

**ASSOCIATIONS AMONG PEER RELATIONSHIPS,
ACADEMIC ACHIEVEMENT, AND PERSISTENCE
IN COLLEGE***

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ABSTRACT

Developmental theory describes the central importance of peer relationships in the lives of young adults (e.g., Erikson, 1963). In this study we tested the importance of peer relationships to academic outcomes. First-year undergraduates completed a self-report survey to indicate the number and closeness of their friendships. We compared these variables to academic outcomes, including grade point averages (GPA) and persistence throughout the first college year. Having trust in, sharing common interests with, and the extent of conflict with a new college friend was associated with GPA and persistence to the second college year. Results are discussed in the context of assisting students in the transition into college.

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Although higher education should be an environment for positive development, the reality is that only about half the students who begin at an institution of higher education will persist to graduation at that institution (Gerdes & Mallinckrodt, 1994; Mortenson, 2005; Tinto, 1982, 1987). Some of these individuals transfer to other schools while others drop out of higher education altogether. Many researchers have measured individual influences on student persistence or dropout, or have built and tested models of multiple influences (Bean, 1985; Pascarella & Terenzini, 1991, 2001; Seidman, 2005; Terenzini, Pascarella, & Blimling, 1996; Tinto, 1975; Weidman, 1989). In one extensive study of undergraduates Astin (1993) concluded that peers are the most important influence on college student development. Given that the college years are characterized by the development of relationships (e.g., intimate friendships; Arnett, 2000, 2004; Erikson, 1963), and that Astin (1993) identified peers to be such an important influence, we studied the impact that close relationships had on the achievement and persistence of the students on our campuses.

PEER RELATIONSHIPS AND ACADEMIC OUTCOMES

Peer relationships are important aspects of adolescents' and young adults' lives, a notion explained by Erikson's theory of psychosocial development (Erikson, 1963) and more broadly in social psychological theory that describes the need for acceptance from peers during adolescence (Newcomb, 1962). Decades ago, Newcomb (1962) suggested the importance of studying friendships among new college students since intimate friendships could have a great effect on the attitudes and behaviors of individuals. For better or worse, there was evidence that peers affected students' progress in college (Newcomb, 1962). Furthermore, Tinto (1975) reviewed literature describing a direct positive link between friendship support and persistence in college.

More recent research confirms the important role of peers in the development of college students (e.g., Astin, 1993). Interaction with peers is positively associated with many student outcomes such as grade point average (GPA), intellectual self-esteem, and interpersonal skills (Astin, 1993). Certain characteristics of individuals or of peer groups are responsible for influencing students. For instance, higher levels of emotional intelligence (e.g., interpersonal abilities) benefit persistence to the second year of college (Parker, Hogan, Eastabrook, Oke, & Wood, 2006); having friends who are similar in academic mindset benefits academic adjustment and success (Yazedjian, Purswell, Sevin, & Toews, 2007); and having loyal peers with common interests, as well as having a small peer group can reduce feelings of alienation and benefit development (Chickering & Reisser, 1993). Attachment style influences student development, too, since the closeness of peer relationships can determine how likely an individual is to seek help and support from a peer. Insecure forms of attachment were associated

with lower levels of constructive thinking (Lopez, 1996), and academic achievement was higher for students who displayed a free-autonomous (secure) attachment style as compared to those with a dismissing (insecure) style (Larose, Bernier, & Tarabulsy, 2005).

Not all researchers have found a significant or positive association between peer relationships and academic achievement. Among a sample of mostly minority college students, peer attachment was not significantly associated with GPA (Fass & Tubman, 2002), although the methodology could have impacted the results since GPA was self-reported and was unconventionally represented as a categorical variable with ranges of averages for each category (e.g., 1.0-1.49). Theoretically, too much time spent with friends could be detrimental to academic achievement because there is less time spent on academic studies (Tinto, 1975). Empirical evidence suggests that time spent with peers can be negatively associated with academic performance if the social environment is competitive (Terenzini, Springer, Pascarella, & Nora, 1995). Moreover, a greater number of hours spent socializing or partying with friends was associated with lower grade point averages and lower scores on standardized tests (Astin, 1993).

Another possible negative aspect of friendships is conflict that occurs or exists between friends. Negativity among friends is negatively associated with adjustment (e.g., internalizing and externalizing problems), and with school grades during early and mid-adolescence (Burk & Laursen, 2005; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998). We were not able to locate any literature specifically describing the effect of interpersonal conflict on the adjustment or academic performance of college students, although Astin (1993) did report that college students' dissatisfaction with peer interactions was associated with dissatisfaction with the college experience more generally. Our study focused on a specific aspect of peer relations (i.e., conflict) that may lead to dissatisfaction and, thus, extends our understanding of negative peer influences on student outcomes.

