



Online and offline social networks: Use of social networking sites by emerging adults[☆]

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ABSTRACT

Social networking sites (e.g., MySpace and Facebook) are popular online communication forms among adolescents and emerging adults. Yet little is known about young people's activities on these sites and how their networks of "friends" relate to their other online (e.g., instant messaging) and offline networks. In this study, college students responded, in person and online, to questions about their online activities and closest friends in three contexts: social networking sites, instant messaging, and face-to-face. Results showed that participants often used the Internet, especially social networking sites, to connect and reconnect with friends and family members. Hence, there was overlap between participants' online and offline networks. However, the overlap was imperfect; the pattern suggested that emerging adults may use different online contexts to strengthen different aspects of their offline connections. Information from this survey is relevant to concerns about young people's life online.

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1. Introduction

Over the past decade, the communication uses of the Internet have become a very important part of young people's lives (e.g., Gemmill & Peterson, 2006; Jones, 2002; Lenhart & Madden, 2007; Subrahmanyam & Greenfield, 2008). Social networking sites are the latest online communication tool that allows users to create a public or semi-public profile, create and view their own as well as other users' online social networks (boyd & Ellison, 2007a), and interact with people in their networks. Sites such as MySpace and Facebook have over 100 million users between them, many of them adolescents and emerging adults. Although research on young people's use of social networking sites is emerging (e.g., boyd & Ellison, 2007b; Ellison, Steinfield, & Lampe, 2007; Valkenburg, Peter, & Schouten, 2006), questions remain regarding exactly what young people do on these sites, whom they interact with on them, and how their social networking site use relates to their other online (such as instant messaging) and offline activities. Furthermore, because of the potential to interact with known others as well as meet and befriend strangers on these sites, it is important to study the nature of their online social networks in order to get an understanding of how such online communication relates to young people's development. The goals of the present study were to explore emerging adults' use of social networking sites for communication and examine the relation between their online and offline social networks.

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1.1. Online communication in development

The communication forums of the Internet are many and varied and include applications such as instant messaging, email, and chat rooms as well as Internet sites such as blogs, social networking sites, photo and video sharing sites such as YouTube, and virtual reality environments such as Second Life. Adolescents (Boneva, Quinn, Kraut, Kiesler, & Shklovski, 2006; Gross, 2004) and young adults in college (Clark, Frith, & Demi, 2004; Gemmill & Peterson, 2006; Jones, 2002) are heavy users of the Internet relative to the general population, and use it extensively for communication with peers.

To understand the role of online communication in young people's development we turn to the theoretical proposal that users of interactive online forums such as chat rooms, blogs, and social networking sites are co-constructing their online environments (Subrahmanyam & Greenfield, 2008; Subrahmanyam, Šmahel, & Greenfield, 2006). A major implication of the co-construction model is that online and offline worlds are psychologically connected. Consequently, we expect that users bring people and issues from their offline worlds into their online ones. This proposal is in contrast to the view that the Internet allows users to present online selves that are separate and different from their offline ones (e.g., Byam, 1995; McKenna & Bargh, 2000; Turkle, 1995). Developmental research on young people's online behavior supports the claim that online and offline worlds may indeed be connected.

1.1.1. Connectedness between adolescents' online and offline worlds

Research suggests that adolescents use instant messaging mainly to communicate with offline friends about events in school, gossip, and the like (Boneva et al., 2006; Gross, Juvonen, & Gable, 2002). In another study of preadolescent and adolescent youth in the Netherlands, 80% reported using the Internet to maintain existing friendship networks (Valkenburg & Peter, 2007). There is also a growing body of research regarding cyber bullying that has highlighted the connections between online and offline worlds. For example, Ybarra, Mitchell, Wolak, and Finkelhor (2006) found that nearly half of the adolescent Internet users in their study knew the online bully in person before the cyber bullying incident occurred. With regard to social networking sites, teens, particularly girls, reported using the sites to keep in contact with peers from their offline lives, either to make plans with friends that they see often or to keep in touch with friends they rarely see (Lenhart & Madden, 2007). The girls in this study also reported using social networking sites to reinforce pre-existing friendships whereas boys reported using them to flirt and make new friends.

Adolescents' developmental concerns include formulating identity, adjusting to sexuality, and establishing intimate relations with peers and romantic partners (Brown, 2004; Erikson, 1959; Weinstein & Rosen, 1991), and recent research indicates that they use online contexts in the service of these important concerns. Two studies of online teen chat rooms that analyzed 12,000 utterances from 1100 participants found that identity presentation (Subrahmanyam et al., 2006), partner selection (Šmahel & Subrahmanyam, 2007), and sexual comments (Subrahmanyam et al., 2006) were the most frequent kinds of utterances in chat rooms. A qualitative study showed that American as well as Austrian teenagers used online chat rooms for the development of their gender and ethnic identity (Waechter, 2005, 2006). A similar mirroring of adolescent developmental issues was found in a study of another online forum, weblogs that were written by adolescents (Subrahmanyam, Garcia, Harsono, Lin, & Lipana, *in press*). Adolescent bloggers adopted usernames and userpictures for self-presentation and used their blog entries for self-disclosure about their peers and everyday life. They also used their blog entries to create narratives about themselves and to reflect about the people and events in their lives. Viewing users' online worlds as psychologically continuous with their offline ones enables us to start teasing apart the relation between online communication and development. Much of the research in support of this view has been done on adolescents, and it is an open question whether such connectedness is present among emerging adults who are in college.

1.1.2. Connectedness between emerging adults' online and offline worlds

Prior studies as well as recent anecdotal reports indicate that online and offline contexts may be connected among emerging adults as well. Anderson (2001) suggested that among college students, excessive Internet use might be related to developmental issues such as establishing new relationships and identity formation. In a longitudinal study of undergraduate Japanese students' face-to-face (FTF) social networks and mobile/cell phone text message (MPTM) mediated social networks, Igarashi, Takai, and Yoshida (2005) reported that at two points during the year, there was mutuality between the two networks: 94% of the time at Time 1 and 98% of the time at Time 2, persons nominated as a friend in participants' MPTM social networks were also found on their FTF social networks. Analysis of measures of relationship intimacy led Igarashi et al. to conclude that even at the beginning of the academic year, participants used MPTM to communicate with intimate FTF friends.

Another indication that emerging adults' online and offline worlds are connected comes from a qualitative analysis of autobiographical essays written by young adult college students (McMillan & Morrison, 2008). The participants in this study did not use the Internet for identity exploration but instead used it to solidify their offline identities. Further, the authors concluded that participants used their online virtual communities to sustain their "real" communities that existed offline, such as using online tools to plan social events with their offline friends. Also relevant is a recent Los Angeles Times report that a prolific 24-year-old graffiti tagger called "Buket" was arrested after the police began investigating him when videos of his vandalism were posted on YouTube and tagger-related blogs (Blankstein, 2008). The point here is that the tagger, a university graduate with an art degree, used the online context to showcase his offline exploits. Next, we present the unique developmental challenges that emerging adults face, followed by research relevant to the question of connectedness in the context of social networking sites, the focus of this paper.

