

Youth Internet use: risks and opportunities

Shu-Sha Angie Guan^a and Kaveri Subrahmanyam^b

^aChildren's Digital Media Center, Los Angeles and
^bCalifornia State University, Los Angeles and
Children's Digital Media Center, Los Angeles,
California, USA

Correspondence to Kaveri Subrahmanyam,
Department of Psychology, California State University,
Los Angeles, CA 90032, USA
Tel: +1 323 343 2279; fax: +1 323 343 2281;
e-mail: ksubrah@calstatela.edu

Current Opinion in Psychiatry 2009, 22:351–356

Purpose of review

The Internet has become all pervasive in the lives of young people and this paper will review studies that examine the risks and opportunities that it affords. We will examine research that investigates the more negative aspects of youth online behavior such as addiction as well as online risks such as harassment/cyber bullying and sexual solicitation. In addition, positive aspects of Internet use such as its potential for learning and enhancing social relations as well as delivering health interventions will be examined.

Recent findings

The results show that online risks such as addiction, cyber bullying, and sexual solicitation are associated with negative consequences for youth. It is important to note that not all children are equally susceptible and more research is necessary to identify the youth most at risk as well as to develop effective interventions. The Internet can also provide benefits in the areas of cognitive, social, and physical development, and can also be used to deliver treatment interventions.

Summary

The Internet represents both risks and opportunities for young people. To protect youth who are at risk for online addiction, bullying, and solicitation, we need more research to understand which youth may be most susceptible and to develop targeted interventions to protect them. The Internet also has many positive aspects and can be used to enhance youth learning and empowerment; although it is a tremendous health resource and can be used to cheaply deliver interventions, we need to understand how to better implement them to enhance their effectiveness.

Keywords

cyber bullying, Internet, online addiction, solicitation, youth

Curr Opin Psychiatry 22:351–356
© 2009 Wolters Kluwer Health | Lippincott Williams & Wilkins
0951-7367

Introduction

Technologies, such as computers and the Internet, have become enmeshed in young people's lives. According to the Kaiser report, in 2004, 74% of 8-year olds to 18-year olds in the United States had Internet access in their homes [1]. More recently, the 2008 World Internet Project survey of 13 countries revealed that among youth 12-years to 14-years, 88% in the United States used the Internet; the percentage of Internet users in this age group was 100% in the United Kingdom, 98% in Israel, 95% in Canada, and over 70% in Singapore [2]. Among adolescents, the communication applications of the Internet such as instant messaging, blogs, and social networking sites (e.g., MySpace, Facebook) are especially popular [3•]. As the Internet has become pervasive in the lives of young people, their online activities and interactions have become the focus of intense research. It is becoming evident that the Internet presents risks as well as opportunities to adolescent development; in this

paper, we review recent research on the negative and positive aspects of Internet use.

A preliminary search on the PsychINFO database for English-language articles published in the past 12 months on youth and computers yielded 212 works. After narrowing our focus to publications that dealt with Internet usage among children and adolescents in the home, 75 papers remained. This body of work examined a broad and diverse range of topics related to youth and their Internet behavior; here we review studies on the negative aspects of young people's online activity as well as the more positive applications of the Internet as a tool for child and adolescent health and social development.

Negative aspects of Internet use

For youth, the negative aspects of the Internet include Internet addiction as well as online risks such as exposure

to sexually explicit material and online victimization including harassment or cyber bullying and sexual solicitation.

Internet addiction

Excessive Internet use is emerging as one of the more negative aspects of young people's online activities. In the literature, such extreme use is often synonymous with the terms 'compulsive Internet use', 'problematic Internet use', 'pathological Internet use', 'Internet dependence', 'computer addiction' and 'net addiction'. Internet addiction, the term we use here, has been defined as the use of the Internet to escape from negative feelings, continued use of the Internet despite the desire to stop, experience of unpleasant emotions when Internet use is impossible, thinking about the Internet constantly, and the experience of any other conflicts or self-conflicts due to Internet use [4**]. There is evidence that Internet addiction has a negative effect on academics (a drop in grades), family relations (having to hide their excessive Internet use from parents), physical health (sleep deprivation due to long hours of Internet use), mental health (depression), and finance (cost of accrued Internet expenses) [5–7]. Interactive communication applications such as chat rooms, instant messaging, e-mail, and online games have most commonly been associated with Internet addiction among youth [4**,8–10].