In addition to the quality of peer interactions, another issue regarding the influence of peers during the transition to college is that peer relationships themselves might be in transition. Some friends from high school may stay in a student's life, but being in a new setting allows new relationships to begin. Friends can help an individual to adjust to a new college environment (Swenson, Nordstrom, & Hiester, 2008) and thus having a greater number of new college friends may contribute to positive academic outcomes. Homesickness is negatively associated with academic and social development, but new friendships can help to reduce homesickness due to self-disclosure that takes place among friends (Bell & Bromnick, 1998). The influence of old friendships, however, could be negative when it comes to school performance. Friends from previous environments (e.g., high school) can inhibit a student's ability to feel attached to the new college environment, and thus may lead to a greater likelihood of dropout (Bean, 1985). A friend in the new college environment, though, can be

an effective supporter since that friend is experiencing similar changes, which benefits the social and academic development of students as well as their sense of attachment to the new institution (Yazedjian et al., 2007).

Research Questions and Hypotheses

The research question addressed in our study was: Are peer relationships associated with academic achievement and the likelihood of student persistence in college? Based on previous research with college students (Larose et al., 2005; Lopez, 1996; Yazedjian et al., 2007), our research hypothesis was that we expected positive aspects of peer relationships to be positively associated with academic achievement. Specifically, we hypothesized that a greater number of friends, a greater presence of positive relationship features (e.g., sensitivity, sharing, common interests), and secure attachment behaviors (e.g., trust, good communication) would be associated with higher achievement and a greater likelihood of persisting in college. We explored the link between peer conflict and academic outcomes. Given the positive link between positive qualities and academic achievement, our research hypothesis was that a greater presence of conflict would be associated with lesser achievement and a lesser likelihood of persisting in college.

METHOD

Participants

Participants were 271 first-year college students (173 females, 98 males) attending universities in the northeastern United States. Of the 271, 132 attended a branch campus of a large state university, and 139 attended a liberal arts university. Participants were mostly Caucasian/White (87%) which matched the demographic characteristics of the universities and surrounding communities. A small percentage of participants (about 12%) were the first in their immediate family to be attending college. The majority of participants (78%) were residential students, defined as living on campus or near campus in housing independent of their family. The remainder of students commuted approximately 9 miles to campus, on average.

Measures

Number of Friends

To assess the number of new friendships students made during their first semester, we asked participants to list the names of all of their new peers whom they considered close friends. They were to list only new friends made while attending college and not individuals with whom they were friends prior to

beginning college. For data analysis, we summed the number of friends listed and used this total score.

Quality of Friendships

To indicate the quality of best friendships among first-year students, participants completed the Intimate Friendship Scale (IFS; Sharabany, 1994) two times, once in reference to their best friend from high school and once in reference to their best new friend from college. The IFS consisted of 32 statements for which participants rated the extent to which the statement described the relationship with their friend (1 = "This sentence does not describe your relationship at all"; 7 = "This sentence describes your relationship very well").

The 32 items of the IFS were divided into eight subscales based on previous factor analyses (Sharabany, 1994), with four items composing each subscale: frankness and spontaneity (e.g., "I talk with her about my hopes and plans for the future"); sensitivity and knowing (e.g., "I can tell when he is worried about something"); attachment (e.g., "When she is not around I miss her"); exclusiveness (e.g., "It bothers me to have other people around when the two of us are doing something together"); giving and sharing (e.g., "I offer him the use of my things"); imposition (e.g., "I can be sure she will help me whenever I ask for it"); common activities (e.g., "Whenever you see me you can be pretty sure that he is also around"); and trust and loyalty (e.g., "I will not go along with others to do anything against her"). Our data (see Table 1) confirm the high inter-item reliability among subscales reported in previous research (Wiseman, 1997). For data analysis, we computed eight friendship quality subscale scores by averaging the ratings of the items composing each subscale so that we could examine the specific qualities of friendships that are associated with academic performance (see Table 1 for average subscale scores).

Attachment

We used the Inventory of Peer Attachment (part of the larger Inventory of Parent and Peer Attachment; IPPA; Armsden & Greenberg, 1987) to assess closeness to peers according to specific aspects of attachment relationships with peers in general. Participants rated all 25 items on a 1 (almost never or never true) to 5 (almost always or always true) scale to indicate the extent to which each statement was true about their friendships in general. Factor analysis of the original IPPA measure indicated three subscales, each displaying good inter-item reliability: trust (e.g., "My friends respect my feelings"), communication (e.g., "My friends help me to understand myself better"), and alienation (e.g., "I feel alone or apart when I am with my friends"). Our data confirmed this high reliability for the 10 trust items, 8 communication items, and 7 alienation items. For data analysis, we computed three subscales scores by averaging ratings for all subscale items (see Table 1 for average subscale scores).

