

# HIGH SCHOOL SENIORS' SOCIAL NETWORK AND OTHER ICT USE PREFERENCES AND CONCERNS

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## ABSTRACT

The study develops an in-depth picture of teens' thoughts and opinions related to social networks and ICT's, particularly preferences towards, and concerns related to, their use. Using a series of six semi-structured focus group interviews, data were gathered from 45 high school seniors attending a highly technological public high school. Focus group questions included 1) preferred methods for communicating with friends and family; 2) reasons for engaging or not engaging in online social networking; 3) how ICT's for social networking and other communication purposes were selected; and 4) decisions related to accepting online "friends."

Findings contradicted earlier "digital natives" literature, which suggests that teens are avid users of technology for technology's sake. Instead, the teens viewed ICTs and social networks from a more pragmatic view, using them as tools for quick and easy communication and for relationship building and maintenance.

General findings indicated that 1) communication media were selected based on the closeness of the relationship with the message receiver(s) and the number of intended receivers; 2) social networks, such as Facebook, were used for less frequent contact with wider range of friends and relatives; 3) teens used ICTs differently for communication with adults than with peers; and 4) teens preferred to use email for interactions with teachers.

An eight-category typology of four ICT *capability preferences* (Simplicity of interface design/Ease of use, Speed of use, Constant contact/Ubiquitous communication, and Multitasking) and four ICT *use concerns* (Information privacy, Information security, Communication overload; and Reduced face-to-face communication and interaction) is proposed.

## Keywords

Teens, Social Networking, ICTs, Facebook, MySpace

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## INTRODUCTION

Surveys of how frequently teens use online social networks and other information and communication technologies (ICT's) are fairly common, such as a 2010 Pew Research Center survey indicating that nearly three-quarters of teens use social network sites (Lenhart et al., 2010). While large surveys tell us a lot about how often teens use these tools and about the general reasons why they use them, they provide only surface-level information about teens' thoughts and opinions underlying their selection and use. A review of the teens and social networks literature has shown that the most common general reason why teens use social network sites is for maintaining existing friendships, with meeting new people coming in as a secondary purpose (Agosto & Abbas, 2009). This study sought to dig beyond teens' basic reasons for use to uncover a more in-depth picture of their thoughts and opinions related to social networks and other ICT's, particularly their ICT use preferences and concerns.

The site for this study was a highly technological high school located on the outskirts of a large eastern U.S. city. Members of its graduating class have a unique perspective on the online social world. They have been around since the beginning of social networks and were "born digital"—born into a world in which digital connectivity is not a new thing, but the normal thing (Palfrey & Gasser, 2008). These "digital natives" (Prensky, 2001) have watched online social networks evolve and have grown with them into adulthood. The study results will add to the growing body of research into young people's use of social networks and other ICT's. The findings will help designers better understand teens' preferences and concerns related to these technologies, as well as enabling educators and other adult intermediaries to harness these tools for improved educational and information service delivery.

## RESEARCH QUESTIONS

The general question guiding this work was: How do high school seniors attending a highly technological high school view social network and other ICT use?

Within this overarching question there were two sub-questions:

1. What are these students' preferences in ICT capabilities?

2. What concerns, if any, do they have about using ICT's for personal communication and interaction?

## LITERATURE REVIEW

### Teens and ICT Use

In a meta-analysis of information behavior research relating to children and teens' use of the Internet, Large (2005) showed that Internet use is playing an increasing role in the lives of today's young people. A number of large national surveys have also showed teen ICT use to be on the rise over the past few years (e.g. Lenhart, Madden, & Hitlin, 2005; Lenhart et al., 2010; Rideout, Foehr, & Roberts, 2010). In studying how undergraduates use social networks, Gasson and Agosto (2008) concluded that "Students appear to develop a long-term social network that is mediated across home, work, and learning contexts by the use of technology" (n.p.). Ito and colleagues (2008) in a three-year, multi-project study, sought to gain a deeper understanding of how new media practices are embedded in a broader social and cultural ecology of youth. Central to their explorations were how youth understand their own use of new media in public and private contexts and the potential barriers encountered in their use. While much of the findings of their study were focused on using new media within educational contexts, the study also discovered useful findings related to teens' reasons for using new media to communicate with their friends, family, and other adults, such as teachers. For example, teens used social networks to communicate with small groups of close friends and occasionally with parents. Teens also used instant messaging (IM), texting, and mobile phones to remain in constant contact with close friends and romantic partners when communication necessitated more of a private context.

