Personal information of adolescents on the Internet: 
A quantitative content analysis of MySpace

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Abstract

Many youth have recently embraced online social networking sites such as MySpace (myspace.com) to meet their social and relational needs. While manifold benefits stem from participating in such web-based environments, the popular media has been quick to demonize MySpace even though an exponentially small proportion of its users have been victimized due to irresponsible or naïve usage of the technology it affords. Major concerns revolve around the possibility of sexual predators and pedophiles finding and then assaulting adolescents who carelessly or unwittingly reveal identifiable information on their personal profile pages. The current study sought to empirically ascertain the type of information youth are publicly posting through an extensive content analysis of randomly sampled MySpace profile pages. Among other findings, 8.8% revealed their full name, 57% included a picture, 27.8% listed their school, and 0.3% provided their telephone number. When considered in its proper context, these results indicate that the problem of personal information disclosure on MySpace may not be as widespread as many assume, and that the overwhelming majority of adolescents are responsibly using the web site. Implications for Internet safety among adolescents and future research regarding adolescent Internet use are discussed.

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Hey guys its me!... My name is Aerial... I am a freshman at HHS i am on the JV volleyball team and i also will be playin basketball! I have long blonde hair blue eyes im bout 5’6… if ya wanna get to kno more about me then jus IM me at [removed] or send me a message!

(16-year-old girl from West Virginia).

The Internet has vastly augmented the ability of individuals to meet, interact, and keep in contact with others with whom they have something in common, regardless of demographic or geographic restrictions. In the 20th century, youth primarily kept in touch via face-to-face interaction and the telephone. In the 21st century, adolescents with access to the Internet are broadly using computer-mediated methods—which are often more convenient, expedient, and purposed than previous means—to stay in contact (Lenhart, Madden, & Hitlin, 2005; Lenhart, Rainie, & Lewis, 2001; Subramanyam, Greenfield, Kraut, & Gross, 2002; Tidwell & Walther, 2002). Indeed, the veritable explosion in popularity of social networking web sites have seemingly redefined interpersonal communication and relationships as we know them (Romm, Pliskin, & Clarke, 1997).

There are a number of popular social networking web sites (e.g., myspace.com, facebook.com, xanga.com, friendster.com). Among these, MySpace has emerged as the most popular—capturing almost 80% of the visits made to this class of web sites (Reuters, 2006). Perhaps because of its popularity, MySpace has received a significant amount of negative attention by the popular media, as well as by parents, teachers, school administrators, counselors, and even law enforcement. This is primarily due to the tens of millions of people who use the web site’s technology to interact with others, and because of the potential vulnerabilities to victimization that may arise when youth unwittingly, naively, or carelessly post personal information about themselves or their friends on publicly accessible web pages. The current study provides a thorough analysis of the content of public adolescent MySpace profiles to illuminate the kind of information youth are posting online. A better understanding of this content may help adults determine whether youth are using these types of sites in a way that places them at risk for potential victimization.

In the following text, we first introduce the reader to the concept of social networking, focusing on information specific to MySpace and its structure, functionality, and the reasons for its popularity. Next, we detail some of the positive benefits and potential risks of social networking among adolescents to illustrate how valuable it can be while acknowledging that real harm can come from its misuse. Following this foundational information, the methodology of the current study is described, along with relevant descriptive statistics from a content analysis of 1475 randomly selected, publicly viewable, youth MySpace profiles. Implications for parents and other concerned adults are also discussed, and directions for future research outlined.

Internet usage and social networking among adolescents

According to comScore Networks, 713 million people ages 15 and older (representing 14% of the global population) used the Internet in June 2006, with 153 million of those in America (Lipsman, 2006). These numbers will continue to grow as computer technology and telecommunications capabilities reach farther and deeper into the countries of the world. In
In order to couch the current research in its proper context, it is important to demonstrate the relative ubiquity of information technology usage among children and adolescents in the United States. One of the most comprehensive studies of teenagers online was conducted by Princeton Survey Research Associates in October and November 2004. These findings provide a baseline for comparison to the present study, and attest to the prevalence and frequency with which this population has embraced Internet use and communications. Based on telephone interview data collected from a nationally representative sample of 1100 American youth between the ages of 12 and 17, it was learned that 87% of youth at this age were online. This translates to approximately 21 million youth—up from 17 million in late 2000 (Lenhart et al., 2005). The majority (51%) go online on a daily basis—up from 42% in 2000—with 51% having broadband (high-speed) Internet access at home. Concerning availability of hardware, 75% of those 12–17 years of age report owning either a desktop or laptop computer, with 15% having both (Lenhart et al., 2005).

While email continues to be frequently used, these researchers also found that instant messaging was the most popular mode of communication among online teens—with 75% using the technology and 48% doing so at least once each day (Lenhart et al., 2005). Indeed, focus group feedback revealed that email is primarily employed to communicate with adults, and to disseminate long and detailed information to a number of individuals. Conversely, instant messaging is used for less formal dialogue where content can range from very casual to very serious, and which occurs only between two persons but affords individuals the ability to concurrently carry on multiple synchronous conversations (Lenhart et al., 2005).

