

# Enhancing Child Safety & Online Technologies:

FINAL REPORT OF THE  
INTERNET SAFETY TECHNICAL TASK FORCE

To the Multi-State Working Group on Social Networking  
of State Attorneys General of the United States

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**APPENDIX C:**

**Research Advisory Board  
Literature Review**

# Online Threats to Youth: Solicitation, Harassment, and Problematic Content

*Literature Review Prepared for the Internet Safety Technical Task Force*  
*<http://cyber.law.harvard.edu/research/isttf>*

Andrew Schrock and danah boyd  
Berkman Center for Internet & Society  
Harvard University

## **Research Advisory Board Members involved in shaping this document:**

- *David Finkelhor*, Director of University of New Hampshire's Crimes Against Children Research Center
- *Sameer Hinduja*, Assistant Professor of Criminology and Criminal Justice at Florida Atlantic University
- *Amanda Lenhart*, Senior Research Specialist at Pew Internet and American Life Project
- *Kimberly Mitchell*, Research Assistant Professor at University of New Hampshire's Crimes Against Children Research Center
- *Justin Patchin*, Assistant Professor at University of Wisconsin–Eau Claire
- *Larry Rosen*, Professor of Psychology at California State University, Dominguez Hills
- *Janis Wolak*, Research Assistant Professor at University of New Hampshire's Crimes Against Children Research Center
- *Michele Ybarra*, President of Internet Solutions for Kids

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# 1. Introduction

The rapid rise of social network sites and other genres of social media among youth is driven by the ways in which these tools provide youth with a powerful space for socializing, learning, and participating in public life (boyd 2008; Ito et al. 2008; Palfrey and Gasser 2008). The majority (59%) of parents say the Internet is a “positive influence” in their children’s lives (Rideout 2007), but many have grave concerns about the dangers posed by the Internet. Contemporary fears over social network sites resemble those of earlier Internet technologies, but – more notably – they also seem to parallel the fears of unmediated public spaces that emerged in the 1980s that resulted in children losing many rights to roam (Valentine 2004). There is some concern that the mainstream media amplifies these fears, rendering them disproportionate to the risks youth face (Marwick 2008). This creates a danger that known risks will be obscured, and reduces the likelihood that society will address the factors that lead to known risks, and often inadvertently harm youth in unexpected ways.

This is not to say that there are not risks, but it is important to ask critical questions in order to get an accurate picture of the online environment and the risks that youth face there. This literature review summarizes ongoing scholarly research that addresses these questions:

1. What threats do youth face when going online?
2. Where and when are youth most at risk?
3. Which youth are at risk and what makes some youth more at risk than others?
4. How are different threats interrelated?

The findings of these studies and the answers to these questions are organized around three sets of online threats: *sexual solicitation*, *online harassment*, and *problematic content*. Two additional sections focus on what factors are most correlated with risk and the role of specific genres of social media. There is also documentation of child pornography as it relates to youth’s risks and a discussion of understudied topics and directions for future research.

## 1.1. Creation

This document was primarily written by Andrew Schrock, the Assistant Director of the Annenberg Program in Online Communities at University of Southern California, and danah

boyd, the Chair of the Research Advisory Board (RAB) and co-director of the Internet Safety Technical Task Force. This document has been vetted for accuracy and integrity by those contributors to the Research Advisory Board listed at the beginning of the document.

Researchers and scholars from the United States whose work is relevant to the Task Force were invited to contribute to the efforts of the RAB. The RAB reached out to individuals with a record of ongoing, rigorous, and original research and invited them to directly participate in the creation of this document by providing citations, critiques of the review, and otherwise expressing feedback. The RAB intended the review to be as inclusive as possible. No researcher was excluded based on their findings or opinions. Those who contributed to this process who wished to be identified are listed at the top of this document. The RAB also publicized a draft of the literature review for public and scholarly feedback and directly elicited responses from non-U.S. scholars working on this topic.

This document was created to help provide a review of research in this area in order to further discussions about online safety. The RAB believes that to help youth in this new environment, the first step is to understand the actual threats that youth face and what puts them at risk. To do so, it is important to look at the data. We believe that the best solutions will be those that look beyond anecdotal reports of dangers and build their approaches around quantifiably understood risks and the forces that put youth at risk. We do not present potential solutions, because these are outside the scope of this document, but we believe that solutions that are introduced should be measured as to their actual effectiveness in addressing the risks youth face, instead of in terms of adult perception of their effectiveness at solving perceived risks.

Parallel efforts are underway in the European Union, where scholars have recently authored a document that compares the risks and opportunities youth face across Europe in different media environments (Hasebrink et al. 2008). This literature review provides a complementary American perspective.

## **1.2. Scope**

The goal of this literature review is to map out what is currently understood about the intersections of youth, risk, and social media. We framed this review around the most prevalent risks youth face when online: harassment, solicitation, and exposure to problematic content. We

address risks youth face offline, such as unmediated sexual solicitation, schoolyard bullying, substance abuse, and family problems, primarily to contextualize online risks.

Included in this review is methodologically sound research, with an emphasis on recent U.S.-focused, national, quantitative studies that addressed social media. Because there are limited numbers of large-scale studies, the review also includes smaller, regional studies and notes when a specific region is being discussed. Where appropriate, a limited number of older studies, qualitative findings, and studies outside of the United States are referenced for context. Studies commissioned by government agencies also are referenced, even when the sampling techniques are unknown and the findings were not vetted by peer review, because the RAB felt that work from these reputable organizations should be acknowledged. Reports and findings by other institutions were handled more cautiously, especially when the RAB was unable to vet the methodological techniques or when samples reflected problematic biases. The RAB did not exclude any study on the basis of findings or exclude any peer-reviewed study on the basis of methodology. In choosing what to review, the RAB was attentive to methodological rigor, because it wanted to make sure that the Internet Safety Technical Task Force had the best data available.

A legalistic discussion is outside of the scope of this document. We periodically use such references for context, but our review primarily focuses on psychological and sociological approaches to youth and risk. Many of the online contact threats to youth that we address (including sexual solicitation and online harassment) are not prosecutable crimes in all regions in the United States. Internet solicitation of a young adolescent by an adult is a prosecutable offense in some states (depending on the exact ages of the parties), and in most states if it leads to an offline statutory rape (Hines and Finkelhor 2007) or sexual assault. Other forms of online contact, such as online harassment between two minors, ride the line of legality.

Youth encounter a variety of problematic content online, including adult pornography, violent movies, and violent video games. This material is typically not illegal to distribute to minors, or for minors to possess, although it is considered to be age-inappropriate and age restrictions may exist on purchasing it. Efforts to identify what is considered harmful or obscene are judged by “contemporary community standards,” which are difficult to define. Pornographic content depicting minors (“child pornography”), by comparison, is illegal to possess or distribute

in the United States (see: 102 Stat. 4485, 18 U.S.C. §2251 et seq. [2006]) and is universally condemned.<sup>1</sup>

Efforts of researchers worldwide to understand and document the risks youth face have been invaluable in furthering our understanding of Internet threats to minors. But in many ways, we still know very little about the details of these complex threats and how they are related. For instance, the relationship between minor-to-minor sexual solicitation and minor-to-minor harassment is only now being examined (Ybarra et al. 2007b). There are also gaps in the literature, which we discuss in section 8. For example, little is known about the problematic content that youth produce and distribute, such as videos of fights or pornographic images of themselves, and emerging technologies like the mobile phone have not yet been considered in depth. Finally, although multiple studies are underway, there is still a need for more large-scale quantitative research, particularly nationwide longitudinal surveys and studies that include data collected by law enforcement. Meaningful qualitative research on victims and offenders is similarly needed to enhance our understanding of threats to youth online.

### **1.3. A Note on Methodology and Interpretation**

Research into youth, risks, and social media stems from a wide variety of different methodological approaches. The studies discussed in this review take different approaches, although they all have limitations and biases. Some research questions are better answered by a certain methodology or research design. For example, questions that begin with “why” or “how” are often more adequately addressed through qualitative approaches than quantitative ones. Qualitative scholarship is better suited for providing a topological map of the issues, and quantitative scholarship can account for frequency, correlation, and the interplay of variables. Many quantitative studies discussed in this review reference and build on qualitative findings, and several utilize “mixed-methods” research with both quantitative and qualitative dimensions.