### Millennials as Digital Natives

A number of researchers and theorists have suggested that for members of the Millennial generation -- those born between 1979 and 1994 -- the online world is an integral part of everyday life, and of everyday social life in particular (e.g. Frand, 2000; Palfrey & Gasser, 2008; Prensky, 2001). They suggest that Millennials are "digital natives" (Prensky, 2001), with much greater technology comfort and skills than members of previous generations (e.g. Brown, 2000; Costello, Lenholt, & Stryker, 2004; Harris, 2005; Oblinger, 2003; Oblinger & Oblinger, 2006). These authors agree that technology, and ICT use particularly, plays an expanded role in Millennials' lives.

Not everyone agrees that Millennials exhibit advanced technology skills and comfort. Selwyn (2009) challenged this idea of Millennials as digital natives:

*Whilst often compelling and persuasive, the overall tenor of these discursive constructions of young people and technology tends toward exaggeration and inconsistency. The digital native discourse as articulated currently cannot be said to provide an especially accurate or objective account of young people and technology. (p. 370)*

He further suggested that the lack of data-driven studies to support these ideas leaves the digital natives argument largely conjectural. This study gathered data directly from teens to test this largely untested concept of the digital native.

## METHODS

Data were gathered via a series of six semi-structured focus group interviews (Fontana & Frey, 1998) with high school seniors attending a highly technological public high school. "The focus group technique, a variation of the group interview, has been used extensively to ascertain the perceptions and feelings of participants around a particular area of inquiry" (Chase & Alvarez, 2000, p. 358). Focus groups enable researchers to capture data about inherently unobservable processes, such as decision making (Morgan, 1997). The group setting can make invisible, habitual processes recordable, and qualitative interviews in general are effective in revealing cognitive processes underlying human behaviors (Weiss, 1994). As a group discusses a topic, focus group participants become more aware of their related cognitive processes, making articulation of those processes possible.

Focus groups were chosen over more traditional usability testing methods because the intent was to understand students' perceptions, attitudes, and ideas about ICT use, and focus groups are especially effective for generating this type of data (Large, Beheshti, & Rahman, 2002). The researchers followed a pre-set interview guide. The interviews were digitally tape-recorded, and the tapes were transcribed for data analysis purposes.

### Setting and Participants

The high school where the study took place is located on the outskirts of a large Eastern U.S. city. It serves a primarily white, middle- to upper-middle-class population. The most recent available statistics indicate that for the 2008-2009 school year, nationally 42.9% of U.S. students were eligible for free or reduced lunches ([http://nces.ed.gov/programs/digest/d09/tables/dt09\\_042.asp](http://nces.ed.gov/programs/digest/d09/tables/dt09_042.asp)), whereas just 6.2% of the students at the study site were eligible for free or reduced lunches that year.

As of September 2009, there were 775 students enrolled in grades eight through twelve. Slightly over 90% of its 2009 graduates went on to some form of higher education, compared to 69% of the U.S. population of high school students (U.S. Department of Education, 2010). For the academic year 2009-2010, there were 162 students in the senior class. Seventy-nine percent were White; 3.1% were Hispanic; 14.2% were Black; and 3.7% were Asian. Moreover, 51.9% were male and 48.1% were female. These figures generally mirror 2008 estimates for the broader U.S. population, with the exception of a much lower Hispanic population: 74.3% White, 15.1% Hispanic, 12.3% Black, 4.4% Asian, 49.3% male, and 50.7% female (U.S. Census Bureau, 2010).

The school district places high importance on educational delivery via digital technologies. Within the district there are interactive whiteboards in every classroom in grades 5-12, and digital projection in all K-12 classrooms. In addition to traditional computer labs in each school and school library, there are 18 mobile computer labs in the high school, six in the middle school, and four in the elementary schools. Effective beginning in the 2010-2011 school year, a computer science course will be a high school graduation requirement for all incoming ninth grade students. The school is also a Classrooms for the Future recipient, a program which equips high school English, math, science, and social studies classrooms with enhanced technology and provides Internet-connected laptop computers for every teacher and every student in participating schools. Due to these factors, it is likely that these teens were more active users of social networks and other ICT's than the average U.S. teenager. This population was chosen as a probable source of rich data about teens' social network and ICT use, and as a useful group for testing the concept of the digital native.

The focus group sessions were conducted in a private meeting room inside the school during school hours over the period of two days. For each session, there was one moderator and one note-taker present, and the sessions were audio-taped. Each session lasted approximately one to one and a half hours. The focus group guide included questions related to preferred methods for communicating with friends and family and why, the reasons why the students did or did not engage in online social networking, how they selected ICT's for social networking and other communication purposes, and how they decided whom to accept as online "friends."