Table 1. Means and Standard Deviations for Variables of Interest

| | <i>M</i> | <i>SD</i> |
|---|----------|-----------|
| <i>Number of Friends</i> | 9.06 | 5.69 |
| <i>Intimate Friendship Scale (High school friend)</i> | | |
| Frankness and spontaneity ($\alpha = .89$) | 5.94 | 1.20 |
| Sensitivity and knowing ($\alpha = .89$) | 5.89 | 1.19 |
| Attachment ($\alpha = .79$) | 5.38 | 1.38 |
| Exclusiveness ($\alpha = .71$) | 4.53 | 1.37 |
| Giving and sharing ($\alpha = .85$) | 5.83 | 1.17 |
| Imposition ($\alpha = .84$) | 5.46 | 1.31 |
| Common activities ($\alpha = .83$) | 4.96 | 1.45 |
| Trust and loyalty ($\alpha = .84$) | 6.05 | 1.20 |
| <i>Intimate Friendship Scale (College friend)</i> | | |
| Frankness and spontaneity ($\alpha = .83$) | 5.53 | 1.22 |
| Sensitivity and knowing ($\alpha = .82$) | 5.36 | 1.23 |
| Attachment ($\alpha = .78$) | 4.75 | 1.36 |
| Exclusiveness ($\alpha = .61$) | 3.91 | 1.20 |
| Giving and sharing ($\alpha = .79$) | 5.54 | 1.12 |
| Imposition ($\alpha = .76$) | 4.98 | 1.26 |
| Common activities ($\alpha = .72$) | 4.89 | 1.23 |
| Trust and loyalty ($\alpha = .76$) | 5.78 | 1.14 |
| <i>Inventory of Peer Attachment</i> | | |
| Trust ($\alpha = .90$) | 4.37 | .58 |
| Communication ($\alpha = .86$) | 3.94 | .69 |
| Alienation ($\alpha = .69$) | 3.86 | .58 |
| <i>QRI-Conflict</i> | | |
| High school friend | 1.50 | .47 |
| College friend | 1.35 | .35 |
| <i>Grade Point Average</i> | | |
| Fall semester | 2.95 | .68 |
| Spring semester | 2.95 | .76 |
| Cumulative | 2.94 | .73 |

Conflict

To indicate negative interactions with their peers, participants completed the conflict subscale of the Quality of Relationships Inventory (QRI; Pierce, Sarason, & Sarason, 1991) two times, once in reference to their best high school friend and once in reference to their best new college friend. The QRI-conflict scale is composed of 14 items (e.g., “How much do you argue with this person?”) for which participants rated the extent to which each statement characterized the degree of conflict in their relationship (1 = Not at all; 4 = Very much). The conflict subscale displayed high reliability among item ratings in previous research ($\alpha = .91$; Pierce, Sarason, & Sarason, 1991), as well as among our data. For data analysis, we computed average conflict scores by averaging ratings of the 14 items (see Table 1 for average conflict scores).

Grade Point Average

As a marker of academic achievement, we obtained participants' Fall semester, Spring semester, and cumulative first-year grade point averages (GPA) from the campus registrars. Grade point averages were on a traditional 4.00-scale, with a higher average indicating better academic performance (see Table 2 for average GPA).

Student Persistence

To indicate student persistence (retention) in college, we tracked students' enrollment status over their first three semesters. For data analysis, we categorized student persistence as “yes” or “no” if they were enrolled for the subsequent semester. For our sample of 271 first-year students, 247 (91%) persisted from Fall to Spring semester, and 226 (83%) persisted from first to second year.

Procedure

We recruited student participants by visiting classes in which a high number of first-year students were enrolled on each campus due to general education requirements (English composition and History courses). We described the study as an assessment of factors related to the first-year experience of college students. Those students who were at least 18 years of age and interested signed a consent form and received a booklet of questionnaires during the first or second week of Fall semester classes (Time 1). They were instructed to return the booklet to their professor within one week. At Time 1, participants completed the IPPA.

During the 11th and 12th weeks of the same Fall semester (Time 2), we visited the same classrooms to distribute a second booklet of questionnaires to the Time 1 participants. Students again were instructed to return the booklets within one week to their professors. At Time 2, participants compiled lists of all their new

college friends, and completed the IFS and QRI-conflict scales in reference to their best high school friend and their best new college friend.