Of particular concern is the potential for youth to get addicted to online gaming, which is a growing industry, and is estimated to reach \$19 billion in revenue by 2013 [11]. In a study of the impact of online-game playing on life satisfaction of gamers on different personality dimensions, Chen *et al.* [12], found that neuroticism in gamers had a negative influence on life satisfaction. Neuroticism also has a significant negative influence on subjective well being in teen gamers [13]. A negative relationship between web surfing frequency and life satisfaction has also been found [14].

Tsai and Lin [7] suggest that Internet addiction is an important concern among adolescents; in their study of 700 Taiwanese high school students, 88 were deemed Internet addicts according to the Internet Addiction Scale for high school students in Taiwan (IAST). It has been hypothesized that, because adolescence and young adulthood is a time of identity and relationship exploration, those who have trouble navigating through these developmental challenges are particularly vulnerable to using the Internet as a coping mechanism [8]. Current research does indicate that ego-identity achievement (the resolution of Erikson's [15] adolescent-stage conflict resulting in an established sense of self) in middle school students is negatively related to pathological and extreme Internet use [9,16].

To get a better handle on this problem, we need to understand the characteristics of youth who may be at risk for online addiction. Among Canadian adolescents, Parker *et al.* [17*] found that emotional intelligence was a strong-to-moderate predictor of addiction-related behaviors like excessive Internet use, online gaming addiction, and online gambling problems; youth with deficiencies in the ability to read, express, and elicit desired emotions may be more prone to partake in online-addiction-behaviors. Emotional intelligence scores were significantly correlated with scores on the Internet Addiction Disorder Questionnaire (IADQ), Problem Video Game Playing Scale (PVGS), and South Oaks Gambling Screen – Revised for Adolescents (SOGS-RA). The correlation of emotional intelligence and IADQ scores was especially high for young adolescents (–0.38). IADQ, PVGS, and SOG-RA scores also moderately correlated with one another. The researchers suggest that addiction to the Internet, gaming, and gambling may be etiologically linked rather than three separate phenomena. Ko *et al.* [18] reached a similar conclusion and found that Internet addiction was related to problematic alcohol use in a sample of Taiwanese high school students. The idea that Internet addiction, online gaming, and online gambling may be part of a broader proneness-toward-dysfunctional-behavior has implications for prevention and intervention.

We also need to better understand how Internet addiction can be treated. Through the application of cognitive dissonance theory, Chiou [19**] found that online-gaming addicts could be induced to change their positive attitudes of gaming. In a 2 × 3 experimental design, adolescents who pretested high on the Online Gaming Addiction Scale for Adolescents in Taiwan (OAST) were randomly assigned to two groups: the first were instructed to write only about the negative aspects of gaming; the second was given a choice to write about either the pros or cons of gaming. They were then given either a low, moderate, or high reward for their essay. Participants who had freedom of choice and who were randomized into the low reward group showed greatest attitude change at posttest. It is believed that this attitude shift can lead to a reduction of online-game use. This finding is in accordance with an earlier study testing the application of cognitive dissonance on participants' willingness to reduce usage [20].

Similarly taking on a cognitive-behavioral approach, Ko *et al.* [21**] sought to establish a focus on rational-emotive behavior therapy (REBT) for adolescent Internet addicts. They posited that low tolerance for negative emotional events that arise from irrational beliefs (frustration intolerance) might drive Internet addicts to seek the fantasy and control of the Internet. In a survey of 1992 Taiwanese high school students (age range: 15–23, mean age: 16.26

years), 364 (18.3%) were deemed Internet addicts according to the Chen Internet Addiction Scale (CIAS). They found that adolescent Internet addicts scored higher on beliefs of frustration intolerance on the Frustration-Discomfort Scale (FDS) than nonaddicts. Though the researchers could not establish a causal relationship between frustration intolerance and Internet addiction, they advocate REBT to target these irrational beliefs.

