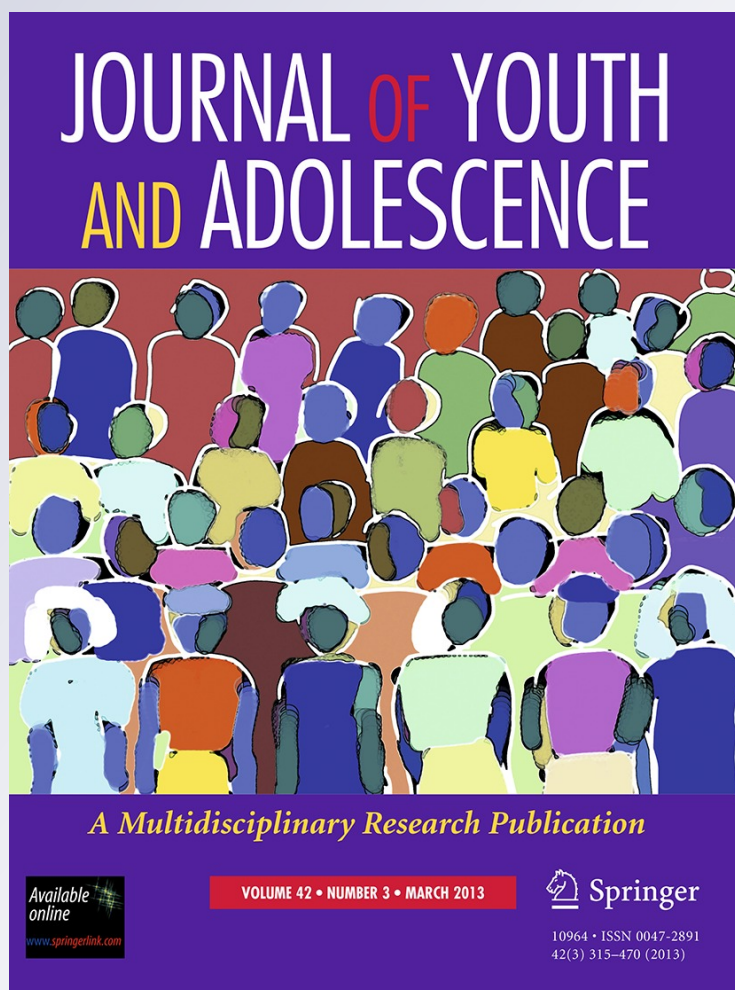# Motives for Using Facebook, Patterns of Facebook Activities, and Late Adolescents' Social Adjustment to College

Chia-chen Yang & B. Bradford Brown

JOURNAL OF YOUTH AND ADOLESCENCE

A Multidisciplinary Research Publication

VOLUME 42 • NUMBER 3 • MARCH 2013

Springer

10964 • ISSN 0047-2891
42(3) 315–470 (2013)

Available online
www.springerlink.com

Springer

Springer

EMPIRICAL RESEARCH

Motives for Using Facebook, Patterns of Facebook Activities, and Late Adolescents' Social Adjustment to College

Chia-chen Yang · B. Bradford Brown

Abstract Previous studies have confirmed that Facebook, the leading social networking site among young people, facilitates social connections among college students, but the specific activities and motives that foster social adjustment remain unclear. This study examined associations between patterns of Facebook activity, motives for using Facebook, and late adolescents' social adjustment to the college environment. Anonymous self-report survey data from 193 mostly European American students (*M* age = 20.32; 54 % female) attending a major Midwestern university indicated that motives and activity patterns were associated directly with social adjustment, but the association between one activity, status updating, and social adjustment also was moderated by the motive of relationship maintenance. Findings provide a more comprehensive portrait of how Facebook use may foster or inhibit social adjustment in college.

Keywords College · Facebook · Internet · Loneliness · Motives · Peers · Social adjustment

Introduction

Over the past decade, Internet-based technologies have become a central fixture in the social lives of many, if not most, adolescents in the U.S. and other parts of the world (Mesch and Talmud 2010). Pew Internet and American Life Project data showed that, as of 2009, more than 90 % of U.S. adolescents and young adults were regular Internet users (Lenhart et al. 2010). Social networking sites such as Facebook have attracted hundreds of millions of users worldwide (Facebook.com) and more than 80 % of teens and young adults in the U.S. (Brenner 2012). These sites have added features that enhance their ability to help young people locate new peer affiliations, manage existing relationships, and keep abreast of social activities within their network (Lampe et al. 2006; Pempek et al. 2009; Subrahmanyam et al. 2008; Urista et al. 2009). These features are especially useful as young people transition from home to a residential college environment, a transition that usually requires a major reorganization of one's social network. Investigators have reported variability not only in the social functions for which college students use social networking sites—e.g., searching for new relationships versus maintaining existing friendships (Ellison et al. 2007, 2011; Lampe et al. 2006; Pempek et al. 2009)—but also in their motivation for participating in these sites (Joinson 2008; Pempek et al. 2009; Sheldon 2008; Subrahmanyam et al. 2008; Tosun 2012). Use of social networking sites in general has been associated with students' social connectivity (Ellison et al. 2007; Steinfield et al. 2008; Reich 2010), but little is known about how specific use patterns or activities are associated with young people's social adjustment, how motives for use of social networking sites are related to young people's social adaptation, and what the association is among use patterns, motives, and the social outcome. This study addresses these questions. We postulate that different use patterns and motives have different associations with students' social adaptation. We also expect that motives moderate associations between use

C.-c. Yang (✉)
Department of Educational Psychology, University of
Wisconsin-Madison, Room 863I, 1025 West Johnson Street,
Madison, WI 53706, USA
e-mail: cyang33@wisc.edu

B. B. Brown
Department of Educational Psychology, University of
Wisconsin-Madison, Room 880A, 1025 West Johnson Street,
Madison, WI 53706, USA

patterns and social adjustment. By exploring specific motives and activities concurrently, we examine the complex interweave of motives and activity patterns in assessing the connections between social networking site use and late adolescents' social adjustment in college.

College Adjustment and Social Networking Sites

Managing social relationships is a major task for college students. At the transition from adolescence to young adulthood, individuals are faced with the challenge of developing intimate interpersonal relationships (Erikson 1959). The task can be especially challenging for students who enter a residential college. Not only are they physically removed from close friends and other long-standing peer associates, complicating the task of maintaining existing intimate relationships, but they are typically submerged among thousands of unknown peers (Scanlon et al. 2007), from whom they need to forge new intimate bonds. Both relationship maintenance and establishment have been found to be crucial to successful adjustment during the transition to college (Buote et al. 2007; Cutrona 1982; Hays and Oxley 1986; Paul and Brier 2001; Swenson et al. 2008). Connections with pre-college friends ease the adjustment process by providing emotional support (Swenson et al. 2008; Ye 2006); new peer relationships on campus influence students' adaptation to and retention in college, as peer interaction serves as one of the major processes through which students become socially integrated into the college environment (Braxton et al. 1997; Tinto 1975, 1993). It appears that successful college experience requires students to spend efforts negotiating their interpersonal relationships.

Social networking sites can be instrumental in maintaining existing relationships as well as establishing new social ties. Ellison et al. (2007, 2011) found that it was common for college students to use Facebook to keep in touch with old friends and to learn more about classmates or people they met socially. Specific strategies for making such connections include posting or sending messages to old friends and checking on their recent activities, browsing fellow students' profiles on social networking sites, displaying their own background and interests to others, and, as new relationships develop, communicating with these associates to supplement face-to-face interactions (Ellison et al. 2007, 2011; Urista et al. 2009; Zhao et al. 2008). These affordances of the sites may be particularly appealing to college students, whose social networks are evolving.