1.2. Developmental concerns during emerging adulthood

Arnett (2004) coined the term emerging adulthood to capture the unique transitional period in human development that occurs between late adolescence and young adulthood in cultural contexts where marriage and parenthood are delayed until the late twenties or beyond. According to him, it is a “time of exploration and instability, a self-focused age, and an age of possibilities” (p. 21). Two important developmental challenges faced by emerging adults include that of identity achievement and the development of intimacy. Although the search for identity begins during adolescence (Erikson, 1959; Kroger, 2003), emerging adults, particularly those in the western world, are still grappling with some aspects of their identities, such as their vocational/career, religious, and ethnic identities (Cote, 2006). In addition, they seek to establish intimacy via interconnections with friends and romantic partners, as well as relatives and family members. Non-romantic interconnections with others are the developmental concern that is the focus of this paper. Friends are important to emerging adults, particularly for those not in a romantic relationship (Kalmijn, 2003). Research suggests that self-disclosure is an important component of emerging adults' feelings of intimacy in friendships and intimate behaviors with friends include “emotional support, trust and loyalty, sharing activities, and offers of instrumental support” (Radmacher & Azmitia, 2006, p. 429). There is also evidence that support from such intimate relationships may serve as a buffer against stress for college students (Cohen & Hoberman, 1983). Students appear to use technology to obtain social support (LaRose, Eastin, & Gregg, 2001), and greater use of online communication tools such as email and chat room/instant messaging is related to reduced depressive symptoms (Morgan & Cotten, 2003). Thus, the evidence to date indicates that like adolescents, emerging adults may also use online communication tools in the service of important offline issues, such as the need for interconnections with others and raises the possibility that their online and offline social networks overlap.

1.3. Emerging adults' use of social networking sites for interconnection

Research on social networking sites is beginning to accumulate (boyd & Ellison, 2007b) and indicate that they may be used to bridge online and offline social networks (see boyd & Ellison, 2007a for a review of prior work on this issue). Relevant to us is research that has examined college students' use of social networking sites to form and maintain interconnections with their offline peers. For instance, in a survey of all incoming first year students at a major Midwestern university, Lampe, Ellison, and Steinfield (2007) found that students most often used Facebook for social purposes – to stay in touch with their friends from high school as well as to form interconnections with people they had met offline such as in their dormitories or in class. Similarly Ellison et al. (2007) found that college students used Facebook to maintain or bolster existing offline connections rather than to form new relationships. Such ties appear to have some positive benefits and greater Facebook use was associated with more perceived social capital. Facebook use was related to all three kinds of perceived social capital – bridging social capital, which consists of the resources that stem from one's weaker ties, bonding social capital, which consists of the resources that stem from one's more intimate ties, and maintained social capital, which consists of the resources that stem from one's prior ties.

Although these studies are beginning to show that emerging adults use social networking sites to connect with the people in their offline worlds, questions remain as to how such use is integrated into their offline lives. For instance, what do emerging adults do on social networking sites and what are their reasons for using these sites? What is the nature of their network of friends on social networking sites and how do they decide whom to add or remove from their online network? What are the perceived effects of these online interconnections on their relationships? Finally, it is important to note that the finding that emerging adults use social networking sites to interconnect with people from their offline lives is based on self-reports from participants. To date no study has asked users to list people from their face-to-face and social networking site networks and compared them. As of yet, we do not know the actual relation between college students' networks on social networking sites and their other online (e.g., instant messaging) as well as offline networks – are the persons they interact with frequently on social networking sites the same as those that they interact with frequently in face-to-face contexts as well as in another online context, instant messaging, or are they different?

The purpose of the study was to determine what emerging adults do online, whom they interact with in cyberspace, and how these online interactions relate to their offline relationships. Specifically, we expected to find that emerging adults, like many adolescents, are daily users of the Internet and that their preferred uses would be social activities (e.g., participants would be more likely to spend time emailing and on social networking sites than surfing the web or downloading music). In addition to expecting high use of social networking sites, we anticipated that the most popular activities on these sites would be social in nature as well (e.g., reading and posting comments would be more popular than checking out music links or joining new groups). Based on our thesis that emerging adults' online and offline worlds are connected, we predicted that there would be a high degree of overlap between users' top online and offline friends. Although we expected overlap between online and offline networks, we predicted that more intensive users of the Internet would have less overlap between their online and offline networks. In summary, we predicted that emerging adults would use social networking sites to promote social interaction and reinforce important offline relationships, demonstrating that for them, technology is a tool for supporting interpersonal connections.

1.4. The present study

We addressed the above questions using a survey study of emerging adults in a large urban university. In order to determine what emerging adults did online, how much time they spent on various online activities, especially on social networking sites, and how their online and offline social networks related to one another, we used an offline paper-and-pencil survey as well as an online

survey to ask participants general questions about themselves, their offline and online activities, and their social networking site use. In addition, they were asked more detailed questions regarding their social networking site use, such as their reasons for having a profile, their frequent activities on social networking sites, how they decide to add or delete friends, and their perceptions about the effects of their social networking site use on their relationships. Participants who did not use social networking sites were asked whether they perceived any effects on themselves because they do not use these sites. Participants were also asked for the names of the 10 people/friends that they interacted with the most in face-to-face settings, in instant messaging, and on social networking sites. Contingency tables ($2 \times 2 \times 2$) were then formed for each person to assess the degree of overlap between users' online (instant messaging and social networking) and offline (face-to-face) networks.

A two-step procedure was adopted with the offline and online survey. Participants first completed the paper-and-pencil survey in the laboratory, at which point they provided their email address. They were then sent an email with a link to the online survey, and were asked to complete it while viewing their social networking profile and instant messaging buddy list. Methodologically, such a two-step process has some advantages. Using an online survey enabled participants to answer detailed questions about their social networking site/instant messaging use by checking their profiles online instead of relying on their memory or making incorrect estimations, a problem encountered in previous survey studies of online activity (Subrahmanyam & Lin, 2007). The online survey also asked participants specific questions about their time use that day – how much time they spent offline, online, and on social networking sites as well as the activities that they had done on a social networking site that day. Using two different survey formats allowed us to ask respondents what they usually do online and what they actually did on a particular day. This reduced potential errors in participant's recollection of online behaviors while offline and provided confirmation of certain aspects of respondent's identity such as gender and the fact that they were emerging adults in college. Thus, we were able to collect information about participants' online behavior while they were on the Internet, but without many of the uncertainties that often accompany anonymous online surveys.