It is important to note that online gaming and chatting can be enjoyable leisure activities for youth that do not always lead to Internet addiction. Although there is some evidence that frequency of computer use can have a negative effect on academics [22] and that using the Internet for playing games and general entertainment purposes decreases the quality of friendships and romantic relationships [23[•]], there is also evidence that computer games can have positive effects on cognitive development [24]. It seems that, while moderate use of the Internet can have positive effects, these beneficial outcomes diminish or disappear with excessive use and even nonuse.

Online risks

Online risks facing young people include exposure to sexually explicit material as well as online victimization on the Internet. Exposure to sexually explicit Internet material is an important concern as there is evidence that such exposure is related to greater sexual uncertainty and more positive attitudes towards uncommitted sexual exploration among youth [25[•]–27[•]]. However, online victimization in the form of online harassment and sexual solicitation was a big focus in the recent literature and we focus here on these two concerns.

Online harassment is defined as ‘threats or other offensive behavior (not sexual solicitation) sent online to the youth or posted online about the youth for others to see’ ([28], p.17). Sexual solicitation is defined as ‘requests to engage in sexual activities or sexual talk or to give personal sexual information that were unwanted or, whether wanted or not, made by an adult (18 years old or older)’ ([28], p. 17). In a recent survey of Internet users, 33% of 10–15-year-olds reported having experienced online harassment and 15% having received a sexual solicitation in a 1-year period [29[•]].

One of the more common forms of harassment among youth is that of cyber bullying, which is defined as ‘willful and repeated harm inflicted through the medium of electronic text’ ([30], p. 152). It is often perceived as the online version of offline bullying, or ‘traditional bullying’, which is characterized as the ‘aggressive intentional act or behavior that is carried out by a group or an individual repeatedly and over time against a victim who cannot easily defend him or herself’ ([31[•]], p. 376).

Estimates of the incidence of cyber bullying vary and range from 23 to 72% [30,32[•],33^{••}].

Although Dehue *et al.* [32[•]] found that name-calling and gossiping were the most frequently reported cyber-bullying behaviors, other bullying behaviors include spreading rumors, making threats, or otherwise sending malicious messages. Repeated school-based offline bullying [34^{••}], computer proficiency, and increased time spent online [31[•],33^{••}] were linked to a heightened risk for cyber bullying. Importantly, the majority of victims reported knowing the individual who bullied them [31[•],32[•],33^{••}].

Although it was initially feared that posting identifying information online led to increased risk of online victimization, recent research does not bear this out. Mitchell *et al.* [35^{••}] found that, whereas bloggers were more likely to post personal information online, posting personal information did not add to their risk of experiencing sexual solicitation. Making personal information available online, at least on the social networking site of MySpace, may also not be as rampant as once believed [36].

Mitchell *et al.* [35^{••}] suggest that it is not the availability of identifying information that increases the risk for sex crimes, but rather the willingness of certain youth to respond to or partake in relationships with online strangers. In a study comparing different online-interaction styles of youth, Wolak *et al.* [37[•]] found that youth who engaged in potentially risky online behaviors and who freely interacted with strangers online experienced significantly higher numbers of aggressive solicitations. There is also evidence that online solicitation is heightened for youth who have experienced high parental conflict, physical abuse, and/or sexual abuse [38,39[•]].

The potential for dangerous offline consequences makes online victimization an important concern. In the past two years, there have been at least 285 cases of child cyber crimes [40]. The reality is that most Internet youth-adult sex crimes are characterized by an open seduction that may begin with a sexual solicitation. It has also been suggested that factors related to immaturity, impulsiveness, histories of abuse and interaction styles make certain youth more vulnerable [41^{••}]. The more prevailing concern for online harassment and cyber bullying is the negative effect victimization has on the mental, emotional, and social development of its victims. Being a victim of cyber bullying has been linked to increased social anxiety [34^{••}] and there is evidence that both cyber bullies and cyber victims are more likely to exhibit offline maladaptive behaviors (school problems, assaults, and substance use) than youth not involved in cyber bullying [33^{••}]. Overall, recent findings on victimization will likely lead to changes in intervention and prevention

messages by shifting away from advocating complete avoidance (e.g. do not talk to strangers) and limiting online disclosure for all youth to a targeted focus on high-risk youth and behaviors.