The methodology of a study is its most important quality. The size of a sample population matters less than how the population was sampled in relation to the questions being asked. The

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<sup>1</sup> The international situation is much different, as more than half of countries have inadequate laws governing the creation and distribution of child pornography (International Centre for Missing & Exploited Children 2006). This legal perspective—particularly the state of laws worldwide—is important, but outside of the purview of this review.

questions that qualitative studies can address differ from those that can be addressed quantitatively, but both are equally valid and important. For most of the concerns brought forth by the Task Force, the RAB thought it was important to focus on those questions best addressed through quantitative means.

Presenting statistical findings is difficult, because those who are unfamiliar with quantitative methodology may misinterpret the data and read more deeply into the claims than the data supports. For example, correlation is not the same as causation and when two variables are correlated, the data cannot tell you whether one causes the other or whether an additional mediating variable is involved that involves both. For those who are not familiar with different research methodologies, Appendix A provides some of the major structural issues one should be familiar with when considering the strengths and weaknesses of studies in this review.

Although research in this area is still quite new, many of the studies presented here come to similar conclusions using different participant groups and analytic approaches. When this is not the case, we highlight the issue and provide possible explanations for the discrepancy. Most often, discrepancies can be explained by understanding methodological differences, such as in research instrumentation, data collection, and sampling frame.

Research in this area is frequently misunderstood and even more frequently mischaracterized. This is unfortunate, because the actual threats youth face are often different than the threats most people imagine. More problematically, media coverage has regularly mischaracterized research in this area, leading to inaccurate perceptions of what risks youth face. This problem was most visible in the public coverage of the Online Victimization studies done at the Crimes Against Children's Research Center (Finkelhor et al. 2000; Wolak et al. 2006). These reports are frequently referenced to highlight that one in five or one in seven minors are sexually solicited online. Without context, this citation implies massive solicitation of minors by older adults. As mentioned in the following discussion, other peers and young adults account for 90%–94% of solicitations where approximate age is known (Finkelhor et al. 2000; Wolak et al. 2006). Also, many acts of solicitation online are harassing or teasing communications that are not designed to seduce youth into offline sexual encounters; 69% of solicitations involve no attempt at offline contact (Wolak et al. 2006). Researchers also do not use the concept of “solicitation” to refer specifically to messages intended to persuade a minor into sexual activity; it more generally refers to communications of a sexual nature, including sexual harassment and flirting.

Misperception of these findings perpetuates myths that distract the public from solving the actual problems youth face.

The purpose of this literature review is to move beyond fears or myths and paint an accurate and data-centric portrait of what risks youth are truly facing. Although fears of potential dangers are pervasive, the research presented here documents the known prevalence and frequency of Internet harm. Threats involving the Internet have not overtaken other harmful issues that youth encounter. For instance, although pervasive and frequently reported in the media (Potter and Potter 2001), Internet sex crimes against minors have not overtaken the number of unmediated sex crimes against minors (Wolak et al. 2003b), nor have they contributed to a rise in such crimes. This situation may seem at odds with the large number of reports made of Internet crimes against youth—in 2006, CyberTipline (a congressionally mandated system for reporting child crimes) received 62,365 reports of child pornography, 1087 of child prostitution, 564 of child sex tourism, 2145 of child sexual abuse, and 6334 reports of online enticement of children for sexual acts (National Center for Missing and Exploited Children 2006). Yet the increased popularity of the Internet in the United States has not been correlated with an overall increase in reported sexual offenses; overall sexual offenses against children have gone steadily down in the last 18 years (National Center for Missing and Exploited Children 2006). State-reported statistics show a –53% change in reports of sexual offenses against children from 1992 to 2006 (Calpin 2006; Finkelhor and Jones 2008), which Finkelhor (2008) argues is both significant and real. Furthermore, sex crimes against youth not involving the Internet outweigh those that do; Internet-initiated statutory relationships are greatly outnumbered by ones initiated offline (Snyder and Sickmund 2006; Wolak et al. 2003b) and the majority of sexual molestations are perpetrated primarily by those the victim knows offline, mainly by family members or acquaintances (Snyder and Sickmund 2006). This appears to be partly true of Internet-initiated sexual offenses as well, as a considerable percentage (44%) of Internet sexual offenders known to youth victims were family members (Mitchell et al. 2005b).

When it comes to harmful content, studies show that the Internet increases children’s risk of “unwanted” (accidental or inadvertent) exposure to sexual material (Wolak et al. 2006). It is debatable whether or not this type of encounter is new as a result of the Internet. On the topic of sexual solicitation, studies show that things are either improving or have been shown to not be as prevalent and distressing to minors as initially anticipated. Between 2001 and 2005, the

proportion of youth receiving unwanted Internet sexual solicitations went down (Wolak et al. 2006), although this decline was only seen among white youth and those living in higher-income households (Mitchell et al. 2007a). It was also discovered that the majority of cases of sexual solicitation involved adolescents, while instances of prepubescent children being solicited online are nearly nonexistent (Wolak et al. 2008b).

#### **1.4. Youths Facing Risks**

This document examines online risks to *youth*, which is synonymous with *minors* and is used to refer to individuals under the age of 18. *Adolescents* or *teenagers* are used to refer to youth aged 13 to 17 years old (inclusive), unless stated otherwise. *Children* are considered to be prepubescent youth aged 0 to 12 years old (although a minority of youth in this age range has reached puberty). Several studies are able to claim a representative, national sampling of youth in the United States, but the majority of studies are conducted with smaller groups, such as students in a particular school system or set of classes. Not all studies examine the same range of ages; therefore, the ages of study participants will be provided in our discussion.

The public commonly views children as more vulnerable than adolescents when it comes to Internet safety. In reality, there is a spectrum of sexual development through childhood (Bancroft 2003), and by adolescence, it is generally recognized that a curiosity about sexualized topics is developmentally normative (Levine 2002). Contrary to expectations and press coverage, adolescents or teenagers are more at risk for many threats, such as online solicitation and grooming (Beebe et al. 2004; Mitchell et al. 2001, 2007b; Wolak et al. 2004, 2008b; Ybarra et al. 2007b), and are more likely to search out pornographic material online than prepubescent children (Peter and Valkenburg 2006; Wolak et al. 2007b; Ybarra and Mitchell 2005: 473). Even unwanted exposure occurs more among older youth (Snyder and Sickmund 2006; Wolak et al. 2007b). Online harassment appears less frequently among early adolescents (Lenhart 2007; Ybarra and Mitchell 2004a) and children (McQuade and Sampat 2008). It is seemingly highest in mid-adolescence, around 13–14 years of age, (Kowalski and Limber 2007; Lenhart 2007; McQuade and Sampat 2008; Slonje and Smith 2008; Williams and Guerra 2007).

Even apart from age differences, some youth are more at risk than other youth. Race is generally not a significant factor in these crimes, such as cyberbullying and online harassment (Hinduja and Patchin 2009; Nansel et al. 2001; Ybarra et al. 2007a). Girls tend to be more at risk

for being victimized by online solicitation (Wolak et al. 2006) and harassment (Agatston et al. 2007; DeHue et al. 2008; Kowalski and Limber 2007; Lenhart 2007; Li 2005, 2006, 2007b; Smith et al. 2008). Boys generally see more pornography (Cameron et al. 2005; Flood 2007; Lenhart et al. 2001; Nosko et al. 2007; Peter and Valkenburg 2006; Sabina et al. 2008; Stahl and Fritz 1999; Wolak et al. 2007b; Ybarra and Mitchell 2005), particularly that which they seek out. Online youth victims also have been found to have a myriad of other problems, including depression (Ybarra et al. 2004) and offline victimization (Finkelhor 2008; Mitchell et al. 2007a).

