

**Examining social adjustment to college in the age of social media:
Factors influencing successful transitions and persistence**

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Abstract

Social adjustment plays a critical role in student persistence at college. Social media such as Facebook, used widely by this population, have the potential to positively enhance students' transition to college by encouraging connection and interaction among peers. The present study examines the role Facebook plays in students' social adjustment during their first year of college using survey data ($N = 338$) collected from students at a private, liberal arts college in the Midwest. We develop and test a model that includes both traditional and Facebook-specific predictors of social support and social adjustment, as well as explore the role that these factors play in predicting students' enrollment status the following year. Results indicate positive relationships between two Facebook variables the number of Facebook Friends students have at the college and their engagement in collaborative behaviors with classmates through the site and measures of social support and social adjustment, as well as a positive relationship between social adjustment and persistence at the university.

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Highlights

- ▶ Role of Facebook in social integration to college and student persistence examined.
- ▶ Model of student adjustment includes technology use and traditional predictors.
- ▶ Academic collaboration behaviors on Facebook predictive of social support.
- ▶ Social support strongly predictive of social adjustment to college.
- ▶ Implications of social technology use for new college students assessed.

1. Introduction

According to the U.S. Department of Education (2011), college enrollment has increased 38% since 1999. More students than ever before are currently enrolled in college, and with good reason: obtaining a college degree provides a number of benefits including increased job opportunities and increased lifetime earnings potential (United States Bureau of Labor Statistics, 2011). In addition to these tangible benefits, attending college serves an important socialization function in the lives of young people. For many young adults, moving to college represents their first experience living outside their parental household, a move typically associated with increased autonomy. Beyond academic learning, these “emerging adults” (Arnett, 2000) are engaging in a form of social learning, whereby they learn how to socialize with others, develop deeper cultural awareness and critical thinking skills, and negotiate interpersonal and group work challenges (Astin, 1993). The extent to which new students are able to manage this transition and socially integrate into the institution is an important factor for determining future success, as measured through traditional academic markers, such as grades (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Zins, Bloodworth, Weissberg, & Walberg, 2004) and college persistence (Astin, 1993; Kuh et al., 2008).

In addition to more long-standing opportunities to meet and interact with other students (e.g., shared residential spaces and student organizations), today’s generation of students enters the college environment with access to social media tools offering communication affordances that may prove beneficial for the adjustment process. Social media including social network sites (SNSs), personal blogs, and geographically bounded discussion forums may ease students’ transition from high school to college by providing them with informational and social support as well as a way to find and connect with other students. Of these social media tools, Facebook is the site most embedded in the lives of U.S. college students (Hargittai, 2007; Smith, Salaway, & Caruso, 2009). Like other SNSs, Facebook contains social and technical affordances that enable individuals to engage in relational maintenance activities, learn about others, and exchange a variety of resources, including emotional support (Ellison, Lampe, Steinfield, & Vitak, 2010). These tools may reshape the ways young people connect with others during their transition to college. For instance, Ellison, Steinfield, and Lampe (2007) speculate that Facebook might ameliorate “friendsickness” (Paul & Brier, 2001), the distress associated with missing old friends after moving away to college.

Beyond the purely social purposes for which students use SNSs, such as connecting and communicating with existing friends, many students have repurposed these sites for academic activities (Lampe, Wohn, Vitak, Ellison, & Wash, 2011) and associate them with positive benefits, such as the ability to connect with other students about course-related work (Dahlstrom, de Boor, Grunwald, & Vockley, 2011). For example, in a national study by the non-profit organization EDUCAUSE, more than half of U.S. college students reported using SNSs for purposes such as communicating with classmates about school (Salaway, Caruso, & Nelson, 2008), and more than one-quarter of students reported using a SNS as part of a class (Smith et al., 2009).

The present study considers the role that both traditional markers of adjustment and various characteristics of Facebook use play in students’ social adjustment to college and, subsequently, their persistence at the institution. We test the role Facebook plays in students’ social adjustment to college including their integration into the college community and formation of college-based ties which research suggests is one of the most important predictors of persistence (Astin, 1993; Haussmann, Schofield, & Wood, 2007). Factors shown to be important in the literature, such as race and first-generation status (i.e., first in their family to attend or graduate from college), are

included to account for the effect of Facebook use on persistence above and beyond these control variables. To analyze these relationships, we develop and test a model that focuses on the critical role of social adjustment to college and the role that Facebook plays in this process. Following analysis, we discuss theoretical and practical implications of social media's role in the college adjustment process.

2. Social adjustment to college

Arnett (2000) frames the period between the ages of 18–25 as “emerging adulthood,” a critical developmental stage when individuals are transitioning from adolescence to adulthood. During this period, individuals determine the kind of person they will be in regards to issues such as personal values and perspectives, love, and livelihood. This liminal developmental stage is important because individuals are able to experiment with their identity within a context that is often free from the constraints of parental oversight that characterize adolescence or the responsibilities associated with adulthood. Moving away to college can play a key role in this process, in that it typically leads to increases in emerging adults' autonomy, spurred by changes in residence, places of employment, and the formation of new circles of friends (Arnett, 2000). College students are expected to make a series of adjustments to cope with their new ways of life; these adjustments range from academic assimilation to personal, emotional, and social adjustments (Baker & Siryk, 1984; Hiester, Nordstrom, & Swenson, 2009).

The majority of students who drop out of college do so in the first year (Rausch & Hamilton, 2006), suggesting the transition process is a significant factor in student success. Social adjustment to a college environment is one facet of student adjustment and serves as one of the most critical activities emerging adults undertake that predicts success in college and beyond (Baker & Siryk, 1989; McEwan, 2011). As defined by Gerdes and Mallinckrodt (1994), social adjustment is the process by which students become integrated into the campus community, build support networks, and negotiate the new freedoms afforded by college life. Student adjustment, by contrast, is a combination of students' social, personal-emotional, and academic adjustment along with their reported feelings of commitment to the institution (Baker & Siryk, 1989). Students who report difficulty socially adjusting to college are more likely to suffer from feelings of loneliness, anxiety, and depression (Mounts, Valentiner, Anderson, & Boswell, 2006). Understanding how students adjust to college has long been of interest to institutions of higher education, and research has examined this process in order to advise educators of differences across diverse student populations (Hertel, 2002; Hurtado, Carter, & Spuler, 1996; Kaczmarek, Matlock, Merta, Ames, & Ross, 1994; Owens, Lacey, Rawls, & Holbert-Quince, 2010) and to evaluate the use of certain programs or innovative steps to improve overall student adjustment (Abe, Talbot, & Geelhoed, 1998; Mayhew, Stipeck, & Dorow, 2011).

Social integration and adjustment can be measured through students' reported satisfaction with (and the quality of) informal interactions with faculty, staff, and peers (Jones, 2010; Kraemer, 1996; Pascarella & Terenzini, 1980). Because of the strong relationships between social adjustment, successful transition to college, and persistence, many researchers have explored predictors of social adjustment in order to enhance the student experience by way of implementing support systems where needed (Lau, 2003; Mayhew et al., 2011). Personal characteristics (e.g., race, self-esteem), individual behaviors (e.g., socializing with peers and faculty), and stressors in students' lives influence the level of social adjustment that students report (Chartrand, 1992; Elliott, Alexander, Pierce, & Richmond, 2009; Hays & Oxley, 1986; Hurtado et al., 1996).

2.1 Personal background characteristics and social adjustment

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A primary focus in the literature centers on students' race/ethnicity, and researchers have highlighted some of the struggles that minority students face at college, as well as how these challenges historically have predicted college adjustment. In general, Caucasians are more likely than minorities to attend higher education institutions (both private and public). In a meta-analytic study of Latino adjustment to college, for example, Quintana, Vogel, and Ybarra (1991) found that Latino students typically were more affected by financial stress than Anglo-American students, and the resulting psychological stress was associated with reduced intent to continue in school (Chartrand, 1992). More recent research shows that Latino students who are socially and academically engaged at college and who are able to navigate diverse ethnic campus environments report a greater sense of connection with the university (Nuñez, 2009).

Scholarship on college transition and persistence has also explored African American students' challenges to social adjustment. Cabrera, Nora, Terenzini, Pascarella, and Hagedorn (1999) compared the college transition outcomes experienced by White students and African American students and discovered varied effects of race on adjustment to college. African American students reported fewer positive social experiences with student peers and also performed slightly lower academically than White students, suggesting that there are different facets of the transition to college, such as socialization, that may be more difficult for minority students (Cabrera et al., 1999). In fact, more recent research supports the idea that the discrepancy between African American and White students' rates of retention and academic success at college stems from challenges to African Americans' social adjustment, not from a lack of academic preparedness as previously believed (see Guiffrida & Douthit, 2010). The campus we studied is more diverse than many other private colleges, with minorities accounting for one third of the student population ("Fast Facts," 2012); thus, we use this opportunity to explore the role of race/ethnicity on

adjustment:

RQ1: What is the relationship between race/ethnicity and social adjustment to college?

In some cases, students venturing to college may be the first from their families to do so. "First-generation" students are those who are the first individuals in their immediate families to attend college; it is important to note, however, that some scholarly research also considers those individuals whose parents attended but did not graduate college to be first generation students (Ishitani, 2003). First-generation students often have more difficulty adjusting and persisting in school than their peers. A 1998 U.S. Department of Education report found that first-generation students were less likely to complete postsecondary education programs in both 4-year and 2-year institutions than were those who had family members with previous college experience (Nuñez & Cuccaro-Alamin, 1998). Past research has examined the gap between first-generation students and their counterparts, finding that first-generation students may not get the same level of support as others to help with the adjustment process (Hertel, 2002; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012; York-Anderson & Bowman, 1991). For example, first-generation students are less likely to receive information about "college culture" from their parents and may not receive the same degree of support (financial or otherwise) to attend college (York-Anderson & Bowman, 1991). Hertel's (2002) comparison of first-generation with second- and third-generation students found that social adjustment was significantly lower for first-generation students. Finally, Stephens et al. (2012) found first-generation students faced steeper challenges when the college stressed independence as the path to success, as opposed to colleges that were more community-oriented. Therefore, we expect first-generation students will not socially adjust as well as non-first generation students.