Indeed, the popularity of these sites has grown dramatically. Recent national and regional surveys have shown that 80 % of wired teens age 12–17 were using social networking sites, and 86–94 % of online young adults (age 18–29) or college students were users of such sites (Brenner 2012; Ellison et al. 2007; Sheldon 2008). Recent studies sampling more than 1,500 college students have reported that in a typical day, college students checked Facebook, the leading social networking site, more than five times on average and spent more than 100 min on it (Junco 2012a, b). The popularity may reflect the usefulness of social networking sites in (re)structuring college students' interpersonal relationships.

Brief Introduction to Facebook

Facebook operates somewhat like a personal website, but within a defined community of users and with functions that allow users to locate and interact with each other. On their site, or Facebook page, users can provide information about themselves (including important social relationship details such as their sexual orientation and whether or not they are currently in a romantic relationship), post pictures, list the electronic groups to which they belong, and record comments about their feelings or activities for others to see. They also can write messages to Facebook friends, post something on a friend's Facebook page, or "tag" a friend in a photo. Access to this information is restricted to other Facebook members and can be restricted further by users to only their Facebook friends or a specified portion of their friend list. Friend lists extend well beyond students on a person's own college campus, including, of course, individuals known from the person's home town before college (Ellison et al. 2007; Pempek et al. 2009). Through Facebook, students can engage in a wide array of activities and interact with others without being constrained by geographical barriers.

Activities on Facebook

Given the wide range of activities available on Facebook and frequent changes in activities available as the platform develops, consensus among researchers on a typology of Facebook activities is still evolving. Four basic categories, however, are mentioned frequently in research reports. One of the most common activities involves *electronic interactions* with friends, such as posting, commenting, or replying to messages (Junco 2012a, b; Lenhart and Madden 2007; Reich et al. 2012; Subrahmanyam et al. 2008). These actions are intended to invoke a response from another person or are themselves responses to someone else's actions on Facebook (Davies 2012). As already mentioned, interactions may be public or private, creating a cadre of communication patterns that are the electronic equivalent of similar behaviors in face-to-face interactions.

More recent studies found that college students spend more time observing profile content than doing actual

posting (Pempek et al. 2009), and they check up on others at a higher frequency than sending private messages (Junco 2012a, b). Such *voyeuristic* actions, comprising a second category of Facebook activity, are sometimes referred to as "lurking" or "stalking," (e.g., Subrahmanyam et al. 2008) and are one of the most popular Facebook activities among college students (Antheunis et al. 2010; Junco 2012a, b; Pempek et al. 2009).

A third common set of activities is oriented toward *self-presentation*, revealing personal attitudes and interests as well as social connections through the information displayed on one's Facebook page. Interestingly, self-presentation is often done in an implicit way; college students showcase themselves through pictures, wall posts, or friend lists rather than giving explicit self-descriptions (boyd 2007; Hum et al. 2011; Manago et al. 2008; Zhao et al. 2008). Also, consistent with research showing that self-presentations in non-anonymous online environments are usually quite honest (Toma and Hancock 2011), especially when users anticipate offline interaction with the audience in the future (Ellison et al. 2006; Gibbs et al. 2006), college students' self-presentations on social networking sites tend to be reasonably realistic (Back et al. 2010; Gosling et al. 2011; Manago et al. 2008; Zhao et al. 2008). Through social networking sites, college students strategically tell their audience who they are.

Finally, although limited in scope, there are opportunities on Facebook for *gaming*—taking quizzes, and playing farming games, for example. Unlike other sectors of the Internet that offer elaborate, multiplayer games, Facebook gaming does not require constant and intensive interaction with other players and can be played by oneself. One study showed that this activity was the strongest predictor of student engagement, an indicator of one's commitment to his or her academic experience (Junco 2012a), but its association with social outcomes has not been tested. Given that computer and online gaming is a common experience among adolescents across different ages (Jones 2003; Lenhart et al. 2008), the social impact of Facebook gaming needs to be explored.

Internet Activities and Social Connectivity

Though little is known about specifically how Facebook activities are associated with users' social connectivity, investigators have been interested in the general associations between Internet use and adolescents' social relationships. One consistent pattern that has emerged is that electronic interactions have been associated positively with adolescents' friendship quality and feeling of closeness with friends (Blais et al. 2008; Cummings et al. 2006; Valkenburg and Peter 2007, 2009). Related studies examining gaming in general (but not gaming on Facebook in particular) suggest

that this activity is not adaptive. Gaming was related to social inactivity among teenage males in Hong Kong (Ho and Lee 2001). Among Canadian youth, online entertainment predicted decreases in the quality of important relationships (Blais et al. 2008). These findings hint at important associations between patterns of Facebook use and social adjustment, but they fall short of a comprehensive assessment of these connections. Rarely have investigators examined more than one or two types of activity.

Motives for Using Facebook

Uses and gratifications theory (Katz et al. 1974) posits that to understand the impact of a medium, it is necessary to consider users' motives. Internet use among adolescents is motivated behavior (Pornsakulvanich et al. 2008), and researchers have suggested several possible motives for use of social networking sites. Two frequently mentioned objectives of Facebook use are nurturing or maintaining existing relationships and seeking new ones (Joinson 2008; Lampe et al. 2006; Pempek et al. 2009; Reich et al. 2012; Sheldon 2008; Subrahmanyam et al. 2008; Tosun 2012), although it is not always clear whether the new affiliations being sought involve exclusively online relationships or associations that could involve offline interaction as well. Other motives that have been sporadically reported include enhancing one's reputation (being cool), avoiding loneliness, keeping tabs on other people (seeing who has joined Facebook or what they are doing), and entertainment (Joinson 2008; Sheldon 2008; Tosun 2012). Researchers in both the U.S. and China found that the more individuals were motivated to use the Internet to develop new on-line relationships with strangers, the lower their social connectivity was (Weiser 2001; Zhang et al. 2006). However, the effects of other motives on psychosocial outcomes have not been explored systematically.

To date, studies have not converged on a comprehensive list of the major motives underlying college students' use of Facebook, nor have researchers explored how motives influence associations between Facebook activities and college students' social adjustment. Although studies in other research fields have shown that motives for doing an activity moderate the association between psychosocial outcomes and participation in the activity (e.g., Hussong et al. 2005), no study on use of social networking sites has tested this moderator model, examining whether the influence of use varies as a function of users' motives.

Current Study and Hypotheses

The present study was designed to consider the motives for Facebook use and types of Facebook activity. Our first aim

was to identify the major motives underlying college students' use of Facebook and confirm the four types of Facebook activity that other researchers have reported (electronic interactions, voyeurism, self-presentation, and gaming).

A second aim was to examine how motives and activities were related to college students' adjustment. Since Facebook use is most relevant to social connectivity, the study focused on students' social adjustment. Consistent with Erikson's (1959) theory and literature on college adaptation (Braxton et al. 1997; Buote et al. 2007; Cutrona 1982; Hays and Oxley 1986; Paul and Brier 2001; Swenson et al. 2008; Tinto 1975, 1993), we hypothesized that motives and activities focused on peer interaction would be associated positively with adjustment, whereas motives and activities directed at more solitary pursuits (Facebook games and quizzes) or at forming connections with online strangers would be associated negatively with adjustment.

A final objective was to consider interactions between motives and activities—specifically, the extent to which motives modified associations between activities and social adjustment. Studies suggest that motives and activities related to social networking sites are multifarious (Sheldon 2008; Subrahmanyam et al. 2008) and that one action on Facebook can be responsive to multiple motives (Park et al. 2009). We believe it is sensible to consider motive-by-activity interactions, or the ways in which motives for using Facebook moderate the associations between Facebook activities and social adjustment. Not knowing what specific motives and activities would be identified and confirmed in the study, we did not formulate specific hypotheses about these moderating effects.