While email and instant messaging have historically been the mediums through which interpersonal communication among youth online took place, in recent years the commenting and messaging functionality built into web sites that allow users to create personal profile pages and then link them to others has begun to supplement (and in some cases even replace) those traditional methods (Lenhart & Madden, 2007). On these social networking web sites, individuals can quickly immerse their created “virtual presence” among the created virtual presences of their entire social group and can immediately and conveniently get in contact with one or all. Regardless of the physical or temporal location of a person, then, users can intangibly surround themselves with the online representations of friends and acquaintances—allowing them to instantaneously feel close to any or all of them. These online portrayals are often replicas of their real life counterparts, and so interacting in this manner is arguably the next best thing to actually being with those friends in person. Indeed, it may even be preferred due to the ease and celerity with which conversation can take place. In order to fully understand social networking web sites, it is essential to first comprehend a social network in its traditional sense and then consider how it evolved into a cyberspace-based cultural phenomenon. Some researchers define a social network as a set of persons with whom specific types of support are exchanged (Wellman, 1981), as the set of relationships that are somehow important to a person (Kahn & Antonucci, 1981), or “interlocking structures in which supportive and non-supportive interactions both occur” (van Tilburg, 1995, p. 5). Surra and Milardo (1991, pp. 2–3) define a social network as “a collection of individuals known by a target person” and consider the network in terms of the “interdependencies that link partners to their kin, friends and other associates.” These definitions capture the notion that it is not enough to study the individual and his/her interactions with other people from a dyadic perspective. Rather, it is essential to understand that each interpersonal relationship occurs within a context of many others.
Individuals can be linked within a social network because they work or go to school together, graduated from the same university, live in a particular city, or share an interest in a certain music artist or television show or actor or technology or hobby or lifestyle—the possibilities are endless. Regardless of the reasons for the connections, individuals are drawn to others with whom they can relate (Asher & Parker, 1989). Accordingly, social networks of persons naturally arise due to past and present life experiences and relationships, and open up opportunities for future interactions (Surra & Milardo, 1991).

The growth in Internet access, speed, and computer hardware and software availability—coupled with a population of youth that is increasingly being raised in front of a computer—has led to social networks being replicated online. An Internet-based social network can accordingly be considered a virtual community, consisting of characteristics such as: “using common language and ease of communication; public space; common interests, values, and goals, persistence of common meaning; use of information technology for interaction, not physical space; overcoming time and space barriers; and using digitized identities as a substitute for physical being” (Wang & Chen, 2004, p. 4). As previously mentioned, this predominantly occurs through the use of web sites that allow individuals to construct personal profile pages which represent themselves. It is important to discuss how these profiles contribute to youth discovery of self by serving as mutable canvasses upon which they can explore who they are—and what they represent—alongside others who are doing the same.

**Social networking and identity construction**

Crucial to the subject of adolescent participation in online social interaction is the concept of identity. Research on identity development has identified that youth actively explore and question various beliefs, boundaries, goals, and roles before assimilating those that provide a sense of uniqueness (distinction from others) and a sense of unity (continuity and sameness with others) (Bosma & Kunnen, 2001; Erikson, 1968). Their thoughts and actions may, at times, seem contradictory and even rebellious as they negotiate the complex relationship between the external world and their internal experience (Döring, 2002; Erikson, 1950; Freud, 2005; Jacobson, 1999; Jung, 1976). The former involves largely social roles and relationships, while the latter concerns the definition and development of values, beliefs, and the self (Huffaker, 2004; Huffaker & Calvert, 2005)—and this process can aptly unfold in cyberspace due to the anonymity, flexibility, and accessibility that the Internet provides.

A host of elements coalesce on the Internet to facilitate identity formation and exploration. For example, the traditional concepts of anonymity (Jung, 1976; Kabay, 1998; Turkle, 1995) and pseudonymity (Calvert, 2002; Calvert, Mahler, Zehnder, Jenkins, & Lee, 2003) and the self-distancing they provide allow for uninhibited behavioral choices online. Also, deindividuation (Festinger, Pepitone, & Newcomb, 1952), role playing and the presentation of
multiple selves (Harter, 1998), physicality and demographic characteristics (Collins & Kuczaj, 1991), and sexuality (Freud, 1930; Grotevant, 1998) surface in multiple ways and contexts because of the intangible and liberating nature of computer-mediated communication. Indeed, all of these factors are keenly evident in the content that youth generate in cyberspace in order to represent who they are to the rest of their peer group (Roberts, Foehr, Rideout, & Brodie, 1999). One of the major ways in which this occurs is through web logs, or “blogs.”

Blogs are critical parts of personal profiles within social networking sites, and can be defined as a user-generated web-based publication consisting primarily of periodic articles or journal entries, most often in reverse chronological order (Huffaker & Calvert, 2005). While blogs can cover a variety of topics, they are generally equated to online diaries or journals that discuss notable experiences in the life of the writer. Huffaker (2004) points out four features which make blogs attractive to individuals who wish to post their thoughts online: (1) the ease with which individuals can learn to use them—requiring little technical expertise or web programming skills, (2) the ability to quickly archive and refer to past posts during future posts, (3) the facility where visitors can read and then leave comments or feedback for each post, and (4) the capacity to link to other blogs and thereby create a virtual community of sorts.

Since little research has been conducted on the content of social networking web sites, it is instructive to review some key studies on blog content to obtain a comparative reference point. In an ambitious work, Kumar, Novak, Raghavan, and Tomkins (2004) analyzed 1.3 million profile pages of LiveJournal3 bloggers in February 2004 to identify trends in blog structure and content. They found that each individual, on average, named 14 other LiveJournal members as “friends,” and that the “friendship” is mutual and reciprocated on the other person’s profile page in 80% of cases. They also discovered that 70% of friendships can be explained by one of three factors: age, location, and expressed shared interest(s) (Kumar et al., 2004).

Concerning demographics, most studies have found that boys and girls participate in blogging at relatively equal rates (Greenspan, 2003; Herring, Kouper, Scheidt, & Wright, 2004; Herring, Scheidt, Bonus, & Wright, 2004). For example, a content analysis of 203 randomly selected blogs from March through May 2003 found that some personal information is provided by the authors of blogs. For instance, 92% provide some form of a name—with 31% providing a full name, 36% a first name, and 29% a pseudonym. They also found the presence of specific demographic information (e.g., age, occupation, geographic location) on 54% of the blogs they examined (Herring, Scheidt et al., 2004).