H1: First-generation students will report lower levels of social adjustment to college than those

who are not first-generation students.

2.2. Social support and adjustment to college

Beyond personal characteristics, students' ability to develop meaningful connections affects their successful adaptation to college. As noted by Gerdes and Mallinckrodt (1994), developing and maintaining a local support network is one of the key predictors of student adjustment. Support can take a variety of forms, including emotional support (e.g., cheering up a sad friend), financial support (e.g., providing a loan), and instrumental support (e.g., helping a friend move). Developing a local support network, in addition to skills such as learning to manage new social freedoms and assimilating to social life, is essential to social integration at college (Gerdes & Mallinckrodt, 1994; Hays & Oxley, 1986). Thus, the concept of social capital—in particular, bonding social capital—is a useful framework for considering students' support networks and their relationship to social adjustment to college.

Social capital can be understood as the accumulation of resources to which one has access through his or her social network (Coleman, 1988). Of primary interest to our study is bonding social capital, which is generally associated with one's closer ties and access to emotional and social support (Putnam, 2000). Coping with the college transition and having access to emotionally close others is critical during a student's first year in post-secondary education (Hays & Oxley, 1986). In one recent study, first-year students' participation in peer-led support groups led to reduced loneliness and higher perceptions of social support with regard to the college transition (Mattanah et al., 2010). These groups served as a social support intervention, which positively affected the participating students' levels of social adjustment. Bonding social capital speaks to individuals' perceived access to social support within their social networks (Putnam, 2000), and access to social support better positions students to transition successfully during their first year of college. Therefore, we expect those with higher perceptions of bonding social capital within their college network to report higher social adjustment to college.

H2: Perceived bonding social capital positively predicts social adjustment to college.

One's perceptions regarding access to social resources are influenced by the proximity of others, and research suggests that residing in on-campus dormitories is associated with higher social adjustment levels in students. In a study exploring the impact of living environment on college adjustment, Enochs and Roland (2006) found that first-year college students adjusted more easily when they were able to gain high levels of independence in their first year living away from home. Kaya (2004) found that students were more likely to socially adjust to college when they perceived their residence hall cohorts as cohesive and as a source of social support. Cohabitation with fellow students has been associated with higher levels of peer support, more contact with faculty members, and overall more successful adaptation to the college experience (Pascarella, 1984), and social adjustment "reflects the degree to which students have integrated themselves into the social structures of university residencies and the broader university" among other kinds of social integration (p. 135, Credé & Niehorster, 2012). Arguably, the advantages sustained by on-campus residency are likely to enhance the social support resources to which students have access, as captured by the concept of bonding social capital. Therefore, we expect those who live on campus will report higher perceptions of bonding social capital within their college network than those living off campus.

H3: On-campus residency positively predicts perceived levels of bonding social capital at college.

3. Role of technology in facilitating social adjustment

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As the literature demonstrates, students' feelings of connection with and integration into the college community are important factors in determining their college experience and whether they persist at a particular institution. Historically, institutions have attempted to assist students in this process through activities such as extended orientation programs, social opportunities like organization fairs and mixers, and first-year seminar classes focused on building classroom community (ACT Inc., 2010). Nearly a decade ago, the Pew Internet Project found 79% of students agreed that online communication tools like email and instant messaging positively impacted their academic experiences by giving them routes to contact faculty members, coordinate with peers, and stay socially connected to others (Jones, 2002). Given the more sophisticated feature-set found in social media compared to these early tools, we expect that Facebook and other SNSs represent a powerful avenue through which students can connect with their peers at the institution and thus adjust more easily to college life.

SNSs such as Facebook were built to support relationship maintenance, and articulated connections ("Friends") on these sites tend to reflect offline relationships (boyd & Ellison, 2007). A unique feature of sites like Facebook is that they lower the transaction costs associated with identifying others and finding out more about them, which could help identify those with particular resources or facilitate future interactions (Ellison et al., 2010). Research suggests that college students are using Facebook to engage in "social information-seeking," or finding out more information about others around them (Ellison, Steinfield, & Lampe, 2011) information that could potentially help students establish common ground with one another and serve as a social lubricant. Social media sites such as Facebook enable students to interact with other students and faculty and to find and share information related to extracurricular activities and group socializations (Heiberger & Harper, 2008). DeAndrea, Ellison, LaRose, Steinfield, and Fiore (2011) describe a study of a residence hall-focused online platform introduced at a large public university that offered students the ability to share information with one another before moving to campus. Findings suggest that use of the online forum contribute to students' perceptions of bridging self-efficacy, which assesses the extent to which they expect to be able to interact with faculty outside of the classroom, connect with diverse others, and get helpful information from their residence advisors (DeAndrea et al., 2011). This work suggests that, even prior to arrival at one's first year in college, students can use SNSs to develop a peer network and reduce uncertainty about the college experience.

Exploring the influence of Facebook use on first-year students' social and academic integration, Madge, Meek, Wellens, and Hooley (2009) found that many students who registered on Facebook prior to commencing studies used it both to keep in touch with friends from home and to meet fellow students in shared residence halls and courses. Over half of their sample became Facebook Friends¹ with future classmates via Facebook (Madge et al., 2009). As previously noted, the number of friends a student has at one's institution is positively related to social adjustment (Hays & Oxley, 1986), and we might expect that connections articulated on a SNS would play a similar role. McEwan (2011) suggests that newer college students may be making greater use of Facebook because they are working to grow their "university-affiliated social network" (p. 9). Some researchers have asserted that students may even socialize with one another more online than face-to-face (Heiberger & Harper, 2008). It may be that the iteration of these peer ties by way of Facebook "friendship" both affirms connections initiated offline and facilitates social interaction (and, potentially, provisions of support) between these ties in the future. The above research shows that social adjustment is positively associated with both the amount of time spent hanging out with friends (Hurtado et al., 1996) and the number of friends one has who are fellow students (Hays & Oxley, 1986). More recent research shows that connecting with other students online is an important aspect of the socialization process in college (Heiberger & Harper, 2008).

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Therefore, we expect that Friending fellow students at the college will be positively associated with social adjustment to college.

H4: The number of Facebook Friends the student reports at the college positively predicts social adjustment to college.

Although it is intuitive to expect that having more Facebook Friends would be associated with access to more (and potentially more diverse) resources, past work has shown that the number of perceived “actual” friends on the system is more important for predicting social capital levels than the total number of contacts among undergraduate students (Ellison et al., 2011). Although the researchers did not define “actual” friends for their participants, presumably these would include some relationships outside of the university, such as high school friends. Ranney and Troop-Gordon (2012) found that connecting online with friends from home appears to be most beneficial to those with fewer quality face-to-face friendships. A recent study by Kalpidou, Costin, and Morris (2011) found that how long students had been in school moderated the relationship between the size of their Facebook Friend network and their academic and emotional adjustment: among first-year students, the number of Facebook Friends was negatively associated with adjustment, while for upperclassmen, the variables were positively correlated. Following past research (Ellison et al., 2011), we believe participants’ reported “actual” friends is a measure of the meaningful and relevant connections they have on the site, as opposed to all articulated “Friends” on the site (which can number in the hundreds), and thus may be an important factor in predicting social adjustment to college. Therefore, we expect those students who report having more “actual” friends on Facebook will report higher levels of social adjustment to college.

H5: The number of actual friends on Facebook positively predicts social adjustment to college.

3.1 Social media’s role in facilitating academic interactions

In addition to adjusting to a new living environment, college students must also adjust to the university-level academic environment, which may be significantly more challenging to students than their previous educational experiences. As with the rest of their college experience, students go through these changes together, and research points to the potential for SNSs to both help and to hinder students’ academic performance. For example, a recent ECAR survey (Dahlstrom et al., 2011) found that one in four students considers Facebook “valuable” or “extremely valuable” for his or her academic success (although more than 53% reported Facebook’s academic value to be limited or non-existent). Conversely, Junco (2011) found that Facebook use by college students also had the potential to be negatively associated with student engagement. Time spent using Facebook was positively associated with time spent participating in co-curricular activities but negatively related to student engagement, as measured by the National Survey of Student Engagement scale (Junco, 2011). Later research by Junco and Cotten (2012) found that students who reported using Facebook and other communication technologies while doing schoolwork performed worse academically than students who did not use these technologies while studying. When looking at social outcomes, however, positive effects of SNS use have been found. According to the Higher Education Research Institute (HERI; 2007), first-year college students who spend more time on Facebook also tend to be more satisfied with their social lives, more involved with on-campus activities, and more closely connected with their university peers.