Method

Sample

Participants were recruited from several large courses at a major Midwestern U.S. university. Individuals either received extra credit in a college course or a small honorarium ($5) for completing an anonymous, self-report questionnaire about their use of Facebook and social experiences in college. The response rate varied among participating classes but averaged 37 %. Of the 203 undergraduate students completing the questionnaire, 8 were omitted from analyses because they used Facebook less than once a month; two others failed to respond to more than half of the motive scale. Of the remaining 193 participants, age 17–26 ($M = 20.32$), 54 % were female and 93 % were European American. Students were rather evenly distributed across college year (24 % freshmen, 24 % sophomores, 24 % juniors, 28 % seniors). The study

was approved by the Institutional Review Board at the University and all participants gave their informed consent prior to their participation.

Measures

Four sets of measures included in the self-report questionnaire are relevant to analyses in this study.

Background Information

In addition to reporting their age, gender, year of college, and ethnic background, participants indicated how far away their home town and family was (in terms of how long it took them to travel home) and how frequently they visited home. They also indicated the proportion of their friends in college whom they knew prior to college. They reported the size of their Facebook friend list and the average amount of time (minutes per week) they spent on Facebook before answering specific questions about their experiences with this social networking site.

Motives for Using Facebook

We developed an instrument with 20 items describing different motivations for using Facebook. Eight items were adapted from Sheldon's (2008) Motives for Facebook Use scale. The other 12 were based on findings from a pilot study in which focus groups of college students described the role that various social media played in college students' social interactions and relationships (Yang and Brown 2009). Each item was answered on a 5-point Likert scale indicating how often (1 = never; 5 = a lot) the item was a reason for the student's Facebook use. The complete list of motive items is presented in the appendix.

Facebook Activities

Participants also reported how many times they engaged in each of the 20 Facebook activities during the previous week. Seventeen of the items were drawn from previous research (Joinson 2008; Pempek et al. 2009; Subrahmanyam et al. 2008) to describe four major types of Facebook activities. These items were modified or reworded after several rounds of discussion among the authors and their undergraduate research assistants to better reflect college students' Facebook use at the time of the study. The other 3 items were added based on the undergraduate research assistants' suggestions. Seven items were intended to describe electronic interactions (e.g., "posted on other people's walls," "sent an inbox message"), 7 focused on self-presentation activities (e.g., "uploaded new photos,"

"updated your 'what's on your mind'"), 4 concerned voyeuristic practices (e.g., "checked out people's walls without leaving a message," "checked out news feed"), and two related to Facebook gaming ("played games" and "took quizzes"). The complete activity measure is available in the appendix.

Adjustment Measures

Two scales were used to assess students' social adjustment. The first scale included 7 items from the Social Adjustment Subscale of the Student Adaptation to College Questionnaire (SACQ; Baker and Siryk 1989). Participants rated how well each item applied to them, on a 7-point response scale (1 = not at all; 7 = very well). The Cronbach α for the sample was .80. The other scale was the 20-item UCLA Loneliness Scale (Russell 1996). Participants rated how often they felt the way described by each of the scale items on a 4-point scale (1 = never; 4 = always). The Cronbach α for the sample was .92.

Plan of Analyses

After examining participants' background characteristics, we conducted an exploratory factor analysis of the 20 motive items by using Mplus 6.0 (Muthén and Muthén 2010), stipulating .40 as a cut-off for factor loadings. The estimator (i.e., extraction method) was maximum likelihood, and an oblique rotation method, Geomin, was used. Because studies have shown that the eigenvalues-greater-than-one rule usually overestimates the number of factors that should be retained, and the reliability of scree plot interpretations is low (see Ledesma and Valero-Mora 2007; O'Connor 2000; Patil et al. 2008), we did not use these two criteria. Instead, following recent researchers' advice (e.g., Ledesma and Valero-Mora 2007; O'Connor 2000; Patil et al. 2008), we used parallel analysis and Velicer's minimum average partial (MAP) test.

Parallel analysis has been suggested as one of the most reliable methods in determining the number of factors to retain (Ledesma and Valero-Mora 2007). According to parallel analysis, researchers should generate eigenvalues from random data sets that have the same sample size and number of variables as the actual data set, and then compare the eigenvalues derived from the actual data set to those from the random data sets. Factors are retained when the eigenvalue of the actual data set exceeds the 95th percentile random data eigenvalue (O'Connor 2000) because it suggests that the amount of variance explained by these factors is greater than that by chance (Lahey et al. 2004, p. 364). We derived eigenvalues from random data sets by running 1,000 simulations.

Velicer's MAP test starts with a complete principal components analysis, followed by partialling out the first principal component from the correlations between the variables of interest. Then the average squared partial coefficient is computed. The procedure continues with partialling out the first two principal components, then the first three, and so on. The number of partialled out components that corresponds to the lowest average squared partial coefficient indicates the optimal number of factor retention (O'Connor 2000). When this number of factors are retained, there is more systematic variance than unsystematic variance in the original correlation matrix (DeYoung et al. 2007, p. 882; O'Connor 2000). The "Results" section describes findings from these analyses.

The confirmatory factor analysis initially planned for the 20 Facebook activity items could not be completed because of low response variability on several items, especially those concerning self-presentation. We were able to construct internally consistent scales for two activity types but had to rely on single items to represent the other two types.

Direct and interactive associations between Facebook motives and activities and the adjustment measures (social adjustment and loneliness) were assessed in two regression models. We regressed social adjustment and loneliness, respectively, on gender and year in college (as background factors), all of the motives and activity categories, and then motive × activity interaction terms.

Results

The university from which our sample was derived drew undergraduates from all over the U.S. and the world, but most lived close to home; over half of the sample lived within 2 h drive of their home. Yet, visits to home were infrequent; less than 20 % went home more than once a month. A relatively small percentage of participants' friends at college, 17.5 % on average, were peers they had known prior to college, indicating that they had engaged in a lot of network building or reorganizing at college. Females had a significantly larger Facebook friend list than males (M = 485 vs. 366), F (1, 189) = 13.62, $p < .001$. Students spent an average of 3.6 h per week on Facebook, which is consistent with reports from other surveys of college students (Ellison et al. 2007; Pempek et al. 2009), but this number varied widely among participants—from less than an hour a week to more than 4 h a day.

Motives for Using Facebook

Parallel analysis indicated that two factors should be retained, as only the first two eigenvalues from our actual data set exceeded the 95th percentile of eigenvalues derived from random data sets (see Table 1). Velicer's MAP test suggested a similar structure: the lowest average

Table 1 Results of parallel analysis and Velicer's MAP test

Number of factors extracted	Eigenvalues from actual data set	95 % percentile of random eigenvalues	Average squared partial correlation coefficient
0	–	–	.087
1	6.26	1.74	.023
2	**1.98**	**1.59**	**.022**
3	1.42	1.47	.024
4	1.20	1.40	.027
5	1.16	1.32	.028
6	1.03	1.26	.030
7	.91	1.20	.036
8	.76	1.14	.044
9	.68	1.09	.054
10	.61	1.04	.064
11	.59	.99	.080
12	.55	.94	.100
13	.51	.89	.126
14	.46	.85	.153
15	.42	.80	.183
16	.40	.76	.232
17	.35	.71	.358
18	.30	.67	.513
19	.22	.62	1.000
20	.18	.56	–

The result of parallel analysis is obtained by comparing the second and the third columns. The factors are retained only when the actual eigenvalue is greater than that derived from random data sets. The last column is used for Velicer's MAP test. The number of factors that corresponds to the lowest average squared partial correlation coefficient indicates the optimal number of factors for retention. Values that correspond to the optimal number of factor retention are displayed in bold

Table 2 Results of exploratory factor analysis of items measuring motives for using Facebook

Factor/item	Factor	
	1	2
1. Relationship formation		
Find out more about someone I've just met	.77	
Know who is friends with whom	.75	
Check out someone I might want to know better	.75	
Find more interesting people than in real life	.64	
Develop a romantic relationship	.49	
Meet new friends	.49	
Present myself to other people in the way I want them to see me	.49	
Get in touch with someone I met at social events	.44	
2. Relationship maintenance		
Stay connected with my college friends		.80
Connect with someone I've met since college		.72
Keep in touch with my friends		.54
It is enjoyable		.41
Cronbach α	.80	.75
Eigenvalue	4.18	1.75
Variance explained	.30	.10

Except for last three rows, figures are factor loadings. Only loadings over .40 are listed

squared partial correlation appeared when the first two factors were partialled out (see Table 1). The two-factor solution generated factors that were interpretable and conceptually reasonable; the internal reliability of the two factors was also acceptable (see below). Thus, we decided to retain two factors (see Table 2). Eight items that loaded on neither factor or had cross-loadings of fairly equivalent magnitude (where the difference was less than .30) were eliminated. The final model explained 40 % of the variance.