In a more recent work, Huffaker and Calvert (2005) studied 70 teenage blogs obtained through a purposive sampling design with an equal gender distribution. Across these blogs, different forms of personal information were revealed, including: first name (70%); full name (20%); age (67%); birthdate (39%); email address (44%); instant messaging name (44%); and personal web page address (30%) (Huffaker & Calvert, 2005). Contrary to the researchers’ hypotheses, no statistically significant differences were found across gender when considering the disclosure of personal information.

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3LiveJournal is another popular social networking site, and can be accessed at http://www.livejournal.com.
MySpace

From the previous discussion, it is clear that computers and the Internet play a significant role in the lives and experiences of adolescents today. Moreover, youth have embraced the activity of blogging and share various experiences and personal information with friends and the general public online. The exponential growth of social networking web sites has been fueled in large part by this demographic group, and MySpace has benefited the most (Boyd, 2006). While there is little empirical data publicly available about the proportion of MySpace accounts that have been created by adolescents, most reports seem to suggest that about one-quarter of user profiles are of individuals under the age of 18 (Granneman, 2006). Moreover, a recent telephone survey of 935 teenagers between ages 12 and 17 found that 55% of online youth have created a personal profile page and 85% of those have done so on MySpace (Lenhart & Madden, 2007). As of January 2007, MySpace was the most popular web site in the United States, the fourth most popular English-language web site in the world, and by far the most popular of approximately 200 social networking sites—boasting over 150 million registered profile pages and growing at times at a rate of over 230,000 per day (Lenhart & Madden, 2007; Sellers, 2006).

The success of MySpace is due in large part not because of innovative functionality and utility, but because it centralized many attractive functions that were already a part of other social networking sites in a user-friendly way. Like the others, MySpace allows any individual to quickly and easily post a web page that serves as a digital representation of one’s self—their interests, personal style, affiliations, likes and dislikes—and then connect with (link to) “friends” who have done the same. Multi-media enhancements enable users to post and link to pictures, videos, and audio with relative ease. Moreover, the communication features within the site facilitate expedient interaction among a population who wants to receive or send information quickly and while engaged in multiple other online tasks. On their profile page, participants can post periodic blogs or journal entries (viewable to the public or restricted to only those approved as friends). They can also leave public “comments” on other profile pages or send private “messages” to other users, the content of which ranges from superficial greetings (“hey! what’ve u been up to?”), to the expression of meaningful sentiments (“I already miss the talks we had at the beach. I learned so much from you guys.”), to random observations or statements or questions about anything of interest (“I like Zelda games a lot, I even update my song to be Zelda”). If necessary, comments can be deleted by the owner of the profile page on which they are left.

When MySpace users first log on, they generally check new comments posted, messages received, and requests to approve people who want to be considered their friend (and, as a result, linked to their social network). They might also modify or customize their own profile page, request new friends themselves, post a new blog, or join a group with others who have a similar interest. Additionally, individuals may browse the profile pages of friends or “friends of friends” (if they are open to the public) and leave comments indicating they had visited. Some of these

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4A press release by ComScore networks (Lipsman, 2006) indicated that approximately 12% of the unique visitors to MySpace were between the ages of 12 and 17. It is important to differentiate “visitors” from users (or those with a profile). It should not come as a surprise, given the recent media attention, that more adults are visiting MySpace to see what their children are doing on the site.

5It bears mentioning that MySpace benefits from very high usage by a relatively limited number of individuals, and that many other web sites have a broader “reach” and are visited by a greater variety of people each day.
comments might be specific to a particular picture or video that the user had posted on his or her profile, for example. After perusing the pages of friends, the user may explore the profiles of those with whom they have something in common (e.g., same school, age, geographic location, or interests) or browse profiles created by musical artists—and consequently “friend” them (i.e., add them as friends to be included in their social network). Indeed, the number of friends one has and the number of comments posted on one’s profile are perceived as evidence of social success (i.e., popularity both online and offline) (Boyd, 2006).

All of these activities are done with the purpose of creating a profile page and interpersonal network that is socially appealing but also unique to the individual and representative of his or her likes and dislikes, inclinations, activities, and friendships. In short, MySpace has created an avant-garde participatory culture enabling people of all ages to represent themselves online in a creative way, and keep in touch with (and involved in) each others’ lives. This is accomplished through the site’s various interactive characteristics such as messaging, commenting, private groups, blogging, the posting of multi-media content, calendaring, and the “virtual” scrapbooking of events, people, places, hobbies, interests, and ideas.

Potential benefits and risks associated with social networking web sites

Participation in social networking web sites provides a number of potential benefits for adolescents. For instance, online interaction provides a venue to learn and refine the ability to exercise self-control, to relate with tolerance and respect to others’ viewpoints, to express sentiments in a healthy and normative manner, and to engage in critical thinking and decision-making (Berson, Berson, & Ferron, 2002). It also enhances self-discovery, and identity formation and production (Calvert, 2002; Erikson, 1950; Turkle, 1995) among a cohort whose self-worth stems largely from peer perceptions, popularity dynamics, and current cultural trends (Boyd, 2006; Cooley, 1902; Leary & Downs, 1995; Leary, Haupt, Strausser, & Chokel, 1998; Leary, Tambor, Terdal, & Downs, 1995). In addition, it provides a virtual place in which to “hang out,” share contemporary web-based artifacts like links, pictures, and stories, and remain intimately connected with friends regardless of spatial distance (Boyd, 2006). Finally, social networking sites serve as a largely uncontrolled, unregulated, unconstrained public space in which adolescents can “see and be seen” in ways that support youth socialization and the assimilation of cultural knowledge (Boyd, 2006).