At the end of the Fall semester, and again at the end of Spring semester, we contacted the campus registrars and obtained academic information for all students who completed questionnaire booklets. We obtained GPA for both semesters, as well as cumulative averages and information about whether students were enrolled for the subsequent semester.

RESULTS

This study addressed the question of whether peer relationships were associated with academic achievement and the likelihood of student persistence. We conducted correlational and regression analyses to test the hypotheses that aspects of peer relationships during the first college semester would predict academic outcomes at the end of each of the first two semesters.

Previous research reported a significant association between college GPA and student persistence (Metzner, Lauer, & Rajecki, 2003; Noble, Flynn, Lee, & Hilton, 2007). Our data confirm this association. Results of logistic regression analyses revealed that Fall semester GPA was significantly associated with persistence to the Spring semester (Nagelkerke $R^2 = .05$, $\chi^2(1) = 4.14$, $p < .05$), and Spring semester GPA (Nagelkerke $R^2 = .18$, $\chi^2 = 11.25$, $p < .01$) and cumulative first-year GPA (Nagelkerke $R^2 = .16$, $\chi^2 = 20.35$, $p < .001$) both were significantly associated with persistence from first to second year. Due to these significant associations, we included GPA as a predictor in all analyses involving persistence.

Peer Relationships and Academic Outcomes

Number of Friends

We conducted correlational analyses to test the hypothesis of a positive association between number of new college friends and academic achievement. Results revealed positive but nonsignificant associations between the number of college friends and GPA for both Fall and Spring semesters (see Table 2).

Next we conducted logistic regression analyses to test the hypothesis of a positive association between number of new college friends and persistence in college. The number of new college friends did not predict persistence from Fall to Spring semester (Nagelkerke $R^2 = .01$, $\chi^2(1) = .47$, $p = .49$), nor did the number of friends or Fall semester GPA predict persistence to Spring semester when both variables were added into the model (Nagelkerke $R^2 = .01$, $\chi^2(2) = 1.08$, $p = .58$) (see Table 3). Number of friends significantly predicted persistence from first year to second year, (Nagelkerke $R^2 = .04$, $\chi^2(1) = 5.43$, $p < .05$), although this individual association was no longer significant when cumulative first-year GPA was added into the model as a predictor. The combined influence of cumulative

Table 2. Associations among Friendship Quality and Academic Achievement

| | Academic achievement | |
|---|----------------------|---------------------|
| | Fall semester GPA | Spring semester GPA |
| <i>Number of Friends</i> | .03 | .03 |
| <i>Intimate Friendship Scale (High school friend)</i> | | |
| Frankness and spontaneity | -.03 | -.16* |
| Sensitivity and knowing | .06 | .13 |
| Attachment | -.03 | .08 |
| Exclusiveness | -.04 | .05 |
| Giving and sharing | .08 | .02 |
| Imposition | -.04 | -.06 |
| Common activities | -.09 | -.12 |
| Trust and loyalty | .01 | .07 |
| <i>Intimate Friendship Scale (College friend)</i> | | |
| Frankness and spontaneity | -.03 | -.01 |
| Sensitivity and knowing | -.06 | -.04 |
| Attachment | -.07 | .02 |
| Exclusiveness | -.03 | -.07 |
| Giving and sharing | .06 | .04 |
| Imposition | -.08 | -.04 |
| Common activities | -.04 | -.06 |
| Trust and loyalty | .23*** | .16* |
| <i>Inventory of Peer Attachment</i> | | |
| Trust | .15* | .13 |
| Communication | -.06 | -.03 |
| Alienation | -.02 | -.07 |
| <i>QRI-Conflict</i> | | |
| High school friend | -.07 | -.08 |
| College friend | -.24*** | -.20** |

Notes: Numbers in table represent unique contributions of predictors (semipartial correlations, sr^2) to R^2 in their respective regression models.

* $p < .05$, *** $p < .001$.

Table 3. Summary of Logistic Regression Analyses Predicting Persistence from Fall to Spring Semester