Positive aspects of Internet use

Despite the risks, the Internet can also be a positive tool for student learning as well as youth empowerment and well being. There is evidence that computer and Internet use improves test scores [22,42], history chronology learning [43], and motivation to learn [44]. Although promising, the benefits are not without limits. Older students seem to benefit more from online aids than younger students, and the very youngest of students actually do worse in technological formats compared with traditional paper and pencil formats [43].

There is also evidence that the Internet may help to empower youth, particularly those in disadvantaged circumstances. Barak and Sadovsky [45[•]] found that hearing-impaired youth took advantage of the heavily visual medium of the Internet to communicate. Doing so also had a positive effect on their well being. A recent review concluded that adolescents are primarily using the Internet to reinforce offline relationships [3^{••}]; adolescents also seem to use online forums such as homepages and blogs to gain positive feelings of mastery and competence [46]. In addition to this, participation in the e-PAR program has allowed youth to use the Internet and other technologies (photography and video cameras, music production software) to document their lives and create awareness for health and community issues such as drug-use, violence, discrimination, and homelessness [47].

Youth have not only been creating media to help promote health issues, they have also been using the Internet to look for information about health and in particular about sex. It is estimated that one in four adolescents have used the Internet to search for health information [48[•]]. Young people are especially likely to seek this information online if it is not available from personal face-to-face sources like friends or family [48[•],49]. They are also likely to turn to health websites when they are unable to confide in others ('I haven't told anyone about this because I don't have a best friend...'), are uncertain they can disclose certain information ['If I tell my *General Practitioner) I have been harming myself do they have to tell my parents?'], or are uncertain they can fully communicate their concern ('I have a small lump in one of my breasts...I can't talk to my parents or sisters...I'm too embarrassed') ([50^{••}], p. 308). It is suggested that online contexts are an open, safe space in which youth can express themselves [46,49] and promote healthy habits [51].

The Internet's growing popularity as a health resource for youth makes it an appealing vehicle for delivering interventions, and it may be an economical and effective means for health promotion and prevention [48[•],52]. As behaviors such as smoking, unhealthy eating habits, and risky sexual behavior often start in adolescence, early intervention delivered through the Internet may serve as a preventive measure [53[•],54,55]. The Internet has been used to provide free counseling [56[•]], smoking prevention [57^{••}], obesity and eating-disorder prevention [51,58[•],59], anger management and violence prevention [52,60], and substance abuse prevention [60]. Researchers have also explored online gaming formats as a means to carry out psychotherapeutic treatment [61].

Internet-based interventions have generally had small effects [57^{••},60]. Some limitations of online interventions are low exposure rates [53[•],54], misinformation [62], low program adherence [58[•]], communication problems that result from lack of nonverbal cues or time lapses [56[•]], high drop out rates and low log-on rates [59]. Despite the need for better implementation and development, the Internet can be a valuable health tool for adolescent populations because of the potential anonymity it provides [50^{••},56[•]], popularity among youth [53[•]], and wide range of access [55].

Conclusion

For youth, the Internet presents a number of risks along with a multitude of opportunities. The research reviewed suggests that some of the online risks facing youth are addiction, exposure to inappropriate material, cyber bullying and sexual solicitation. Research is only now beginning to determine which youth may be at most risk for online addiction. With regard to treating addiction, cognitively based treatment approaches have shown some success, but more research is needed. Research also suggests that some youth may be more likely to be victims of online harassment and sexual solicitation, suggesting that intervention efforts should target high-risk youth as well as risky online behaviors.

Despite these risks, the research also suggests that the Internet can be beneficial for youth. It provides a vehicle to promote cognitive, social, and physical development. Although there are limits to which the Internet can be used as a means of learning, health promotion, and intervention delivery, nonetheless the Internet can be used to complement more traditional methods of delivering treatment interventions. Overall, research suggests that specific and targeted efforts may be needed to counter online risks in order for youth to benefit from the many opportunities offered by the Internet.

References and recommended reading

Papers of particular interest, published within the annual period of review, have been highlighted as:

- of special interest
- of outstanding interest

Additional references related to this topic can also be found in the Current World Literature section in this issue (pp. 414–415).