Despite these benefits, the incredible growth and popularity of MySpace has left it in the unenviable position of being the top target for maligning headlines and statements in various media outlets. As a consequence, the site and its administrators have received much backlash as parents, teachers, school administrators, and other adults express concern over personal information that youth are posting, and over the potential that computer-mediated interaction with strangers will cross over into the real world. The popular press has reported on instances where MySpace profiles have been linked to many social problems, including: cyberbullying (Herget, 2006; Matsuoka, 2006); cyberstalking (Schneider & Taliercio, 2006); alcohol and drug abuse (Associated Press, 2006c; Usher, 2006); hate crimes (Eds, Lawhon, & Miller, 2006); planned or executed bombings (USA Today, 2006; Usher, 2006); planned school shootings (ABC News, 2006); suicide (Associated Press, 2006b); and even murder (Hoover, 2006). In addition, the biggest public concern appears to focus on the potential vulnerability of youth to online predators and pedophiles.
Giving credence to parents’ worst fears, some alarming cases have recently surfaced. For example, in Connecticut during February 2006, seven underage girls were fondled or had consensual sex with adult men whom they met on MySpace and who lied about their age (Associated Press, 2006a). Also in February 2006, a 26-year-old male from California was arrested for molesting a 14-year-old girl, a 27-year-old man in Maine was imprisoned for a sexual relationship with a 14-year-old girl (Poulsen, 2006), and in September 2005 a 37-year-old man from New York was arrested for molesting a 16-year-old girl (Angwin & Steinberg, 2006). It was reported that each of these incidents resulted from MySpace-based interactions.

These headlines, though, may tell only a partial story. It is therefore important to analyze the types of content that youth are posting on their MySpace profile, and whether that content might increase their risk of victimization. An objective, data-driven perspective on the technology, its usage, and its potential link to personal harm can meaningfully contribute towards this end. Accordingly, the present study sought to empirically examine adolescent MySpace profiles to determine the kinds of information most commonly included.

Methodology

To perform this assessment, the current work embarked on a comprehensive content analysis of a representative sample of MySpace profile pages. In order to be representative, all profiles required an equal and random chance of being selected for analysis from the entire universe of MySpace pages (in the summer of 2006, that universe represented approximately 100 million profiles). This was accomplished using a random number generator, since each profile is uniquely assigned a numeric identifier within the site upon its creation. A data collection form was then used by the research staff to record specific types of information found on selected MySpace profile pages. Because they were selected randomly, MySpace profiles identified could have been created by an adult or a youth. Additionally, some profiles may have been deleted or no longer contain any information. Moreover, because all MySpace users have the option of restricting access to their profile to only those they identify as friends, some of the profiles randomly selected could not be analyzed. Indeed, MySpace requires users to be at least 14 years of age and the profiles of those who represent themselves as 14 or 15 years of age are automatically set as “private” and therefore not viewable to the public. Despite these restrictions, youth under the age of 16 can easily subvert this requirement and make their profiles publicly accessible. These issues are discussed in more detail in the Results section.

The information sought involved personal data, and this included the following: first name, full name, birth date, telephone number, postal address, email address, instant messaging screen name, city and state (if in the United States), and name of school. Data were also collected for the following variables: last login date; number of friends; number of comments; date of first comment; evidence of alcohol, tobacco, marijuana, or other drug use; number of pictures;
pictures in swimsuit/underwear; and swear words in profile. Using a form created for the purpose, data entry staff noted whether each site contained the above information. The form also included a free-response section for reflective comments about the profile which allowed the researchers to re-check profile pages that were particularly noteworthy.

The research staff reviewed all publicly viewable elements on each MySpace profile, including basic descriptive information listed by the user, blog entries, and comments left by visitors. Some details were prominently displayed on most profile pages (e.g., gender, number of friends, number of comments, date of last comment, last login date), while others were retrieved from detailed descriptive paragraphs in an “About Me” section. Still other details were culled from one or more comprehensive online surveys within some profile pages that elicited and displayed personal information from the youth (see Appendix A for an example of an actual survey). Finally, additional information was discovered through the comments and pictures that users and visitors post or leave, or the responses they give to standard questions when signing up (for example, two of these cover participation in drinking and smoking). Cumulatively, these common features of MySpace profiles assisted in the data collection process.

Reliability

Research assistants who coded the MySpace profiles were individually trained to facilitate accurate content analyses. They were instructed in how to carefully examine each profile and look for certain keywords. In addition, the principal investigators observed the initial coding by each of the research assistants and provided clarification and further instructions as necessary. Upon completion of the initial coding, the principal investigators then re-coded a random sample of approximately 13% of the youth sample ($n = 193$) to assess interrater reliability. Cohen’s Kappa statistic was employed to evaluate the extent to which there was agreement in the coding of each of the profiles. Generally, Kappa values between 0.41 and 0.60 are considered “moderate,” those between 0.61 and 0.80 are considered “substantial,” and those that are greater than 0.81 are considered “almost perfect” (Landis & Koch, 1977, p. 165). The range of Kappa values for the variables of interest in the current study was 0.39–0.97 (see Appendix B). These statistics suggest at least a moderate amount of interrater agreement. Over 70% of the measures in this study produced Kappa values that were in the “substantial” or “almost perfect” categories. Since this phase of the project simply involved identifying keywords and relatively straightforward pieces of information, it is not surprising that the reliability was high. Nevertheless, some variation is understandable given the dynamic nature of the profiles. The reliability coding was completed in some cases several weeks after the initial coding and therefore the content in the profiles may have changed. As such, future research should archive each profile by taking a scrolling screenshot or saving the web page in HTML or PDF format to allow for consistency in coding over time.