The first factor, *relationship formation* ($\alpha = .80$), included 8 items focused on pursuing new relationships and getting to know more about potential friends. Four items comprised the second factor, which described aspects of *relationship maintenance* ($\alpha = .75$), that is, using Facebook to nurture existing relationships. Scores for both motives were derived by calculating the mean of component items. The relationship maintenance motive had a higher mean score ($M = 3.97$, $SD = 0.68$) than the relationship formation motive ($M = 2.65$, $SD = 0.61$). The

two motives were moderately correlated ($r = .43$, $p < .001$). Females expressed stronger motivation than males to use Facebook to maintain existing relationships, $F (1,191) = 32.63$, $p < .001$, $\eta^2 = .15$. Neither of the motives differed significantly by college year.

Patterns of Facebook Activity

Whereas most students engaged in electronic interactions and voyeuristic Facebook activities with reasonable frequency, to our surprise they reported rare involvement in most self-presentation activities. With the exception of one item, 90 % or more of the participants indicated they had done each of the self-presentation activities no more than once in the past week. Self-presenting activities such as posting photos may occur irregularly—primarily after special events such as birthdays, holidays, or vacations—rather than routinely (e.g., weekly). The finding affirmed Pempek et al. (2009) report that more than 90 % of college students did not post any photos over a one-week period. Response variability also was too low for one of the gaming activities (taking Facebook quizzes) and one aspect of electronic interactions (super-poking, an application that allows users to "poke," "smile at," or "wink at" a friend) to include these items in analyses.

The remaining 12 items displayed adequate response variability, but means and standard deviations varied

considerably among items. To avoid having some items weigh more heavily than others in our activity measures, we derived standardized scores for the 12 items. Six items formed a scale assessing electronic interactions: posted on other people's walls, sent an inbox message, Facebook chatted with someone, replied to others' comments about something on your page, commented on others' photos, and commented on others' "what's on your mind?" Four other items formed a scale measuring voyeurism: checked out people's walls without leaving a message, checked out people's photos without leaving a comment, checked out News Feed, checked out people's notes, links, or status without commenting. Each of these scales had adequate internal consistency ($\alpha = .73$ for electronic interactions and $.78$ for voyeurism). The other two Facebook activities were represented by a single item: "updated your 'what's on your mind?'" represented self-presentation and "played games on Facebook" represented gaming. To accurately reflect item content we referred to the self-presentation item as status updating.

Three of the Facebook activity variables (electronic interactions, voyeurism, and status updating) were moderately correlated with each other, but none was significantly associated with the gaming score (see Table 3). Correlations between motives and activities were mostly positive, although gaming was not significantly associated with any motives (see Table 3). No gender difference was found for Facebook activities. Levels of electronic interactions were highest among freshmen and substantially lower among older students, especially seniors, $F(3,188) = 7.63$, $p < .001$, $\eta^2 = .11$. The same was true of status updating, $F(3,189) = 2.88$, $p < .05$, $\eta^2 = .04$, and there was a nonsignificant trend in this direction regarding gaming (see Fig. 1).

Associations of Motives and Activities with Social Adjustment

Our primary interest was in how motives and activities related to the two adjustment measures (social adjustment and loneliness). In regressions testing these associations we first entered gender and year in college as control variables, then added both motives and all four activity scores before entering the eight motive × activity interactions. Results for analyses concerning the social adjustment scale and loneliness measure are presented in Tables 4 and 5, respectively.

Main effects

Females had higher levels of social adjustment than males, but when other variables were entered into the regression the gender difference was no longer significant. Social adjustment did not differ significantly by year in college. Both motives had significant effects on social adjustment,

Table 3 Correlations among Facebook motives and activity categories

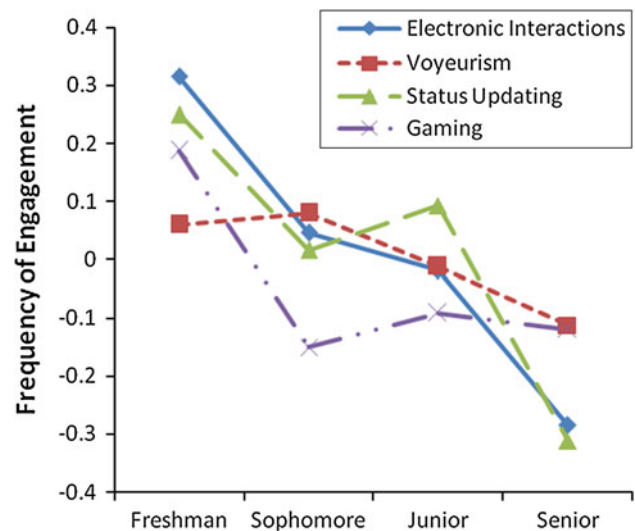| Measure	1	2	3	4	5
Motives					
1. Relationship formation	–				
2. Relationship maintenance	.43***	–			
Activities					
3. Electronic interactions	.28***	.35***	–		
4. Voyeurism	.33***	.38***	.48***	–	
5. Status updating	.20**	.29***	.62***	.31***	–
6. Gaming	−.01	.12	.10	−.00	.06

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

Fig. 1 Differences by college year in scores on Facebook activity categories

though in different directions. The more students regarded Facebook as a means of pursuing new relationships, the lower their social adjustment was, whereas the more they were motivated to use Facebook to maintain existing relationships, the higher their social adjustment was. Two of the four Facebook activity categories also showed significant associations with social adjustment. More frequent engagement in electronic interactions was related to better social adjustment, whereas frequent status updating was associated with poorer social adjustment.

Similar patterns emerged when loneliness was entered as the outcome. Males reported a higher level of loneliness, but the gender difference disappeared when other variables were entered into the model. Loneliness did not differ by year in college. Both motives and two of the four activity categories had significant effects on loneliness. Students who were motivated to use Facebook with an intention to

Table 4 Results of regressions of social adjustment on background, motive, activity, and interaction variables

Independent variable	Step 1	Step 2	Step 3
Gender (male)	−.21 (−.39)**	−.09 (−.17)	−.08 (−.15)
Freshman	.08 (.18)	.06 (.14)	.09 (.20)
Sophomore	.07 (.14)	.02 (.04)	.04 (.09)
Junior	.01 (.03)	−.02 (−.03)	−.03 (−.06)
Motive: relationship formation (RF)		−.20 (−.31)*	−.18 (−.27)*
Motive: relationship maintenance (RM)		.32 (.44)**	.33 (.46)**
Activity: electronic interactions		.23 (.34)*	.30 (.44)**
Activity: voyeurism		−.06 (−.08)	−.06 (−.07)
Activity: status updating		−.11 (−.11)	−.41 (−.38)**
Activity: gaming		−.12 (−.15)	−.09 (−.12)
RF × electronic interactions			−.07 (−.16)
RF × voyeurism			.02 (.03)
RF × status updating			.10 (.17)
RF × gaming			−.01 (−.02)
RM × electronic interactions			−.12 (−.25)
RM × voyeurism			.04 (.08)
RM × status updating			.35 (.40)*
RM × gaming			−.04 (−.08)
Change in R^2	.05*	.11**	.06
Final cumulative R^2			.22
F			2.54**

Except for last 3 rows, all figures are standardized (unstandardized) betas from each step in regression

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

pursue new relationships reported a higher level of loneliness, whereas those who were motivated for the purpose of relationship maintenance showed lower loneliness. Engagement in electronic interactions was associated with a lower level of loneliness, but frequent status updating was related positively to sense of loneliness.