- 1 Foehr UG, Rideout V. Generation M: Media in the Lives of 8–18 Year-olds: Kaiser Family Foundation; 2005.
- 2 Reuters. American Youth Trail Peers in Internet Usage. PC Magazine [serial on the Internet]. 2008 [cited 2009 January 27] November 25. Available from: <http://www.pcmag.com/article2/0,2817,2335412,00.asp>
- 3 Subrahmanyam K, Greenfield PM. Online communication and adolescent relationships. *Future Child* 2008; 18:119–146.
A recent review on the benefits and costs of the Internet which shows that adolescents are using Internet communication applications to reinforce existing relationships with offline friends and romantic partners.
- 4 van den Eijnden RJM, Meerkerk G-J, Vermulst AA, *et al.* Online communication, compulsive internet use, and psychosocial well being among adolescents: a longitudinal study. *Dev Psychol* 2008; 44:655–665.
A study of Dutch adolescents' use of online communication, which found that instant messaging and chat rooms were positively linked to compulsive Internet use and instant messaging was positively related to depression and negatively related to loneliness 6 months later.
- 5 Chou C, Condon L, Belland JC. A review of the research on internet addiction. *Educ Psychol Rev* 2005; 17:363–388.
- 6 Kraut R, Patterson M, Lundmark V, *et al.* Internet paradox: a social technology that reduces social involvement and psychological well being? *Am Psychologist* 1998; 53:1017–1031.
- 7 Tsai C-C, Lin SSJ. Internet addiction of adolescents in Taiwan: an interview study. *CyberPsychol Behav* 2003; 6:649–652.
- 8 Kandell JJ. Internet addiction on campus: the vulnerability of college students. *CyberPsychol Behav* 1998; 1:11–17.
- 9 Lei L, Ma L-y. Moderate effect of self-identity on the association between instant messaging and Internet use of junior high school students. *Chin J Clin Psychol* 2008; 16:161–163.
- 10 Young KS. Internet addiction: the emergence of a new clinical disorder. *CyberPsychol Behav* 1998; 1:237–244.
- 11 GameInfoWire.com. DFC Intelligence Forecasts Video Game Market to Reach \$57 Billion in 2009 [Internet]. 2008 [cited 2008 December 17] July 2. Available from: <http://www.gameinfowire.com/news.asp?nid=12446>
- 12 Chen LS-L, Tu HH-J, Wang ES-T. Personality traits and life satisfaction among online game players. *CyberPsychol Behav* 2008; 11:145–149.
- 13 Chen LS-L. Subjective well being: evidence from the different personality traits of online game teenager players. *CyberPsychol Behav* 2008; 11:579–581.
- 14 Wang ES-T, Chen LS-L, Lin JY, Wang MC. The relationship between leisure satisfaction and life satisfaction of adolescents concerning online games. *Adolescence* 2008; 43:177–184.
- 15 Erikson EH. Identity: youth and crisis. Oxford England: Norton & Co.; 1968.
- 16 Zhang G-H, Lei L, Zou H. Adolescents' ego identity and pathological internet use. *Chin J Clin Psychol* 2008; 16:37–39.
- 17 Parker JDA, Taylor RN, Eastbrook JM, *et al.* Problem gambling in adolescence: relationships with internet misuse, gaming abuse and emotional intelligence. *Pers Individual Differences* 2008; 45:174–180.
One of the few studies to study gambling with online gaming and Internet addiction. It suggests that the three dysfunctional behaviors may be linked and that prevention and intervention strategies would be more effective if they simultaneously targeted a broad range of addiction-related behaviors.
- 18 Ko C-H, Yen J-Y, Yen C-F, *et al.* The association between Internet addiction and problematic alcohol use in adolescents: the problem behavior model. *CyberPsychol Behav* 2008; 11:571–576.
- 19 Chiou W-B. Induced attitude change on online gaming among adolescents: an application of the less-leads-to-more effect. *CyberPsychol Behav* 2008; 11:212–216.
Unlike previous studies that focused on psychological motives and profiles of online gaming addicts, this study investigated conditions that would induce the greatest attitude and behavior change among online gamers.