| Predictor | <i>B</i> | <i>SE</i> | Odds ratio | Wald statistic |
|---|----------|-----------|------------|----------------|
| <i>Fall GPA</i> | .33 | .41 | 1.39 | .65 |
| <i>Number of friends</i> | .04 | .06 | 1.04 | .37 |
| <i>Fall GPA</i> | .65 | .42 | 1.92 | 2.45 |
| <i>Intimate Friendship Scale (High school friend)</i> | | | | |
| Frankness and spontaneity | -.89 | .71 | .41 | 1.56 |
| Sensitivity and knowing | .16 | .65 | 1.18 | .06 |
| Attachment | .08 | .39 | 1.08 | .04 |
| Exclusiveness | .50 | .37 | 1.64 | 1.78 |
| Giving and sharing | -.48 | .65 | .62 | .55 |
| Imposition | -.06 | .53 | .94 | .02 |
| Common activities | -.58 | .40 | .56 | 2.07 |
| Trust and loyalty | 1.13 | .63 | 3.08 | 3.21 |
| <i>Fall GPA</i> | .60 | .44 | 1.82 | 1.86 |
| <i>Intimate Friend Scale (College friend)</i> | | | | |
| Frankness and spontaneity | -.35 | .55 | .71 | .40 |
| Sensitivity and knowing | .31 | .47 | 1.36 | .43 |
| Attachment | -.14 | .42 | .87 | .11 |
| Exclusiveness | .95 | .40 | 2.60 | 5.66* |
| Giving and sharing | -.03 | .58 | .97 | .00 |
| Imposition | -.82 | .48 | .44 | 2.93 |
| Common activities | .31 | .41 | 1.36 | .55 |
| Trust and loyalty | .34 | .48 | 1.40 | .49 |
| <i>Fall GPA</i> | .73 | .36 | 2.07 | 4.06* |
| <i>Inventory of Peer Attachment (IPA)</i> | | | | |
| Trust | .60 | .78 | 1.82 | .60 |
| Communication | -.48 | .63 | .62 | .58 |
| Alienation | .21 | .54 | 1.23 | .14 |
| <i>Fall GPA</i> | .56 | .38 | 1.76 | 2.16 |
| <i>QRI-Conflict (High school friend)</i> | .00 | .65 | 1.00 | .00 |
| <i>Fall GPA</i> | .46 | .39 | 1.59 | 1.42 |
| <i>QRI-Conflict (College friend)</i> | -.59 | .74 | .55 | .63 |

Note: *B* values represent unstandardized regression coefficients.

**p* < .05.

GPA and number of friends significantly predicted persistence to the second year, (Nagelkerke $R^2 = .11$, $\chi^2(2) = 13.20$, $p < .01$), but this was due to the significant effect of cumulative GPA (see Table 4).

Quality of Relationships

We conducted standard multiple regression analyses to address the hypothesis of a positive association between the quality of best friendships and academic achievement. In the regression analyses, the eight subscales of the Intimate Friendship Scale (IFS) were predictors of academic achievement. First, in two separate regression analyses the quality of the friendship with one's best high school friend did not predict Fall semester GPA, $R^2 = .03$, $p = .47$, or Spring semester GPA, $R^2 = .05$, $p = .20$ (see Table 2 for individual regression coefficients). Next, in two separate regression analyses the quality of the friendship with one's best new college friend significantly predicted Fall semester GPA, $R^2 = .09$, $p < .01$, but not Spring semester GPA, $R^2 = .05$, $p = .29$. The trust and loyalty subscale was a significant positive predictor of Fall semester GPA (see Table 2).

Next we conducted a series of logistic regression analyses to test the hypothesis of a positive association between the quality of best friendships and persistence in college. In the regression analyses, the eight subscales of the Intimate Friendship Scale (IFS) were predictors of student persistence. First, the quality of the friendship with one's best high school friend did not significantly predict persistence from Fall to Spring semester, Nagelkerke $R^2 = .08$, $\chi^2(8) = 6.71$, $p = .57$, nor did friendship quality and Fall GPA together predict persistence to Spring semester, Nagelkerke $R^2 = .11$, $\chi^2(9) = 9.03$, $p = .44$ (see Table 3). The quality of the friendship with one's best high school friend did not predict persistence from first to second year of college, Nagelkerke $R^2 = .08$, $\chi^2(8) = 10.87$, $p = .21$, but when cumulative first-year GPA and friendship quality were predictors, the model was significant, Nagelkerke $R^2 = .22$, $\chi^2(9) = 26.38$, $p < .01$, due to the significant effect of cumulative GPA (see Table 4 for individual regression coefficients).

Second, the combination of qualities of the friendship with one's best new college friend did not significantly predict persistence from Fall to Spring semester, Nagelkerke $R^2 = .13$, $\chi^2(8) = 9.43$, $p = .31$, nor did friendship quality and Fall GPA together predict persistence to Spring semester, Nagelkerke $R^2 = .15$, $\chi^2(9) = 11.25$, $p = .26$ (see Table 3). The quality of the friendship with one's best college friend did predict persistence from first to second year, Nagelkerke $R^2 = .13$, $\chi^2(8) = 17.41$, $p < .05$, and when cumulative first-year GPA was added in the model, both variables were significant predictors of persistence to the second year, Nagelkerke $R^2 = .26$, $\chi^2(9) = 32.04$, $p < .001$. Cumulative GPA was a significant predictor of persistence from first to second year. Furthermore, if friends were more likely to engage in common activities together with their friends, they were more likely to persist to the second year (see Table 4).