Interactions

One interaction was found in both regression models. The association between status updating and social adjustment was contingent on students' motivation to use Facebook for relationship maintenance. There was a negative association between status updating and social adjustment, but only for students who were not motivated to maintain relationships via Facebook (see Fig. 2). Similarly, although there was a positive association between status updating and loneliness, the effect did not hold for those who were highly motivated to maintain existing relationships through Facebook (see Fig. 3). The variables considered in these regressions, collectively, accounted for 22 % of the variance in social adjustment and 24 % of the variance in sense of loneliness.

Discussion

In navigating the late adolescent developmental task of nurturing intimate peer relationships (Erikson 1959), college students routinely strive to stay connected with existing, pre-college associates while cultivating new social ties to college classmates (Bell et al. 2007; Chow and Healey 2008; Cummings et al. 2006). Originally designed to help late adolescents connect to students on their college campus, Facebook has expanded to serve other social networking functions. Findings from this study suggest that students are quite intentional about their use of Facebook, and their activity on this social networking site is connected in complicated ways to their psychosocial well-being.

Motives and Activities

We were successful in measuring two distinct motives: pursuing new relationships and maintaining existing ones. Students expressed stronger interest in using Facebook to maintain social ties than to facilitate or search for new relationships. This affirmed other investigators' comparisons of college students' use of Facebook to stay in touch with friends whom they may or may not see regularly, versus using it to build new social connections offline or online (Ellison et al. 2007, 2011; Joinson 2008; Lampe et al. 2006; Pempek et al. 2009; Subrahmanyam et al. 2008).

While earlier research often categorized relationships based on the space in which the relationship originated and interaction took place—online or offline (e.g., Chan and Cheng 2004; Ellison et al. 2007; Sheldon 2008), our findings suggest that the online-offline boundary has been blurred. The items that loaded on the factor called "virtual community" in Sheldon's (2008) study ("Develop a romantic relationship," "Find more interesting people than in real life," "Meet new friends") loaded in our data on the same motive factor as the items measuring relationship

Table 5 Results of regressions of loneliness on background, motive, activity, and interaction variables

Independent variable	Step 1	Step 2	Step 3
Gender (male)	.19 (.18)*	.13 (.12)	.11 (.11)
Freshman	.07 (.08)	.09 (.10)	.08 (.09)
Sophomore	−.03 (−.03)	−.01 (−.01)	−.05 (−.05)
Junior	.02 (.03)	.05 (.06)	.07 (.07)
Motive: relationship formation (RF)		.27 (.21)**	.23 (.17)**
Motive: relationship maintenance (RM)		−.22 (−.15)*	−.24 (−.16)*
Activity: electronic interactions		−.21 (−.15)	−.25 (−.18)*
Activity: voyeurism		.11 (.07)	.05 (.03)
Activity: status updating		.05 (.02)	.44 (.20)**
Activity: gaming		.05 (.03)	.03 (.02)
RF × electronic interactions			.00 (.00)
RF × voyeurism			.15 (.15)
RF × status updating			−.19 (−.17)
RF × gaming			.03 (.03)
RM × electronic interactions			.08 (.09)
RM × voyeurism			−.09 (−.08)
RM × status updating			−.39 (−.22)*
RM × gaming			−.01 (−.01)
Change in R^2	.04	.09*	.11**
Final cumulative R^2			.24
F			2.84***

Except for last 3 rows, all figures are standardized (unstandardized) betas from each step in regression
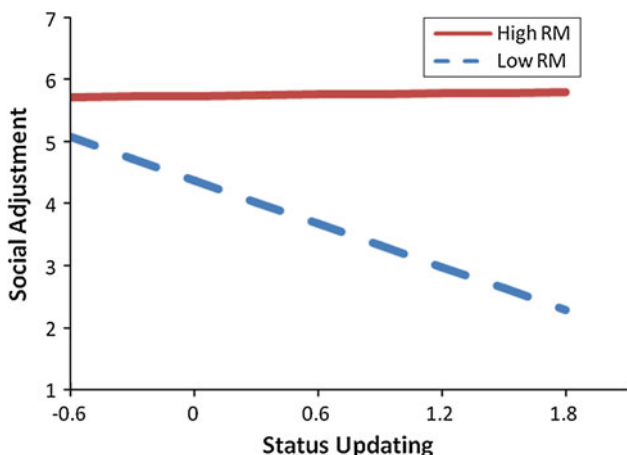
* $p < .05$; ** $p < .01$; *** $p < .001$

Fig. 2 Differences by level of motivation for relationship maintenance (RM) in the association between status updating and social adjustment
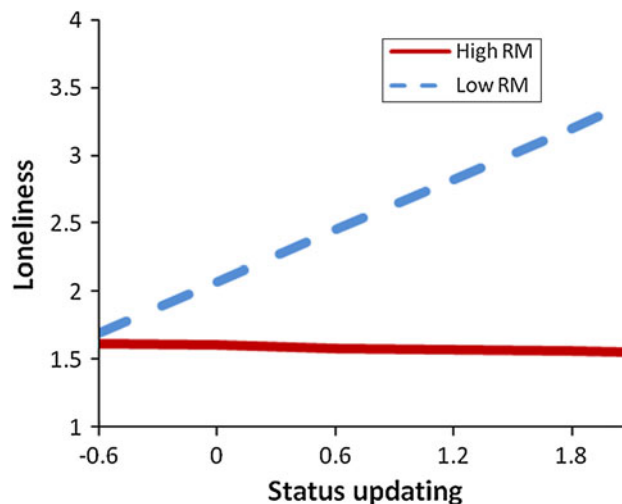

Fig. 3 Differences by level of motivation for relationship maintenance (RM) in the association between status updating and loneliness

development in the offline context ("Get in touch with someone I met at social events," "Find out more about someone I've just met"). Indeed, Ellison and her colleagues, who described interaction patterns as "online to offline" versus "offline to online" in their earlier work (2007), argued in their later publication (2011) that researchers should move beyond the dichotomy. For today's youth, the online space has been so integrated into their offline life (Reich et al. 2012) that drawing a line between online and offline relationships may not be as applicable as before.

Although statistically significant for only two of the four activity categories (i.e., electronic interactions and status updating), differences by college year displayed a consistent pattern in which freshmen had higher Facebook activity scores than seniors, with sophomores and juniors scoring between these two extremes. With data from only one time point, we cannot discern whether this was more of a developmental or cohort effect. Freshmen's high scores could stem from their transition to the new social context, which precipitated high Facebook activity to assist in reorganizing the social network. The challenge of maintaining pre-college friendships, along with concerns about losing connections with these peers (Oswald and Clark 2003; Paul and Brier 2001), may make electronic interactions especially appealing for college freshmen. Electronic interaction on Facebook also is considered appropriate for interacting with new acquaintances because of its nonintrusive nature (Yang and Brown 2009), making it particularly adaptive for freshmen who are in urgent need of establishing new social ties. Status updating has been found to be a more frequent activity among younger than older adolescents (Reich 2010) probably because it helps to communicate activities to existing friends and display

interests or lifestyle to potential new friends. It is also possible, however, that as Facebook use has expanded over time and extended to younger age groups, successive cohorts of college freshmen display more active use of social networking sites. Longitudinal studies could help to clarify this issue, but media use among adolescents has been changing so rapidly that it is difficult to keep current with media patterns and still maintain the integrity of a multi-year study.