### **1.5. Youth Perpetrators**

Many of the threats that youth experience online are perpetrated by their peers, including sexual solicitation (Wolak et al. 2006) and online harassment (Hinduja and Patchin 2009; McQuade and Sampat 2008; Smith et al. 2008). There is also often an overlap between cyberbullying offenders and victims (Beran and Li 2007; Kowalski and Limber 2007; Ybarra and Mitchell 2004a).

### **1.6. Adult Perpetrators**

Adults who solicit or commit sexual offenses against youth are anything but alike. They are a widely disparate group with few commonalities in psychology and motivations for offending. For instance, child molesters are “a diverse group that cannot be accurately characterized with one-dimensional labels” (Wolak et al. 2008b: 118). Not all child molesters are paedophiles or pedophiles (defined as a strong sexual attraction to prepubescent children); some molesters are not sexually attracted to children, but have other underlying psychological disorders and other factors, such as opportunity, poor impulse control, or a generally antisocial character (Salter 2004). Adults who solicit or molest adolescents are, by definition, not pedophiles (American Psychological Association 2000; World Health Organization 2007), because “[s]exual practices between an adult and an adolescent and sexual aggression against young majors do not fall within the confines of pedophilia” (Arnaldo 2001: 45).

Different terms are used to categorize adult perpetrators. Paedophilia or pedophilia refers to persistent sexual attraction to children; sexual attraction to adolescents is labeled “hebephilia.” In popular discourse, “pedophilia” is typically used to describe those who engage in acts with

any minor, pre- or postpubescent. Attraction is only one of many factors behind why adults engage in sexual acts with minors. Mental disorders including depression and poor impulse control are sometimes factors, as is desire for power, desire to engage in deviant acts, and a mere passing curiosity. It is important to note that many sexual crimes perpetrated against children take place between adults in their twenties and postpubescent adolescents. Little is known about these adult offenders who engage in statutory rape. Consumption of child pornography adds an additional layer of complexity that must be considered, and Section 5.1 provides greater insight into the adult perpetrators who engage in this illegal practice.

The overall prevalence of these offenders in the general population is unknown. Online solicitors of youth, adult offenders participating in Internet-initiated relationships, and consumers of child pornography remain extremely difficult populations to research, as they are mostly anonymous, globally distributed, and may not participate in offline crimes. Similar to many crimes, large-scale quantitative data on offenders—outside of data obtained from those in various stages of incarceration or rehabilitation—does not exist. Collecting meaningful information on these offenders has been challenging and the number of reported offenses might be lower or higher than the actual number of offenders (Sheldon and Howitt 2007: 43). This is a major limitation of survey-based quantitative research, so other methodologies, such as qualitative interviews and focus groups, are referenced where appropriate.

## 2. Sexual Solicitation and Internet-Initiated Offline Encounters

One of parents' greatest fears concerning online safety is the risk of "predators." This topic is the center of tremendous public discourse and angst (Marwick 2008) and attracts viewers nationwide to the popular TV show *To Catch a Predator*. In 2007, more than half (53%) of adults agreed with the statement that "online predators are a threat to the children in their households" (Center for the Digital Future 2008). Embedded in this fear are concerns about the threats of online sexual solicitation and the possibility that these will lead to dangerous offline encounters between youth and predatory adults.

The percentages of youth who receive sexual solicitations online have declined from 19% in 2000 to 13% in 2006 and most recipients (81%) are between 14–17 years of age (Finkelhor et al. 2000; Wolak et al. 2006). For comparison, a regional study in Los Angeles found that 14% of teens reported receiving unwanted messages with sexual innuendos or links on MySpace (Rosen et al. 2008) and a study in upstate New York found that 2% of 4th–6th graders were asked about their bodies, and 11% of 7th–9th graders and 23% of 10th–12th graders have been asked sexual questions online (McQuade and Sampat 2008). The latter study also found that 3% of the older two age groups admitted to asking others for sexual content (McQuade and Sampat 2008).

Youth identify most sexual solicitors as being other adolescents (48%–43%) or young adults between the ages of 18 and 21 (20%–30%), with only 4%–9% coming from older adults and the remaining being of unknown age (Finkelhor et al. 2000; Wolak et al. 2006). Not all solicitations are from strangers; 14% come from offline friends and acquaintances (Wolak et al. 2006, 2008b). Youth typically ignore or deflect solicitations; 92% of the responses amongst Los Angeles–based youth to these incidents were deemed "appropriate" (Rosen et al. 2008). Of those who have been solicited, 2% have received aggressive and distressing solicitations (Wolak et al. 2006). Although solicitations themselves are reason for concern, few solicitations result in offline contact. Social network sites do not appear to have increased the overall risk of solicitation (Wolak et al. 2008b); chatrooms and instant messaging are still the dominant place where solicitations occur (77%) (Wolak et al. 2006).

A sizeable minority (roughly 10%–16%) of American youth makes connections online that lead to in-person meetings (Berrier 2007; Berson and Berson 2005; Pierce 2006, 2007a; Wolak et al. 2006), but Internet-initiated connections that result in offline contact are typically

friendship-related, nonsexual, and formed between similar-aged youth and known to parents (Wolak et al. 2002). For socially ostracized youth, these online connections may play a critical role in identity and emotional development (Hiller and Harrison 2007).

Fears of predators predate the Internet and were a source of anxiety around children's access to public spaces in the 1980s (Valentine 2004). Although the use of "stranger danger" rhetoric is pervasive, it is not effective at keeping kids safe (McBride 2005). More importantly, 95% of sexual assault cases reported to authorities are committed by family members or known acquaintances (Snyder and Sickmund 2006). In a study of Internet-initiated sex crimes reported to law enforcement, 44% of crimes were committed by family members and 56% were committed by people known to the victim offline, including neighbors, friends' parents, leaders of youth organizations, and teachers; known cases involving strangers are extremely rare (Mitchell et al. 2005b). In other words, the threat of Internet-initiated sex crimes committed by strangers appears to be extremely exaggerated (Finkelhor and Ormrod 2000).

This section outlines what is known about sexual solicitation of minors, those who are perpetrating such acts, and which youth are most at risk.

## **2.1. Solicitation**

An online sexual solicitation is defined as an online communication where "someone on the Internet tried to get [a minor] to talk about sex when they did not want to," an offender asked a minor to "do something sexual they did not want to," or other sexual overtures coming out of online relationships (Finkelhor et al. 2000). This definition encompasses a range of online contact. Though some solicitations are designed to lead to an offline sexual encounter, very few actually do. Some of this contact can be understood as "flirting" (McQuade and Sampat 2008; Smith 2007), and many solicitations are simply meant to be harassing (Biber et al. 2002; Finn 2004; Wolfe and Chiodo 2008).

All told, there are relatively few large-scale quantitative studies concerning the prevalence of online sexual solicitation (Fleming and Rickwood 2004; McQuade and Sampat 2008) and even fewer national U.S.-based studies (Wolak et al. 2006). To date, there has only been one study (N-JOV) that collected law enforcement data on Internet-initiated sex crimes against minors (Wolak et al. 2004), although a follow-up study is nearing completion (J. Wolak, personal communication, September 10, 2008). The first and second Youth and Internet Safety

Survey Surveys (YISS) indicated that 13%–19% of youth have experienced some form of online sexual solicitation in the past year. Given the anonymity of communication, it is often difficult for youth to assess the age of solicitors, but youth reported that they believed that 43% of solicitors were under 18, 30% were between 18 and 25, 9% were over 25, and 18% were completely unknown (Wolak et al. 2006). Despite the prevalence of minor-to-minor sexual solicitation, it remains a particularly under-researched topic.

Online sexual solicitations by adults are of great concern, because some of this type of contact is considered to “groom” youth (Berson 2003) and coerce them to participate in either offline or online sexual encounters. Although conceptually similar to the process that pedophiles use to recruit child victims (Lang and Frenzel 1988), neither online solicitations nor Internet-initiated relationships particularly involve prepubescent children. It is generally assumed that adults use some degree of deception in the grooming process to coerce the youth into sexualized discussions, transmission of self-created images, or offline sexual contact (typically intercourse). In total, 52% of offenders lied about at least one aspect of themselves. Yet significant deception did not appear to be common (Wolak et al. 2008b). A quarter (25%) of adults participating in Internet-initiated sexual relationships with minors shaved off a few years from their real age, a practice also common in online adult–adult interactions (Hancock et al. 2007), and 26% lied about some other aspect of their identity. Only 5% of offenders pretended to be the same age as the youth victim online (Wolak et al. 2004). Wolak, Finkelhor, Mitchell, and Ybarra concluded that, “when deception does occur, it often involves promises of love and romance by offenders whose intentions are primarily sexual” (2008b: 113).