Flyers informing students about the study and inviting them to take part were distributed to 100 seniors in two required courses, Global Studies and the Senior Seminar. Due to IRB restrictions, only students aged 18 or older were allowed to take part in the study. IRB restrictions prevented the researchers from checking school records to determine how many of the 100 students were 18 or older, but since it was near the end of the school year, it is likely that most of the students were age 18. A total of 45 students, all aged 18, agreed to take part in the interviews, including 42 White and three Black students. (See **Table 1** for details.) The 45 participating students represented a wide range of academic achievement levels.

GROUP	MALES	FEMALES	TOTAL
Group #1	3	7	10
Group #2	6	1	7
Group #3	10	1	11
Group #4	4	1	5
Group #5	5	1	6

Group #6	6	0	6
<b>TOTAL</b>	<b>34</b>	<b>11</b>	<b>45</b>

**Table 1: Study Participants.**

### Data Analysis

The researchers used the constant comparative method (Glaser & Strauss, 1967; Lincoln & Guba, 1985) to analyze the resulting data. The constant comparative method is a form of qualitative content analysis that involves iterative readings of qualitative data, looking for recurring themes. Once identified, recurrent themes are organized into a coding scheme, which becomes the basis for continued analysis, theory and model building, and presentation of the findings in relation to the research questions. Wildemuth (2009) outlined eight steps in the process of qualitative content analysis: 1) prepare the data; 2) define the unit of analysis; 3) develop categories and a coding scheme; 4) test the coding scheme on a sample of text; 5) code all the text; 6) assess the coding consistency; 7) draw conclusions from the coded data; and 8) report the methods and findings (p. 310-312).

For the current study, the unit of analysis was an individual theme. As Wildemuth (2009) explained:

*Qualitative content analysis usually uses individual themes as the unit for analysis, rather than the physical linguistic units (e.g. word, sentence, or paragraph) most often used in quantitative content analysis. An instance of a theme might be expressed in a single word, a phrase, a sentence, a paragraph, or an entire document. (p. 310)*

Initial analysis of the focus group transcripts led to the identification of seven preferences and four concerns related to social network and other ICT use. After multiple rounds of coding, one of the preference categories (separation of personal- and school-related communication) was dropped due to the small amount of supporting data. Due to great amounts of overlapping data, four of the preferences (simplicity of interface design and ease of use, and constant contact and ubiquitous communication) were collapsed into just two categories. The eight resulting categories form the capability preferences and use concerns typology presented in this article (See in **Figure 1**).

### LIMITATIONS

There are several limitations that need to be taken into account when considering the implications of the findings presented here. IRB restrictions necessitated recruitment on a volunteer basis, and the students who volunteered were predominately white males. This prevented examination of gender and racial/ethnic variance. In addition, the study was advertised to potential volunteers as an exploration of how high school students use social networks. Students with positive attitudes toward social networks were probably more likely to volunteer than those with negative attitudes, though the volunteer pool did include a few self-identified nonusers. This means that these results are not strictly generalizable to the larger population of U.S.

eighteen-year-olds. Nonetheless, this study does shed light on many of the ICT preferences and concerns of some of the more digitally-connected members of this generation.

Moreover, although the focus group method enables researchers to “take advantage of the dynamics created by group discussion of a particular topic or issue” (Kelly et al., 2007), there is a danger that group dynamics can sometimes result in “groupthink” (Janis, 1982). In order to reduce this threat, at the beginning of each session the moderator asked each student to discuss his/her preferred methods for communicating with friends, family, and others. Within each group there was variance in these initial discussions, and the students did not seem to change the representation of their individual preferences as the sessions continued. The moderators also encouraged participation from all of the students and used probe questions to encourage quieter students to contribute. Overall, the students seemed comfortable explaining their individual thoughts and opinions, but there were probably still some group effects.

Finally, this was an initial, exploratory study. Now that the researchers have identified these students’ common social network and ICT use preferences and concerns, the next step in the research process is to continue this work with youth from different demographic groups and to triangulate the focus group findings with additional data collection methods, such as surveys and usability studies to provide a fuller understanding of how these preferences and concerns play out in teens’ everyday ICT selection and use.