- 20 Chiou W-B, Wan C-S. Using cognitive dissonance to induce adolescents' escaping from the claw of online gaming: the roles of personal responsibility and justification of cost. *CyberPsychol Behav* 2007; 10:663–670.
- 21 Ko C-H, Yen J-Y, Yen C-F, *et al.* The association between internet addiction and belief of frustration intolerance: the gender difference. *CyberPsychol Behav* 2008; 11:273–278.
This study found that gender was a moderator for the association between frustration intolerance and Internet addiction; among females, frustration intolerance was higher whereas among males, frustration intolerance was associated more with Internet addiction. Learned, gendered coping styles were used to explain these patterns.
- 22 Wainer J, Dwyer T, Dutra RS, *et al.* Too much computer and Internet use is bad for your grades, especially if you are young and poor: results from the 2001 Brazilian SAEB. *Comput Educ* 2008; 51:1417–1429.
- 23 Blais JJ, Craig WM, Pepler D, Connolly J. Adolescents online: the importance of Internet activity choices to salient relationships. *J Youth Adolesc* 2008; 37:522–536.
This longitudinal study showed that different Internet activities have different effects on relationship quality; instant messaging with known others had a positive association with best friendship and romantic relationship quality and Internet game playing and chatting with strangers (in chat rooms) was negatively related to relationship quality.
- 24 Subrahmanyam K, Greenfield PM. Effect of video game practice on spatial skills in girls and boys. *J Appl Dev Psychol* 1994; 15:13–32.
- 25 Kraus SW, Russell B. Early sexual experiences: the role of Internet access and sexually explicit material. *CyberPsychol Behav* 2008; 11:162–168.
The study evaluated the onset of sexual experiences by sex, Internet access and exposure to sexually explicit material between the ages of 12–17 males with Internet access reported younger ages for oral sex than those without Internet access and both males and females with Internet access reported significantly lower ages for first sexual intercourse.
- 26 Peter J, Valkenburg PM. Adolescents' exposure to sexually explicit internet material, sexual uncertainty, and attitudes toward uncommitted sexual exploration: is there a link? *Commun Res* 2008; 35:579–601.
Among adolescents, frequent exposure to sexually explicit Internet material may be linked to greater sexual uncertainty and more positive attitudes toward uncommitted sexual exploration. Although the results suggest that sexually explicit Internet material may augment adolescents' developing sexual identities, the researchers warn against assigning a direction to the link just yet.
- 27 Peter J, Valkenburg PM. Adolescents' exposure to sexually explicit Internet material and sexual preoccupation: a three-wave panel study. *Media Psychol* 2008; 11:207–234.
A longitudinal study which found that exposure to sexually explicit Internet material stimulated sexual preoccupation. The researchers found no gender differences in subjective sexual arousal from exposure to sexually explicit material.
- 28 Wolak J, Mitchell KJ, Finkelhor D. Online victimization of youth: 5 years later. Alexandria, VA: National Center for Missing & Exploited Children; 2006.
- 29 Ybarra ML, Mitchell KJ. How risky are social networking sites? A comparison of places online where youth sexual solicitation and harassment occurs. *Pediatrics* 2008; 121:e350–e357.
The study demonstrated that use of social networking sites may not increase the vulnerability of youth to sexual solicitation and harassment; it suggests youth may be more at risk when using other Internet applications such as instant messenger and chat rooms.
- 30 Patchin JW, Hinduja S. Bullies move beyond the schoolyard: a preliminary look at cyberbullying. *Youth Violence Juvenile Justice* 2006; 4:148–169.
- 31 Smith PK, Mahdavi J, Carvalho M, *et al.* Cyber bullying: its nature and impact in secondary school pupils. *J Child Psychol Psychiatry* 2008; 49:376–385.
A comparison of traditional bullying and cyber bullying which found that cyber bullying had a similar impact factor as traditional bullying.
- 32 Dehue F, Bolman C, Völlink T. Cyberbullying: youngsters' experiences and parental perception. *CyberPsychol Behav* 2008; 11:217–223.
This study found that parents were not generally aware of their children's cyber bullying experiences, either as cyber bullies or as cyber bullying victims.
- 33 Hinduja S, Patchin JW. Cyber bullying: an exploratory analysis of factors related to offending and victimization. *Deviant Behav* 2008; 29:129–156.
The study demonstrated that whereas sex and race were not significantly related to cyber bullying, computer proficiency, time spent online, and maladaptive behaviors were positively linked to cyberbullying.
- 34 Juvonen J, Gross EF. Extending the school grounds? Bullying experiences in cyberspace. *J Sch Health* 2008; 78:496–505.
The study compared traditional bullying and cyber bullying and found that they were very much related. The researchers also found an unusually high incidence of cyber bullying (72%) and discuss the potential bias of a web-based survey.