Using Facebook for purposes of collaborating with other students may help students adjust to college because these activities, such as talking about homework or classes more generally, provide the opportunity to engage in focused, sustained, and prolonged interactions with other students, potentially enabling these students to develop friendships and exchange other kinds of

social support. In a survey of first-year university students, Madge et al. (2009) found that a small percentage of students were using Facebook for informal educational purposes such as discussing classwork and organizing meetings for group projects. Likewise, Lampe et al. (2011) explored factors that predicted use of Facebook for ad-hoc collaborative activities such as arranging a study group or asking for help in a class. As these kinds of collaborative, SNS-enabled group activities often require prolonged interaction with others over time, it is possible that they help students both directly – when students engage in activities related to stronger academic performance – but also indirectly, as they provide a foundation for more social exchanges and the formation of meaningful support relationships. In light of these findings, engaging in Facebook-based collaborative behaviors should help students' social adjustment to college, above and beyond use of institutional resources such as academic tutoring. Therefore, we expect that using Facebook to collaborate with peers on schoolwork will be associated with higher levels of social adjustment.

H6: The propensity to use Facebook for collaboration positively predicts social adjustment to college.

4. Persistence at university

While more students than ever enter institutions of higher education, persistence the decision to stay in college as opposed to dropping out prior to obtaining a degree remains a key obstacle for institutions and students, with the steepest drop in re-enrollment occurring between the first and second years: in 2010, 26.6% of first-year students left their four-year private colleges (ACT, Inc., 2010). According to Tinto (1975), “persistence in college is not simply the outcome of individual characteristics, prior experiences, or prior commitments. [but also] the outcome of a longitudinal process of interactions between the individual and the institution (peers, faculty, administration, etc.) in which he is registered” (p. 103). Theoretical perspectives on college student development and retention focus on the strong relationships between student engagement, integration, and persistence (Astin, 1978, 1993; Spady, 1971; Tinto, 1993). Astin (1993) specifically reemphasized the primacy of social support noting that “.the student's peer group is the single most potent source of influence on growth and development during the undergraduate years” (p. 398). Astin's work highlights the importance of friendship circles, even above faculty support, and points to ways in which these relationships may deepen the connection between the student and the facilitating institution. Other research has focused on the impact of other factors on persistence, such as academic preparedness, including high school GPA and test scores (Allen, 1999; Astin, 1997; Mattern, Shaw, & Kobrin, 2010), and demographic factors such as gender and race (Astin, 1997; Astin, Korn, & Green, 1987; Tinto, 1975). However, Hausmann et al. (2007) described the student's “sense of belonging” as the key factor that contributed to retention and defined this sense of belonging as primarily social and more important than demographic or even academic considerations. Therefore, we expect that the degree to which students' perceive they have socially adjusted to the college should lead to a higher rate of persistence, or an increased likelihood that the student returns to college the following year.

H7: Social adjustment to college positively predicts persistence at the university.

Residing on campus has been previously linked to student persistence at college. An earlier review of research on student persistence revealed that living in residence halls – particularly within the first year – was associated with an increased likelihood not only of graduating from college but also of graduating within four years (Peltier, Laden, & Matranga, 1999). Schudde (2011) found causal support that on-campus residency improved retention, with on-campus residents increasing their probability of persisting into the second year by 3.3 percentage points.

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Research by Velez (1985) showed that students who lived on campus were more socially integrated into college life and were 43% more likely to finish college. Given the demonstrated connection between social adjustment and persistence, and that on-campus residency has been related to perceptions of social support and social integration, it is likely that on-campus residents will be more likely to persist at college than their off-campus peers. Therefore, we expect that living on campus is associated with greater persistence in college than living off campus.

H8: On-campus residency positively predicts persistence at the university.

In addition to social adjustment factors, academic performance also contributes to students' likelihood to persist. Tinto (1975) distinguishes between "voluntary" and "involuntary" departure: students who cannot meet the academic expectations of the faculty leave because of their unsatisfactory performance. Students with higher grade point averages (GPAs) – i.e., their cumulative academic scores – in the first year are less likely to leave involuntarily. Academic success also reinforces loyalty to the institution as students are more likely to continue studying in an environment where they find academic success (Bean, 2005). While social integration remains a key predictor of student persistence, students with higher GPAs, reflecting successful academic integration, face one less obstacle to continuing at the institution. Therefore, we expect the GPA of students in their first year of college will be associated with their continued enrollment at the school the following fall.

H9: Students' first-year university GPA positively predicts persistence.

5. Method

The research site for this study is a 4-year, open enrollment, private liberal arts college with approximately 12,500 undergraduates, of which 3600 are first-year (including transfer) students. The first-year student cohort in 2010 included slightly more women than men and 37% minority enrollment. Note that African American (19%) and Latino (12%) enrollment at this institution is much higher than other private liberal arts universities (9% and 7.5%, respectively; see Wei et al., 2009). In our sample, 56% of participants were female and 42.3% were racial minorities (including 16% African American, 8% Latino, and 3.6% Asian). Approximately 11% of our sample reported that neither parent had attended college and another 34% reported that neither parent had finished college.

It is important to note that this college is one of the few private, four-year institutions in the U.S. with an open admissions policy, meaning that over 90% of the students who complete and submit an application are admitted. Selectivity has been studied as an institutional factor that impacts student persistence, but is usually correlated with academic preparedness, since selective institutions are less likely to admit underprepared students (Gansemmer-Topf & Schuh, 2006; Lee, 2001). While less research exists on how selectivity impacts social integration, community colleges are primary examples of open enrollment institutions that are present across the United States and internationally (Borglum & Kubala, 2000), with high acceptance rates identified as one of their biggest draws (Phillippe & Sullivan, 2005). Increasingly, they are the focus of research on student persistence and college adjustment; most early research on these topics concentrated on four-year selective admissions schools (Borglum & Kubala, 2000; Feldman, 1993; Phillippe & Sullivan, 2005).

5.1. Procedure

The present study includes two primary datasets. Because the first year has been identified as a

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critical year for retention issues (ACT, 2010), we collected survey data from first-year college students and then used enrollment data from the next academic year to determine whether our participants re-enrolled at the school or not (our measure of retention). To gather data, we utilized the college's first-year writing courses. All incoming students who have not completed an equivalent writing course at another college or university are required to participate in one of several versions of the course. First-year writing instructors were invited on a volunteer basis to distribute paper versions of the survey to their students during March and April of 2011. Of 114 classes being offered during spring semester, we received surveys from 28 classes for a final dataset including responses from 569 students. Following cleaning of data and removal of non-Facebook users ($N = 39$), 338 cases were used in the final analyses. A pen and paper survey was used to offset potential biases present in online surveys. This dataset was then merged with data from the college's registrar in September 2011, including students' first-year GPA and re-enrollment status.

5.2. Measures

Unless otherwise noted, all scale items were measured on a five-point Likert-type scale (1 = Strongly Disagree, 5 = Strongly Agree).

The survey instrument included a number of measures regarding students' perceptions of their social adjustment to college, perceptions of social capital, and Facebook use, in addition to a number of demographic variables. Students were classified as first-generation students when neither parent had attended college (0 = first-generation; 1 = not first-generation). The college's registrar provided participants' first-year cumulative GPA and re-enrollment status for the students' second year. Persistence was operationalized as being enrolled in the institution on the first day after the final deadline to change schedules for the Fall semester after the survey was fielded. These enrollment data were coded as a dichotomous variable (where 1 = re-enrollment in the fall 2011 semester). Re-enrollment data were collected six months after the survey was fielded. University staff with approved access to student data merged survey and university data using a code assigned for each respondent in order to protect participants' privacy. See Table 1 for descriptive statistics of these variables.

Self-esteem was included in analyses as a control variable, as it has been previously linked to Facebook use (e.g., Steinfield, Ellison, & Lampe, 2008) and student adjustment (e.g., Friedlander, Reid, Cribbie, & Shupak, 2007; Mooney, Sherman, & Lo Presto, 1991). Mooney et al. (1991) found strong, positive correlations between self-esteem and four kinds of college adjustment (academic, social, personal, and attachment). Due to concerns about participant fatigue and limitations on the length of our questionnaire imposed by the research site, self-esteem was measured using the single item, "I have high self-esteem," which has previously been validated as a sufficient measure of self-esteem and shows high convergent validity with the multi-item Rosenberg Self-Esteem Scale (Robins, Hendin, & Trzesniewski, 2001).

5.2.1. Social adjustment to college

This measure includes is adapted from the 19-item "social adjustment" subscale of the Student Adjustment to College Questionnaire (SACQ) developed by Baker and Siryk (1989). The other dimensions of this scale not included in this study are personal/emotional adjustment (15 items) and academic adjustment (24 items). One item ("I enjoy living in a dormitory") was not included because not all students live in dorms. Confirmatory factor analysis showed the 18-item scale proved a poor fit to the data, $\chi^2(135) = 604.86$, $p < 0.001$, CFI = 0.76, RMSEA = 0.10. Through analysis of the scale, seven items were removed for low loadings, leading to an 11-item scale that

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provided an adequate fit to the data, $c^2(39) = 90.85$, $p < 0.001$, CFI = 0.962, RMSEA = 0.06. This 11-item scale ($\alpha = 0.867$, $M = 3.61$, $SD = 0.66$) was used in all analyses. Means and standard deviations of all included items are provided in Table 2.

Table 1. Demographics for full sample included in analysis ($N = 338$).