## FINDINGS

The guiding research question addressed high school seniors’ views about social network and other ICT use. The students tended to view social networks and other ICT’s from a pragmatic standpoint. They saw them more as tools for quick and easy communication and as useful for relationship building and maintenance than as providing opportunities for experimenting with new technologies. This stands in contradiction to much of the digital natives writing, which tends to suggest that teens are avid users of technology for technology’s sake (e.g. Brown, 2000; Frand, 2000; Prensky, 2001). Perhaps, as the digital natives literature also suggests, technology is such a ubiquitous part of Millennials’ lives that it has lost its “newness” and is now viewed simply as a part of daily life, especially for these members of a highly technological school culture. This might also explain why, in contradiction to past research with teens and digital information (e.g. Agosto, 2002; Fidel et al., 1999), these students voiced preferences for clean, simple interface designs.

In general, the students selected their communication medium based on the closeness of the relationship they had with the message receiver(s), and based on the number of intended receivers. Texting via cell phones was the most frequent means of mediated communication, occurring throughout the day at school, home, work, and social events. Most sent frequent text messages—often multiple

times each day—to communicate with a select group of about four to six close friends including boyfriends/girlfriends, and many also texted and called parents and other relatives, although less frequently. Interestingly, although nearly all of the students were frequent cell phone users, most of the students voiced hesitation about using traditional landline telephones. As one of the girls said, “I don’t answer the [home] phone anymore.” Much of this reluctance came from privacy concerns, as discussed below.

These students tended to use social networks--Facebook in particular--for less frequent contact with a much wider range of friends and sometimes relatives. Common social network activities included posting photos both for distribution and archival purposes; broadcasting information about social gatherings and sports events; gathering background information about new friends and casual acquaintances; and making contact with lost friends and physically distant acquaintances. Roughly half the students used social networks daily; slightly fewer used them a few times a week; and three of the students did not use social network utilities at all. Facebook was the social network of choice for nearly all of the students who used social networks. Just one of the students was an avid MySpace user. A few other students indicated that they did not have active MySpace accounts, but they did use MySpace for listening to music.

The teens tended to use social ICT’s differently for communication with adults than with peers. A minority had friended their parents on Facebook. Most, however, scoffed at the idea: “It adds another layer of connectivity that you don’t need.” Most felt that their parents were likely to use social networks to monitor their social behaviors on an ongoing basis. They preferred contacting parents via cell phone calling or texting only when necessary for communication purposes.

Although texting and Facebook dominated the teens’ mediated communication with friends, they tended to prefer email for interactions with teachers because it’s “less personal.” With email, “they can’t see your profile.” When asked if they would friend a teacher on Facebook, the prevailing opinion was no. “It’s creepy,” said one student with a grimace.

A discussion of the findings related to the two sub-questions (capability preferences and use concerns) yields a deeper, more nuanced picture of these teens’ views about social networks and other ICT’s. The typology that resulted from the data analysis process uncovered four ICT capability preferences and four ICT use concerns, as indicated in **Figure 1**. Each of these eight categories is discussed below and supported with quotes from the focus group transcripts.

## PREFERENCES

**Simplicity of interface design/Ease of use**

**Speed of use**

**Constant contact/Ubiquitous communication**

**Multitasking**

## CONCERNS

**Information privacy**

**Information security**

**Communication overload**

**Reduced face-to-face communication and interaction**

**Figure 1: High School Seniors' Social Network and Other ICT Use Preferences and Concerns**

## PREFERENCES

### SIMPLICITY OF INTERFACE DESIGN/EASE OF USE

Head and Eisenberg (2010) found that one of the reasons undergraduates chose to use *Wikipedia* for academic research was the simplicity of its interface. For the participants in the current study, the overwhelming social network of choice was Facebook. Students who considered themselves heavy technology users and even those who were more reluctant users pointed to the simplicity of its interface and to its low learning curve as a major reason for its popularity. For example, one of the girls explained that:

*Technology is not my thing. Facebook, they kind of set it up so it's easy to get your way around it. Like with MySpace, I haven't used it because it is so complicated. And I don't even know what Twitter is. But Facebook seems like the easiest to use out of all of them [so I use it].*

When asked why texting was so popular, the heavy texters all agreed that it was “simple and fast.” On the other hand, those who were less frequent texters found its physical and cognitive requirements to be taxing. As one of the boys explained: “I am not a fan of texting. I am not that coordinated. My phone has small buttons.”