Online solicitations are not generally disturbing to the recipients; most youth (66%–75%) who were solicited were not psychologically harmed by this type of contact (Wolak et al. 2006). A small number of youth (4%) reported *distressing* online sexual solicitations that made them feel “very upset or afraid” (Wolak et al. 2006: 15), or *aggressive* online sexual solicitations (4%), where the offender “asked to meet the youth in person; called them on the telephone; or sent them offline mail, money, or gifts” (Wolak et al. 2006: 15). A small number (2%) of youth reported both aggressive and distressing solicitations. The researchers concluded that although some of the solicitations were problematic, “close to half of the solicitations were relatively mild events that did not appear to be dangerous or frightening” (Wolak et al. 2006: 15). Online

solicitations were concentrated in older adolescents. Youth 14–17 years old reported 79% of aggressive incidents and 74% of distressing incidents (Wolak et al. 2006: 15).

## **2.2. Offline Contact**

The percentage of youth who report Internet-initiated offline encounters in the U.S. ranges from 9%–16% across various locations, sample sizes, administration dates, and wording of surveys (Berrier 2007; Berson and Berson 2005; McQuade and Sampat 2008; Rosen et al. 2008; Wolak et al. 2006). The relative stability and in some cases the decline (Wolak et al. 2006) of the number of Internet-initiated offline meetings involving youth is particularly notable given the rise of adult–adult Internet-initiated offline meetings through dating and personals sites (Bryn and Lenton 2001). Studies in Europe, the United Kingdom, New Zealand, and Singapore show a wider range (8%–26%) of Internet-initiated offline encounters (Berson and Berson 2005; Gennaro and Dutton 2007; Liao et al. 2005; Livingstone and Bober 2004; Livingstone and Haddon 2008), with New Zealand showing the highest prevalence.

The majority of Internet-initiated connections involving youth appear to be friendship-related, nonsexual, and formed between similar-aged youth and known to parents (Wolak et al. 2002). Qualitative studies have shown that Internet-initiated connections are tremendously important for youth who are socially isolated at school and turn to the Internet to find peers who share their interests (Ito et al. 2008). Parents were generally responsible about their children going to real-world meetings resulting from online contact; 73% of parents were aware of real-world meetings and 75% accompanied the minor to the meeting (Wolak et al. 2006). The benign nature of most Internet-initiated meetings can also be inferred from the rarity of those with aggressive or violent overtones, or even those involving sexual contact. Problematic offline sexual encounters resulting from online meetings were found to be extremely rare, and mostly involve older adolescents and younger adults. In one national survey (YISS-2), 0.03% (4 in 1500) of youth reported physical sexual contact with an adult they met online, and all were 17-year-olds who were in relationships with adults in their early twenties (Wolak et al. 2006).

In the small number of offline meetings between minors and adults that involved sex, interviews with police indicate that most victims are underage adolescents who know they are going to meet adults for sexual encounters and the offenses tended to fit a model of statutory rape involving a postpubescent minor having nonforcible sexual relations with an adult, most

frequently in their twenties (Hines and Finkelhor 2007; Wolak et al. 2008b). Of all law enforcement reports of Internet-initiated sexual encounters, 95% of reported cases were nonforcible (Wolak et al. 2004). In one national survey (YISS-1) no instances of Internet-initiated sex were reported, and another (YISS-2), two youth out of 1500 (one 15-year-old girl and one 16-year-old girl) surveyed reported an offline sexual assault resulting from online solicitation. Although identity deception may occur online, it does not appear to play a large role in criminal cases where adult sex offenders have been arrested for sex crimes in which they met victims online; only 5% of youth were deceived by offenders claiming to be teens or lying about their sexual intentions (Wolak et al. 2008b).

Other factors also point to how the minor victims were compliant in the sexual activity. Most (80%) offenders brought up sex in online communication, meaning that “the victims knew they were interacting with adults who were interested in them sexually” (Wolak et al. 2004: 424.e18) before the meeting. Most (73%) of Internet-initiated sexual relationships developed between an adult and a minor involved *multiple* meetings (Wolak et al. 2004), indicating that the minor was aware of the ongoing physical and sexual nature of the relationship. This does not diminish the illegal nature of statutory sex crimes in most states. These are certainly not benign relationships, and some are psychologically harmful to youth (Hines and Finkelhor 2007). At the same time, it is important to recognize the role that some youth—particularly older teens—play in these types of relationships. This is an important policy issue, because “if some young people are initiating sexual activities with adults they meet on the Internet, we cannot be effective if we assume that all such relationships start with a predatory or criminally inclined adult” (Hines and Finkelhor 2007: 301).

These types of Internet-initiated sexual encounters between an adult and adolescent are also unlikely to be violent. In a nationwide survey of Internet-related contact crimes against youth reported by law enforcement, only 5% of incidents involved violence (such as rape), and none involved “stereotypical kidnappings in the sense of youth being taken against their will for a long distance or held for a considerable period of time” (Wolak et al. 2004: 424.e17). Similarly, despite anecdotal reports (Quayle and Taylor 2001), cyberstalking—a crime where offenders locate youth offline using information found online (Jaishankar et al. 2008)—appears to be very rare (Wolak et al. 2008b).

### 2.3. Victims

Over the last several years, the focus of research has shifted from offenders to characteristics of adolescents who are solicited online (Peter et al. 2005; Ybarra and Mitchell 2004a; Ybarra et al. 2006). Youth victims of online solicitation tend to be older (McQuade and Sampat 2008), female (Wolak et al. 2006), and experiencing difficulties offline, such as physical or sexual abuse (Mitchell et al. 2007b). Adolescents are more likely to be solicited online, and solicitation of prepubescent children by strangers (including those solicitations leading to an offline sexual encounter) is extremely rare (Wolak et al. 2006). In other words, youth who reported online solicitations tended to be of the age that it is developmentally normal to be curious about sex (Ponton and Judice 2004), and have a troubled home or personal life. Far from being naïve, these adolescents are thought to be more at risk because they “engage in more complex and interactive Internet use. This actually puts them at greater risk than younger, less experienced youths” (Wolak et al. 2008b: 114). This is a perspective that is at odds with studies and programs that have found younger adolescents to be less safety-conscious, and that equate younger age with more risk (Brookshire and Maulhardt 2005; Fleming et al. 2006). However, older youth (teenagers) are more likely to be solicited online and also to respond to these solicitations with real-world encounters, confirmed by both arrests for Internet-initiated sex crimes (Wolak et al. 2004) and youths’ self-reports in surveys (Berson and Berson 2005; McQuade and Sampat 2008; Rosen et al. 2008; Wolak et al. 2006).

Youth typically ignore or deflect solicitations without experiencing distress (Wolak et al. 2006); 92% of the responses amongst Los Angeles–based youth to these incidents were deemed “appropriate” (Rosen et al. 2008). In qualitative studies, youth who are asked about such encounters draw parallels to spam or peculiar comments from strangers in public settings, noting that ignoring such solicitations typically makes them go away (boyd 2008).

Nearly all (99%) victims of Internet-initiated sex crime arrests in the N-JOV study were aged 13–17, with 76% being high school–aged, 14–17 (Wolak et al. 2007c), and none younger than 12 years old. Youth who reported solicitations in the YISS-2 Study tended to be older as well, with 81% of youth aged 14–17 reporting solicitations (Wolak et al. 2006). The majority (74%–79%) of youth who reported “distressing” or “aggressive” incidents were also mostly aged 14–17 (Wolak et al. 2006).