Table 4. Summary of Logistic Regression Analyses Predicting Persistence from First to Second Year

| Predictor | <i>B</i> | <i>SE</i> | Odds ratio | Wald statistic |
|---|----------|-----------|------------|----------------|
| <i>Cumulative GPA</i> | .84 | .28 | 2.32 | 8.81** |
| <i>Number of friends</i> | .08 | .05 | 1.08 | 2.68 |
| <i>Cumulative GPA</i> | 1.15 | .31 | 3.15 | 14.04*** |
| <i>Intimate Friendship Scale (High school friend)</i> | | | | |
| Frankness and spontaneity | -.69 | .44 | .50 | 2.44 |
| Sensitivity and knowing | -.02 | .39 | .98 | .00 |
| Attachment | .09 | .30 | 1.09 | .09 |
| Exclusiveness | -.21 | .28 | .81 | .57 |
| Giving and sharing | .27 | .44 | 1.31 | .38 |
| Imposition | -.10 | .32 | .90 | .10 |
| Common activities | .41 | .26 | 1.51 | 2.49 |
| Trust and loyalty | .46 | .39 | 1.58 | 1.37 |
| <i>Cumulative GPA</i> | 1.26 | .30 | 3.52 | 17.24*** |
| <i>Intimate Friend Scale (College friend)</i> | | | | |
| Frankness and spontaneity | -.77 | .41 | .46 | 3.59 |
| Sensitivity and knowing | .25 | .35 | 1.29 | .52 |
| Attachment | -.10 | .29 | .90 | .13 |
| Exclusiveness | .51 | .28 | 1.66 | 3.38 |
| Giving and sharing | .42 | .40 | 1.53 | 1.13 |
| Imposition | -.68 | .35 | .51 | 3.82 |
| Common activities | .71 | .33 | 2.04 | 4.61* |
| Trust and loyalty | .24 | .34 | 1.27 | .50 |
| <i>Cumulative GPA</i> | 1.02 | .27 | 2.77 | 13.85*** |
| <i>Inventory of Peer Attachment (IPA)</i> | | | | |
| Trust | .83 | .63 | 2.30 | 1.76 |
| Communication | -.27 | .45 | .76 | .36 |
| Alienation | -.24 | .46 | .78 | .28 |
| <i>Cumulative GPA</i> | 1.12 | .28 | 3.05 | 16.18*** |
| <i>QRI-Conflict (High school friend)</i> | -.28 | .43 | .75 | .43 |
| <i>Cumulative GPA</i> | 1.12 | .28 | 3.05 | 16.09*** |
| <i>QRI-Conflict (College friend)</i> | -.36 | .58 | .70 | .39 |

Note: *B* values represent unstandardized regression coefficients.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Peer Attachment

In another test of the hypothesis of a positive association between friendship and academic outcomes, we conducted standard multiple regression analyses with ratings of peer attachment from the Inventory of Peer Attachment (IPPA) predicting academic achievement. Analyses with an attachment scale allowed us to consider the impact of peer relationships more broadly, rather than specific best friendships like we assessed with the IFS. In two separate regression analyses, the three subscales of the IPPA were predictor variables and Fall and Spring semester GPA were outcome variables. The IPPA subscales were marginally significant predictors of Fall semester GPA, $R^2 = .03$, $p = .07$, but were not significant predictors of Spring semester GPA, $R^2 = .03$, $p = .17$. Having trustworthy peers (in general) was associated with higher grade point averages during the Fall semester (see Table 2).

Next we conducted logistic regression analyses to compare peer attachment to student persistence. Peer attachment did not significantly predict persistence from Fall semester to Spring semester, Nagelkerke $R^2 = .02$, $\chi^2(3) = 1.95$, $p = .58$, nor did peer attachment and Fall GPA together predict persistence to Spring semester, Nagelkerke $R^2 = .07$, $\chi^2(4) = 5.73$, $p = .22$ (see Table 3). Peer attachment was a marginally significant predictor of persistence from first to second year, Nagelkerke $R^2 = .05$, $\chi^2(3) = 7.13$, $p = .07$. Having trustworthy peers was significantly associated with persistence from the first to second year. When we included both peer attachment and cumulative first-year GPA in the model, although the overall model was significant (Nagelkerke $R^2 = .16$, $\chi^2(4) = 19.52$, $p < .01$), peer attachment was no longer a significant predictor of persistence (see Table 4). Cumulative GPA was a significant individual predictor of persistence to the second year (see Table 4).