Another one of the boys explained why he had switched from using MySpace to using Facebook:

*At the start it [MySpace] was okay, but it became really annoying. The only reason I would be on MySpace would be to communicate with someone, and I would click on their profile, and they would have so much garbage on their site, music playing. It got to be way too much. MySpace was not as simple [as Facebook].*

Of the 45 students, only three (all boys) lacked active Facebook profiles. When asked why he did not use Facebook, one of them replied: “I think if I actually had a Facebook I would be too lazy to go on and check it and write stuff. If I want to talk to someone, I would rather call them up or text them. I think it is easier.”

## Speed of Use

Related to the idea of simplicity of use was a preference for ICT's that could be used quickly. Students in all six sessions agreed that they were texting much more frequently than in the past, and that texting had largely replaced talking on telephones, both cell phones and landlines. When asked why, there was widespread agreement that texting is a much faster form of communication: “It takes two seconds.” Even though text messaging conversations could last over a period of days, each conversation turn was seen as quick and efficient, and the best choice for frequent, brief communication: “Text messaging is good for short, quick things.”

Not all of the students agreed that texting was quick and easy. One of the boys who considered himself to be an infrequent texter explained that: “I think it is just easier to call someone and say what needs to be said rather than [typing] a whole big spill of text.” Another boy complained that “text messages can go on for days” since, unlike face-to-face or telephone conversations, there are fewer physical constraints that necessitate ending a conversation.

For most of the participants, however, text messaging was the first choice for contacting close friends because of the speed and simplicity of sending and receiving messages. As one of the girls explained: “Normally everyone else has their phones right by them, so you can get an answer back right away.”

### Constant contact/Ubiquitous communication

Frand (2000) suggested that for digital natives: “constant connectivity—being in touch with friends and family at any time and from any place—is of utmost importance” (p. 15), and others writing about digital natives have echoed this theme (e.g. Oblinger, 2003; Oblinger & Oblinger, 2006). Especially in the case of texting with close friends, these students wanted to be able to carry on conversations and other mediated interactions, as one student said, “anyplace, at any time.” Most of the students had at least one tool for mediated communication within easy reach at all times: “Right when I get home I just log onto Facebook and leave it on in the background for the rest of the night. And when I am out doing other things, I am texting or calling people.”

Another one of the boys explained that:

*I am always connected to my girlfriend.... I have a group of friends that text me or call me on a regular basis, and out of them it might be one in a day or a couple of them [who text or call me each day]. Some days are higher than others.*

Cell phones in particular were nearly constant presences in their lives. Nearly all of them carried cell phones to school, to work, and to social events, making them “always connected” to their close friends. As one of the boys explained: “I got an iphone, and I got a Facebook application on my iphone. I have had it for almost a month,

and it has never left my body. It has been in my pocket or next to my bed...never more than three feet away.”

Students who could access Facebook via cell phones were much more avid users of social networks than those who were limited to computer access. Discussing his preference for texting over social networking, one of the boys explained that “Facebook has a lot more information, but you have to be at a computer to use it. So it is not really mobile.”

### **Multitasking**

Another theme that runs through the digital natives literature is young people’s heavy use of multitasking (e.g. Brown, 2000; Foehr, 2006; Frand, 2000; Wallis, 2006). For most of these teens, multitasking was indeed a habitual behavior, and they preferred ICT’s that could support their multitasking habits. For example, one of the boys explained that his most typical online activities included listening to music, checking Facebook, checking online sports scores, watching videos on YouTube, texting, playing games, doing homework, and emailing—usually all at once. Most of the students agreed that they multitasked while doing homework in particular: “Last night I was on the library [website] here, and I had Twitter open. I also had my Gmail open, *NY Times*, and Microsoft Word open, and I still did my [school] project in half an hour.”

Another reason for the popularity of texting was that it lent itself especially well to multitasking: “You can almost do anything that doesn’t require two hands and text at the same time.” Most of the participants agreed that texting while in the presence of others was so common that “In most cases I won’t notice.” On the other hand, they disapproved if the texter became too distracted to participate in the face-to-face conversation:

*It can be annoying.... I was driving in a car with a friend of mine and she was texting, but she couldn’t keep the conversation going with me and text at the same time without stopping. So there were breaks in our conversation. But if you can text and keep a conversation fluid, I don’t see a problem with that.*

When asked why they chose to multitask, there was general agreement that multitasking relieved boredom: “I know that I have gotten so use to a high-paced lifestyle that I am uncomfortable and uneasy when things slow down. If I am just at home with nothing to do, I am unsure what to do with myself.”