2. Method

2.1. Participants

A total of 131 participants were tested in the study. All participants were students in the Psychology participant pool at a large urban university in Los Angeles, and they received course credit for their participation. To ensure that the sample was not skewed in favor of social networking site users compared to non-users, the sign-up sheet described the study as investigating college students' use of the Internet and did not mention social networking sites or instant messaging. Twenty-one participants were dropped from the study because they were not 18 to 29 years of age or did not provide their age. In our final sample of 110 participants (55 male and 55 female), the mean age of the participants was 21.5 ($SD = 2.9$) years. The sample was diverse and the ethnic distribution of our participants reflected the diversity of Los Angeles (see Table 1 for details).

Of the 110 participants, five participants did not complete the online survey and an additional three did not fill out the information about their networks accurately (e.g., they used screen names instead of actual names when answering questions about their online friends); their data were retained for the analyses of the laboratory survey questions. Participants sometimes failed to answer a question or did so incorrectly; therefore the actual number of responses included in a particular analysis is indicated in parentheses. Although all of the 105 participants who completed the online survey provided the names of their face-to-face friends, 46 did not use instant messaging, 23 did not use social networking sites, and a very small number made the mistake

Table 1
Demographic characteristics of the sample ($N = 110$)

Category	<i>n</i> (% of sample)
Sex	
Male	55 (50)
Female	55 (50)
Ethnicity	
Latino/Hispanic (not white)	56 (51)
Asian/Asian-American	22 (20)
African-American	7 (6)
White	7 (6)
Other	15 (14)
Year in school	
Freshman	20 (19)
Sophomore	25 (24)
Junior	34 (32)
Senior	27 (25)
Religion	
Christian	72 (66)
Buddhist	7 (6)
Other	5 (4)
No religious affiliation	26 (24)

of using screen names rather than real names when providing information about their online networks. As a result, only 81 listed first and last names of online friends. As such, the analysis of network overlap was conducted on a subset of the participants ($n = 81$). There were no significant differences between the participants included in the analysis of overlap from the rest of the sample on any of the demographics, time spent online, or number of friends listed. The only differences identified, as would be expected, were that participants in the online–offline comparison had a social networking site profile and an instant messaging account.

2.2. Measures

2.2.1. Laboratory survey

The research team developed a survey that presented questions about participants' demographics and their use of social networking sites, including questions about their typical activities on these sites (e.g., edit my profile, change my top "8", write comments on other people's walls), motives for using them (e.g., stay in touch with friends, flirt, meet new people), and how they decide who to add or delete from their social networking site networks (e.g., I will add any one who sends a friend request, I will only add a person if they are a face-to-face friend). Most items asked respondents to check all answers that applied, some asked them to rank order the frequency of activities, and a few provided open-ended responses such as reasons for blocking someone from a profile or ways in which their social networking site use helped solve a conflict/problem. Participants who had social networking site profiles were asked about their perceptions regarding the effects of their SNS use on their relationships; those without profiles were asked how they felt about not having one and whether they visited social networking sites.

To map offline networks, participants were asked to list up to 10 people with whom they spend the most time. They were asked to list the first and last names of these people as well as other information about them, such as their gender, age, and place where they interacted with them the most (in school, out of school, or online). At the end of the survey, participants were informed that they would receive a link via email for the online survey and were reminded to complete the survey before they went to bed.

2.2.2. Online survey

The online survey, hosted on Survey Monkey, was developed by the research team. The questions assessed participants' offline and online time use that day (e.g., How much time did you spend: downloading music, playing online games, emailing, etc.), their social networking activities that day (e.g., What did you do when you visited MySpace/Facebook today: made a friend request, updated profile, etc.), and the people they interact with the most via instant messaging and on social networking sites (e.g., How well do you know this person?, Where do you spend the most time with this person?). As with the laboratory survey, participants were asked to list the 10 people with whom they interact with most through instant messaging (e.g., AIM, MSN, Yahoo! Messenger) and on social networking sites (e.g., MySpace, Facebook). Participants were also asked to provide additional information about these online friends such as their first and last name, age, and relationship to them. Between the laboratory and online surveys, participants provided the names of up to 30 people whom they interacted with most in online and offline contexts.

2.3. Procedure

When participants came to the laboratory, the informed consent document was first explained to them. After they signed the consent document and provided their email address, they completed the laboratory survey (20–30 min). As they left the laboratory, they were reminded that they would receive an email with a link to the online survey and were asked to complete the 15–20 minute survey that night.

2.4. Calculating the overlap between "friends"

Participants listed up to 10 people they interact with most in person, up to 10 people they interact with most on social networking sites, and up to 10 people they interact most with on instant messaging. If a person named the same 10 people in all three mediums (i.e., face-to-face, social networking sites, and instant messaging), then only 10 names were given. If there were no overlaps across these three mediums then the participant would have provided up to 30 names. On average, people named a total of 13 people with a range of 3–10 people per social medium (instant messaging, social networking site, and face-to-face).

Table 2

Contingency table created for each participant

	Face-to-face friends (FTF)			Not face-to-face friends (not FTF)		
	Do instant message (IM)	Do not instant message (no IM)		Do instant message (IM)	Do not instant message (no IM)	
Use SNSs	FTF that use SNS and IM (use all three)	FTF that use SNS but no IM	Total FTF that use SNS	Not FTF that use SNS and IM	Not FTF that use SNS but no IM (SNS only)	Total not FTF that use SNS
Do not use SNSs	FTF that do not use SNS but IM	Only FTF (do not use SNS and no IM)	Total FTF that do not use SNS	Not FTF that do not use SNS but do IM (IM only)	Not FTF that do not use SNS nor IM (0)	Total not FTF that do not use SNS
	Total FTF that IM	Total FTF that don't IM	Total FTF	Total not FTF that IM	Total not FTF that do not use SNS	Total not FTF

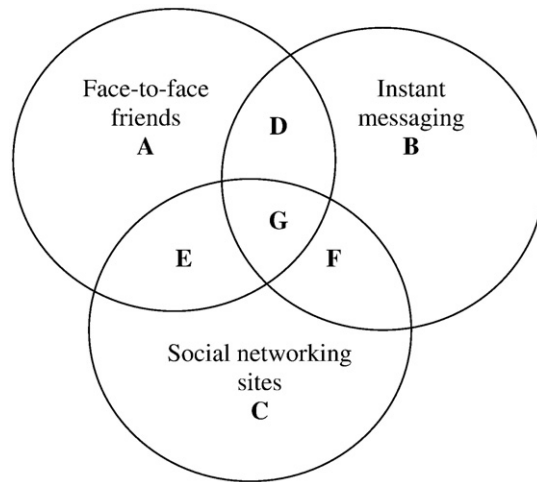


Fig. 1. Pictorial representation of the overlap between each respondent's instant messaging, social networking, and face-to-face friends.