Conflict

We conducted correlational analyses to test the hypothesis of a negative association between conflict in a peer relationship and academic achievement. First, ratings of conflict in the friendship with one's best high school friend (QRI-conflict) were compared to Fall and Spring semester GPA. Ratings of conflict were not significantly associated with GPA for Fall or Spring semester (see Table 2). Next, ratings of conflict with one's best new college friend (QRI-conflict) were compared to Fall and Spring semester GPA. Ratings of conflict were significantly and negatively associated with Fall semester GPA and Spring semester GPA (see Table 2). A greater presence of conflict with a college friend was associated with lower academic achievement during both semesters of the first college year.

Next, we conducted logistic regression analyses to test the association between conflict in a relationship and student persistence. First, regarding the friendship with one's best high school friend, conflict did not significantly predict

persistence from Fall to Spring semester, Nagelkerke $R^2 = .00$, $\chi^2(1) = .00$, $p = .95$, nor did conflict and Fall GPA together predict persistence to Spring semester, Nagelkerke $R^2 = .03$, $\chi^2(2) = 1.98$, $p = .37$ (see Table 3). Conflict with one's best high school friend did not significantly predict persistence from first to second year, Nagelkerke $R^2 = .01$, $\chi^2(1) = 1.24$, $p = .27$, nor did conflict predict persistence to second year when cumulative first-year GPA was added to the model. The overall model of cumulative GPA and conflict did predict persistence to second year (Nagelkerke $R^2 = .15$, $\chi^2(2) = 18.62$, $p < .001$) due to the significant effect of GPA (see Table 4).

Second, regarding the friendship with one's best new college friend, conflict did not significantly predict persistence from Fall to Spring semester, Nagelkerke $R^2 = .01$, $\chi^2(1) = 1.06$, $p = .30$, nor did conflict and Fall GPA together predict persistence to Spring, Nagelkerke $R^2 = .03$, $\chi^2(2) = 2.37$, $p = .31$. Conflict with one's college friend did significantly predict persistence from first to second year, Nagelkerke $R^2 = .04$, $\chi^2(1) = 4.92$, $p < .05$. Greater presence of conflict in the relationship was associated with a lesser likelihood of persisting to the second year. When we added cumulative GPA into the model, although the overall model was significant (Nagelkerke $R^2 = .16$, $\chi^2(2) = 19.78$, $p < .001$), conflict was no longer a significant individual predictor of persistence (see Table 4). Cumulative GPA was a significant predictor of persistence to second year (see Table 4).

DISCUSSION

We conducted this study because of concern for students who leave higher education institutions before graduating. Many studies have identified factors associated with college student success and persistence, yet students continue to drop out. Since peer relationships are an important part of the adolescent and young adult years and a big part of college life, we focused on associations between peer relationships and academic outcomes.

We expected that positive aspects of peer relationships would be associated with positive academic outcomes. When examining peer attachments in general and new college friendships specifically, trust and loyalty between peers was a key factor in the academic achievement of first-year college students. Having a trustworthy and loyal friend was associated with higher GPA during the first college semester. The importance of trustworthiness and loyalty is consistent with research on college students showing that the social support of friends serves as a buffer to stress (Martin & Burks, 1985) as well as reduces homesickness (Bell & Bromnick, 1998) both of which could be associated with greater academic success.

When examining student persistence as an outcome, as expected we found positive associations between relationship quality and persistence. Students who had friends with whom they engaged in common activities were more likely to persist to the second year of college. This finding is comparable to research

showing that friendship support is positively associated with satisfaction with college (Astin, 1993) and persistence in college (Tinto, 1975), and that having friends with similar academic mindsets is beneficial to academic success (Yazedjian et al., 2007). Moreover, results are consistent with research showing that having common interests with a close college friend is associated with better development (Chickering & Reisser, 1993) and stronger institutional attachment (Swenson et al., 2008). With the help of friends with whom a student can identify, if students are able to adjust more easily to a new institution, this could allow them to stay more focused on and dedicated to their studies thus resulting in better academic performance. Combined with the findings involving trust, it seems that new college students find comfort in having a new friend to whom they feel similar and whom they can trust. This comfort results in persistence from the first to second year of college.