### **CONCERNS**

To reduce potential reactivity effects, the focus group guide did not ask students directly if they had concerns about ICT use but instead encouraged them to discuss their general thoughts and opinions about social networks and ICT’s to see if they brought up concerns on their own. Even though most of the teens were frequent and enthusiastic users of these tools, they did bring up a number of related concerns that were repeated throughout all six focus group sessions.

### **Information privacy**

Many of the students voiced worries about the loss of privacy online. As one of the girls said, “Too much personal business is put online.” One reason for the teens’ infrequent use of landline telephones was: “It’s more private to use your cell phone.” They tended to protect their cell phone numbers in order to protect their privacy: “When I am asked for my phone number and it is an organization, I will give my landline so that I am not obligated to answer like with a cell phone.”

In terms of social networks, another reason for the popularity of Facebook was the belief that it offered more privacy than other social network utilities: “Facebook is pretty private. You can make it pretty private.” With Facebook “you get friend requests from people you actually know, but with MySpace, I just got random friend requests.... I didn’t know any of them. I don’t know anybody from South Dakota.” And while the students knew they could refuse friend requests from strangers, they did not like the idea of strangers “watching” them online.

Although most of the students thought that Facebook had advanced privacy controls, many were unsure exactly how tight they were or how to implement them:

*Student #1: I think there is a way you can make it where only your friends can see the pictures.*

*Student #2: You can make it where they can’t see your page unless you add them as a friend.*

*Student #3: That doesn’t make it private, though.*

The most common method of protecting one’s privacy within social networking communities was to limit online friends to known individuals. Exceptions included friend requests from people with “at least five or six mutual friends,” and requests from unknown students who indicated that they were planning to attend the same colleges after high school graduation.

Many of the students also limited family members’ and other adults’ access in order to protect their privacy:

*Male student: My mom has a Facebook, and like a couple of my uncles do. I was their friend, but they can’t know what is going on in my social life. So I deleted them. My mom gives me a friend request every once in a while, but I just reject it.*

*Moderator: Does she ask you about it?*

*Male student: She asks, but I will just be like, “No. You aren’t going to be my friend on Facebook. I live in the same house as you.”*

*Female student: Yeah. My dad was going to get a Facebook, and I convinced him not to get one.*

Another one of the boys explained that trust and shared values dictated whether or not he would friend adults:

*I am friends with one of my parents' friends on Facebook. I feel comfortable with her. I don't hide anything from her. But one of my aunts has different values than my family. So in my pictures, even if I am not doing anything bad, I don't want to portray my friends like that. I type in her name and don't let her see this album. I don't want to show my friends as bad kids.*

### **Information security**

Closely related to worries about online privacy were worries about online security. The students thought of physical security threats in terms of unknown and potentially dangerous individuals gaining access to their personal data. They felt that this type of threat was especially present in social network sites, perhaps reflecting the popular media's frequent portrayal of social network sites as dangerous (Agosto & Abbas, 2009; Hinduja & Patchin, 2008). Before friending an unfamiliar person, many of the teens described engaging in "Facebook stalking"—gathering as much information within Facebook as possible about another person without the other person's knowledge. Facebook stalking was not seen as a negative behavior, but as a practical behavior both for security reasons and for assistance in determining whether or not to begin a relationship with a new person.

To these students, online safety was a learning process. When one of the boys had first joined Facebook a couple of years previously, he had created an open profile that enabled anyone to see his information. He had since made it private. "You become more aware of those issues as you become a more experienced user." He had also added a lock on his cell phone so that no one could look at stored text messages. "You learn your limits," he concluded.

Some of the teens had registered for Facebook accounts using pseudonyms to protect their online security. For example, one of the girls used only her first and middle name on Facebook for "privacy and safety. You just hear stories, and you would rather be safe than sorry." One of the boys in this session responded that he used just his first name with his last initial for the same reason.

Many also expressed skepticism about revealing personal information online. For example:

*Male student #1: People make [Facebook] groups when they break their phones.*

*Male student #2: People are like, "I need your numbers because I broke my phone." Who actually joins? That is kind of dangerous because people you don't know can get your numbers.*

In addition to threats to physical security, the teens worried about threats to their academic/professional security. They worried that school officials might find scandalous information online that could jeopardize their chances at being accepted to college: "I have heard of people getting rejected from colleges because they had seen their Facebook profiles. And pictures." They also worried that

potential future employers might refuse to hire them, as "anything digital sticks around."