Girls have been found to receive the majority (70%–75%) of online solicitations (Wolak et al. 2006). Offenders are typically male and tend to solicit females online; in the N-JOV study, 75% of cases involved female victims, and 99% of offenders were male (Wolak et al. 2004). Although there was an overall decline in solicitations, there was also a slight increase in the percentage of males being solicited in YISS-2: 70% of solicited youth were female, and 30% were male (Wolak et al. 2006).

Not all youth are equally at risk. Female adolescents aged 14–17 receive the vast majority of solicitations (Wolak et al. 2006). Gender and age are not the only salient factor. Those experiencing difficulties offline, such as physical and sexual abuse, and those with other psychosocial problems are most at risk online (Mitchell et al. 2007b). Patterns of risky behavior are also correlated with sexual solicitation and the most significant factor in an online connection resulting in an offline sexual encounter is the discussion of sex (Wolak et al. 2008b).

#### **2.4. Perpetrators**

Although the majority of the public discussion involving sexual contact crimes concerns adult-to-minor solicitation, and the typical image of an online predator is an older male (Wolak et al. 2008b), the reality is that most of the time solicitors are youth or young adults; 43% of the perpetrators of sexual solicitation are known to be other minors, 30% are between 18 and 25, and 18% are of unknown age (Wolak et al. 2006). Though 11% of victims did not know the perpetrator's gender, 73% reported that the perpetrator was male (Wolak et al. 2006). In a small number (14%) of cases, the victim knew the perpetrator prior to the incident (Wolak et al. 2006).

In the N-JOV study, adult offenders who were arrested for Internet-initiated relationships online with minors tended to be male (99%), non-Hispanic white (81%), and communicated with the victim for 1 to 6 months (48%). Offenders were of a wide variety of ages, from 18–25 (23%), 26–39 (41%), and over 40 (35%) years of age (Wolak et al. 2004). However, this study used data from law enforcement, and so does not account for incidents that did not result in an arrest, which is a particularly difficult area to recruit study participants from.

Few studies have explored the dynamics of minor-to-minor solicitation and those who have tend to combine it with broader issues of minor-to-minor harassment, noting that perpetrators of harassment and sexual solicitation tend to have high levels of other psychosocial behavioral issues (Ybarra et al. 2007b). Though online flirting is fairly common among youth

(Lenhart 2007; Schiano et al. 2002) and youth are known to use the Internet as an outlet for sexual thoughts and development (Atwood 2006; Subrahmanyam and Greenfield 2008), little is known about how frequently these interactions are unwanted. Likewise, although many of these encounters are between minors who know each other, little is known about the connection between online sexual talk and unwanted offline sexual encounters (such as “date rape”). This lack of research may be attributed to problems of gaining access to the population, a reluctance to attribute negative psychosocial characteristics to children, reluctance of victims to reveal they were victimized, difficulty in determining the age of the parties, or other methodological difficulties. More research is required to understand the dynamics and complexities of minor-to-minor unwanted sexual solicitation and contact crimes.

### **3. Online Harassment and Cyberbullying**

It is difficult to measure online harassment and cyberbullying because these concepts have no clear and consistent definition. Online harassment or “cyberbullying” has been defined as “an overt, intentional act of aggression towards another person online” (Ybarra and Mitchell 2004a: 1308) or a “willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices” (Hinduja and Patchin 2009: 5). They may involve direct (such as chat or text messaging), semipublic (such as posting a harassing message on an e-mail list) or public communications (such as creating a website devoted to making fun of the victim). Outside of academic dialogue and discipline, these two terms are frequently used interchangeably, and they have some conceptual similarity (Finkelhor 2008: 26). “Cyberstalking” is another term that captures online activities that may be related to harassment (Jaishankar et al. 2008; McQuade and Sampat 2008), but suffers from a similar lack of conceptual clarity, as definitions of cyberstalking vary widely. Researchers consider it variously as being an attempt to harass or control others online or understand it as an online extension of offline stalking (Adam 2002; Ogilvie 2000; Philips and Morrissey 2004; Sheridan and Grant 2007).

These acts are designed to threaten, embarrass, or humiliate youth (Lenhart 2007). However, cyberbullying frequently lacks characteristics of “schoolyard bullying,” such as aggression, repetition, and an imbalance of power (Wolak et al. 2007a). Some argue that cyberbullying should narrowly mark those acts of harassment that are connected to offline bullying and online harassment should refer to all forms of harassments that take place online, regardless of origin (Wolak et al. 2007a: S51); others argue that online harassment and cyberbullying differ because of the element of repeated behavior in the latter, rather than just one instance (Burgess-Proctor et al. 2009; Hinduja and Patchin 2009). These varying conceptualizations of cyberbullying and Internet harassment likely contribute to the wide range (4%–46%) of youth who report it.

However cyberbullying and online harassment are defined, the reach of cyberbullying is thought to be “magnified” (Lenhart 2007: 5) because the actual location of bullying may be in the school setting (Ybarra et al. 2007a) or away from it. Online bullies use a number of technologies, such as instant-messenger (IM), text and multimedia messaging on a cell phone, e-mail, social network sites, and other websites. Despite this increased reach, cyberbullying is not

reported to occur at higher overall rates than offline bullying. For instance, 67% of teenagers said that bullying happens more offline than online (Lenhart 2007), 54% of grade 7 students were victims of traditional bullying and less than half that number (25%) were victims of cyberbullying (Li 2007b), 42% of cyberbully victims were also school bullying victims (Hinduja and Patchin 2009), and a survey of more than 15,000 students in grades 6–10 found that around 30% were offline bullies or victims (Nansel et al. 2001). In other cases, individuals unknown or anonymous to the victim are the perpetrators of online harassment.

The problem of online harassment of minors is relatively widespread, with 4%–46% of youth reporting being cyberbullied (Agatston et al. 2007; Finkelhor et al. 2000; Hinduja and Patchin 2009; Kowalski and Limber 2007; Kowalski et al. 2007; McQuade and Sampat 2008; Opinion Research Corporation 2006a, 2006b; Patchin and Hinduja 2006; Smith et al. 2008; Williams and Guerra 2007; Wolak et al. 2006), depending on how it is defined; date and location of data collection; and the time frame under investigation. In the United States, 3% of youth aged 10–17 reported three or more cyberbullying episodes in the last year (Ybarra et al. 2006), and 9% of junior high school students said they had been cyberbullied three or more times (Li 2006). A recently published study based on data collected in Spring 2007 found that 17.3% of middle-school youth had been “cyberbullied” in their lifetime, but that nearly 43% had experienced victimizations that could be defined as cyberbullying (Hinduja and Patchin 2009). Relatively few students encounter weekly or daily cyberbullying. In Canada, Beran (2007) found that 34% of Canadian students in grades 7–9 were cyberbullied once or twice, and 19% reported “a few times,” 3% “many times,” and only 0.01% were cyberbullied on a daily basis.

### **3.1. Victims**

About a third of all reports of cyberbullying involve “distressing harassment” (Wolak et al. 2006). Distress stemming from cyberbullying victimization can lead to negative effects similar to offline bullying such as depression, anxiety, and having negative social views of themselves (Hawker and Boulton 2000). As Patchin and Hinduja describe it, “the negative effects inherent in cyberbullying . . . are not slight or trivial and have the potential to inflict serious psychological, emotional, or social harm” (Patchin and Hinduja 2006: 149). Wolak (2006) found that youth (aged 10–17) who were bullied may feel upset (30%), afraid (24%), or embarrassed (22%) and that even the 34% of victims of harassment who were not upset or afraid

may experience effects from bullying, such as staying away from the Internet or one particular part of it, being unable to stop thinking about it, feeling jumpy or irritable, or losing interest in things. Similarly, Patchin and Hinduja (2006) found that 54% of victims were negatively affected in some way, such as feeling frustrated, angry, or sad. This finding is of concern, because negative emotions are often improperly resolved by adolescents through self-destructive behaviors, interpersonal violence, and various forms of delinquency (Borg 1998; Ericson 2001; Rigby 2003; Roland 2002; Seals and Young 2003).