- 35 Mitchell KJ, Wolak J, Finkelhor D. Are blogs putting youth at risk for online sexual solicitation or harassment? *Child Abuse Neglect* 2008; 32:277–294. The study found that, although bloggers were more likely to post personal information online, they were not more likely to interact with people they met online. Respondents who did interact with online strangers showed an increased risk for sexual solicitation. However, whether or not they interacted with strangers online, bloggers were 2.5 times more likely to report online harassment. The researchers discuss the diverse nature of online harassment and how posting thoughts and values online may invite harassment in the form of negative feedback.
- 36 Hinduja S, Patchin JW. Personal information of adolescents on the Internet: a quantitative content analysis of MySpace. *J Adolesc* 2008; 31:125–146.
- 37 Wolak J, Finkelhor D, Mitchell KJ. Is talking online to unknown people always risky? Distinguishing online interaction styles in a national sample of youth internet users. *CyberPsychol Behav* 2008; 11:340–343. In an examination of interaction styles, researchers found that youth who engaged in potentially risky online behaviors and who interacted with online strangers were more likely to be teenagers, have high levels of Internet use, engage in most types of interactive Internet use, and to have reported offline victimization and online sexual solicitation.
- 38 Mitchell KJ, Finkelhor D, Wolak J. Risk factors for and impact of online sexual solicitation of youth. *JAMA* 2001; 285:3011–3014.
- 39 Wells M, Mitchell KJ. How do high-risk youth use the internet? Characteristics and implications for prevention. *Child Maltreat* 2008; 13:227–234. This study found that older adolescent, African-American youth, and those who engaged in risky online behaviors were more likely to report high-risk experiences (physical abuse, sexual abuse, or parental conflict) than other Internet users. High-risk youth were more likely to report receiving an online sexual solicitation.
- 40 Burgess AW, Mahoney M, Visk J, Morgenbesser L. Cyber child sexual exploitation. *J Psychosoc Nurs Ment Health Serv* 2008; 46:38–45.
- 41 Wolak J, Finkelhor D, Mitchell KJ, Ybarra ML. Online 'predators' and their victims: myths, realities, and implications for prevention and treatment. *Am Psychologist* 2008; 63:111–128. A review that examines how the characteristics, histories of abuse, and interaction styles of adolescents can put them at greater risk for sexual predation. Posting information alone and belonging to a social networking site may not increase these risks. It also discusses how sexual predators operate and dismiss myths that they most often resort to trickery or violence.
- 42 Biesinger K, Crippen K. The impact of an online remediation site on performance related to high school mathematics proficiency. *J Comput Math Sci Teach* 2008; 27:5–17.
- 43 Foreman N, Boyd-Davis S, Moar M, *et al.* Can virtual environments enhance the learning of historical chronology? *Instr Sci* 2008; 36:155–173.
- 44 Rau P-LP, Gao Q, Wu L-M. Using mobile communication technology in high school education: Motivation, pressure, and learning performance. *Comput Educ* 2008; 50:1–22.
- 45 Barak A, Sadovsky Y. Internet use and personal empowerment of hearing-impaired adolescents. *Comput Hum Behav* 2008; 24:1802–1815. A study that found that hearing-impaired youth used the Internet more intensely and for longer periods of time than hearing youth. Deaf youth who used it for longer periods felt less lonely and had higher self-esteem than deaf youth who had lower Internet use.
- 46 Schmitt KL, Dayanim S, Matthias S. Personal homepage construction as an expression of social development. *Dev Psychol* 2008; 44:496–506.
- 47 Flicker S, Maley O, Ridgley A, *et al.* e-PAR: Using technology and participatory action research to engage youth in health promotion. *Action Res* 2008; 6:285.