In addition to friendship quality, students' grade point averages were important factors in determining persistence in college. In all analyses, cumulative first-year GPA was significantly associated with persistence to the second year of college. What we discovered, though, is that several friendship variables seemed indirectly related to student persistence via academic achievement. When we conducted regression models without GPA, number of friends and trust of friends significantly predicted persistence from first to second year. However, when we added GPA into these models, the friendship variables no longer significantly predicted persistence due to the significant association between GPA and persistence. This suggests that these friendship variables are important factors in deciding whether to stay at a particular institution, but not important relative to one's academic achievement.

Regarding negative aspects of peer relationships, conflict with one's best high school friend was not significantly associated with academic achievement, but greater amounts of conflict with one's best college friend was associated with lower academic achievement. Conflict with a best college friend also was negatively associated with student persistence, but after accounting for GPA the association was no longer significant. The negative effect of conflict with a college friend is consistent with research on middle and high school students showing that school grades are negatively associated with negativity between friends (Burk & Laursen, 2005; Loeber et al., 1998). That conflict with college friends, but not with high school friends was associated with negative outcomes may relate to the length or strength of the relationship. Among adolescents, conflicts may frequently occur among friends, but close friends also resolve their conflicts more easily (Laursen, 1993). If students experienced conflicts with their old high school friends during the first college semester, perhaps they resolved their problems so that the problems did not impact school performance. Conflict with a new college friend, though, may be more disruptive because the peers do not have as much experience negotiating and resolving problems together.

In summary, our results suggest the importance of good quality friendships with new college friends, including having trust and sharing common interests. Regarding the importance of new college friendships, these results should be interpreted together with results regarding the role of old high school friendships. The quality of the friendship with one's best high school friend was not significantly associated with academic outcomes. Although these high school friendships did not have a significantly negative impact, they also did not have a significantly positive effect on GPA or student persistence. Furthermore, conflict in a friendship was only bad if it was with a college friend, not high school friend. This pattern of results supports previous research describing the social and academic benefits of having a supportive peer in one's new environment (Yazedjian et al., 2007), and the lack of a positive impact of friends from previous environments, such as high school (Bean, 1985).

Applications of Findings

Student affairs offices, other campus staff, and faculty can use the findings of this study to evaluate their current services or opportunities for students. Campuses may wish to offer ways to help foster healthy peer relationships among new students. In particular, providing opportunities for student interaction could allow for the development of new friendships. Workshops to teach conflict management skills could also benefit academic achievement and persistence of students.

Limitations and Recommendations for Researchers

A possible limitation of this study is the generalizability of the findings. Our sample was traditional-age freshman, mostly Caucasian/White, and was mostly residential, as compared to commuter students. Campuses with a greater diversity of ethnicities among their students, a large population of commuting students, or non-traditional college age students may not see the same effect of new friendships on student achievement. A study of these minority populations could be a fruitful area of research for the future.

Regarding our measures of friendship quality, when we asked students to describe their relationship with a best high school friend, we intended for this to be a friend who was not in the same new college environment with them. However, it is possible that students chose high school friends whom were also now in the new college environment. It could also be the case that when the student was in high school the prior year, his or her best friend was older and already in college, which is a scenario that Seidman (2005) thought could be beneficial to a student when he or she began college. A closer analysis of friendships during a student's senior year in high school and during the first year of college seems warranted to determine what it is about a friend that makes him or her supportive of a student's college pursuits.

We hope that this is just the beginning of a more thorough study of the friendships of new college students, including both their new college friendships and their old high school friendships. This transitional period from high school to college and from adolescence to adulthood is filled with many other transitions, including relationships. Our data show that there is a notable difference in high school and college friendships. In comparing ratings of friendship closeness (with the IFS), for all subscales except the common activities subscale ratings of closeness were significantly higher for high school friendships than for college friendships. This could be a consequence of the length of the relationship, although we do not have the data to examine this question ourselves. Further research could test the effect of length of friendship on student outcomes. Researchers also could track the quality of high school and college friendships over all of the college years, not just the first semester.

Finally, a suggestion for future research is to examine the use of technology in maintaining ties with old friends and whether this helps or hinders academic achievement in the new college environment. For example, if new college students spend a significant amount of time talking on the phone, "texting," e-mailing, and instant-messaging their friends back home, does this interfere with time spent with peers in the new environment or time spent completing schoolwork? Researchers could extend the focus to study the use of technology in maintaining family ties to see if this makes it more difficult for students to adjust to their new environment if they are not really leaving their old environment.

CONCLUSIONS

When making the transition to college, peer relationships play a key role in the academic success of first-year students. Forming new friendships with college peers can benefit academic achievement and the likelihood of persisting in college, whereas conflict with new friends can be detrimental to academic outcomes. Thus, faculty, staff, and other college personnel should focus their efforts on educating the whole student, including an emphasis on social development as well as cognitive development.

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