Results

As reported in Table 1, a total of 9282 profiles were randomly selected from the almost 100,000,000 that were purported to have been created on MySpace at the time of the study
Among those selected, 548 (approximately 6%) had been deleted, were no longer active, or were otherwise invalid. This finding may be evidence that MySpace might be inflating the number of active users on the site, as 6% of the total number of profiles examined would represent approximately six million profiles across the entire MySpace community that might be inactive or deleted. An additional 3% were musical artist profiles (n = 278) and were therefore excluded from analysis. Finally, 50 profiles (less than half of 1%) returned “not listed errors,” meaning there was some web server problem with that particular profile. Of the remaining profiles, 5983 (65%) were created by adults and 2423 (26%) were created by youth under the age of 18. Youth status was determined by coding the listed age and also searching the profile for information that would either substantiate or contradict that age. As will be discussed below, a small but significant number of youth patently misrepresented their age on their MySpace profile. Approximately 39% (948 out of 2423) of the youth profiles were set to private, and as a result researchers were unable to access the profile because it was restricted and viewable only by friends. Accordingly, the final youth sample consisted of 1475 profiles that were publicly accessible and consequently analyzed.

Table 2 presents a more detailed description of the type of information that was publicly available on the MySpace profiles of this youthful sample. First, about 54% (n = 795) of the profiles reviewed were created by females. Second, more than 8% (n = 123) of the profiles included evidence of age inflation. For example, about 15% of the profiles included the youth’s birth date, and on a number of occasions that birth date was inconsistent with the age listed in the profile. One reason youth tend to inflate their age is so that they can circumvent the MySpace site wide policy of setting all profiles of youth under the age of 16 to private. As such, many 14- and 15-year-olds (and even younger) choose to report their age as older than 16, but then reveal their day—August, 2006). Among those selected, 548 (approximately 6%) had been deleted, were no longer active, or were otherwise invalid. This finding may be evidence that MySpace might be inflating the number of active users on the site, as 6% of the total number of profiles examined would represent approximately six million profiles across the entire MySpace community that might be inactive or deleted. An additional 3% were musical artist profiles (n = 278) and were therefore excluded from analysis. Finally, 50 profiles (less than half of 1%) returned “not listed errors,” meaning there was some web server problem with that particular profile. Of the remaining profiles, 5983 (65%) were created by adults and 2423 (26%) were created by youth under the age of 18. Youth status was determined by coding the listed age and also searching the profile for information that would either substantiate or contradict that age. As will be discussed below, a small but significant number of youth patently misrepresented their age on their MySpace profile. Approximately 39% (948 out of 2423) of the youth profiles were set to private, and as a result researchers were unable to access the profile because it was restricted and viewable only by friends. Accordingly, the final youth sample consisted of 1475 profiles that were publicly accessible and consequently analyzed.

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real age somewhere in their profile page. Indeed, most of the profiles on MySpace with listed ages above 80-years-old are actually those of youth under the age of 18 (with many under the age of 16). Other clues to a youth’s actual age are given when friends leave a date-stamped comment on the user’s profile on their birthday (“i told you happy birthday at school, but not on myspace hahahaha. and now i’m kind of late. but i hope you had an amazing birthdayyy!”), or when references are made to age or school status (“well im turnin 17 in september and im gonna be a senior at forest park”). Notably, 27 youth who listed themselves officially as over 16-years-old indicated at some point in their profiles that they were actually under the age of 14—the minimum age as required by MySpace. With approximately 100,000,000 profiles (at the time of the study), it is a formidable task for MySpace administrators to identify profiles that violate their terms of service—and so it is not surprising that a number of youth under the age of 14 have active profiles.

Approximately 45% of the profiles were customized; that is, they departed from the standard, default MySpace design structure. Many of these profiles included elaborate HTML coding, thematic colors or pictures, video clips, audio, and graphics. Evidently, some teenagers spend many hours online modifying the layout and information on their profile pages. In addition,
almost 57% of profiles \((n = 839)\) included at least one picture of the youth (median = 2; maximum = 16), with many including pictures of themselves with friends, family, or even random people they met at social gatherings. Even those adolescents who do not include a picture often provided detailed descriptions of their personal appearance: “whoa…lets see…im 13 years old…i play volleyball and tennis…i have brown hair w. blonde hilights…i have braces and i hate em!—ask if you wanna know more.” These details may make it very easy for someone with malicious intentions to identify these youth in real life. While including a picture or descriptive details potentially places a youth at risk, of particular concern were the youth who included pictures of themselves \((n = 56)\) or others \((n = 228)\) posing in swimsuits or underwear. Not only could these pictures be used by would-be cyberbullies to inflict harm, but they may also attract the attention of sexual predators or other individuals with prurient motives (Angwin & Steinberg, 2006; Associated Press, 2006a; Poulsen, 2006).

With regard to personal information, almost 40% of the profiles included the youth’s first name, and approximately 9% included their full name. This information, along with their current city (81%) and school (28%), may also assist those seeking to identify profile owners offline. While it is effortless to contact youth via their MySpace profiles (using private messages or public comments), some youth also included their instant messaging name (4%, usually a screen name for AOL, Yahoo, or MSN Messenger) or an additional email address (1%). In rare cases \((n = 4)\) youth reported their personal (usually cell) phone number. In addition to the phone numbers reported within the profile by its owner, we noticed a few cases where friends would include their own phone numbers in a public comment they left (“O yess, and those letters at church.. we need to get crackin on those hehe call my cell [469–1637] and we will figure somethin out soon”). Four profiles out of approximately 1500 represents a small percentage (about one-third of 1%), however, this number extrapolated to all adolescents on MySpace suggests that up to 75,000 youth may be including this very private information.

This review of MySpace profiles also revealed that many adolescents seek to demonstrate familiarity with adult-oriented behaviors. For example, many youth indicated they had recently consumed alcohol (18%), while others noted that they had smoked cigarettes (8%) or used marijuana (2%). While it is perhaps shocking to see these behaviors being publicly flaunted on a MySpace profile page, it is important to remember that these activities are not uncommon among adolescents. For instance, the 2005 Youth Risk Behavior Survey indicated that among 9–12th grade students, almost three-quarters (74%) reported drinking alcohol at least once in their lifetime (43% reported having a drink in the previous 30 days), 54% reported smoking cigarettes in their lifetime (23% in the last 30 days), and 38% reported that they had smoked marijuana at least once in their lifetime (20% in the last 30 days) (Centers for Disease Control and Prevention, 2006).