- 48 Ybarra ML, Emenyonu N, Nansera D, *et al.* Health information seeking among Mbararar adolescents: results from the Uganda Media and You survey. *Health Educ Res* 2008; 23:249–258. The study examines characteristics of health information seeking behaviors among youth in Uganda.
- 49 Ngo AD, Ross MW, Ratliff EA. Internet influences on sexual practices among young people in Hanoi, Vietnam. *Culture, Health Sexuality* 2008; 10:S201–S213.
- 50 Harvey K, Churchill D, Crawford P, *et al.* Health communication and adolescents: what do their emails tell us? *Fam Pract* 2008; 25:304–311. A paper outlining the various difficulties young people face in expressing health concerns face-to-face with general practitioners, and even family members and friends, and how they can and do bypass these difficulties through e-mail correspondence.
- 51 Wesemann D, Grunwald M. Online discussion groups for bulimia nervosa: An inductive approach to Internet-based communication between patients. *Int J Eat Disord* 2008; 41:527–534.
- 52 Walton M, Cunningham R, Xue Y, *et al.* Internet referrals for adolescent violence prevention: an innovative mechanism for inner-city emergency departments. *J Adolesc Health* 2008; 43:309–312.
- 53 Crutzen R, de Nooijer J, Brouwer W, *et al.* Internet-delivered interventions aimed at adolescents: a Delphi study on dissemination and exposure. *Health Educ Res* 2008; 23:427–439. The paper discusses important factors in dissemination and exposure of Internet-delivered interventions aimed at adolescents by studying the response rates of certain dissemination methods. Experts noted that word of mouth, attractive interface, and intervention relevancy were important factors.
- 54 Crutzen R, De Nooijer J, Candel MJJM, De Vries NK. Adolescents who intend to change multiple health behaviours choose greater exposure to an internet-delivered intervention. *J Health Psychol* 2008; 13:906–911.
- 55 de Nooijer J, Veling ML, Ton A, *et al.* Electronic monitoring and health promotion: an evaluation of the E-MOVO Web site by adolescents. *Health Educ Res* 2008; 23:382–391.
- 56 Bambling M, King R, Reid W, Wegner K. Online counselling: the experience of counsellors providing synchronous single-session counselling to young people. *Couns Psychother Res* 2008; 8:110–116. A study of an Australian free online and telephone counseling service for teens that found benefits to the online format (emotional safety) as well as disadvantages (difficulty accurately assessing young people's concerns through the nonverbal medium of the Internet).
- 57 Buller DB, Borland R, Woodall WG, *et al.* Randomized trials on consider this, a tailored, internet-delivered smoking prevention program for adolescents. *Health Educ Behav* 2008; 35:260–281. An RCT comparing 2077 Australian and 1234 American youth smoking rates after exposure to an Internet-based smoking prevention program, Consider This. Australian youth reported reduced 30-day smoking prevalence while American children only reported lower expectations for smoking in the future.
- 58 Doyle AC, Goldschmidt A, Huang C, *et al.* Reduction of overweight and eating disorder symptoms via the Internet in adolescents: a randomized controlled trial. *J Adolesc Health* 2008; 43:172–179. An RCT evaluating an Internet-delivered program targeting weight loss and eating disorder attitudes/behaviors in adolescents that found the intervention yielded only modest results in weight loss and improved eating disorder attitudes/behaviors.
- 59 Thompson DI, Baranowski T, Cullen KW, Watson K. Food, Fun and Fitness Internet program for girls: influencing log-on rate. *Health Educ Res* 2008; 23:228–237.
- 60 Pahwa B, Schoech D. Issues in the evaluation of an online prevention exercise. *J Technol Hum Serv* 2008; 26:259–281.
- 61 Goh DH, Ang RP, Tan HC. Strategies for designing effective psychotherapeutic gaming interventions for children and adolescents. *Comput Hum Behav* 2008; 24:2217–2235.
- 62 Gray NJ. Health information on the Internet: a double-edged sword? *J Adolesc Health* 2008; 42:432–433.