Frequent users of the Internet who talk with strangers online were more likely to report depressive symptoms (Ybarra et al. 2005) and those who are bullies, victims, or both were more likely to report major symptoms (Ybarra and Mitchell 2004a). Depressive symptoms and loneliness are the most common effects of offline bullying (Hawker and Boulton 2000). Other negative school-based effects of online harassment can occur, such as lower grades and absenteeism in school (Beran and Li 2007).

Age-related findings are difficult to compare across studies, as researchers alternately collected age with large ranges (such as “older adolescents”), two-year ranges (such as 12–13 years old), exact age (in years), or grade number (which varies between countries and corresponds only loosely with age). Additionally, some studies focused on a very narrow range of youth, and no conclusions could be drawn on age differences. With these caveats, there appears to be a strong correlation between age and likelihood of victimization. Victimization rates were found to be generally lower in early adolescence (Hinduja and Patchin 2008a; Lenhart 2007; McQuade and Sampat 2008; Ybarra and Mitchell 2004a) and higher in mid-adolescence (around ages 14–15) (Hinduja and Patchin 2008a; Kowalski and Limber 2007; Lenhart 2007; Slonje and Smith 2008). Some studies identified a peak period for online harassment, such as eighth grade (Williams and Guerra 2007) or 15 years of age (Hinduja and Patchin 2008a; Wolak et al. 2006).

Online harassment and offline bullying affect slightly differently aged populations. Reports of online harassment differ slightly from reports of offline bullying declining during middle and high school. The Bureau of Justice Statistics shows a steep decline in offline bullying from seventh to twelfth grades (Devoe et al. 2005), while online harassment tends to peak later, in eighth grade, and declines only slightly (Smith et al. 2008; Wolak et al. 2006). This finding may be due to the fact that only a minority of online harassment is school-related (Beran and Li

2007; Slonje and Smith 2008; Ybarra et al. 2007a) and in some cases has entirely different dynamics than offline bullying. Though school bullying shows a steep decline, online harassment remains level through the end of high school, and has been shown to persist even in college (Finn 2004).

Reports of gender differences are inconclusive, but generally, girls were more likely to be online harassment victims (Agatston et al. 2007; DeHue et al. 2008; Kowalski and Limber 2007; Lenhart 2007; Li 2005, 2006, 2007b; Smith et al. 2008) and more likely to be distressed by being harassed (Wolak et al. 2007a). Girls are more at risk for online harassment, whereas boys are typically more likely to be physically bullied offline (Devoe et al. 2005). It bears mentioning that the some studies found no difference in gender with respect to percentages of victims of online harassment (Hinduja and Patchin 2008a), although there are clear qualitative differences across gender in the actual *experience* of being cyberbullied (Burgess-Proctor et al. 2009) and in their emotional response to victimization (Burgess-Proctor et al. 2009; Hinduja and Patchin 2009).

### **3.2. Perpetrators**

Youth are most often involved with bullying other youth online. Although there are high-profile examples of adults bullying minors, it is not clear how common this is. Wolak et al. (2006) found that 73% of known perpetrators were other minors, but it is not clear how many of the remaining who are age 18 and over were young adults or slightly older peers. Other studies suggest that minors are almost exclusively harassed by people of similar age (Hinduja and Patchin 2009). Between 11%–33% of minors admit to harassing others online (Kowalski and Limber 2007; McQuade and Sampat 2008; Patchin and Hinduja 2006; Wolak et al. 2006). Consistent with offline bullying, online harassers are typically the same age as their victims (Kowalski and Limber 2007; Slonje and Smith 2008; Wolak et al. 2006, 2007a) and half of victims reported that cyberbullies were in their same grade (Stys 2004).

In online contexts, perpetrators may be anonymous, but this does not mean that the victims do not know the perpetrators or that the victims are not able to figure out who is harassing them. Between 37%–54% of bullied minors report not knowing the identity of the perpetrator or perpetrators (DeHue et al. 2008; Kowalski and Limber 2007; Li 2005, 2007a; Wolak et al. 2007a). Wolak et al. (Wolak et al. 2006) found that 44% know the perpetrator offline, but Hinduja and Patchin (2009) found that 82% know their perpetrator (and that 41% of

all perpetrators were friends or former friends). Hinduja and Patchin suggest that the difference between their data may be a result of shifts in the practice of online harassment.

Mid-adolescents were more likely to be perpetrators (Smith et al. 2008; Williams and Guerra 2007) and age (ranging from 13–18) was correlated with likelihood to engage in online harassment (Raskauskas and Stoltz 2007). Boys were identified as more likely to be online harassers (DeHue et al. 2008; Li 2007a; Williams and Guerra 2007), yet these findings that online harassers are primarily male against conflict with other research showing that females may increasingly harass online because the forms of harassment common online (shunning, embarrassment, relational aggression, social sabotage) are more similar to their own modes of offline bullying (Ponsford 2007). Some studies did find girls to be more prone to certain types of harassment behavior, such as the spreading of rumors (Lenhart 2007) and being distressed by harassment (Wolak et al. 2006), yet others found no gender difference in perpetrators (Hinduja and Patchin 2008a; Li 2006; Wolak et al. 2007a; Ybarra and Mitchell 2004b). Such conflicting results suggest a need for different methodological approaches and measures of harassment that capture the variety of ways bullying can be perpetrated online by both males and females.

### **3.3. Overlaps in Victimization and Perpetration**

Distinguishing between victims and perpetrators can be challenging, because some victims of online harassment may themselves be perpetrators. Though this issue is not well studied, between 3%–12% of youth have been found to be both online harassers and victims of online harassment (Beran and Li 2007; Kowalski and Limber 2007; Ybarra and Mitchell 2004a). Due to methodology issues and anonymity, the rate of overlap is likely much higher. Aggressor–victims experience combinations of risks and are “especially likely to also reveal serious psychosocial challenges, including problem behavior, substance use, depressive symptomatology, and low school commitment” (Ybarra and Mitchell 2004a: 1314). The overlap between online perpetrators and victims shares conceptual similarities to offline “bully–victims” (those who are both bully and are the victims of bullies), a concept reported to include between 6%–15% of U.S. youth (Haynie et al. 2001; Nansel et al. 2001). Although these studies conceive of the victim–perpetrator overlap as being related to individual psychosocial qualities, the relationship may also be directly related. The affordances of Internet technology may allow both online and offline victims to retaliate to harassment. In a recent study, 27% of teenaged girls

were found to “cyberbully back” in retaliation for being bullied online (Burgess-Proctor et al. 2009).

Too little is known about the relationship between online bullies and victims, reciprocal bullying, and cross-medium shifts between bullies and victims. This area requires further examination.

### **3.4. Offline Connections**

Studies differ on whether there is a connection between online and offline bully perpetration and victimization (Hinduja and Patchin 2007; Kowalski and Limber 2007; Raskauskas and Stoltz 2007; Ybarra et al. 2007a), but there is likely a partial overlap. With cyberbullying, bully and victim populations overlap but sometimes involve entirely unknown harassers. The most frequent and simple way to measure offline bullying is whether it was experienced in a school setting (although exact location is difficult to pinpoint, given the various technologies and locations involved). By this measure, less than half of online harassment is related to school bullying, either through location (occurring at school) or peers (offender or target is a fellow student). Ybarra found that 36% of online harassment victims were bullied at school (Ybarra et al. 2007a), and 56% of Canadian students in grades 7–9 who were bullied at school were also victims online (Beran and Li 2007). In other studies, over half of known bullies (or around 25% of the total number of cyberbullies) were identified as being from school, showing some overlap with school environments (Slonje and Smith 2008). Other studies show connections between online and offline bully perpetration (Raskauskas and Stoltz 2007) and online and offline bully victimization (Beran and Li 2007; Kowalski and Limber 2007; Slonje and Smith 2008: 152; Ybarra et al. 2007a). Although many studies have not examined whether the perpetrators and victims online are the same as offline, there appears to be a partial overlap, possibly stemming from the very broad definition of the activity. For example, Hinduja and Patchin (2007) found that 42% of victims of cyberbullying were also victims of offline bullying, and that 52% of cyberbullies were also offline bullies.