Additional security concerns included threats to emotional security, or the possibility that unknown persons could misrepresent them online. In fact, two of the boys had had their MySpace accounts hacked. One was visibly upset as he told the story of a hacker posting a racist message on his profile to make it look as if he had posted it: "I got rid of my MySpace right there." He switched his social networking home base to Facebook, which he perceived as safer. He attributed the decline in teen MySpace use to security flaws: "A website like Facebook or MySpace can only survive if it has a reputation as being safe."

On the other hand, the students were familiar with ways to circumvent security controls, such as lying about their ages or using false names to create accounts. One of the girls explained that:

*I got my Facebook in eighth grade. And then our Catholic school found out about it, and they made us stop. They made us delete them. Because when you're on Facebook you are in a network, like [my high school] is on a network. But [my middle school] was on a network, so supposedly they could control it. They found certain pictures of things and got us in trouble for it. They made us delete them. But then I got a new one with a new name. There are ways around stuff like that.*

### **Communication overload**

Unlike popular media portrayals of teens with unbounded enthusiasm for all things digital, a few of the teens described periodically cutting themselves off from selected media as a form of self-protection from communication overload: "Sometimes it gets annoying, and I will stop using Facebook for a while to get relief. Then I start up again." One of the boys explained that: "There's too much inter-connectivity. Overall, it's just become too much."

One of the girls had "stopped doing it [using IM heavily] because it was so overwhelming. I couldn't control it." One of the boys agreed that IM'ing in particular could be "overwhelming," with "like nine people talking to you at once." There was general agreement that texting with just one other person was less cognitively demanding.

Other students complained about the frequency with which their online friends posted information:

*There are just things that irk me. Like people updating their status every six minutes: "I am going to the shower. I am out of the shower. I am brushing my teeth. I am doing this...." Certain things like that just irk me. If I am not good friends with them, then I just delete them. I don't want to see what you do every single day if you are not one of my best friends.*

This meant that: "You get to know them a little more than you want to."

For this same reason, many of the teens avoided Twitter: “They push it too far.” They also objected to Twitter’s open access policy, which enables non-registered, “non-friends” to view posts.

#### **Reduced face-to-face communication and interaction**

The final concern dealt with a reduction in face-to-face communication and interaction. Simply put, technology “takes time away from hanging out with your friends.”

For example, one of the girls expressed regret that “personal contact” was reduced with increased technology use. Nonetheless, she spent more time texting than talking on the phone, even though she missed hearing her friends’ voices.

One of the boys described phone calling as “more intimate than texting because you get to hear each other’s voices.” A few of the teens liked Skype video calling because “you get to see the person,” but others objected to video communication in general:

*I have done video chats with friends of mine, and they do get kind of silly because you have removed kind of like... the 3-D part of it. The part where you are near the person. It gets pretty silly and never works right. People drop out, or it is grainy. Or if they are on ichat, then they put on those mirror effects, and they make their faces look weird. It is very difficult to pull off if you don't know the person very well.*

One of the boys summed up his group’s worries about the loss of face-to-face communication and interaction when he said:

*I think Facebook is a good social network. It is a good social tool. But sometimes I think it negatively affects people. I think people should still be able to stand up and talk about what they believe or their opinions. I think people should still socialize face-to-face and talk.*

Others were less perturbed about the increasing amount of time they spent using ICT’s. As one of the girls explained:

*Personal interaction has been reduced because of all of the technology, but it works for me. I would rather be texting on the phone than talking because my house is really busy. Always somebody yelling or crying, because there are ten people in the house. There’s a lot of people. It is harder to try and hear, so text messaging is a lot easier.*

#### **DISCUSSION: CHALLENGING THE CONCEPT OF THE DIGITAL NATIVE**

In some ways, these findings tell a story of contradiction. Most of these teens wanted constant contact, yet they were experiencing communication overload. They preferred the privacy of texting to talking on the telephone, yet they worried about reduced face-to-face social interaction.

Although the idea of the digital native holds that Millennials are so comfortable with technology that they are eager to play with new systems and new features (e.g. Brown, 2000; Frand, 2000; Oblinger, 2003), these students

were generally wary of having to relearn how to use online tools: “The one thing that irks me most on Facebook is that they constantly update everything. They change the whole format and it gets harder to get around, like MySpace. Upgrade, upgrade.” Others agreed and said that they wanted to spend their time communicating, not learning how to use new systems features.