Items	<i>M/N (%)</i>	<i>SD</i>
Sex		
Male	144 (42.6%)	
Female	189 (55.9%)	
Age		
	19.6	2.12
Father's education		
Less than high school degree	19 (5.6%)	
High school degree	76 (22.5%)	
Some college	84 (24.9%)	
College degree +	158 (46.7%)	
Mother's education		
Less than high school degree	16 (4.7%)	
High school degree	49 (14.5%)	
Some college	102 (30.2%)	
College degree +	171 (50.6%)	
First generation status		
First generation students	37 (10.9%)	
Non-first generation students	301 (89.1%)	
Race/ethnicity		
White	195 (57.7%)	
African American	54 (16.0%)	
Hispanic/Latino	27 (8.0%)	
Asian	12 (3.6%)	
Other	50 (14.8%)	
High school GPA (obtained from college)	2.97	0.59
Cumulative college GPA (obtained from college)	3.03	0.70
Residence		
On campus	187 (55.3%)	

Items	M/N (%)	SD
Off campus	151 (44.7%)	
State of residency		
Out-of-state	141 (41.7%)	
In-state	196 (58.0%)	
Average annual household income (estimated from 2009 Census data for extended zip codes)	\$90,010	\$39,899

5.2.2. Bonding social capital

This five-item measure ($\alpha = 0.74$, $M = 3.21$, $SD = 0.72$) was adapted from previous research (Williams, 2006) to reflect the extent to which participants felt they had access to emotional and meaningful support at the university. Sample items include: “There are several people at [college name] I trust to help solve my problems,” and “If I needed an emergency loan of \$100, I know someone at [college name] I could turn to.” Confirmatory factor analysis showed this scale to be a good fit to the data, $\chi^2(5) = 11.157$, $p = 0.05$, RMSEA = 0.06, CFI = 0.983.

Table 2. Means and standard deviations for social adjustment to college scale ($N = 338$).

Items ^a	M	SD
I am satisfied with social participation.	3.42	1.00
I am satisfied with social life.	3.65	1.03
I have good friends to talk about problems with.	4.05	0.94
I have several close social ties.	3.75	1.04
I am adjusting well to college.	4.02	0.82
I feel lonely a lot. (reversed)	3.50	1.18
I am satisfied with extracurricular activities.	3.18	1.02
I am very involved with college social activities.	2.74	1.00
I am meeting people and making friends.	3.83	0.96
I am pleased about my decision to attend this college.	3.99	0.96
I have difficulty feeling at ease with others at college. (reversed)	3.59	1.01
Full Scale ($\alpha = 0.868$)	3.61	0.66

^aScale ranges from 1 = Strongly Disagree to 5 = Strongly Agree.

5.2.3. Academic support services

In addition to the support students receive from their peers, many institutions have formalized support systems to help students with the academic demands of college, such as tutoring centers. We included a single item, “I use academic support services like tutoring centers and academic advisors” ($M = 3.27$, $SD = 1.12$), as a control variable so we could identify the role that SNSs play in social adjustment to college above and beyond the impact of institutional support systems. As this variable is a single-item measure and asks about specific behavior enacted by students, we assume this construct is mainly error free.

Table 3. Loading factors for items included in composite variables included in path analysis.

	CFA loading
Social adjustment to college questionnaire (SACQ) ^a	
I am satisfied with social participation.	0.67
I am satisfied with social life.	0.81
I have good friends to talk about problems with.	0.62
I have several close social ties.	0.65
I am adjusting well to college.	0.65
I feel lonely a lot. [reverse-coded]	0.57
I am satisfied with extracurricular activities.	0.45
I am very involved with college social activities.	0.53
I am meeting people and making friends.	0.80
I am pleased about decision to attend this college.	0.53
I have difficulty feeling at ease with others at college. [reverse-coded]	0.45
Facebook collaboration (I use Facebook to...) ^b	
Arrange a meeting for a group project.	0.68
Ask a classmate for help in the class.	0.83
Help manage a group project.	0.84

	CFA loading
Contact another student with a question related to class or schoolwork.	0.92
Discuss classes or schoolwork.	0.81
Arrange a face-to-face study group.	0.82
Collaborate on an assignment in a way my instructor would like.	0.80
<hr/> <hr/>	
Bonding social capital ^a	
There are several people at [college] I trust to help solve my problems.	0.64
If I needed an emergency loan of \$100, I know someone at [college] I could turn to.	0.53
There is someone at [college] I can turn to for advice about making very important decisions.	0.77
The people I interact with at [college] would be good job references for me.	0.61
I do not know anyone at [college] well enough to get them to do anything important. [reverse-coded]	0.60

^aItems were measured on a five-point Likert-type scale ranging from 1 = Strong Disagree to 5 = Strongly Agree.

^bItems were measured on a five-point Likert-type scale ranging from 1 = Very Unlikely to 5 = Very Likely.

5.2.4. Facebook use variables

We included three Facebook-specific variables in analyses to capture different uses of the site:

- Actual friends probes users' perceptions of more meaningful ties within their Facebook network through the question, "Approximately how many of your TOTAL Facebook Friends do you consider to be 'actual' friends?" On average, participants reported 194 "actual" friends on the site (median = 95, SD = 371). When comparing participants' median reported number of total Friends and actual friends, our participants reported that approximately 19% of their Facebook Friends were actual friends, which is slightly lower than found in previous research using college students at another, larger university (Ellison et al., 2011).
- College friends (M = 64, median = 30, SD = 102) captures students' perceptions of how many of their Facebook Friends are fellow students at the college ("Approximately how many of your TOTAL Facebook Friends are at [college name]?"). On average, students reported that 10% of their total Facebook Friends were enrolled at the college.
- Propensity to use Facebook for positive collaboration (Lampe et al., 2011) is a 9-item measure that captures the likelihood that students will coordinate online or offline

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academic collaboration via Facebook. All items were prompted by “How likely are you to use Facebook for the following things?” with response options ranging from 1 = Very Unlikely to 5 = Very Likely. Sample items included using Facebook “to arrange a meeting for a group project” and “to discuss classes or schoolwork.” Confirmatory factor analysis revealed the original, nine-item scale was a poor fit to the data, $\chi^2(27) = 291$, $p < 0.001$, CFI = 0.88, RMSEA = 0.17, so two items were removed, producing an adequate scale, $\chi^2(8) = 13.6$, $p > 0.05$, CFI = 0.99, RMSEA = 0.05. This seven-item scale ($\alpha = 0.926$, $M = 3.68$, $SD = 0.86$) was used in all analyses.

Table 4. Correlation coefficients for all variables included in analyses ($N = 338$).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) SACQ	1												
(2) Persistence	0.132*	1											
(3) Bonding social capital	0.693**	0.128*	1										
(4) GPA	0.029	0.124*	0.116*	1									
(5) Residence	0.023	-0.044	0.127*	0.124*	1								
(6) Academic support services	0.172**	0.008	0.203**	0.022	-0.041	1							
(7) Facebook collaboration	0.136*	0.011	0.140**	0.125*	0.094	0.004	1						
(8) Actual friends	0.235**	0.021	0.209**	0.046	0.127*	0.132*	0.138*	1					
(9) Facebook friends at college	0.240**	-0.005	0.099	-0.038	0.021	-0.012	0.105	0.325**	1				
(10) Race: Latino	-0.089	-0.002	-0.130*	-0.040	-0.205**	-0.052	0.017	-0.088	-0.007	1			
(11) Race: Black	0.097	-0.077	-0.027	-0.216**	-0.060	0.105	-0.051	0.089	0.103	-0.179**	1		
(12) First generation status	0.014	-0.008	0.033	0.035	0.047	-0.017	-0.080	0.054	0.063	-0.282**	0.027	1	
(13) Self-esteem	0.360**	-0.025	0.257**	-0.020	0.013	0.091	0.021	0.157**	0.091	-0.037	0.203**	0.079	1

Note: * $p < 0.05$ ** $p < 0.01$.

Table 5. Summary of hypotheses and results.

Hypothesis	Finding
H1: First-generation students will report lower levels of social adjustment to college than those who are not first-generation students.	Not supported
H2: Perceived bonding social capital positively predicts social adjustment to college.	Supported
H3: On-campus residency positively predicts perceived levels of bonding social capital at college.	Supported
H4: The number of Facebook Friends the student reports at college positively predicts social adjustment to college.	Supported
H5: The number of actual friends on Facebook positively predicts social adjustment to college.	Not supported
H6: The propensity to use Facebook for collaboration positively predicts social adjustment to college.	Not supported
H7: Social adjustment to college positively predicts persistence at the university.	Supported
H8: On-campus residency positively predicts persistence at the university.	Not supported
H9: Students' first-year university GPA positively predicts persistence.	Supported

5.3. Data analysis

Factor loadings for the three scaled variables included in this analysis can be found in Table 3. To test the relationship between the variables, which include three dependent variables, a path model was proposed and tested using AMOS version 19 (Arbuckle, 2010). As path analysis cannot be run on data with missing values, cases that were missing observable data such as residence, persistence, and race values were deleted from the dataset. We also performed listwise deletion for individuals missing more than one value for items within the main scales of interest: social adjustment to college, bonding social capital, and propensity to use Facebook for collaboration. For those cases only missing one value for an item within those scales, we performed a missing value imputation allowing the participant's mean for other items within the scale to replace that missing value. All variables were treated as manifest variables, including scales. Although the use of single-item measures of latent variables does not control for error as efficiently as a scale and can underestimate correlations (Cooper & Richardson, 1986), several of our single-item measures indicate true variables (such as residence, re-enrollment/persistence, and race), whereas others such as self-esteem have been validated as a single-item measure in previous research (Robins et al., 2001). Goodness of fit was determined following Hu and Bentler's (1999) criteria that comparative fit indices (CFI) over 0.95 and RMSEA values below 0.06 indicate a good fit between hypothesized model and observed data. Exogenous variables in the proposed model included self-esteem, use of academic support services, "actual" friends, Facebook friends at school, propensity to use Facebook for collaboration, first-generation status, race, cumulative college GPA, and on-campus residence. Predicted endogenous variables were bonding social capital, social adjustment to college, and persistence at college. See Table 4 for correlations between variables and Fig. 1 for the proposed path model.