The overlap between offline bullying and online harassment also varies depending on who is reporting the relationship. For instance, 29% of online perpetrators reported harassing a fellow student, while 49% of online victims reported being harassed by a fellow student (Kowalski and Limber 2007). Those who are engaged in online harassment but not offline

bullying may see the Internet as a “place to assert dominance over others as compensation for being bullied in person” or “a place where they take on a persona that is more aggressive than their in-person personality” (Ybarra and Mitchell 2004a). Some victims do not know who is bullying them (Ybarra and Mitchell 2004a), although many do (Hinduja and Patchin 2009).

Wherever harassment takes place, the effects can have an impact on school. For example, those bullied outside of school were four times more likely to carry a weapon to school (Nansel et al. 2003). Moreover, Hinduja and Patchin (2007) found that youth who experience cyberbullying are more likely to report participating in problem behaviors offline (as measured by a scale including alcohol and drug use, cheating at school, truancy, assaulting others, damaging property, and carrying a weapon).

### **3.5. Connections to Solicitation**

The scant research that has been performed on the connections between online harassment and solicitation indicate that there is a minority overlap between the two, both as victims and perpetrators (Ybarra et al. 2007b). Youth who are “perpetrator–victims” (both perpetrators and victims of Internet harassment and unwanted sexual solicitation) constitute a very small minority of youth, but they reported extremely high responses for offline perpetration of aggression (100%), offline victimization (100%), drug use such as inhalants (78%), and number of delinquent peers (on average, 3.2). This group was also particularly likely to be more aggressive offline, be victimized offline, spend time with delinquent peers, and have a history of substance abuse.

## **4. Exposure to Problematic Content**

Problematic Internet-based content that concerns parents covers a broad spectrum, but most research focuses on violent media (movies, music, and images) and pornographic content that is legal for adults to consume. Other problematic content that emerges in research includes hate speech and content discussing or depicting self-harm. Depending on one's family values, more categories of content may be considered problematic, but research has yet to address these other issues.

There are three core concerns with respect to problematic content: (1) youth are unwittingly exposed to unwanted problematic content during otherwise innocuous activities; (2) minors are able to seek out and access content to which they are forbidden, either by parents or law; (3) the intentional or unintentional exposure to content may have negative psychological or behavioral effects on children. This literature review focuses on the first two issues. The third includes ongoing debates over the behavioral and psychological effects of immersive transmedia exposure to this type of content (de Zengotita 2006; Glassner 1999; Jenkins 2006) that are outside the scope of this review.

### **4.1. Pornography**

Encounters with pornography are not universal, but they are common. In a recent national study, 42% of youth reported either unwanted or wanted exposure or both; of these, 66% reported only unwanted exposure, and 9% of those indicated being "very or extremely upset" (Wolak et al. 2006). These numbers represent an increase from 2000 (Mitchell et al. 2007a). Minors saw pornography through either wanted (deliberate) exposure, unwanted (accidental) exposure, or both (Cameron et al. 2005; Flood 2007; Greenfield 2004; McQuade and Sampat 2008; Mitchell et al. 2003; Peter and Valkenburg 2006; Sabina et al. 2008; Wolak et al. 2007b; Ybarra and Mitchell 2005). Exact statistics on how pervasive pornographic content is on the Internet has been heavily disputed (Hoffman and Novak 1995; Rimm 1995; Thomas 1996), but it does not appear to be as pervasive as initially thought (Mehta 2001; Mehta and Plaza 1997).

Wanted exposure to pornographic material includes inputting sexual terms into a search engine, downloading adult media, and otherwise seeking out a sexually themed website (such as typing a known adult URL into a web browser). One case study suggested that most unwanted

exposure comes from “spam” emails, mistyping of URLs into a web browser, and keyword searches that “produce unexpected results” (White et al. 2008). In YISS-2, 34% of youth reported either only wanted exposure or both unwanted and wanted exposure (Wolak et al. 2006). Wanted exposure is also indicated by 19%–21% of minors who deliberately visited a pornographic website (Wolak et al. 2006). In a 1999 study, 21% of seventh through tenth graders were found to visit such a site for more than three minutes in the past month (Stahl and Fritz 1999), and in YISS-1 and YISS-2, 19%–21% of youth admitted deliberately going to an “X-rated” website (Wolak et al. 2006). Youth visit these sites for a variety of reasons, such as for sexual excitement, curiosity, or for informational purposes (Sabina et al. 2008).

Unwanted exposure is a new concern online, because “before development of the Internet, there were few places youth frequented where they might encounter unsought pornography regularly” (Wolak et al. 2007b: 248). In YISS-1, 25% of minors aged 10–17 viewed unwanted pornography in the past year. About 6% of this group reported being “very or extremely upset” by unwanted exposure to online pornography (Mitchell et al. 2003). These figures increased in 2005 when YISS-2 was administered and 34% of minors aged 10–17 reported being exposed to unwanted pornography, and 9% of them indicated being “very or extremely upset” (Wolak et al., 2006). Rates of unwanted exposure were higher among youth who were older, reported being harassed or solicited online, victimized offline, and were depressed (Wolak et al. 2007b).

Rates of exposure vary in other countries, and in some cases were reported to be higher than in the United States (Flood 2007; Hasebrink et al. 2008; Livingstone and Bober 2004; Lo and Wei 2005). In addition to the previously mentioned sources of methodological variance, increased overseas rates could be due to increased acceptance of sexualized topics, fewer technical measures such as blocking sites, and varying cultural and home environments. For instance, in a survey of 745 Dutch teens aged 13–18, 71% of males and 40% of females reported exposure to adult material in the last 6 months (Peter and Valkenburg 2006), a far higher number than in similar U.S.-based studies.

Older teens are more likely to encounter pornographic material through searching or seeking. When asked about their preadult exposure, the majority in a study of 563 college undergraduates reported seeing Internet pornography between ages 14–17, and only a very small percentage of boys (3.5%) and girls (1.5%) reported exposure before age 12 (Sabina et al. 2008).

Although the Internet plays a dominant role in adult fears and older youth are more likely to encounter pornographic content online, younger youth are more likely to encounter offline adult material such as movies or magazines than Internet-based pornography. Pardun (2005) found that of seventh and eighth graders who are exposed to nudity, more are exposed through TV (63%) and movies (46%) than on the Internet (35%). Ybarra and Mitchell found that 4.5% of younger Internet users reported both online and offline exposure, 3.6% reported online-only, and 7.2% report offline-only exposure in the past year; they concluded that, “concerns about a large group of young children exposing themselves to pornography on the Internet may be overstated” (2005: 473).

Most studies found that males are more frequently exposed to pornographic material than females (Cameron et al. 2005; Flood 2007; Lenhart et al. 2001; Nosko et al. 2007; Peter and Valkenburg 2006; Sabina et al. 2008; Stahl and Fritz 1999; Wolak et al. 2007b; Ybarra and Mitchell 2005). In some cases, gender differences were quite pronounced between types of exposure; 2% of Australian girls reported wanted exposure, while 60% reported unwanted exposure (Flood 2007), and males were more likely to seek out a wider variety of pornography and more extreme content (Sabina et al. 2008). Despite the wealth of evidence that girls are at greater risk of unwanted exposure, most studies have focused on males who are seen as more likely to seek out content. Youth often (44%) sought out this content “with friends or other kids” (Wolak et al. 2006). The dynamics of small groups of youth, particularly with young males, may lead to transgressive behavior such as viewing of adult content; wanted exposure was higher for minors who were teenagers, male, used the Internet at friends’ houses, and were prone to breaking rules (Wolak et al. 2007b).

#### **4.2. Violent Content**

Violent content on the Internet can take the form of movies and images, as well as video games (Thompson and Haninger 2001), many of which are networked (Lenhart et al. 2008). Nearly half (46%) of parents say they are “very concerned” about the amount of violent content their children encounter (Rideout 2007). In the UK, nearly one-third (31%) of youth reported having ever seeing “violent or gruesome material online” (Livingstone and Bober 2004), as did 32% of online teenagers in Europe, in a meta-analysis (Hasebrink et al. 2008).