In order to determine the degree of overlap of friends that youth interact with most online and offline, we constructed $2 \times 2 \times 2$ contingency tables for each respondent (see Table 2 for details). With these tables, we were able to calculate the percentage of overlap across the three networks (e.g., the percentage of social networking friends who are also face-to-face friends, but not instant messaging friends). The cells in each table provided an index of overlap per medium that could then be used for subsequent analyses. The Venn diagram in Fig. 1 is a pictorial representation of how each cell of the $2 \times 2 \times 2$ contingency table was calculated. For instance, the area "F" is the overlap between friends on social networking sites and instant messaging that are not face-to-face friends, whereas the areas "G + F" are the total number of friends that use instant messaging and are social network site friends (with "G" being face-to-face friends as well).

3. Results

3.1. Offline and online time use

To get a snapshot of college students' use of the Internet relative to their other activities, participants were asked on the online survey about their offline and online time use that day. Table 3 shows the percentage of respondents who reported spending different amounts of time on various offline ($n = 105$) and online activities ($n = 95$). As can be expected of college students, approximately 80% of the sample reported spending some time studying/doing schoolwork, with 29% reporting that they studied between 2 to 3 h that day. Participants reported spending little time engaging in other offline activities. For example, only 1/4 reported that they had spent any time on organized activities such as sports and about 1/3 reported spending any time that day at a job. However, the majority reported spending some time "hanging out" with friends and talking on the phone. While some played computer/video games (34%), many more participants watched television (79%). Interestingly, 91% reported going online that day, more than those who reported studying ($n = 104$). Visiting social networking sites was a popular online activity, with 63% spending some time on these sites on the day that they

Table 3
Participants' time use (%) on each offline activity ($n = 105$) and online activity ($n = 95$)

Type of activity	None	30 min or less	1 h	2–3 h	4 or more hours
<i>Offline activities</i>					
Studying/schoolwork	21	19	19	28	13
Organized activity	75	7	7	9	2
Hanging out with friends	37	15	18	18	12
Talking on the phone	17	51	16	13	3
Watching television	21	27	22	27	3
Playing computer/video games	66	8	14	8	4
Job	65	3	0	7	25
<i>Online activities</i>					
Email	8	74	15	3	0
Instant messaging	60	22	9	5	4
Blogging	73	23	3	1	0
Social networking sites	37	36	18	6	3
Gaming	89	4	4	1	2
Chat rooms	87	8	4	1	0
Web browsing	19	40	26	9	6
Downloading music	72	16	9	2	1

completed the survey ($n = 95$). Large majorities of participants also reported spending time on email (92%) and web browsing (81%) that day. In contrast, other online activities were engaged in by relatively fewer participants.

3.2. Use of social networking sites

To understand the role of social networking sites in college students' lives, we analyzed basic trends in participants' use of such sites, their typical activities on them, and their reasons for using them.

3.2.1. Trends in the use of social networking sites

The majority of the participants in our sample reported having a profile on a social networking site (86 participants or 78% of our sample) (See Table 4). Although slightly more males (82%) reported having profiles compared to females (75%), this was not a reliable difference, $\chi^2(1, N = 110) = 0.85, p > .05$. Less common was the use of instant messaging programs such as AIM, and only 56% reported using them ($n = 104$); more males (65%) used instant messaging compared to females (46%), and this was a reliable difference, $\chi^2(1, N = 104) = 3.90, p = .05$. There were no ethnic or religious group differences with regard to using instant messaging, having a social networking site profile, and the kind of social networking site (e.g., MySpace, Facebook, or Xanga) used and updated most frequently (all p 's $> .05$).

Eighty-eight percent of social networking site users reported that the profile that they updated the most often was on MySpace, 8% reported that it was on Facebook, 1% reported that it was on Xanga, YouTube, and other sites ($n = 84$). The number of profiles reported by the social networking site users ranged from one through six ($M = 1.69, SD = 1.05; Mdn = 1$) with the majority (61%) reporting having only one profile. Of the participants with a social networking site profile, most were daily users (57%; see Table 4 for details). We found a comparable pattern of social networking site use in the time use data from the online survey. Among participants who reported going online that day, prior to logging onto the online survey ($n = 95$), 63% reported going on to social networking sites, with 36% reporting that they spent 30 min or less and 3% reporting that they spent four or more hours (see Table 3).

3.2.2. Activities and reasons for using social networking sites

On the online survey, participants were asked what they had done on a social networking site that day; on the laboratory survey, they were asked to report the activities that they did most often on a social networking site. As can be seen from Fig. 2, the most common social networking activities that users did that day included reading/responding to notes/messages (77%), reading comments/posts on their profile page/wall (75%), browsing friends' pages/profiles/walls (66%), and writing comments on friends' pages/posting on other people's walls/tagging photos (54%) ($n = 35$). Participants were also asked to rank their first, second, and third most frequent activities on social networking sites (see Table 5). From Table 5, it is apparent that reading and responding to comments/posts on one's page/wall was an extremely popular activity among the participants in our sample and 60% chose it as their most frequent activity. Browsing friends' profiles/walls and sending/responding to messages were also repeatedly chosen as participants' frequent activities.

Respondents' motives for using social networking sites are shown in Fig. 3. Note that participants were asked to choose all the reasons that applied to them. Fig. 3 suggests that participants reported using social networking sites primarily for social reasons that involved people from their offline lives, such as keeping in touch with friends they do not see often (81%), because all their friends had accounts (61%), keeping in touch with relatives and family (48%), and making plans with friends they see often (35%) ($n = 86$). Social networking site users in our sample less frequently reported using social networking sites to look for new people (29%). For college students, the more popular social networking activities involved interacting with other known users rather than looking for new friends, new music, or finding groups to talk about specific issues.

Table 4
Participants' use of social networking sites and instant messaging ($n = 84$)

Category	N (% of sample)
Instant messaging	68 (62)
Social networking sites	86 (78)
Frequency of visits to social networking sites	
Open all the time	2 (2)
Several times a day	22 (26)
Once or twice per day	25 (29)
Every 2–3 days	20 (23)
Once a week	6 (7)
Less than once a week	11 (13)
Number of social networking site profiles ($M = 1.69; SD = 1.05$)	
One profile	51 (61)
Two profiles	14 (17)
Three profiles	14 (17)
Four or more profiles	4 (5)
Most updated profile	
MySpace	74 (88)
Facebook	7 (8)
Other (e.g., Xanga, YouTube)	3 (4)

