that student–student friendships, student–instructor relationships, and attachment each have a pronounced effect on General Educational Development program completion. Last, as predicted by attachment theory, those who were in the high student–student friendship and high student–instructor relationship groups were more likely to have a secure attachment style.

Discussion

These findings add to the body of knowledge on student friendships, student–instructor relationships, attachment styles, and school completion in a number of important ways. Using our conceptual model of school completion, which is based primarily on an extended view of attachment theory, we proposed that the attachment-related variables predict the likelihood of GED attainment. To test our model, we developed a test battery of empirically validated research measures to examine the degree to which these variables predicted school completion among students at these education centers. A combination of demographic, student–student friendship and student–instructor relationship, and attachment variables strongly predicted the likelihood that participants would attain GEDs.

Demographic Variables

Age, gender, income, and frequency of attendance at the education center were the four demographic variables that significantly contributed to the conceptual model. First, being a younger dropout decreased the likelihood of completing the General Educational Development program and earning a GED. These results support Vitaro et al.’s (2001) and Lee and Burkam’s (2003) longitudinal findings that age can influence the likelihood of completing or not completing school. Second, our finding that being male predicted General Educational Development program noncompletion is consistent with NHES data (CDF, 2005; O’Donnell, 2006) demonstrating that high school noncompleters are more likely to be male. Third, similar to Lee and Burkam’s study, income level contributed significantly to the model, suggesting that lower participant income increased the likelihood of GED noncompletion. Race or ethnicity was not a statistically significant variable in our school completion model, partially supporting Hunt et al.’s (2002) research
in which ethnic minority group membership was a less important reason for not completing school than was parental support and supervision at home and availability of role models.

**Friendships and Relationships**

We found student–student friendships to be significant in our school completion model. The likelihood of school completion increased as participants formed close, personally rewarding, and satisfying peer friendships while attending the adult education center. These findings are consistent with those of Ladd and his colleagues (Ladd, 2000; Ladd, Kochenderfer, & Coleman, 1996), who found that a related construct (social well-being) predicted school performance and attitude toward school among young children. Forming better student–instructor relationships was also a significant contributor to the model, even more powerful than the student–student friendships. Strong student–instructor relationships may have been forged through personal contact with instructors and the receipt of advice and guidance, which, in turn, increased the likelihood of school completion. Our results support Davis and Dupper’s (2004) notion that quality student–instructor relationships have an especially powerful effect on school completion for at-risk students. Also, these findings are concordant with Lan and Lanthier’s (2003) and Dunn et al.’s (2004) research in which poorer student–instructor relationships predicted school noncompletion. The combination of the relationship variables demonstrates that forming positive relationships with other students and instructors contributes to school completion.

**Attachment**

We introduced attachment style as Step 3 in our conceptual model. On the basis of our review of the literature (Ainsworth, 1989; Ainsworth et al., 1978; Bowlby, 1969, 1973, 1988; Hirschi, 1969), we hypothesized that forging positive social and emotional relationships with significant others (i.e., other students and instructors) fostered the development of more secure attachment patterns. Further, on the basis of the empirical literature (e.g., Crosnoe et al., 2004; Lan & Lanthier, 2003; Lee & Burkam, 2003; Rumberger, 1995), we hypothesized that those students who had stronger positive ties to others were more likely to form secure attachment patterns that lead to positive outcomes such as school achievement and completion. Attachment was the most powerful predictor of school completion in the present model. Thus, adolescents who had a secure attachment style were more likely to complete school and earn GEDs. These findings, although cross-sectional, coincide with previous longitudinal and experimental research suggesting that attachment is positively related to school-related outcomes (Aviezer, Sagi, Resnick, & Gini, 2002; Moss & St.-Laurent, 2001; Pianta & Harbers, 1996; Vitaro et al., 2001).
Limitations and Recommendations for Future Research

Our study has limitations that affect the generalizability of the findings. First, because our exploratory research comprised 16–19-year-old dropouts (in a convenience sample of adult education centers) who were returning to school for their GEDs, researchers should be cautious with our generalizations to school completers in other contexts. In the future, researchers may use a more balanced representation by income and race or ethnicity in alternative learning contexts for a more thorough test of the conceptual model presented in the present study. For instance, it is possible that ethnicity’s lack of statistical significance in the regression model may be more a reflection of the lack of ethnic variability in our study rather than evidence that ethnicity was not important. The use of self-report data is another limitation. Although using self-report data coincides with much exploratory research in the peer friendship, student–instructor relationship, and attachment literatures, an important next step would be to use alternative data collection methods. Teacher, parent, and peer ratings; observations of actual school-related behaviors; and the use of additional archival data (e.g., baseline counselor evaluations of cognitive skill levels or standardized ability measures such as the Wonderlich Scholastic Level Exam [2002]) may be useful sources of convergent evidence. In particular, ability measures may be informative for examining possible interactions with the predictor variables. Another limitation was associated with the noncompletion rate because 35% of the participants did not earn GEDs within the 1-year time frame. Although 12 months is consistent with the literature on noncompletion rates among at-risk adolescents, it is possible that a longer time frame may be best for studying returning GED students.

Last, we recommend that researchers examine the notion that the general sets of mental representations predicted by attachment theory exhibit both trait-like and partner-specific components (Elliot & Reis, 2003). In general, an individual’s experiences with a partner or significant other can interact significantly with his or her attachment style to alter attachment-related behaviors such as goal setting, achievement motivation, curiosity, and exploration (Grossman et al., 1999; Hazan & Shaver, 1990). In the future, researchers should investigate attachment and the possible relevance of situational interactions to more fully appreciate the extent to which situational variables affect attachment development across one’s life span.

Conclusions

Our findings represent an important extension of previous research in that ours is among the few studies in which researchers have examined the attachment–school-completion relation among students who return to complete their GED before 20 years of age. This new information could assist psychological, sociological, and educational theorists and researchers as they strive to understand how and why salient
interpersonal relationships and attachment can promote educational attainment. Also, our findings may be useful to educational practitioners as they strive to find productive means to improve student engagement, learning, and achievement. Overall, our conceptual model suggests that the aforementioned antecedent variables may be important leverage points in promoting school completion.

**AUTHOR NOTES**

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