Even though these behaviors are relatively ubiquitous during adolescence, publicly revealing them could potentially have long-term consequences for these youth. Many prospective employers and college admissions counselors are searching social networking sites and excluding applicants who have engaged in questionable activities as revealed by the content of their profile page (Associated Press, 2007; Bahrampour & Aratani, 2006; Finder, 2006; Kharif, 2006). In addition, many law enforcement agencies review social networking web sites in their routine background checks of individuals (Armario, 2007; Marshall, 2007). Even if youth later decide to change possibly incriminating content on their profiles, archived copies of these pages are often made and
stored online. Search engines such as Google and Microsoft Live, for example, create caches of web site page files on their computer servers to provide access to those pages to web users if the server where the original web page files are stored goes “down” or otherwise becomes inaccessible. After querying a keyword (for example, a person’s name) through these search engines, a “Cached” or “Cached page” hyperlink is provided after each entry in the retrieved listing of web pages on which that keyword can be found. Clicking on this hyperlink will take a user to the search engine’s copy of those pages, which exist and are accessible long after original pages are taken offline, and even after content is specifically changed or deleted (Table 3).

Some other findings related to the size and use of youth’s online social network are important to mention. In our study, youth were linked to an average of 65 friends (maximum = 1081) and had an average of 79 comments (maximum = 2545) posted to their profile pages. As discussed above, comments are a form of “cultural currency” (Boyd, 2006) and a large number of friends and comments implies or connotes popularity. It was evident that many youth use these comments as a way to communicate with friends on a regular basis. Often friends would simply leave a comment to show that they had visited the profile (“just saying hey”). Additionally, MySpace seems to be a place to reconnect with friends whom one has not seen in some time. Recurring themes among the comments included “long time no see” and “hi, I miss you guys call me when you have time.”

There also appeared to be wide variation in the frequency with which youth logged onto their MySpace profile. For example, about 39% of youth had logged on within the previous three days of when the coding took place. The average number of days appears skewed by a significant number of teenagers who created a profile but ostensibly rarely or never return to MySpace. Alternatively, youth may have created a new profile and abandoned an old profile. Approximately 30% had not logged in to view their profile in over three months, and about 5% of these had not done so in more than a year. This finding also calls into question the claim of 100,000,000 MySpace users; results from our study suggest the number of regular or active users to be significantly less.

Discussion

The purpose of the current work was to examine the content of MySpace profiles to ascertain the extent to which youth are making private information available to the public. As reviewed above, there have been a number of reports in the media that have portrayed youth as

| Table 3: Adolescent participation on MySpace (N = 1475) |
|---------------------------------|---------|---------|---------|---------|
|                                | Mean  | Median | Minimum | Maximum |
| Number of photos on profile    | 3.8   | 2.0     | 0.0     | 16      |
| Number of friends              | 64.7  | 10.5    | 0.0     | 1081    |
| Number of comments             | 79.1  | 3.0     | 0.0     | 2545    |
| Number of days since last logging on | 89.4  | 14.0    | 0.0     | 645     |
irresponsible Internet-users who reveal too much about themselves in public online environments. This study found that some adolescents are in fact posting personal and identifying information, but perhaps not to the extent that many believe.

In addition, this research endeavor also revealed that almost 40% of youth set their profile to private, thereby limiting access to their information to those approved as friends. Of those that were not set to private and therefore viewable by anyone, over 81% of adolescent users included their current city while 28% also listed their school. Less than 9% of youth included their full name (38% listed their first name) and approximately 57% included a photograph of themselves (including over 5% wearing a swimsuit or underwear). Very few youth included ways to contact them outside of MySpace: 4% included an instant messaging screen name, 1% included an email address, and less than one-third of 1% included a phone number. Finally, a number of youth revealed on their profiles that they had used various illicit substances (18% used alcohol, 8% used tobacco, and less than 2% used marijuana).

While results of the study are promising for a number of reasons, they do not suggest that adolescent users are altogether exempt from risk of personal victimization. Indeed, it is very possible to locate (and potentially victimize) youth using the little information they do provide on this site. For example, 26% \( (N = 344) \) of the youth in the sample listed the school they attend and included a picture of themselves. This information alone could easily be used to contact the individual offline. That said, the disclosure of personal information by minors on MySpace occurs with comparative infrequency—contrary to previous research on adolescent use of web blogs (Huffaker & Calvert, 2005).

One limitation of the study concerns the fact that online identities are malleable (Hafner, 2001; Turkle, 1995). As such, it is not possible to guarantee that online portrayals of youth via their profile pages are accurate or truthful. Individuals may cast themselves in a favorable but false light to further attract peer approval and recognition—perhaps by indicating their participation in deviance or crime, or by gratuitously using swear words or posting sexually charged comments or pictures to corroborate their self-conception of maturity. Content analyses as a research technique in general cannot fully preempt this possibility because the content are social artifacts and produced by humans. This fact should not detract from the intention or utility of the research findings, as the primary concern of this research revolves around the posting of personal, identifying information within one particular online setting.

Another limitation of this work relates to the fact that only those profiles that were not set to private were examined. While it is generally a positive finding that nearly 40% of youth restricted access to their profiles, one might wonder if those profiles substantively differ from those that remain publicly accessible. It would be instructive, then, to explore the extent to which profiles set to private differ from those which are publicly viewable, and future research ought to explore this important question.