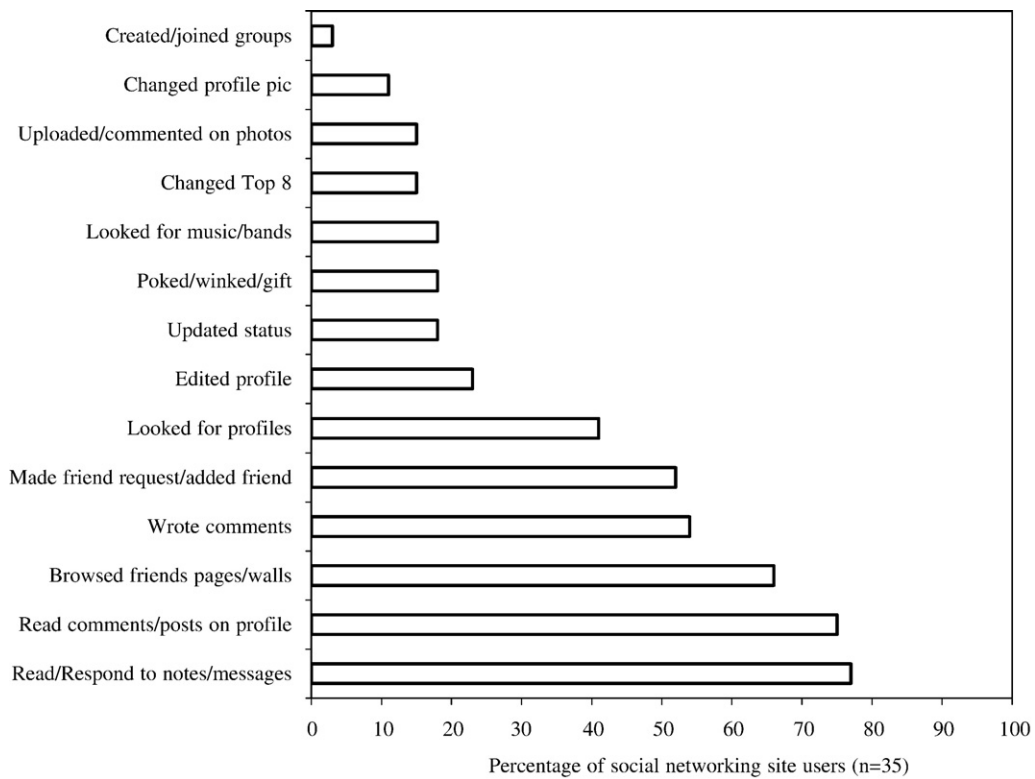


Fig. 2. Social networking site activities done that day (% participants).

3.3. Overlap between online and offline and networks

The $2 \times 2 \times 2$ contingency tables (see Table 2 for the layout) for each respondent allowed us to look at the degree of overlap between closest friends on instant messaging, social networking sites, and face-to-face contexts. By calculating the percentages of overlap we were able to control for the different numbers of people named across participants (e.g., one person named 5 instant messaging friends, 2 social networking site friends, and 8 face-to-face friends while another listed 10 friends in each medium). In order to look at the overlap between online and offline relationships, participants needed to provide first and last names for face-to-face friends and online friends (instant messaging, social networking site or both). In total, 81 people listed first and last names of online (social networking site, instant messaging or both) and offline friends. Of these, 70 provided names for instant messaging friends and 73 provided names for social networking site friends. Fifty-four people listed names for both social networking site and instant messaging friends (i.e., provided names for all three contexts).

3.3.1. Overlap between offline and instant messaging networks

Of the 70 people who reported using instant messaging, 11 had no overlap between their top instant messaging friends and face-to-face friends. Only 12 people had 100% overlap as they used instant messaging exclusively with people who were also their top offline friends. On average, half of the closest instant messaging friends' names were also listed as closest face-to-face friends ($M = 49\%$, $SD = .35$).

Table 5

Reported frequency of activities on social networking sites (% of participants)

Activity	Most often ($n = 80$)	Second most often ($n = 78$)	Third most often ($n = 76$)
Edit my profile and update my status	2 (3%)	5 (6%)	8 (11%)
Change my "Top 8"	0	0	1 (1%)
Change profile picture	3 (4%)	2 (3%)	7 (9%)
Read/respond to comments on my page/posts on my wall	43 (60%)	13 (17%)	3 (4%)
Write comments on other peoples' page/wall	2 (3%)	16 (21%)	1 (15%)
Post/tag pictures	0	3 (4%)	1 (1%)
Browse my friends' profiles/walls/pages	10 (13%)	14 (18%)	12 (16%)
Wink, poke, give "e-props," or kudos	0	1 (1%)	1 (15%)
Create/visit groups to talk about specific topics	0	0	0
Listen to/find new music	1 (1%)	3 (4%)	8 (11%)
Look for the profiles of people I know or used to know	1 (1%)	6 (8%)	12 (16%)
Look for new friends, send friend requests, and add friends	0	2 (3%)	2 (3%)
Send/respond to messages/invites	11 (14%)	13 (17%)	10 (13%)

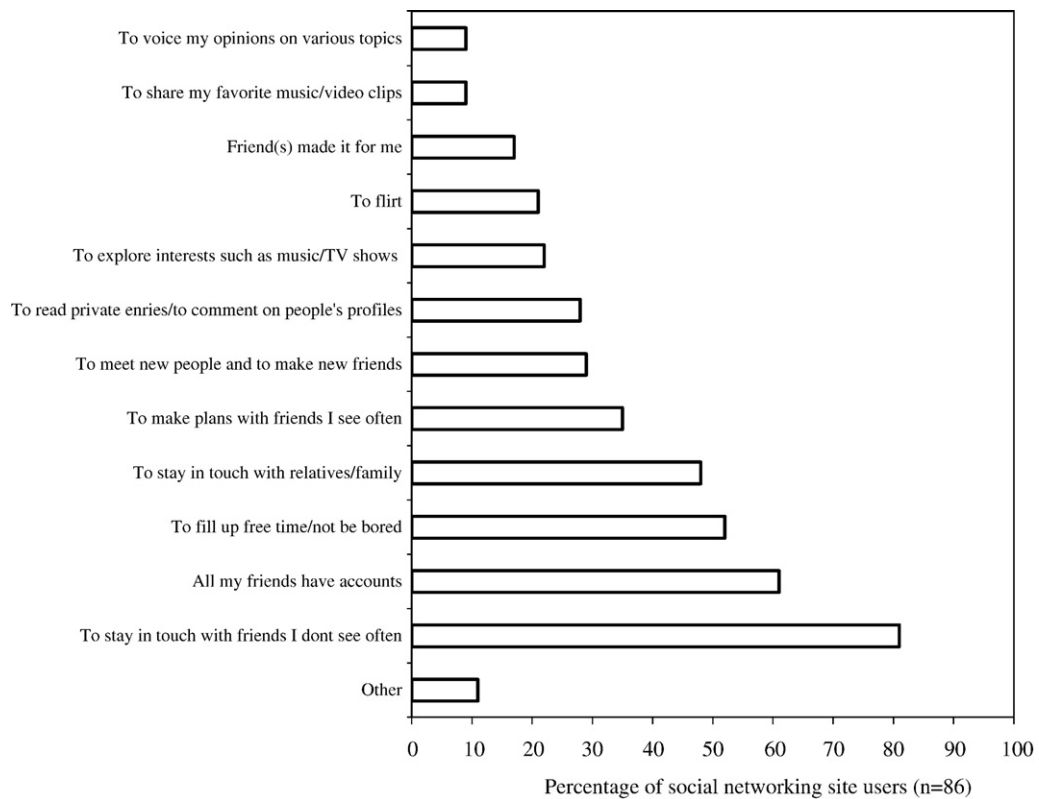


Fig. 3. Motives for using social networking sites (% participants).