Nonetheless, these students were undeniably heavy users of ICT’s. Many of them echoed the sentiments that “texting is pretty addicting,” and that “I use Facebook pretty much all of the time.” One of the boys said that his most recent phone bill indicated he had sent over 1,000 text messages the previous month. One of the girls in another session said that she had sent over 1,500 text messages the previous month. Others in these sessions chimed in saying that their use of texting was about as frequent, sending an average of about 30 to 35 text messages per day. Without access to their phone bills, the researchers could not verify these numbers, though they are consistent with recent teen cell phone use data (Lenhart, Ling, Campbell, & Purcell, 2010). Regardless of the exact numbers, the students considered themselves very frequent users of text messaging and of Facebook, often referring to themselves as “addicted” to technology, despite their concerns about technology use.

These contradictions suggest that there is no simple picture of today’s teens and ICT use, and that no sound bite or slogan can provide a full picture of their attitudes toward mediated communication. Some of the writing about digital natives seems to suggest that all members of the Millennial generation share the same technology attitudes and behaviors. Researchers and other adults concerned with teens’ use of ICT’s must be careful not to stereotype all Millennials by suggesting that the entire population uses ICT’s in the same ways or that they think about mediated communication in the same ways. Even within the highly-connected school culture of the current study, two of the 45 teens expressed general distaste for mediated communication. One of boys explained why, unlike most of his contemporaries, he was an infrequent user:

*I don't use the computer as much. I really have to be up doing something. I can't be sitting all day. I have to be active. So I just pick up the phone, talk. I gotta hear ya. I can't just read words. I can't read books, so I can't read text [messages]. So that is mostly it. I shy away from the computer.*

The same boy later complained that: “People text all of the time, while they walk. They don’t look at me.... I find that rude.” His opinion was clearly the minority opinion, and in fact, a number of the students were sending and receiving text messages and checking their Facebook pages on their cell phones throughout the focus group sessions. Still, his view is an important perspective to consider and a reminder that not all teens have embraced social networks and other ICT’s.

Another boy who avoided social network and ICT use explained that he simply did not want to conduct social interactions or post personal information online:

*Student: I don't put anything up myself online.*

*Moderator: Why?*

*Student: I am not a very social person.... I only have four or five close friends outside of school.*

Later in the interview, the moderator asked this student if he felt left out of online culture. He replied: "No, because I choose to be out of it. It [technology use] is annoying to me.... I think it is just the way my brain works."

Again, his was a minority opinion, but one that researchers, educators, and others interested in understanding teens and technology need to consider.

These two examples of nonuse of social networks and other ICTs may indicate other factors to consider, such as those related to psychosocial factors, or to learning disabilities. Each of these factors warrants further investigation to gain a more complete picture of why some teens choose not to participate in online social networking or to use ICTs.

For students with minority viewpoints such as these, avoiding mediated communication is likely to become more and more difficult as social communication and daily interaction moves increasingly online. One of the three boys who did not have a Facebook account explained that: "I feel like there is a social pressure. I will get one eventually. I do feel there is some type of social pressure."

## CONCLUSION

These students proved to be excellent research participants, and the focus group method led to rich data about their thoughts and ideas. Most were able to describe and analyze their behaviors and preferences in detail, and they seemed comfortable talking about their ICT thoughts and opinions. For example, in a number of the sessions the teens described a "big shift between MySpace and Facebook" with a "wave of people transferring over" to Facebook a few years previously. Boyd (2007, 2009) has analyzed this shift on the national level, suggesting that it was largely class-based and somewhat race/ethnicity based. For this primarily white group of students, interface, privacy, and security issues brought about the shift, as well as the desire to be in the same social space as the majority of their friends. Whether or not class and race issues played a role as well, the students were highly conscious of the shift and were able to analyze why it had occurred.

This study also highlights the importance of educating teens to become intelligent, informed users, as in the case of the boy who described his learning to protect his privacy online as an ongoing learning process. Educating students how to become smarter, safer users of ICT's is likely to be more helpful over the long term by teaching lifelong survival skills, rather than merely "protecting" teens from

potentially harmful online information (such as filtering information or restricting use).

For these teens, Facebook and texting via cell phones were the clear communication modes of choice, but these top choices will likely change in a few years, and then change again and again as communication and information technologies continue to evolve. As one of the boys said: "They'll always keep making new technologies to keep us in touch with each other." As a result, this study also shows researchers that keeping track of the specific ICT's teens are using at any one point in time is not as important as working to understand the thoughts, behaviors, preferences, and concerns that underlie their use of ICT's in general. These underlying concepts are likely to remain more static and to have longer heuristic value. It is therefore vital to continue to go to teens as the sources of direct data when seeking to understand their relationships to ICT's, and to continue to question the monolithic portrayal of today's teens as digital natives.

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