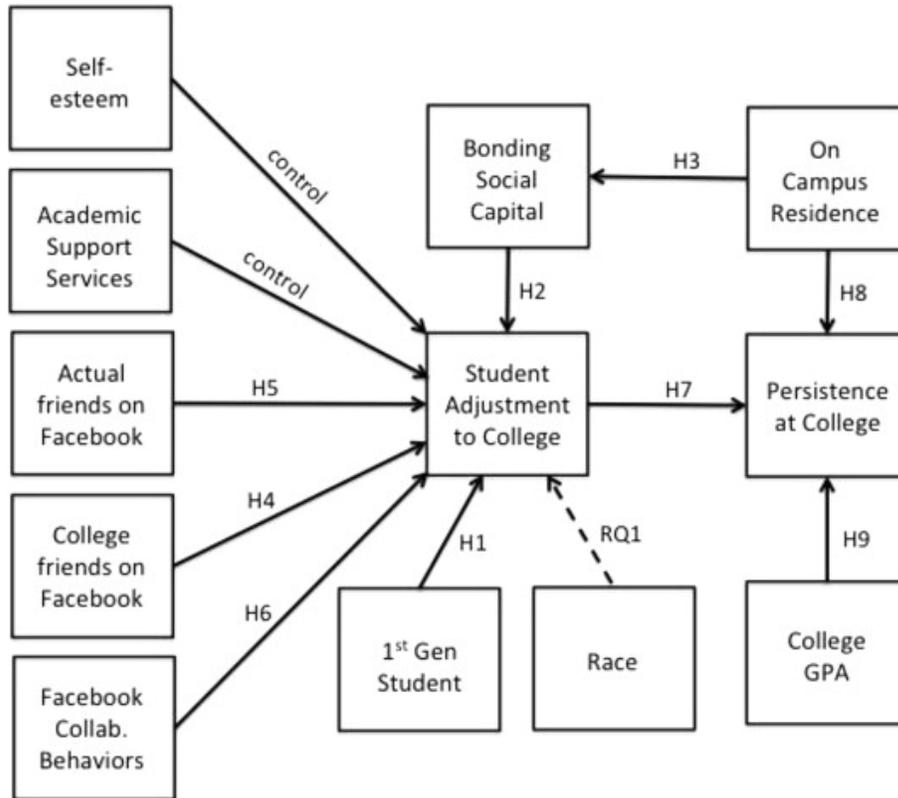
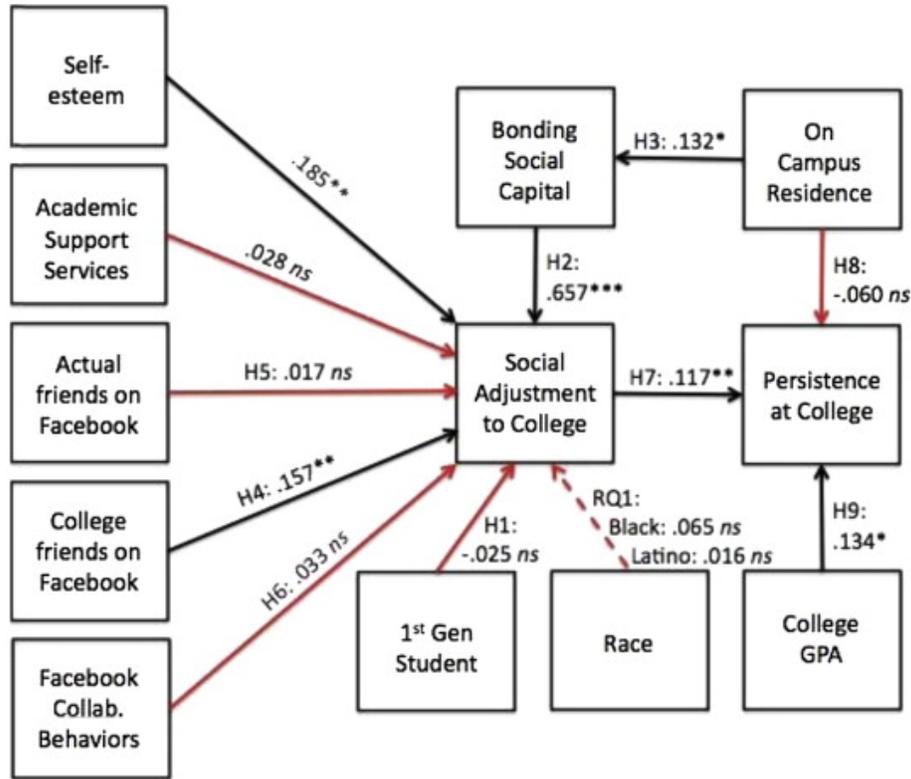


Figure 1. Proposed path model.

6. Findings

The proposed path model was entered into AMOS, but analyses revealed the model was a poor fit to the data, $c^2(63) = 203.45$, $p < 0.000$, $RMSEA = 0.082$, $CFI = 0.693$. There were no significant differences across racial minorities (RQ1) or first-generation student status (H1) in terms of students' degree of social adjustment. H3, which predicted a positive relationship between living on campus and perceptions of bonding social capital, was supported ($b = 0.132$, $p < 0.05$). The number of Facebook Friends at the college also predicted student adjustment ($b = 0.157$, $p < 0.001$), supporting H4, as did perceived bonding social capital ($b = 0.657$, $p < 0.001$), supporting H2. Neither the number of actual friends on Facebook (H5) nor use of Facebook for academic collaboration (H6) significantly predicted social adjustment. When looking at the three predictors of persistence at the university, only social adjustment ($b = 0.117$, $p < 0.05$) and GPA ($b = 0.134$, $p < 0.05$) were significant, while residence ($b = -0.060$, $p > 0.05$) was unrelated. Therefore, H7 and H9 were supported, while H8 was not. See Fig. 2 for full details of this model and Table 5 for a full summary of supported and unsupported hypotheses.



Note: Results are reported as standardized betas.

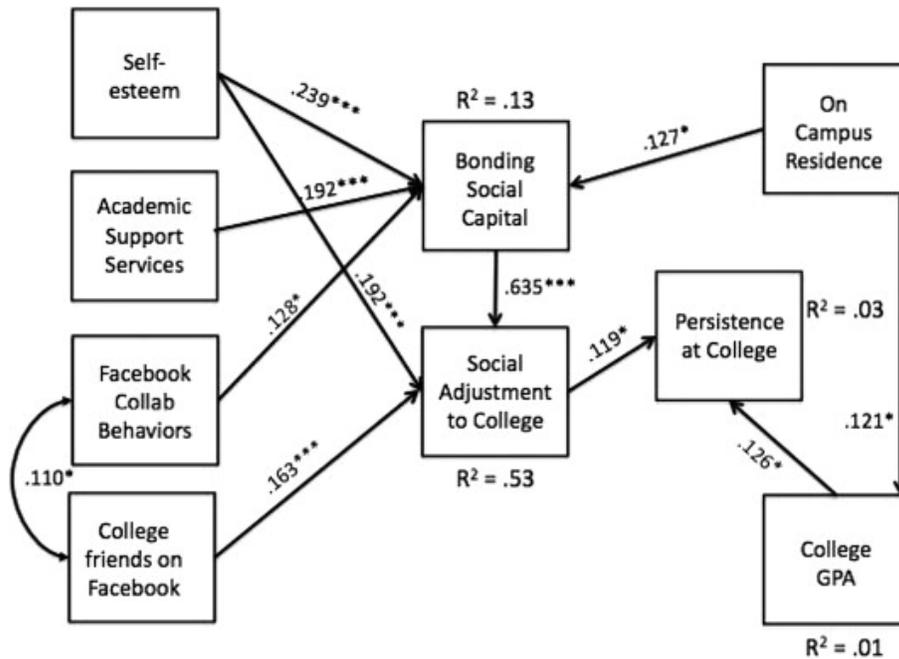
* $p < .05$ ** $p < .01$ *** $p < .001$

Figure 2. Proposed path model with coefficients.

Following this analysis, a number of changes were made to the model to achieve one that fit the data better and still reflected previous research in this area. Non-significant paths were removed. A covariance path was added between the number of college friends participants reported on Facebook and their engagement in Facebook-enabled collaborative behaviors. As social adjustment and bonding social capital were strongly correlated ($r = 0.59$), paths were tested between several variables and bonding social capital to determine if they were having an indirect effect on social adjustment.

The final model was a good fit to the data, $c^2(25) = 28.56$, $p > 0.05$, $RMSEA = 0.021$, $CFI = 0.989$. As in the previous model, bonding social capital ($b = 0.635$, $p < 0.001$) and the number of Facebook Friends at the college ($b = 0.163$, $p < 0.001$) significantly predicted social adjustment. Revised paths from use of academic support services ($b = 0.192$, $p < 0.001$) and Facebook collaboration ($b = 0.128$, $p < 0.05$) to bonding social capital were significant, and residence retained a significant positive path ($b = 0.127$, $p < 0.05$) to bonding social capital. The path from residence to GPA was significant ($b = 0.121$, $p < 0.05$), such that students who lived on campus reported higher GPAs than those who lived off campus, while the non-significant path from residence to persistence was dropped. The resulting model showed direct effects of bonding social capital and Facebook Friends from school and indirect effects of self-esteem, use of academic support services, and Facebook collaboration behaviors on social adjustment to college and direct effects of social adjustment to college and cumulative college GPA on persistence in college. The final model explained 53% of the variance in social adjustment, 13% of the variance in bonding social capital, and 3% of the variance in students' persistence. See Fig. 3 for the full

model, including standardized betas for all paths.



Note: Results are reported as standardized betas.