3.3.2. Overlap between offline and social networking site networks

While 81 people listed the first and last names of their online and offline friends, only 73 provided names for social networking site friends. Of these 73, eight had no connection between their listed top social networking and face-to-face friends. Sixteen people (22%) reported 100% overlap between their social networking friends and face-to-face friends. On average, 49% of people's top face-to-face friends were also their top social networking site friends ($SD = .39$).

3.3.3. Overlap between offline, instant messaging, and social networking site networks

Of the 54 people who reported using both instant messaging and social networking sites, slightly less than half ($n = 24$) reported no overlap between these two online mediums and their face-to-face friends and only one reported complete overlap between these three settings (i.e., exactly the same people were listed as face-to-face, instant messaging, and social networking site friends). However, five people reported that all the people they instant message with were also their friends on social networking sites (but not all were named as face-to-face friends). In this sample, less than 1/3 of people's friends on instant messaging and social networking sites overlapped.

3.3.4. Details about "friends"

For each person named by a respondent as a face-to-face, instant messaging or social networking site friend, participants provided information about where they spent the most time with this person. In total, respondents ($n = 81$) could list up to 30 friends. Across all friends in all three mediums (face-to-face, instant messaging, and social networking site), respondents were significantly more likely to spend time together out of school than in school or online, $\chi^2(2, N = 501) = 494.2, p < .0001$. The sex of the "friend" did not differ for males and females, $\chi^2(2, N = 501) = 2.13, p = .12$.

3.3.5. Factors related to overlap between online and offline networks

We also examined whether characteristics of social networking site users such as their age, gender, and aspects of their online behavior were related to the extent of overlap between their various networks. With regard to age, of the 66 emerging adults aged 18–22 years, 44 (67%) used instant messaging, 45 (68%) used social networking sites, and 29 (44%) used both instant messaging and social networking sites. Of the 44 people aged 23–29 years, 26 (49%) used instant messaging, 28 (64%) used social networking sites and 19 (39%) used both instant messaging and social networking sites. There were no significant differences in age and instant messaging or social networking site use or use of both instant messaging and social networking sites (all p 's $> .05$). There were also no significant sex differences in online activities or in the extent of network overlap, $p = .12$. The time spent online on the day of the survey was negatively correlated with overlap between social networking and face-to-face friends, $r = -.29, p < .05$, suggesting that people who spent more time online that day had less of an

overlap between their top social networking site and face-to-face friends. We also found that online overlap (social networking sites and instant messaging combined) correlated with using social networking sites to make plans with friends, ($r = .30, p = .01$), suggesting that people who used SNSs as a tool to communicate with their offline friends also had greater overlap between their social networking site and face-to-face networks.

3.4. Friend networks on social networking sites

To describe the nature of emerging adults' online networks on social networking sites, we asked social networking site users several questions about the size of their networks, as well as how they added and deleted people on these networks. Participants' online social networking site networks were fairly large ($M = 137, SD = 137, Mdn = 93$) and were reported to range in size from 0 (only one participant reported having no one in their network) to 642 ($n = 77$). Although participants reported that they had met face-to-face many of the people listed as an online social networking site friend ($M = 101, SD = 113, Mdn = 69, Range = 600$), they reported that they interacted frequently with relatively fewer of their online social networking site friends ($M = 25, SD = 38, Mdn = 16, Range = 300$). Calculation of the percentages for individual participants confirmed these overall trends — the mean percentage of online social networking site friends participants had met face-to-face was 79% ($SD = 27%, Mdn = 92%, Range = 5\%$ to 100%) and the mean percentage of online social networking site friends they frequently interacted with face-to-face was 29% ($SD = 25%, Mdn = 21%, Range = 1\%$ to 100%).

Further confirmation that emerging adults use social networking sites to connect with their offline friends comes from Fig. 4, which shows that a majority of the social networking site users report that they only add people who they have met in person (73%); only a very small minority (11%) report that they add anyone who sends a friend request ($n = 85$). Although the “Top friends” feature of social networking sites (e.g., Top 8 in MySpace) is not very popular anymore, social networking site users' response as to how they choose whom to add in this list is very revealing. A majority of the respondents (68%) reported that the people in their online “Top List” were also their best friends offline; these “Top Lists” were not reciprocal in nature as only 15% reported that their online “Top List” contained people whose “Top List” they were on. Despite the indications that emerging adults' online and offline networks are linked, online networks appear to be somewhat fluid as well; 64% of social networking site users reported that they had deleted a “friend” from their site and 39% had blocked someone from their profile ($n = 84$). Reasons for deleting or blocking ranged from losing contact (“we don't K!T” [Keep in touch]) to wanting privacy (“I don't want any one but my close friends to see my profile”) to protecting one's safety (“crazy stalker,” “My crazy ex-girlfriend”).

3.5. Perceived effects of social networking site use on relationships

Finally, participants were asked about their perceptions regarding the effects of their social networking site use on their relationships. If they had a profile on a social networking site, they were asked whether their social networking site use had any effect on their relationships with friends and family; they were also asked if their social networking site use had created any trouble in their relationships or if it had helped to clear a misunderstanding. A majority of the social networking site users (73%) reported that social networking site use had not made any difference to their relationships with friends, whereas 20% felt that it

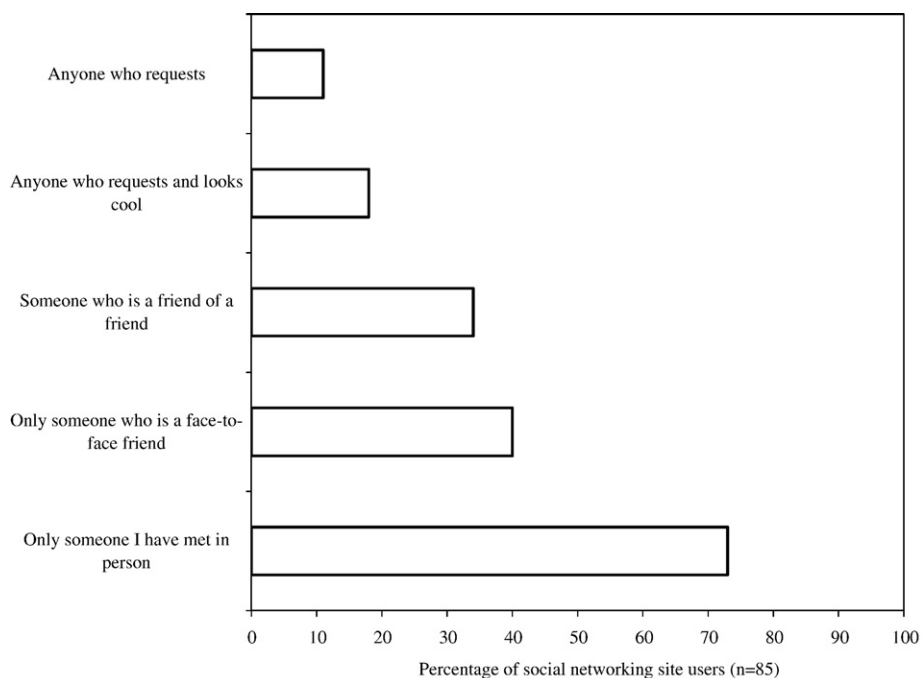


Fig. 4. Persons who will be added as a friend on social networking profiles (%participants).