Motives, Activities, and Social Adjustment

Our primary concern in this study was the connection between motives and activities concerning Facebook use and college students' social adjustment. After controlling for the effects of gender, year in college, and Facebook activities, we found that both motives were associated with college students' adjustment. The more students were motivated to pursue new relationships through Facebook, the worse their score was on the social adjustment measure, and the higher their sense of loneliness was. At first glance, this finding may seem to contradict literature on new peer relationships and college adjustment (Braxton et al. 1997; Buote et al. 2007; Cutrona 1982; Swenson et al. 2008; Tinto 1975, 1993). On further reflection, it actually shows that motives and activities are two different constructs. Whereas actual interaction with peers is beneficial for students' adjustment, simply longing to have such connections is not. In fact, this particular motive may suggest a dependence on the Internet to initiate relationships because of difficulties in freely expressing oneself to new associates in face-to-face contexts (Peter et al. 2006; Tosun 2012).

The more our study participants were inclined to use Facebook to maintain and nurture existing relationships, the better their social adjustment was, and the lower score they reported on the loneliness scale. Students high in social skills who already have an active and supportive social network may be inclined to harness social networking sites in the service of their existing network. Reflecting the "rich get richer" hypothesis (Kraut et al. 2002), their better performance on the adjustment measures may be the cause rather than the consequence of their inclination to regard Facebook as a tool for relationship maintenance.

Two Facebook activities were associated with the psychosocial outcomes. More frequent engagement in electronic interactions was associated with better social adjustment and a lower level of loneliness. These results suggest that findings based on Tinto (1975, 1993) theory, indicating that peer interaction facilitates college students' social integration (Braxton et al. 1997; Buote et al. 2007; Hays and Oxley 1986), can be extended beyond face-to-face to electronic interactions. The findings are also in line

with the argument that effective use of social networking sites for peer connections foster college students' adaptation (Kalpidou et al. 2011). Electronic interactions probably generated more social capital and perceived social support, which have been found to predict subjective well-being (Kim and Lee 2011). While earlier theorists such as Braxton and McClendon (2001/2002) tended to discuss improving students' social integration by focusing on direct, on-campus peer interactions, our findings suggest an additional venue to achieve the goal. On the other hand, a competing explanation, based on the finding that electronic interactions on Facebook usually take place among close friends (Manago et al. 2012), is that the more frequent engagement in electronic interactions simply reflected students' pre-existing social network characteristics. Having more close associates might be the underlying reason for better adjustment and lower loneliness. This, again, requires longitudinal research to clarify the direction of the association.

Another Facebook activity, status updating, was related to poor social adjustment and higher levels of loneliness. Recent studies have indicated that emotion and frustration venting are among the most frequent uses of status updating on Facebook (Manago et al. 2012), and that references to depressive symptoms are common in college students' Facebook status updates (Moreno et al. 2011). Revealing such negative sides about oneself, however, leads to lower social attractiveness (Forest and Wood 2012). The negative association between status updating and social adjustment may have reflected both the students' psychological states and lowered likability in response to the negative posts.

The connection between status updating and the adjustment measures, however, was moderated by the motive of relationship maintenance. Status updating was associated negatively with social adjustment and positively with loneliness only for those who were less motivated to use Facebook to maintain existing relationships. Status messages posted by people motivated to maintain relationships through Facebook may be qualitatively different from those posted by people low on this motive. Instead of overwhelming audiences with their emotional statements, students interested in using Facebook for relationship maintenance may post more messages about their whereabouts and activities, the second most frequent use of status feature reported by college students (Manago et al. 2012). Such neutral topics are not harmful to one's likability and have the potential to generate pleasant interactions, such as "What place is it? Sounds like you had a great time!" Future research can explore whether the content of status messages indeed explains how the motive of relationship maintenance counters the negative effect of status updating.

In sum, the findings suggest that different Facebook activities have different implications for college students' psychosocial well-being. When exploring young people's use of social networking sites, researchers should investigate specific activities instead of simply measuring the amount of time spent on these sites. Scholars also should attend more to motives for using Facebook, given our findings that motives have a unique contribution to late adolescents' social adjustment, above and beyond Facebook activities. Finally, the findings support the notion of a close connection between motives and activities, but rather than indicating that motives compel certain activities, the results of this study suggest that motives condition the associations between activities and psychosocial outcomes. Moving from a simple linear model (specific motive engendering a closely related action, affecting an outcome) to this more interactive model should assist investigators in explaining the complex personal and social dynamics that underlie adolescents' use of social networking sites as a means to (re)organize their social networks.

Limitations

In interpreting findings from this study, several limitations must be considered. First, because the data were derived from a single time point, the direction of significant associations cannot be determined. We have speculated about directions, but longitudinal studies are required to test out these speculations. Second, as Braxton and colleagues (1997, 1999) have cautioned, to assure the reliability of findings on college adjustment and retention, replications in different types of colleges and universities are required. Though well balanced by gender and year in school, the sample for this study (like most other investigations of college students' use of social networking sites) was derived from a single context (one large state university). The size and homogeneity of a school's student body may be instrumental in shaping students' adjustment to the new social setting in general and their use of the sites in particular. The role of the social context in shaping Facebook use and fostering or inhibiting social adjustment has yet to be considered carefully. Third, the accuracy of students' self report of their Facebook activity engagement may be threatened by recall errors. Direct examination by researchers of a student's Facebook page activity is a more reliable approach, but it raises ethical issues about confidentiality that may be a concern to some Institutional Review Boards. Finally, the findings underscore the need for continued refinement of measures of motives for and activities depicting Facebook use. Secondary motives such as entertainment and enhancing one's reputation may occur too sporadically or may require more extensive sets of items to emerge reliably from factor analyses. Scholars also need to discern the appropriate metric for measuring self-presentation activities, considering both the infrequent and sporadic nature of such behavior.

Contributions and Conclusions

As Facebook has grown in popularity among college students and younger adolescents in the U.S., it has come under closer scrutiny by scholars. Yet, there has been little effort to date to derive a comprehensive assessment of motives and activities underlying its use on college campuses. Our study builds on the work of Sheldon (2008) and others to identify and measure the major motives underlying use of social networking sites, then connect patterns of Facebook use to students' social adjustment. We provide a clearer distinction between motives and activities and a more careful assessment of the complex ways in which motives may condition the association between patterns of Facebook use and adjustment in college.

Our study points to two directions for future research. First, we investigated Facebook use at a critical developmental juncture for adolescents: the transition to a new social environment (residential college) that requires extensive restructuring of the social network and nurture of new relationships. Insights from this study apply specifically to this context. Their applicability in other stages of adolescence or other social circumstances (e.g., commuter college environments) must be considered in future research. Second, like other interactive Internet channels, Facebook and its social networking site competitors are organic tools that change in structure and function over time. The challenge for scholars is to keep pace with the changing nature and functions of social networking sites as they map their contributions to late adolescents' social development. By carefully designing research that takes into account the evolution of the platform and testing it out in different developmental and social settings, researchers will gain a more comprehensive understanding of the psychosocial impact of social networking sites.

Appendix

Motive Items

a. To avoid drifting apart from the friends I knew before college*
b. Connect with someone I've met since college
c. To know what's going on in others' lives*
d. It's enjoyable
e. To let others know more about me*
f. To communicate with my romantic partner*
g. Develop a romantic relationship
h. To see which of the people I know joined Facebook*
i. Get in touch with someone I met at social events
j. It's entertaining*
k. Check out someone I might want to know better
l. Know who is friends with whom
m. Find more interesting people than in real life
n. Find out more about someone I've just met
o. Get information about social events*
p. Keep in touch with my friends
q. Meet new friends
r. Stay connected with my college friends
s. Present myself to others in the way I want them to see me
t. Get through to someone who is hard to reach*

Note. Items with the asterisk (*) were not retained.