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

7. Discussion

The question of how to ensure successful social adjustment to college is a significant issue for society, especially as institutions aim to increase access to higher education for minority and first-generation students, who traditionally have had less access to these resources. How acclimated and connected students feel to their social environment has been shown to affect their transition to college life and thus their decision to persist at the university (Astin, 1993; Haussmann et al., 2007). Of course, some of the reasons why students drop out of university are structural (e.g., a lack of financial resources), fairly intractable, and unlikely to be mitigated by social interventions. But the extent to which students feel socially integrated within the university and connected to other members of the community, especially other students, is a factor that can potentially be ameliorated by the use of new communication technology platforms. Social media tools appear to be well-suited for addressing these social factors because they are designed to maintain relationships and act as a ‘social lubricant’ (Ellison et al., 2011), enabling students to find common ground and learn more about others on campus. Conversely, SNSs could have the opposite effect, stymieing the integration process by encouraging new students to stay enmeshed in high school peer groups or retarding the developmental process by enabling parents to retain control over the activities of their recently matriculated children or remain too emotionally enmeshed in their everyday lives.

This study sought to empirically assess the role of social media in hindering or helping the college transition process. First, our study set out to explore new relationships (and confirm existing ones) between students’ social adjustment to college and background characteristics such as race and self-esteem. The unique open-enrollment policy of our research site, a private four-year college, gave us access to a very ethnically and racially diverse sample, as well as a larger

number of first-generation students than may be found at more selective colleges. Past research on social adjustment has found varying effects of race and ethnicity, typically finding that those students in the racial minority had more difficulty adjusting to college than their non-minority counterparts (Cabrera et al., 1999; Guiffrida & Douthit, 2010; Hurtado et al., 1996; Quintana et al., 1991). In the present study, no significant difference was found in social adjustment levels between minority (i.e., African-American and Latino) students and non-minority students. Whereas past research has found that minorities face more challenges to college adjustment in predominately White contexts, perhaps the diverse composition of this campus meant that students experienced less difficulty socially integrating and finding peers with culturally similar backgrounds. An optimistic interpretation of this finding suggests that as campuses become more diverse, minority students may face fewer challenges to social adjustment. Additionally, whether or not a student was the first in his or her family to attend college did not significantly affect social adjustment to college in our study. First-generation students reported a comparable level of social adjustment to non-first-generation students. This issue should be explored in future studies to determine whether this finding – which is unexpected given earlier research on the topic – is indicative of a general trend whereby first-generation students are better supported by institutions in regards to social adjustment, or whether attributes of this particular college (such as its location in an urban setting or its looser acceptance policy) are responsible.

The use of social media tools such as Facebook may serve to scaffold the social adjustment process for students from diverse backgrounds including minorities and first-generation college students. For instance, profiles contain signals of identity (such as hometown or music preferences) that can help students find common ground with one another (Lampe, Ellison, & Steinfield, 2007). Although Lampe et al. (2007) found that the number of “referent” fields (such as high school and hometown) completed in students’ Facebook profiles were more predictive of total number of Facebook Friends than including “interests” such as favorite music, these findings may need to be re-assessed given changes to the SNS user experience since 2007 and the fact that more recent research has found that total number of Friends may not be as important as the more meaningful relationships users have on the site. Researchers may wish to shift their emphasis from the total number of ties to those who are seen as more relevant, such as “actual” Friends (Ellison et al., 2011), Facebook Friends in one’s residence hall (DeAndrea et al., 2011), or, as in our study, Friends at the university. On a related note, the prominence of the profile within the Facebook user experience has diminished over time, as user practices have shifted (see Ellison & boyd, 2013). Future research could explore the role of identity information in the profile to see how it relates to social adjustment to the university, especially in colleges smaller than the one studied by Lampe et al. (2007). Our work examined predictors of social adjustment such as number of (Facebook) Friends at the university, but future work could look at specific behaviors on the site, profile field completion, or more granular data about interactions with other students at the institution to better understand the exact role that social media play in the process of social adjustment.

Because of the established fundamental role of support networks to student adjustment (Gerdes & Mallinckrodt, 1994; Hays & Oxley, 1986), we expected bonding social capital, a concept conveying the extent to which individuals can access emotional and meaningful support, would predict students’ social adjustment. This hypothesis was supported, with bonding social capital positively predicting the degree to which students felt they were adjusting socially to college, based on a scale that assessed a variety of dimensions of social adjustment, including getting along with roommates, participating in extracurricular activities, and feeling satisfied with one’s social life. Also as expected, we found a positive association between on-campus residence and bonding social capital. Past research demonstrated that students who resided in dormitories believed that residence halls provided social support and increased feelings of connection with

others (Kaya, 2004) and that living on campus was associated with higher levels of peer support and overall adaptation to college life (Pascarella, 1984). Our findings suggest students living on campus may perceive increased support, potentially due to the proximity of associated ties around them, and are more likely to report being socially adjusted to the college experience.

Above and beyond the factors suggested by the literature on student socialization, the primary question animating this research is how students' use of Facebook might facilitate their transition to college, specifically their social adjustment to the life changes inherent in this process. In order to address this question, we explored three specific Facebook variables: participants' connections to other university students through Facebook, their self-reported number of "actual" friends on the site, and their use of Facebook for academic collaboration. Past research has shown that connecting to "actual Friends" through Facebook is associated with perceptions of both bonding and bridging social capital among college students (Ellison et al., 2011); thus, we anticipated that these connections would also enhance student perceptions of social adjustment. The number of connections students form at college has also been positively associated with social adjustment (Hays & Oxley, 1986), and as a result, we hypothesized the number of fellow students represented in one's Facebook network would positively predict social adjustment to college.

Interestingly, the number of Facebook Friends who are fellow students predicted social adjustment while the number of perceived "actual friends" in one's Facebook network did not significantly (i.e., $p < .05$) predict either social adjustment or bonding social capital. These results suggest that, in terms of social adjustment to college, localized ties on the site are more important, supporting Hays and Oxley's (1986) findings that the number of other students befriended is more predictive of social adjustment to college than the overall density of one's network or the number of new acquaintances made in general. As Madge et al. (2009) point out, some students begin connecting and communicating online before arriving on campus their first year, and McEwan (2011) suggests that this development of a "university-affiliated network" is important to newer college students. Despite students reporting that only around 10% of their Facebook Friend network was comprised of friends at their school, in this study those who had more Facebook Friends on campus appeared to be at an advantage in terms of social adjustment over those who had connected with fewer classmates. Even this small representation of college friends within larger Facebook social networks is impactful for student adjustment. This finding is intuitive, as the social information that is shared through Facebook, including information about upcoming events and information about individuals that can help strengthen relationships and establish common ground, should lead students to feel more connected. Students who have higher levels of social adjustment—those who are participating in extra-curricular activities and engaging with their fellow students through various other activities—are likely to have met, and friended, more of their fellow students on Facebook than those who do not participate in activities that would lead them to develop a connection to the college. Many of these students are likely connecting on both Facebook and face-to-face, meaning these relationships may benefit from multi-modal relational reinforcement or opportunities to exchange support. Our data do not enable us to establish the directionality of this relationship, but future research could employ longitudinal data collection strategies to clarify this relationship.

The findings regarding actual friends are more difficult to parse out, insofar as the addition of this variable weakened the model and was ultimately removed. In creating this variable, Ellison et al. (2011) were interested in capturing a more nuanced measure of users' Facebook Friends—not just the number of connections, which could include hundreds of individuals with whom users had little to no formal relationship, but rather those Friends who represented more meaningful relationships within users' social network. In their analyses, Ellison et al. (2011) found that the number of actual friends college students reported was a stronger predictor of their perceptions of

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social capital than the total number of Friends users had on the site. In our study, we focus only on first-year college students. These individuals typically encounter many other students during their daily activities; however, their core network of ties most likely includes connections from home, including family and high school friends. Therefore, the unclear relationship between actual friends and social adjustment is not completely surprising; while students' hometown friends can provide emotional support during the transition to college, they may be unable to help with many of the other social aspects of this transition, particularly after students have had a chance to make meaningful connections with students at their university. Likewise, the measure of bonding social capital employed in this study focused on perceptions of bonding among students' relationships with others at the college (as opposed to generalized perceptions of support). Future research using a sample of students who have spent more time on campus, such as seniors, or employing longitudinal data could contribute to our understanding of the relationship between adjustment to college and shifting networks of actual friends, Friends at college, and other ties and how these transform over time.

Findings regarding students' propensity to use Facebook for collaboration also deviated from those posited in our proposed model. Using Facebook to coordinate group projects and discuss classes did not directly predict social adjustment to college but rather predicted social adjustment indirectly by way of students' perceptions of bonding social capital at the college. Informal academic collaboration may enhance students' perceptions of social support because these interactions also support relationship development.

Students' use of academic support and tutoring services likewise had an indirect relationship with social adjustment to college through bonding social capital. Use of academic support services and counseling has previously been shown to positively relate to social adjustment and integration (Grant-Vallone, Reid, Umali, & Pohlert, 2003); thus, we utilized this measure as a control in our model. Although the use of these services did not directly predict social adjustment to college, the indirect path through bonding social capital suggests that students who seek out this kind of academic support may perceive they have access to resources through closer ties and social support networks. Interactions with those who offer these services on campus, be they staff members or other students, may influence the sense of support students have at school, which in turn positively influences their social adjustment within the college transition.