**Implications**

After receiving much backlash in the press about the lack of substantive proactive measures to reduce participants’ vulnerability to victimization, MySpace began airing public-service announcements and rotating banner ads within its web site in 2006, both promoting practices of online safety. Furthermore, they hired a chief security officer and have buttressed their staff to
more capably screen and remove problematic personal profiles and to more effectively work with law enforcement on complaints of criminal behavior (Olsen, 2006b). Partnerships between MySpace and the National Center for Missing and Exploited Children (NCMEC), as well as with the non-profit organization WiredSafety.org have been initiated to inform and protect youth who venture online (Olsen, 2006b). Finally, MySpace also automatically sets to private those profiles of youth who state their age is 14 or 15, and does not allow individuals 18 years of age and older to “friend” 14- and 15-year-olds unless they know their full name or email address (Angwin, 2007). These are all important efforts that should prove fruitful to some extent. The onus of preventive action, however, does not rest solely on the shoulders of MySpace.

It has been suggested that adults can reduce the possibility of youth victimization in multiple ways. These include supervising adolescents online whenever possible, promoting awareness of online safety and ethical use of computers and the Internet, and investigating incidents that are potentially injurious. Additionally, parents, educators, and other adults in supervisory capacities should work with teenagers to cultivate self-control, tolerance, and respect, as well as to learn conflict avoidance and de-escalation techniques. These strategies should help to promote responsible behaviors and choices by youth in cyberspace.

We also recommend that parents become actively engaged in online activities with their children. For instance, they might ask their child to help them create their own MySpace profile, and then ask if their children would add them as a friend. This would allow a parent to learn about MySpace and also allow him or her to view everything on their child’s page. Ideally, the child would be willing to sit down with a parent and go through his or her MySpace profile page together while discussing relevant online safety issues. Parents then might inquire about their son or daughter’s friends to determine how well their child truly knows these individuals in real life, and whether they have set their page to private. Through this activity, parents who are somewhat unfamiliar with the technology being used can learn from their children, while children who are naïve or unfamiliar with the danger of exposing personal information to the wrong persons can learn from their parents. Moreover, because adolescents often update their profile pages, parents must remain vigilant and go online with their children on a regular basis to address any potential problems as they arise.

As previously mentioned, the current work identified that 40% of adolescent users restricted their profile page so that only those they accept into their network of friends could view its contents. This is consistent with a telephone survey of youth which noted that 45% of teens across a number of social networking sites set their profile page to private (Lenhart & Madden, 2007). That said, it is important to remember that in general it is much more likely that youth will be abducted, physically or sexually assaulted, or otherwise victimized by a friend or acquaintance than by a stranger (Finkelhor, Turner, Ormrod, & Hamby, 2005; Hotaling & Finkelhor, 1990; Magid & Collier, 2007). Indeed, the fact that as much as 95% of child abuse and sexual assault is committed by family members is often ignored in the hype surrounding media accounts of

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10 Interested readers should consult Berson et al. (2002) and Patchin and Hinduja (2006) for additional recommendations.

11 These citations refer to relationships and victimization offline. Little empirical research has yet been published offender/victim relationships in cyberspace, and the extant body of literature is not large enough to inform generalizable statements.
sensational incidents of victimization that ostensibly occur through MySpace (Health and Human Services, 2006). Youth who set their profile to private may have a false sense of security if they feel that they could never be victimized by those they have accepted as friends into their network.

Relatedly, we are unaware of any incident where the revelation of personal information by adolescents on MySpace pages has led to personal victimization. The key theme when youth are sexually or physically victimized is that they chose to meet in person a stranger they knew only from MySpace or some other online environment. This is not to say that a cellular phone number or home address revealed on a MySpace page will never lead to physical harm to a youth.

It is also important to remind adolescents that just as they would not give their phone number to a stranger at the mall or leave a personal diary out in the open for an inquisitive sibling or parent (or complete stranger) to peruse, they should take care not to expose themselves in an online environment—even if they think they know who has access to the information. Also, youth must understand the permanence of profile pages and any information shared in cyberspace due to page archives and search engine caches. Simply changing or updating one’s profile page does not completely delete copies of older versions stored on other Internet-connected computers. Moreover, all youth should fully grasp that photographs and other personal data presented within social networking profile pages may possibly be used against them—by cyberbullies, their parents, school administrators, potential employers, college admissions officers, and even the police.

Finally, the potential for cyberbullying victimization also merits additional consideration. While not as physically harmful as sexual predation, empirical and anecdotal accounts highlight the significant personal, emotional, and psychological ramifications that can follow (Patchin & Hinduja, 2006). Hinduja and Patchin (2007) analyzed survey responses from 1388 adolescents found that 9.6% of males and 13% of females were harassed via email, while 17.7% and 19.7% were harassed via instant messaging. Obtaining someone’s email address or instant messaging nickname from a MySpace profile page can therefore equip a potential offender with the contact information needed to inflict harm. These findings further underscore the importance of guarding the accessibility of contact information in cyberspace.

Conclusion

The current work found that youth are including a variety of types of information on their public MySpace profiles, but that the vast majority of youth seem to be responsibly using the website. That is, only a small minority included personal or private information. In addition, approximately 40% of adolescents restricted their profiles so that only friends could access their contents. Perhaps the hue and cry from the popular media in recent months has been useful in bringing more attention to the need for minors to be careful with their public postings, and this has contributed to a more informed populace. While these results provide an important first look at the kind of information adolescents reveal on MySpace, more research is necessary. Future work should attempt to identify any empirical differences between public and private profiles, explore other social networking environments, and examine trends over time in the sensitivity and awareness of adolescents to online safety issues. Meanwhile, we hope that with the help of concerned adults, youth will continue to guard their personal information and conscientiously participate in social networking technologies. It is critical for them to recognize the inherent
dangers associated with online environments, and to remain vigilant about the kind of information they divulge therein.