Activity Items

a. Posted on other people's walls
b. Checked out people's walls without leaving a message
c. Sent an inbox message
d. Commented on others' photos
e. Changed your profile photo*
f. Uploaded new photos*
g. Checked out people's photos without leaving comments
h. Updated your "what's on your mind?"
i. Commented on others' "what's on your mind?"
j. Super-poked others*
k. Checked out news feed
l. *Facebook* Chatted with others
m. Became a fan of someone/something*
n. Posted a note on your profile*
o. Joined a group*
p. Posted a link*
q. Replied to others' comments on your profile photo, new photos, fan status, "what's on your mind" status, group status, notes, and links
r. Checked out people's notes, links, and various status without leaving comments

s. Played games on Facebook
t. Took quizzes on Facebook*

Note. Items with the asterisk (*) were excluded from regression analyses.

References

Antheunis, M. L., Valkenburg, P. M., & Peter, J. (2010). Getting acquainted through social network sites: Testing a model of online uncertainty reduction and social attraction. *Computer in Human Behavior, 26*, 100–109.

Back, M. D., Stopfer, J. M., Vazire, S., Gaddis, S., Schmukle, S. C., Egloff, B., et al. (2010). Facebook profiles reflect actual personality, not self-idealization. *Psychological Science, 21*(3), 372–374.

Baker, R. W., & Siryk, B. (1989). The student adaptation to college questionnaire. http://portal.wpspublish.com/pdf/sacq.pdf. Accessed 20 Sept 2012.

Bell, N. J., Wieling, E., & Watson, W. (2007). Narrative processes of identity construction: Micro indicators of developmental patterns following transition to university. *Identity: An International Journal of Theory and Research, 7*(1), 1–26.

Blais, J. J., Craig, W. M., Pepler, D., & Connolly, J. (2008). Adolescents online: The importance of Internet activity choices to salient relationships. *Journal of Youth Adolescence, 37*, 522–536.

boyd, d. (2007). Why youth (heart) social network sites: The role of networked publics in teenage social life. In D. Buckingham (Ed.), *McArthur foundation series on digital learning—youth, identity, and digital media Volume* (pp. 119–142). Cambridge, MA: MIT Press.

Braxton, J. M. (1999). Theory elaboration and research development: Toward a fuller understanding of college student retention. *Journal of College Student Retention, 1*(2), 93–97.

Braxton, J. M., & McClendon, S. A. (2001/2002). The fostering of social integration and retention through institutional practice. *Journal of College Student Retention, 3*(1), 57–71.

Braxton, J. M., Sullivan, A. S., & Johnson, R. M. (1997). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed.), *Higher education: A handbook of theory and research* (Vol. 12, pp. 107–164). New York: Agathon Press.

Brenner, J. (2012). *Pew Internet: Social networking (full detail)*. Washington, D. C.: Pew Research Center. http://www.pewinternet.org/Commentary/2012/March/Pew-Internet-Social-Networking-full-detail.aspx. Accessed 20 Sept 2012.

Buote, V. M., Pancer, S. M., Pratt, M. W., Adams, G., Birnie-Lefcovitch, S., Polivy, J., et al. (2007). The importance of friends: Friendship and adjustment among 1-year university students. *Journal of Adolescent Research, 22*, 665–689.

Chan, D. K.-S., & Cheng, G. H.-L. (2004). A comparison of offline and online friendship quality at different stages of relationship development. *Journal of Social and Personal Relationships, 21*(3), 305–320.

Chow, K., & Healey, M. (2008). Place attachment and place identity: First-year undergraduates making the transition from home to university. *Journal of Environmental Psychology, 28*(4), 362–372.

Cummings, J. N., Lee, J. B., & Kraut, R. (2006). Communication technology and friendship during the transition from high school to college. In R. Kraut, M. Brynin, & S. Kiesler (Eds.), *Computers, phones, and the internet: Domesticating information*

technology (pp. 265–278). New York, NY: Oxford University Press.

Cutrona, C. (1982). Transition to college: Loneliness and the process of social adjustment. In L. A. Peplau & D. Perlman (Eds.), *Loneliness: A source-book of current theory, research, and therapy* (pp. 291–309). New York: Wiley-Interscience.

Davies, J. (2012). Facework on Facebook as a new literacy practice. *Computers & Education, 59*, 19–29.

DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the big five. *Journal of Personality and Social Psychology, 93*(5), 880–896.

Ellison, N., Heino, R., & Gibbs, J. (2006). Managing impressions online: Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication, 11*(2), 415–441.

Ellison, N., 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*(6), 873–892.

Erikson, E. (1959). *Identity and the life cycle*. New York: W. W. Norton.

Facebook.com. *Key facts.* http://newsroom.fb.com/content/default.aspx?NewsAreaId=22. Accessed 20 Sept 2012.

Forest, A. L., & Wood, J. V. (2012). When social networking is not working: Individuals with low self-esteem recognize but do not reap the benefits of self-disclosure on Facebook. *Psychological Science, 23*(3), 295–302.

Gibbs, J. L., Ellison, N. B., & Heino, R. D. (2006). Self-presentation in online personals: The role of anticipated future interaction, self-disclosure, and perceived success in internet dating. *Communication Research, 33*(2), 152–177.

Gosling, S. D., Augustine, A. A., Vazire, S., Holtzman, N., & Gaddis, S. (2011). Manifestations of personality in online social networks: Self-reported facebook-related behaviors and observable profile information. *Cyberpsychology, Behavior, and Social Networking, 14*(9), 483–488.

Hays, R. B., & Oxley, D. (1986). Social network development and functioning during a life transition. *Journal of Personality Social Psychology, 50*(2), 305–313.

Ho, S. M. Y., & Lee, T. M. C. (2001). Computer usage and its relationship with adolescent lifestyle in Hong Kong. *Journal of Adolescent Health, 29*, 258–266.

Hum, N. J., Chamberlin, P. E., Hambright, B. L., Portwood, A. C., Schat, A. C., & Bevan, J. L. (2011). A picture is worth a thousand words: A content analysis of facebook profile photographs. *Computers in Human Behavior, 27*(5), 1828–1833.

Hussong, A. M., Galloway, C. A., & Feagans, L. A. (2005). Coping motives as a moderator of daily mood-drinking covariation. *Journal of Studies on Alcohol, 66*(3), 344–353.

Joinson, A. N. (2008). Looking at, looking up or keeping up with people? Motives and use of Facebook. *Proceedings of the 2008 CHI* (pp. 1027–1036). New York, NY: ACM Press.

Jones, S. (2003). *Let the games begin: Gaming technology and entertainment among college students.* Washington, D. C.: PEW Research Center. http://www.pewinternet.org/∼/media//Files/Reports/2003/PIP_College_Gaming_Reporta.pdf.pdf. Accessed 20 Sept 2012.

Junco, R. (2012a). The relationship between frequency of facebook use, participation in facebook activities, and student engagement. *Computers & Education, 58*(1), 162–171.

Junco, R. (2012b). Too much face and not enough books: The relationship between multiple indices of facebook use and academic performance. *Computers in Human Behavior, 28*(1), 187–198.

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*(4), 183–189.

Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of communication by the individual. In J. G. Blumler & E. Katz (Eds.), *The uses of mass communications: Current perspectives on gratifications research* (pp. 19–32). Beverly Hills, CA: Sage.

Kim, J., & Lee, J.-E. R. (2011). The Facebook paths to happiness: Effects of the number of Facebook friends and self-presentation on subjective well-being. *CyberPsychology, Behavior, and Social Networking, 14*(6), 359–364.

Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet paradox revisited. *Journal of Social Issues, 58*(1), 49–74.