Whether or not a student completes his or her college degree has been associated with a number of personal, academic, and social factors such as academic preparedness (Astin, 1997), on-campus residence (Velez, 1985), and arguably the most significant social adjustment (Astin, 1993; Haussmann et al., 2007). Thus, our proposed model accounted for each of these factors as influences of persistence, as measured by students' re-enrollment at the institution for the following academic year. Specifically, we proposed that one's academic college success, perceived level of social adjustment, and on-campus residence would positively predict re-enrollment. While one's degree of social adjustment to college and their first-year GPA were in line with predictions, the relationship between students' residence and persistence is not as clear. We expected that, in line with past research (see Peltier et al., 1999; Velez, 1985), living on campus would benefit students with regard to persistence. On-campus living did positively relate to bonding social capital, indicating that living on campus is associated with supportive relationships and meaningful ties; however, there may be external factors at work here that our data collection effort did not incorporate. For example, we asked students simply whether or not they lived on or off campus, but we did not further probe off-campus students regarding whether they lived in apartments with other students, with non-classmate roommates, with their families, or otherwise. Another distinction emerging in post-hoc analyses related to race: White students

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were more likely to live on campus (c^2 1/4 27.31, $p < 0.001$), while Latinos were more likely to live off campus (c^2 1/4 20.40, $p < 0.001$). Future research should more closely examine the relationship between living factors and students' social adjustment and persistence.

8. Limitations

A number of limitations to this dataset should be acknowledged. First, causal relationships cannot be established from cross-sectional data. Second, survey data were collected during students' second semester at the college, which means our sample does not include students who may have left after or during their first semester of college. Other researchers have referred to the first semester of college as a "weeding out" period, suggesting social adjustment during the first few months of college is critical to persistence. Caution should be taken in generalizing the findings of the present study to other colleges and universities, as the chosen college is very unique in terms of its admission policy and, consequently, its student body. The use of single-item measures for latent variables in path analysis allows for more error than validated scales, and thus, our correlations, particularly for those involving self-esteem and the use of academic support services, may be underestimated in the path model. Future research in this domain utilizing path analysis may be able to draw stronger conclusions with full scales for these variables.

Future research should continue to explore the impact that technologies like Facebook have on students' adjustment to college both in terms of their social adjustment and other adjustment characteristics not captured in this survey at other types of educational institutions, as well as to explore potential negative outcomes of social media use in addition to the positive ones, such as those found by Junco (2011) and Junco and Cotten (2012). Finally, our low R^2 for persistence (with two predictors) suggests that a number of other factors are involved in students' decision to return to college following their first year.

9. Conclusion

Practitioners and scholars in a number of fields have explored the factors that contribute to students' adjustment to college. Researchers have consistently found that students' sense of integration within and support from their college community is an essential component to future success at the institution. The present study has examined the role of traditional predictors in this process alongside consideration of Facebook, a commercial social media site designed to support social connection and interaction. Through analysis of data collected from students at a private, liberal arts college in the Midwest, we have found that technologies such as Facebook may indeed support pro-social outcomes related to students' adjustment to college, which in turn increases the likelihood that students will return to college the following year.

This study also adds to a growing corpus of studies (e.g., Pasek, more, & Hargittai, 2009) debunking media reports that link use of social media like Facebook to negative academic outcomes such as lower grades. While unable to establish a causal relationship between variables, the data presented here suggest that specific uses of Facebook—namely to connect with classmates at the college and to collaborate on academic projects—help students feel more connected to the college, which may subsequently increase the likelihood that they will persist beyond their first year. This is especially important for first-generation and minority students, who are historically less likely to attend (and finish) college. This research complements other work that uses perceptions of access to resources (as captured in measures of bonding social capital) and highlights the fact that SNS use can have meaningful outcomes. Contrary to some popular depictions that Facebook is merely a forum for sharing breakfast choices and party photographs,

SNSs have the potential to serve as a medium for meaningful support at a critical time of transition in students' lives.

References

- Abe, J., Talbot, D. M., & Geelhoed, R. (1998). Effects of a peer program on international student adjustment. *Journal of College Student Development, 39*, 539–547.
- ACT, Inc.. (2010). *What works in student retention? Fourth national survey*. Iowa City, IA.
- Allen, D. (1999). Desire to finish college: an empirical link between motivation and persistence. *Research in Higher Education, 40*, 461–485.
- Arbuckle, J. L. (2010). *Amos 19.0 user's guide*. Chicago: SPSS.
- Arnett, J. J. (2000). Emerging adulthood: a theory of development from the late teens through the twenties. *American Psychologist, 55*, 469–480.
- Astin, A. W. (1978). *Four critical years: Effects of college on beliefs, attitudes, and knowledge*. San Francisco, CA: Jossey-Bass.
- Astin, A. W. (1993). What matters in college? *Liberal Education, 79*(4), 4–16.
- Astin, A. W. (1997). How 'good' is your institution's retention rate? *Research in Higher Education, 38*, 647–658.
- Astin, A., Korn, W., & Green, K. (1987). Retaining and satisfying students. *Educational Record, 48*, 36–42.
- Baker, R. W., & Siryk, B. (1984). Measuring adjustment to college. *Journal of Counseling Psychology, 31*, 179–189.
- Baker, R. W., & Siryk, B. (1989). *Student adaptation to college questionnaire manual*. Los Angeles: Western Psychological Services.
- Bean, J. P. (2005). Nine themes of college retention. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 215–244). Westport, CT: Praeger.
- Borglum, K., & Kubala, T. (2000). Academic and social integration of community college students: a case study. *Community College Journal of Research and Practice, 24*, 567–576.
- boyd, d. m., & Ellison, N. B. (2007). Social network sites: definition, history, and scholarship. *Journal of Computer-mediated Communication, 13*, 210–230.
- Cabrera, A. F., Nora, A., Terenzini, P. T., Pascarella, E., & Hagedorn, L. S. (1999). Campus racial climate and the adjustment of students to college: a comparison between White students and African-American students. *Journal of Higher Education, 70*, 134–160.
- Chartrand, J. M. (1992). An empirical test of a model of nontraditional student adjustment. *Journal of Counseling Psychology, 39*, 193–202.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *The American Journal of Sociology, 94*, 95–120.
- Cooper, W. H., & Richardson, A. J. (1986). Unfair comparisons. *Journal of Applied Psychology, 71*, 179–184.
- Credé, M., & Niehorster, S. (2012). Adjustment to college as measured by the student adaptation to college questionnaire: a quantitative review of its structure and relationships with correlates and consequences. *Educational Psychology Review, 24*, 133–165. <http://dx.doi.org/10.1007/s10648-011-9184-5>.
- Dahlstrom, E., de Boor, T., Grunwald, P., & Vockley, M. (2011). *The ECAR national study of undergraduate students and information technology*. Boulder, CO: EDUCAUSE Center for Applied Research.
- DeAndrea, D. C., Ellison, N. B., LaRose, R., Steinfield, C., & Fiore, A. (2011). Serious social media: on the use of social media for improving students' adjustment to college. *The Internet and Higher Education, 15*, 15–23.
- Elliott, A. N., Alexander, A. A., Pierce, T. W., & Richmond, J. M. (2009). Childhood victimization, poly-victimization, and adjustment to college in women. *Child Maltreatment, 14*, 330–343.
- Ellison, N. B., & boyd, d. (2013). Sociality through social network sites. In W. H. Dutton (Ed.), *The Oxford handbook of Internet studies* (pp. 151–172). Oxford: Oxford University Press.
- Ellison, N., Lampe, C., Steinfield, C., & Vitak, J. (2010). With a little help from my friends: social network sites and social capital. In Z. Papacharissi (Ed.), *A networked self: Identity, community and culture on social network sites* (pp. 124–145). New York: Routledge.
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" social capital and college students' use of online social network sites. *Journal of Computer-mediated Communication, 12*, 1143–1168.
- Ellison, N., Steinfield, C., & Lampe, C. (2011). Connection strategies: social capital implications of Facebook-enabled communication practices. *New Media & Society, 13*, 873–892.
- Enochs, W. K., & Roland, C. B. (2006). Social adjustment of college freshmen: the importance of gender and living environment. *College Student Journal, 40*, 63–73.
- Fast facts. (2012). Retrieved May 1, 2012, from (URL omitted for blind review purposes).
- Feldman, M. J. (1993). Factors associated with one-year retention in a community college. *Research in Higher Education, 34*, 503–512.
- Friedlander, L. J., Reid, G. J., Cribbie, R., & Shupak, N. (2007). Social support, self-esteem, and stress as predictors of adjustment to university among first-year undergraduates. *Journal of College Student Development, 48*, 259–274.
- Gansemer-Topf, A. M., & Schuh, J. H. (2006). Institutional selectivity and institutional expenditures: examining