had made them closer to their friends. Only a very small minority (2.5%) felt that it had negatively impacted their relationships with their friends ($n = 79$). Although participants felt that their social networking site use had not affected their relationships or caused trouble between them and their friends and family, a small minority (18 people out of 85; 21%) reported that something on their profile had given them trouble. The most common sources of trouble were with romantic relationships (“Found out about cheating & dates”) and changes to top 8 friends listed on the profile (“If I didn’t have that person on my top 8 it meant we were having a fight or something”). Nine people (11%) reported that something on their social networking site profile helped fix a problem ($n = 85$). These fixes tended to support claims of fidelity (“My boyfriend could read my comments that I’ve left for the guys and see that I’ve done nothing to provoke obnoxious comments they’ve left me”) and provide a medium for addressing relationship problems (“Make sure my friend wasn’t mad at me, where it would be harder to ask in person or by phone”).

Participants who did not have a profile on a social networking site were asked how they felt about not having one and if they ever visited social networking sites, even if they did not have a profile. Although a majority (63%) of the respondents who did not have a social networking site profile reported that not having a profile had no effect on them, 21% felt somewhat cut off from their face-to-face friends and 13% felt pressure to get an account ($n = 24$). Only a very small minority (4%) felt very cut off from their face-to-face friends because they did not have a social networking site profile. Not surprisingly, 56% of the people without profiles reported visiting social networking sites, with a majority (11 persons or 52%) doing so less than once a week ($n = 24$).

4. Discussion

The results suggest that, as predicted, our participants’ use of social networking sites was integrated with both the concerns and people from their offline lives. Emerging adults face the developmental task of establishing intimate relationships by forming and maintaining interconnections with the people in their lives. The emerging adults in our sample seemed to be using social networking sites to do just that – reports of their typical activities on social networking sites as well as their reasons for using these sites suggest that they were using social networking sites to connect with others, in particular those in their offline lives. Similarly, most users reported that they would only add people that they had met in person onto their network on social networking sites. Analysis of the people that participants interacted with the most offline and on social networking sites confirmed that there was some degree of overlap for most of them. Only a small minority had no overlap between these two groups of people. Despite these links between their offline and online social networks, participants did not think that their use of social networking sites impacted their relationships. Results of this study help to clarify the role of the Internet and social networking sites in the lives of emerging adults.

4.1. Offline and online time use

To place our results in context, we start by briefly discussing our sample and our participants’ offline and online time use, in particular their time on social networking sites. Our sample was ethnically very diverse – nearly 70% were Latino and Asian and only 9% were White. Although much has been made of the digital divide with regard to Internet access (e.g., Lenhart & Horrigan, 2003) very few studies have taken a detailed look at urban minority youths’ use of technology, particularly with regard to social networking sites. The present study fills this important gap in the literature. Although we only obtained a snapshot of participants’ time use, 91% reported going online the day that they took the survey, suggesting that the minority college students in our sample were accessing the Internet at rates comparable to those reported in prior work (Jones, 2002). Moreover, judging by the percentage of participants who engaged in various offline activities (see Table 3), the Internet was clearly important in their lives. One difference from prior reports is that instant messaging was not that common an activity in our sample (Gemmill & Peterson, 2006; Jones, 2002).

Our participants’ offline and online time use is also important from a developmental perspective. Offline, their most frequent activities were talking on the phone, studying, watching television, and hanging out with friends. Online, their most frequent activities were email, web browsing, and visiting social networking sites. Thus, the most frequent activities among college students were studying, watching television, and interconnecting with others on the phone, via email, social networking sites, or in person. Here we see that an important developmental concern of emerging adults, establishing and maintaining interconnections with others, permeates through both their offline and online worlds.

4.2. Patterns of social networking site use

Although a large majority of our participants reported using social networking sites, the percentage of such use was slightly less than that reported in other studies – 82% in our sample compared to 94% in Ellison et al.’s study (2007). One possible reason for this difference may have been the age and demographics of our sample. Although Ellison et al. (2007) did not report the age range of their participants, the mean age in their sample was 20.1 ($SD = 1.64$). Our participants were on average a bit older ($M = 21.5$ years, $SD = 2.9$ years) and their ages were widely spread and ranged from 18 to 29 years. Most of the students at the university where we conducted our study live at home and not on campus, and many work and have families of their own. All of these factors might have contributed to the slightly reduced use of social networking sites that we found in our sample.

With regard to the particular social networking sites that were used, an overwhelming majority of our sample reported that they used MySpace and only a small minority used Facebook. Again, this in contrast to the work by Ellison et al. (e.g., Ellison et al., 2007; Lampe et al., 2007), who have reported strong use of Facebook by their participants. Note that a majority of our participants

were Latino and Asian, whereas the majority were White in Ellison and colleagues' work. The use of MySpace in our sample is consistent with Hargittai's (2007) finding that even after controlling for factors such as parental education, context, and experience, a user's race and ethnicity were related to the specific social networking site that he/she uses. Specifically, she found that compared to Whites, Latino students were significantly less likely to use Facebook and more likely to use MySpace. Hargittai suggested that students from similar backgrounds might migrate to similar sites because people are looking for others in their network to connect with on these sites. More research is necessary to understand whether the ethnic split in the use of particular sites is reflective of a real difference in how individuals belonging to different groups use technology in general and social networking sites in particular.

With regard to the actual use of social networking sites, most participants had only one profile and only a very small percentage reported having multiple profiles; only a fourth of the sample reported visiting these sites several times each day and a very small number reported having it open all the time. The daily snapshot confirmed these trends and only 10% of the sample reported spending 2 or 3 h or more on social networking sites that day. It appears that the majority of our participants are moderate users of social networking sites and only a very few reported heavy use. A previous study using a large sample of traditional-age college students ($n = 1300$) found excessive use of the Internet in about 10% of the sample (Anderson, 2001) and the pattern of excessive use in our sample appears to be in line with these trends.

4.3. Implications of social networking site use for development

Participants' responses to questions about their frequent activities on social networking sites, what they did on social networking sites that day, and their reasons for using social networking sites suggest that emerging adults use social networking sites to interconnect with others. The college students in our sample used social networking sites as a means of staying in touch with their friends as well as their family members and relatives; interestingly, they use them to keep in touch with friends they do not see that often as well as to make plans with those they do see often. Furthermore, only a third of the participants reported that they had a social networking site profile to meet new people and make new friends, and a smaller percentage reported using them to flirt. Only an incredibly small number of people reported that looking for new friends was something that they frequently did while on social networking sites.