Lahey, B. B., Applegate, B., Waldman, I. D., Loft, J. D., Hankin, B. L., & Rick, J. (2004). The structure of child and adolescent psychopathology: Generating new hypotheses. *Journal of Abnormal Psychology, 113*(3), 358–385.

Lampe, C., Ellison, N., & Steinfield, C. (2006). A Face(book) in the crowd: Social searching vs. social browsing. *Proceedings of the 2006 20th anniversary conference on computer supported cooperative work* (pp. 167–170). New York, NY: ACM Press.

Ledesma, R. D., & Valero-Mora, P. (2007). Determining the number of factors to retain in EFA: An easy-to-use computer program for carrying out Parallel Analysis. *Practical Assessment, Research & Evaluation, 12*(2). http://pareonline.net/pdf/v12n2.pdf. Accessed 20 Sept 2012.

Lenhart, A., Kahne, J., Middaugh, E., Macgill, A. R., Evans, C., & Vitak, J. (2008). *Teens, video games, and civics*. Washington, D. C.: PEW Research Center. http://www.pewinternet.org/∼/media//Files/Reports/2008/PIP_Teens_Games_and_Civics_Report_FINAL.pdf.pdf. Accessed 20 Sept 2012.

Lenhart, A., & Madden, M. (2007). *Social networking websites and teens: An overview*. Washington, D. C.: PEW Research Center. http://www.pewinternet.org/PPF/r/198/report_display.asp. Accessed 20 Sept 2012.

Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). *Social media & mobile Internet use among teens and young adults*. Washington, D. C.: PEW Research Center. http://www.pewinternet.org/∼/media//Files/Reports/2010/PIP_Social_Media_and_Young_Adults_Report_Final_with_toplines.pdf. Accessed 20 Sept 2012.

Manago, A. M., Graham, M. B., Greenfield, P. M., & Salimkhan, G. (2008). Self-presentation and gender on MySpace. *Journal of Applied Developmental Psychology, 29*, 446–458.

Manago, A. M., Taylor, T., & Greenfield, P. M. (2012). Me and my 400 friends: The anatomy of college students' facebook networks, their communication patterns, and well-being. *Developmental Psychology, 48*(2), 369–380.

Mesch, G. S., & Talmud, I. (2010). *Wired youth: The social world of adolescence in the information age*. New York, NY: Routledge/Taylor & Francis Group.

Moreno, M. A., Jelenchick, L. A., Egan, K. G., Cox, E., Young, H., Gannon, K. E., et al. (2011). Feeling bad on Facebook: Depression disclosure by college students on a social networking site. *Depression and Anxiety, 28*(6), 447–455.

Muthén, L. K., & Muthén, B. O. (2010). *Mplus user's guide* (6th ed.). Los Angeles: Muthén & Muthén.

O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments, & Computers, 32*(3), 396–402.

Oswald, D. L., & Clark, E. M. (2003). Best friends forever?: High school best friendships and the transition to college. *Personal Relationships, 10*, 187–196.

Park, N., Kee, K., & Valenzuela, S. (2009). Being immersed in social networking environment: Facebook groups, uses and gratifications, and social outcomes. *CyberPsychology & Behavior, 12*(6), 729–733.

Patil, V. H., Singh, S. N., Mishra, S., & Donavan, D. T. (2008). Efficient theory development and factor retention criteria: Abandon the 'eigenvalue greater than one' criterion. *Journal of Business Research, 61*, 162–170.

Paul, E., & Brier, S. (2001). Friendsickness in the transition to college: Precollege predictors and college adjustment correlates. *Journal of Counseling and Development, 79*, 77–89.

Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. L. (2009). College students' social networking experiences on Facebook. *Journal of Applied Developmental Psychology, 30*, 227–238.

Peter, J., Valkenburg, P. M., & Schouten, A. (2006). Characteristics and motives of adolescents talking with strangers on the Internet. *CyberPsychology & Behavior, 9*(5), 526–530.

Pornsakulvanich, V., Haridakis, P., & Rubin, A. M. (2008). The influence of dispositions and Internet motivation on online communication satisfaction and relationship closeness. *Computers in Human Behavior, 24*, 2292–2310.

Reich, S. M. (2010). Adolescents' sense of community on MySpace and Facebook: A mixed-methods approach. *Journal of Community Psychology, 38*(6), 688–705.

Reich, S. M., Subrahmanyam, K., & Espinoza, G. (2012). Friending, IMing, and hanging out face-to-face: Overlap in adolescents' offline and online social networks. *Developmental Psychology, 48*(2), 356–368.

Russell, D. W. (1996). UCLA Loneliness Scale (version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment, 66*(1), 20–40.

Scanlon, L., Rowling, L., & Weber, Z. (2007). 'You don't have to like an identity…you are just lost in a crowd': Forming a student identity in the first-year transition to university. *Journal of Youth Studies, 10*(2), 223–241.

Sheldon, P. (2008). The relationship between unwillingness-to-communicate and students' Facebook use. *Journal of Media Psychology, 20*(2), 67–75.

Steinfield, 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*(6), 434–445.

Subrahmanyam, K., Reich, S. M., Waechter, N., & Espinoza, G. (2008). Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology, 29*, 420–433.

Swenson, L. M., Nordstrom, A., & Hiester, M. (2008). The role of peer relationships in adjustment to college. *Journal of College Student Development, 49*(6), 551–567.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89–125.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.

Toma, C., & Hancock, J. T. (2011). A new twist on love's labor: Self-presentation in online dating profiles. In K. B. Wright & L. M. Webb (Eds.), *Computer-mediated communication in personal relationships* (pp. 41–55). New York: Peter Lang Publishing.

Tosun, L. P. (2012). Motives for Facebook use and expressing "true self" on the Internet. *Computers in Human Behavior, 28*, 1510–1517.

Urista, M. A., Dong, Q., & Day, K. (2009). Explaining why young adults use MySpace and Facebook through uses and gratifications theory. *Human Communication, 12*(2), 215–229.

Valkenburg, P. M., & Peter, J. (2007). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental Psychology, 43*(2), 267–277.

Valkenburg, P. M., & Peter, J. (2009). The effects of instant messaging on the quality of adolescents' existing friendships: A longitudinal study. *Journal of Communication, 59*, 79–97.

Weiser, E. B. (2001). The functions of Internet use and their social and psychological consequences. *CyberPsychology & Behavior, 4*(6), 723–742.

Yang, C.-c., & Brown, B. B. (2009). From Facebook to cell calls: Layers of electronic intimacy in college students' peer relations. In B. B. Brown & P. M. Greenfield (Chairs), *Electronic connections: Impact of communication media on adolescents' peer relationships. Symposium presented at the biennial meetings of the Society for Research in Child Development*, Denver.

Ye, J. (2006). Traditional and online support networks in the cross-cultural adaptation of Chinese international students in the United States. *Journal of Computer-Mediated Communication, 11*, 863–876.

Zhang, F., Shen, M., Xu, M., Zhu, H., & Zhou, N. (2006). A structural equation modeling of motives, behaviors of Internet use and related social-psychological health. *Acta Psychologica Sinica, 38*(3), 407–413.

Zhao, S., Grasmuck, S., & Martin, J. (2008). Identity construction on Facebook: Digital empowerment in anchored relationships. *Computers in Human Behavior, 24*, 1816–1836.

Author Biographies

Chia-chen Yang is a doctoral student in the Department of Educational Psychology at the University of Wisconsin-Madison. Her research interests focus on adolescents' use of social media and its association with youths' social development and psychological well-being.

B. Bradford Brown is a Professor of Human Development and Educational Psychology at the University of Wisconsin-Madison. He has studied various aspects of adolescent peer relations, including early adolescent peer group dynamics, peer influence processes, and more recently, social adjustment during the transition to college.