- organizational factors that contribute to retention and graduation. *Research in Higher Education*, 4, 613–642.
- Gerdes, H., & Mallinckrodt, B. (1994). Emotional, social, and academic adjustment of college students: a longitudinal study of retention. *Journal of Counseling and Development*, 72, 281–288.
- Grant-Vallone, E., Reid, K., Umali, C., & Pohlert, E. (2003). An analysis of the effects of self-esteem, social support, and participation in student support services on students' adjustment and commitment to college. *Journal of College Student Retention: Research, Theory & Practice*, 5, 255–274.
- Guiffrida, D. A., & Douthit, K. Z. (2010). The Black student experience at predominately White colleges: implications for school and college counselors. *Journal of Counseling & Development*, 88, 311–318.
- Hargittai, E. (2007). Whose space? Differences among users and non-users of social network sites. *Journal of Computer-mediated Communication*, 13, 276–297.
- Hausmann, L. R., Schofield, J. W., & Woods, R. L. (2007). Sense of belonging as a predictors of intentions to persist among African-American and white first-year college students. *Research in Higher Education*, 48, 803–839.
- Hays, R. B., & Oxley, D. (1986). Social network development and functioning during a life transition. *Journal of Personality and Social Psychology*, 50, 305–313.
- Heiberger, G., & Harper, R. (2008). Have you Facebooked Astin lately? Using technology to increase student involvement. *New Directions for Student Services*, 124, 19–35.
- Hertel, J. B. (2002). College student generational status: similarities, differences, and factors in college adjustment. *The Psychological Record*, 52, 3–18.
- Hiester, M., Nordstrom, A., & Swenson, L. M. (2009). Stability and change in parental attachment and adjustment outcomes during the first semester transition to college. *Journal of College Student Development*, 50, 521–538.
- Higher Education Research Institute. (2007). College freshmen and online social networking sites (research brief). Los Angeles, CA.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- Hurtado, S., Carter, D. F., & Spuler, A. (1996). Latino student transition to college: assessing difficulties and factors in successful college adjustment. *Research in Higher Education*, 37, 135–157.
- Ishitani, T. (2003). A longitudinal approach to assessing attrition behavior among first-generation students: time-varying effects of pre-college characteristics. *Research in Higher Education*, 44, 433–449.
- Jones, S. (2002). The Internet goes to college. Washington, DC: Pew Internet & American Life Project.
- Jones, W. A. (2010). The impact of social integration on subsequent institutional commitment conditional on gender. *Research in Higher Education*, 51, 687–700.
- Junco, R. (2011). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education*, 58, 162–171.
- Junco, R., & Cotten, S. (2012). No A 4 U: the relationship between multitasking and academic performance. *Computers & Education*, 59, 505–514.
- Kaczmarek, P. G., Matlock, G., Merta, R., Ames, M. H., & Ross, M. (1994). An assessment of international college student adjustment. *International Journal for the Advancement of Counselling*, 17, 241–247.
- Kalpidou, M., Costin, D., & Morris, J. (2011). The relationship between Facebook and the well-being of undergraduate college students. *Cyberpsychology, Behavior, and Social Networking*, 14, 183–189.
- Kaya, N. (2004). Residence hall climate: predicting first-year students' adjustments to college. *Journal of The First-year Experience*, 16, 101–118.
- Kraemer, B. A. (1996). The academic and social integration of Hispanic students into college. *The Review of Higher Education*, 20, 163–179.
- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education*, 79, 540–563.
- Lampe, C., Ellison, N., & Steinfield, C. (2007). A familiar Face(book): profile elements as signals in an online social network. In *Proceedings of the conference on human factors in computing systems* (pp. 435–444). New York: ACM Press.
- Lampe, C., Wohn, D. Y., Vitak, J., Ellison, N., & Wash, R. (2011). Student use of Facebook for organizing collaborative classroom activities. *International Journal of Computer-supported Collaborative Learning*, 6, 329–347.
- Lau, L. K. (2003). Institutional factors affecting student retention. *Education*, 124, 126–136.
- Lee, J. B. (2001). Undergraduates enrolled with higher sticker prices. Washington, DC: National Center of Education Statistics.
- Madge, C., Meek, J., Wellens, J., & Hooley, T. (2009). Facebook, social integration and informal learning at university: "it is more for socialising and talking to friends about work than for actually doing work." *Learning, Media and Technology*, 34, 141–155.
- Mattanah, J. F., Ayers, J. F., Brand, B. L., Brooks, L. J., Quimby, J. L., & McNary, S. W. (2010). A social support intervention to ease the college transition: exploring main effects and moderators. *Journal of College Student Development*, 51, 93–108.
- Mattern, K. D., Shaw, E. J., & Kobrin, J. L. (2010). Academic fit: is the right school the best school or is the best school the right school? *Journal of Advanced Academics*, 21, 368–391.
- Mayhew, M. J., Stipeck, C. J., & Dorow, A. J. (2011). The effects of orientation programming on learning outcomes

THIS COPY IS FOR RESEARCH AND EDUCATIONAL PURPOSES ONLY

- related to academic and social adjustment with implications for transfers and students of color. *Journal of the First-year Experience & Students in Transition*, 23, 53–73.
- McEwan, B. (2011). Hybrid engagement: how Facebook helps and hinders students' social integration. In L. A. Wankel, & C. Wankel (Eds.), *Cutting-edge technologies in higher education: Vol. 2. Higher education administration with social media* (pp. 3–23). United Kingdom: Emerald Group Publishing Limited.
- Mooney, S. P., Sherman, M. F., & Lo Presto, C. T. (1991). Academic locus of control, self-esteem, and perceived distance from home as predictors of college adjustment. *Journal of Counseling & Development*, 69, 445–448.
- Mounts, N. S., Valentiner, D. P., Anderson, K. L., & Boswell, M. K. (2006). Shyness, sociability, and parental support for the college transition: relation to adolescents' adjustment. *Journal of Youth and Adolescence*, 35, 71–80.
- Núñez, A.-M. (2009). Latino students' transitions to college: a social and intercultural capital perspective. *Harvard Educational Review*, 79, 22–48.
- Núñez, A.-M., & Cuccaro-Alamin, S. (1998). *First-generation students: Undergraduates whose parents never enrolled in postsecondary education (NCES 1999-030)*. U.S. Department of Education, NCES. Washington, DC: U.S. Government Printing Office.
- Owens, D., Lacey, K., Rawls, G., & Holbert-Quince, J. (2010). First-generation African American male college students: implications for career counselors. *The Career Development Quarterly*, 58, 291–300.
- Pascarella, E. T. (1984). College environmental influences on students' educational aspirations. *The Journal of Higher Education*, 55, 751–771.
- Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *The Journal of Higher Education*, 51, 60–75.
- Pasek, J., more, e, & Hargittai, E. (2009). Facebook and academic performance: reconciling a media sensation with data. *First Monday*, 14(5). np.
- Paul, E. L., & Brier, S. (2001). Friendsickness in the transition to college: precollege predictors and college adjustment correlates. *Journal of Counseling and Development*, 79, 77–89.
- Peltier, G. L., Laden, R., & Matranga, M. (1999). Student persistence in college: a review of research. *Journal of College Student Retention*, 1, 357–375.
- Phillippe, K. A., & Sullivan, L. G. (2005). *National profile of community Colleges: Trends and statistics (4th ed.)*. Washington D.C.: American Association of Community Colleges.
- Putnam, R. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.
- Quintana, S. M., Vogel, M. C., & Ybarra, V. C. (1991). Meta-analysis of Latino students' adjustment in higher education. *Hispanic Journal of Behavioral Sciences*, 13, 155–168.
- Ranney, J. D., & Troop-Gordon, W. (2012). Computer-mediated communication with distant friends: relations with adjustment during students' first semester at college. *Journal of Educational Psychology*, 104, 848–861.
- Rausch, J. L., & Hamilton, M. W. (2006). Goals and distractions: explanations of early attrition from traditional university freshmen. *The Qualitative Report*, 11, 317–334.
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: construct validation of a single-item measure and the Rosenberg self-esteem scale. *Personality and Social Psychology Bulletin*, 27, 151–161.
- Salaway, G., Caruso, J. B., & Nelson, M. R. (2008). *The ECAR study of undergraduate students and information technology, 2008*. Boulder, CO: Educause Center for Applied Research.
- Schudde, L. T. (2011). The causal effect of campus residency on college student retention. *The Review of Higher Education*, 34, 581–610.
- Smith, S. D., Salaway, G., & Caruso, J. B. (2009). *The ECAR study of undergraduate students and information technology, 2009*. Boulder, CO: Educause Center for Applied Research.
- Spady, W. G. (1971). Dropouts from higher education: toward an empirical model. *Interchange*, 2, 38–62.
- Steinfeld, C., Ellison, N., & Lampe, C. (2008). Social capital, self-esteem, and use of online social network sites: a longitudinal analysis. *Journal of Applied Developmental Psychology*, 29, 434–445.
- Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012). Unseen disadvantage: how American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of Personality and Social Psychology*, 102, 1178–1197.
- Tinto, V. (1975). Dropouts from higher education: a theoretical synthesis of recent research. *Review of Educational Research*, 45, 89–125.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition (2nd ed.)*. Chicago, IL: University of Chicago Press.
- United States Bureau of Labor Statistics, Current Population Survey. (2011). Education pays. Retrieved from: http://www.bls.gov/emp/ep_chart_001.htm.
- United States Department of Education, National Center for Education Statistics. (2011). Digest of education statistics, 2010 (NCES 2011-015). Retrieved from: http://nces.ed.gov/programs/digest/d10/ch_3.asp.
- Velez, W. (1985). Finishing college: the effects of college type. *Sociology of Education*, 58, 191–200.
- Wei, C. C., Berkner, L., He, S., Lew, S., Cominole, M., & Siegel, P. (2009). 2007–08 National postsecondary student aid study (NPSAS:08): Student financial aid estimates for 2007–08: First look (NCES 2009-166). Washington, DC.: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- Williams, D. (2006). On and off the 'net: scales for social capital in an online era. *Journal of Computer-mediated*

THIS COPY IS FOR RESEARCH AND EDUCATIONAL PURPOSES ONLY

Communication, 11, 593–628.

York-Anderson, D. C., & Bowman, S. L. (1991). Assessing the college knowledge of first-generation and second-generation college students. *Journal of College Student Development*, 32, 116–122.

Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2004). The scientific base linking social and emotional learning to school success. In J. E. Zins, R. P. Weissberg, M. C. Wang, & H. J. Walberg (Eds.), *Building academic success on social and emotional learning: What does the research say?* (pp. 3–22). New York: Teachers College Press.