Participants also reported that much of their time on social networking sites was spent reading comments, writing comments, and responding to comments/messages. Browsing the pages/profiles of their friends was another favorite activity. Such browsing of other people's profile/walls helps users keep track of their friends, the events in their life, as well their friend's interactions with others. At the same time, being able to view interactions between members of one's network can also create and help to fix problems. A few of the participants reported trouble with their friends when they changed their list of Top 8 friends, whereas several noted that the public nature of the comments helped to fix a problem (e.g., boyfriend read comments, girlfriend saw relationship status). Among young people, such tracking of the members in one's network is commonly called "stalking." Subrahmanyam's college freshman daughter proudly announced that she is so good at finding people on Facebook that she was recently able to find the photograph of someone who had a blocked profile. These informal observations suggest that "stalking" may be emerging as an important means by which youth keep track of the many people in their networks as well as the interactions that their network members have with others. Future research should examine how social networking sites are making relationships and interactions that were previously private into more public and open ones and whether they might be transforming them in the process. At the same time, it is worth noting that despite these apparent transformations, respondents generally felt that social networking sites had not had any effect on their relationships.

Whereas it appears that emerging adults use social networking sites to connect with others, a core developmental issue in their lives, it is important to consider that online phenomena are constantly changing and evolving and some applications have been transient and relatively short-lived. Some of the trends in our study are worth noting in this regard. A very small minority of our participants reported using social networking sites to share music and video files; yet when MySpace first began in Los Angeles, it was an important means of bringing together music bands and people who were looking for new music (boyd & Ellison, 2007a,b). Also relevant is that over half of the social networking site users in our study reported using them to fill up free time and not be bored. A fifth of the users reported that their friends had made their profile and another fifth of non-users reported that not having a profile led them to feel somewhat cut off. Not only are the uses of social networking sites constantly changing and evolving, young people may be gravitating towards these sites because they are the popular new online tool that all of their peers are flocking to. Thus, it is impossible to predict whether emerging adults will continue to use social networking sites for interconnections and if they do, the particular manner in which they will do so.

4.4. Online and offline networks

Participants' responses as to whom they add to their social networking site networks as well as analysis of their top online and offline networks suggest that emerging adults use social networking sites to connect with people from their offline lives (see also Steinfield, Ellison, & Lampe, 2008-this issue). However, the overlap between these mediums is not perfect suggesting that emerging adults rank the level of importance of friends in different contexts in different ways. While more participants report spending the most time with their friends outside of school (rather than online), only slightly more than half have any overlap between their top instant messaging, social networking, and face-to-face friends and few (2.5%) have a perfect overlap between all of these reported online and offline friends. It is also interesting that the degree of closeness varied by medium. Participants reported that they do not look for strangers or add strangers to their social networking site network, but some of their closest

online friends were different from their closest offline friends. Clearly, college students do not use social networking sites to meet and form connections with strangers. Instead, they seem to use instant messaging and social networking sites to selectively interact with different people from their offline world. In other words, they may be using social networking sites to strengthen existing offline connections that may not be that strong within the context of their face-to-face lives. This is not uncommon in other areas of people's lives. For example, among older adults, one's closest work friends are not necessarily the people one hangs out with outside of work. Perhaps we are witnessing how emerging adults are developing the diversity of social spheres that adults do, but through different avenues.

4.5. Connectedness of online and offline worlds

An important theoretical issue about online communication that motivated the current study is the extent of connectedness that exists between young people's offline and online lives. Our results indicate that college students use instant messaging and social networking sites to interconnect with others, particularly those from their offline lives. They show that emerging adults' offline and online worlds are connected and they use online communication for offline issues, and to connect with people in their offline lives. Although young people's offline and online worlds may be connected, they are certainly not mirror images of each other. Whereas the top people listed in online mediums (instant messaging and social networking site) were not completely the same as those listed as top face-to-face friends, youth did report spending the most time with their listed friends (from all three mediums) in person, outside of school (i.e., not online). Thus, connectedness does not imply that young people's online and offline lives are identical. Instead it appears that when communicating online, young people may express offline concerns and interact with people from their offline lives, but in a manner adapted to the particular affordances of the online context, such as its opportunities (e.g., ability to create a public profile of oneself and have an extensive network of friends) and limitations (e.g., open and visible interaction and lack of extensive face-to-face cues).

4.6. Limitations, conclusions, and future directions

As with any self-report survey, one concern is that participants' responses may have been subject to biases, incorrect estimates, faulty memories, and other similar problems. Since there was agreement between what respondents told us they typically did on social networking sites and what they said they actually did on a particular day, we think that for the most part participants were truthful and consistent in responding to the survey questions. A second problem is that respondents were limited to listing 10 people – not all listed 10 and others may have had more than 10 that they interacted with often. Keep in mind also that because participants were asked to list only those whom they interacted with the most in each context, our estimates of network overlap are based on the top members of networks in each context and not the overall networks. Although it may appear that our assessment of networks was not exhaustive given that many participants had social networking site networks of over 100 friends, most of the respondents reported having regular online contact with only a small percentage of these “friends.” Thus, asking about the top 10 rather than all their social networking site friends may have actually helped us identify more important or intimate relationships. However, it also undoubtedly leads to an overestimation of the degree of overlap between online and offline networks. A third limitation is that of attrition. On both surveys, participants occasionally misunderstood a question (for e.g., when asked to rank their three favorite activities, they ranked all the options, giving the same rank to several activities). Although having an offline and an online survey conferred several benefits, a small number of participants failed to complete the online survey and those who did fill out both surveys made mistakes on occasion when providing information about their friends in one or the other context (for e.g., one participant provided names for the face-to-face context, but screen names for instant messaging). Consequently, results for different questions are based on different sample sizes. Also because we did not have complete network information for all participants, the sample size was reduced for analyses concerning offline and online networks. Thus, we may not have had the statistical power to determine all of the factors that predicted the extent of overlap between participants' online and offline networks. However, our sample size was large enough to describe the degree of overlap between online and offline networks, the central question of our study.

In conclusion, the results of our study show that emerging adults use social networking sites to connect with people from their offline lives, such as their friends and families. Despite their use of these sites for interconnection, most did not perceive any effects on their relationships. These trends were confirmed by the network analysis, which revealed that there was an overlap between participants' offline and online networks. This overlap was not perfect, suggesting that emerging adults may be using social networking sites and instant messaging to selectively strengthen different connections within their offline networks. A question for future research is whether emerging adults accrue different levels of intimacy and support depending on where a relationship is closest, in a face-to-face or online context. Future work should also examine how variables such as users' gender, social networking site use, offline relationship strength, and perceived support might moderate the extent of overlap between their online and offline lives.

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