Acknowledgments

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Appendix A

Example survey found on MySpace (retrieved 08/08/2006)

<table>
<thead>
<tr>
<th>Name:</th>
<th>(removed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthday:</td>
<td>8-12-91</td>
</tr>
<tr>
<td>Birthplace:</td>
<td>Virginia</td>
</tr>
<tr>
<td>Current Location:</td>
<td>uuh...my basement</td>
</tr>
<tr>
<td>Eye Color:</td>
<td>blue-grey</td>
</tr>
<tr>
<td>Hair Color:</td>
<td>blonde(dark and light)</td>
</tr>
<tr>
<td>Height:</td>
<td>???</td>
</tr>
<tr>
<td>Right Handed or Left Handed:</td>
<td>right handed</td>
</tr>
<tr>
<td>Your Heritage:</td>
<td>???</td>
</tr>
<tr>
<td>The Shoes You Wore Today:</td>
<td>hmmm flip flops</td>
</tr>
<tr>
<td>Your Weakness:</td>
<td>hitting in the boob</td>
</tr>
<tr>
<td>Your Fears:</td>
<td>bats,moths&amp;spiders</td>
</tr>
<tr>
<td>Your Perfect Pizza:</td>
<td>???</td>
</tr>
<tr>
<td>Goal You Would Like To Achieve This Year:</td>
<td>hmmm...something dirrty you aint gunna kno</td>
</tr>
<tr>
<td>Your Most Overused Phrase On an instant messenger:</td>
<td>Wow</td>
</tr>
<tr>
<td>Thoughts First Waking Up:</td>
<td>what to wear</td>
</tr>
<tr>
<td>Your Best Physical Feature:</td>
<td>hmmm dont ask me</td>
</tr>
<tr>
<td>Your Bedtime:</td>
<td>whenever i want</td>
</tr>
<tr>
<td>Your Most Missed Memory:</td>
<td>every time i was with the one i LOVE</td>
</tr>
<tr>
<td>Pepsi or Coke:</td>
<td>Coke</td>
</tr>
<tr>
<td>MacDonal ds or Burger King:</td>
<td>fast food...ick</td>
</tr>
<tr>
<td>Single or Group Dates:</td>
<td>Single</td>
</tr>
<tr>
<td>Lipton Ice Tea or Nestea:</td>
<td>Lipton Ice Tea</td>
</tr>
<tr>
<td>Chocolate or Vanilla:</td>
<td>Chocolate</td>
</tr>
<tr>
<td>Cappuccino or Coffee:</td>
<td>Cappuccino</td>
</tr>
<tr>
<td>Do you Smoke:</td>
<td>haha..yah</td>
</tr>
</tbody>
</table>
Do you Swear: hmmm...sometimes...mostly when i am DRUNK
Do you Sing: haha..yah
Do you Shower Daily: Yess
Have you Been in Love: yess...and i still am...but i dont want to be of course
Do you want to go to College: Yess
Do you get Married: Sometimes
Do you believe in yourself: Nop
Do you think you are Attractive: Depends
Are you a Health Freak: not really
Do you get along with your Parents: yess i doo
Do you like Thunderstorms: yess i looooove them
Do you play an Instrument: uuh sorry but no
In the past month have you Drank Alcohol: ooh yess i have
In the past month have you Smoked: Mmhmm
In the past month have you been on Drugs: Nop
In the past month have you gone on a Date: Yes
In the past month have you gone to a Mall: Nop
In the past month have you eaten a box of Oreos: No
In the past month have you eaten Sushi: Nop
In the past month have you been on Stage: Nop
In the past month have you been Dumped: Yepp
In the past month have you gone Skinny Dipping: Nop
Ever been Drunk: ooh baby yess
Ever been called a Tease: yeah but I think every girl has been called that
Ever been Beaten up: not yet...hahaha
Ever Shoplifted: sadly yeah
How do you want to Die: uuh i don’t
What do you want to be when you Grow Up: hmmmmm...pornstar...hahahahahahahaha
In a Boy/Girl...
    Favourite Eye Color: Blue
    Favourite Hair Color: Blonde
    Short or Long Hair: hmm...whatever looks best on them i guess
    Height: taller than me
    Weight: hmmmm...dont kno
    Best Clothing Style: whatever
Number of Drugs I have taken: Nvm
Number of CDs I own: ???
Number of Piercings: hmmm...3
Number of Tattoos: none yet
Appendix B

The range of Kappa values for the variable of interest is given in Table B.1.

Table B.1
Interrater reliability—kappa coefficients (N = 193)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.97</td>
</tr>
<tr>
<td>Customized page</td>
<td>0.91</td>
</tr>
<tr>
<td>Photo on profile</td>
<td>0.87</td>
</tr>
<tr>
<td>Swear word in comments</td>
<td>0.84</td>
</tr>
<tr>
<td>Evidence of tobacco use</td>
<td>0.80</td>
</tr>
<tr>
<td>Evidence of alcohol use</td>
<td>0.78</td>
</tr>
<tr>
<td>Swear words on profile</td>
<td>0.72</td>
</tr>
<tr>
<td>Profile set to private</td>
<td>0.70</td>
</tr>
<tr>
<td>School</td>
<td>0.64</td>
</tr>
<tr>
<td>Evidence that age is inflated</td>
<td>0.61</td>
</tr>
<tr>
<td>Photo in swimsuit/underwear</td>
<td>0.47</td>
</tr>
<tr>
<td>Evidence of marijuana use</td>
<td>0.46</td>
</tr>
<tr>
<td>Full name</td>
<td>0.45</td>
</tr>
<tr>
<td>Birthday</td>
<td>0.42</td>
</tr>
<tr>
<td>First name</td>
<td>0.39</td>
</tr>
<tr>
<td>Instant messaging name</td>
<td>a</td>
</tr>
<tr>
<td>Email address</td>
<td>a</td>
</tr>
<tr>
<td>Phone number</td>
<td>a</td>
</tr>
</tbody>
</table>

*aBecause this information was statistically rare, it was not evident in the random sample selected for re-coding.

References