Exposure to violent content presents different concerns, because it usually occurs as a part of common online activities—children are exposed to violent content through video games, on news sites, and through videos that are circulated among youth.

Video games are a common genre of media in which youth encounter violent content. Nearly all minors (94%) have played some form of video game, and nearly half (49%) of underage game players reported playing at least one M (mature)-rated title in the previous six months (Olson et al. 2007). Although gaming is viewed as a male activity, data suggests that 40% of game players and 44% of online game players were female (Entertainment Software Association 2008). Boys tend to prefer different types of games than do girls, and gender differences exist in how they deliberately participate (“wanted” exposure) in violent video games. Young boys tend to play more violent video games (Griffiths et al. 2004; Gross 2004; Olson et al. 2007), and girls tend to prefer games that include social interaction, nonviolent content, and fewer competitive elements (Hartmann and Klimmt 2006).

We believe that some degree of production by minors of violent content is likely, but no studies have specifically looked in depth at minors viewing or creating violent movies online, probably due to the relatively early stage of the adoption of video sites.

#### **4.3. Other Problematic Content**

Hate speech and content involving self-harm are two understudied areas that raise concern in terms of youth exposure. Although exposure to hate speech and self-harm websites are not commonly discussed in public discourse, this content presents an additional layer of concern.

Hate speech is a specific type of online content that is designed to threaten certain groups publicly and act as propaganda for offline organizations. These hate groups use websites to recruit new converts, link to similar sites, and advocate violence (Gerstenfeld et al. 2003), as well as threaten others (McKenna and Bargh 2000). An analysis of U.S.-based extremist groups found that these types of sites predominantly were used for sharing ideology, propaganda, and recruitment and training (Zhou et al. 2005).

Viewers generally find these types of websites threatening (Leets 2001) and adolescents are believed to be more likely to be persuaded by these biased and harmful messages (Lee and

Leets 2002). There is also concern that a small number of youth converts may conduct either offline or online (“cyberhate”) crimes or engage in online harassment (Deirmenjian 2000). These groups are quite technology-savvy, and have adopted new technologies popular with youth, such as blogs (Chau and Xu 2007).

Though online hate groups appear to use the Internet as a way to spread their messages and promote threatening content, the number of such sites is still miniscule in comparison to the total sites in existence. Although it is difficult to attain an accurate tally of these types of sites, according to the Southern Poverty Law Center, there were 497 hate sites in 2003 (Southern Poverty Law Center 2004). How frequently youth encounter hate speech and other such content on a national scale is unknown, but is not limited to websites. In a limited, small-scale analysis of chat transcripts, chat participants had a 19% chance of exposure to negative racial or ethnic remarks in monitored chat and a 59% chance in unmonitored chat (Tynes et al. 2004). Also, mere exposure is not the biggest problem: “Recent news articles and studies have shown that children and adolescents are increasingly involved in online hate speech” (Tynes et al. 2004: 267). Similar to the shift of discussion in cyberbullying and solicitation to examine the role of minors who produce content, we must be aware of the possibility that minors are not just consumers, but active producers and propagators of racist, anti-Semitic, and sexist information online.

Self-harm-related websites introduce another element of problematic content. There is tremendous public concern that sites dedicated to enabling self-injury and suicide or those that encourage anorexic and bulimic lifestyles (otherwise known as “pro-ana” and “pro-mia” sites) encourage youth to engage in problematic activities (Shade 2003), particularly given the addictive nature of some of these practices (Whitlock et al. 2006). Many sites concerning self-harm are structured as support groups and can actually benefit youth and enable them to get help (Murray and Fox 2006; Whitlock et al. 2006), but the act of identifying such behaviors with disorder may actually impede recovery (Keski-Rahkonen and Tozzi 2005).

At this point, very little is known about teens that participate in self-harm websites and even less about the interplay between participation in the websites and participation in self-harm. What is known is that youth engaged in deliberate acts of self-harm are much more likely to be contending with other psychosocial issues, have a history of physical or mental abuse, and have a high degree of parent–child conflict (Mitchell and Ybarra 2007). Likewise, those who are

engaged in deliberate acts of self-harm are much more likely to engage in other risky online behaviors (Mitchell and Ybarra 2007). Efforts to banish and regulate this content have pushed it underground, creating the rise of eating disorder communities like those labeled “pro-ana” and “pro-mia” that discuss their practices without ever mentioning anorexia or bulimia.

## 5. Child Pornography

“Child pornography” consists of images and videos that depict minors (under the age of 18 in the United States) in suggestive poses or explicit sex acts. Though some content involving children in suggestive poses is not illegal, child pornography is illegal in the United States (Jenkins 2001: 3). Child pornography is a particularly horrific crime, because it involves pictures and movies that are a record of a “sexual assault on a child” (Taylor and Quayle 2003). Child pornography may not directly physically harm youth each time it is viewed by an adult; however, child pornography perpetuates the idea that sexual relations with children by adults are acceptable. Those who view child pornography, for instance, may erroneously believe that the children involved are voluntary participants who enjoy the act, failing to recognize a power differential (Howitt and Sheldon 2007).

The COPINE project in Europe found that child pornography offenders frequently collect and organize illegal content that depict child molestation (Taylor and Quayle 2003), as did similar studies in the United States (Wolak et al. 2005). The idea of this content being used in the fantasies of child sex offenders (Sheldon and Howitt 2007) is disturbing to both victims and the public at large. Although child imagery is present online that is legal and merely erotic (such as children shown partly nude in normal situations), most of the studies below concern graphic images of sex acts involving youth. Jenkins (2003) estimates a core worldwide population of 50,000 to 100,000 users of online child pornography, excluding casual browsers, although this number is difficult to verify (Sheldon and Howitt 2007).

In addition to being a crime in and of itself, child pornography also factors into sexual solicitation. Some offenders expose youth to child pornography during the grooming process and make videos and images of offline sexual acts with youth, or ask youth to take sexual pictures of themselves. Once these videos and images are uploaded, it is nearly impossible to keep them from being traded, downloaded, and viewed by third parties. Taylor and Quayle describe the way this content can never be deleted as, “a permanent record of crime, and serves to perpetuate the images and memory of that abuse” (Taylor and Quayle 2003: 24).

## **5.1. Child Pornography Offenders**

Adults who view child pornography online are likely to be pedophiles (Seto et al. 2006), although not all are. Some adults who are not pedophiles may have a passing and casual interest in, or arousal by, sexualized media involving children (Briere and Runtz 1989; Hall et al. 1995; Malamuth and Check 1981). “Child pornography” on the Internet does not exclusively feature prepubescent children—many images online are of adolescent minors (Taylor and Quayle 2003). A number of child pornography offenders are true pedophiles that use the Internet to satisfy their attraction to prepubescent youth by locating and collecting images and movies featuring child nudity or sex acts (Frei et al. 2005; Sheldon and Howitt 2007; Wolak et al. 2004). Still other offenders who are for the most part not active on the Internet produce videos and images of child molestation or statutory rape, which they distribute in a variety of ways, and which may eventually end up online (Wolak et al. 2005). Some child pornography offenders feel a need to obsessively collect and catalog a range of sexually deviant material, not limited to images and movies featuring children (Quayle and Taylor 2002, 2003). Though it is important to understand how exposure to media (such as child pornography) leads to cognitive change amongst offenders and examine the intrinsic motivation for these offenses, understanding the primary motivation of offenders (even for horrific crimes) is outside the scope of this review.

There is no typical Internet sex offender, and “mixed offenders” (who both view or create child pornography and molest children) in particular vary greatly in motivation. Some are sexually attracted to children, others collect extreme pornography of many varieties, and others are offline molesters who upload images of the abuse to the Internet.

## **5.2. Child Pornography and Sexual Solicitation**

Some claim a direct relationship between consumption of child pornography and contact offenses (Kim 2005)—particularly the media (Potter and Potter 2001)—but the research that has been performed on the topic in focus groups, interviews, and historical analyses on incarcerated or rehabilitating offenders found that between 4%–41% of contact offenders possessed child pornography (Frei et al. 2005; Fulda 2002, 2007a, 2007b; Mitchell et al. 2005a; Seto et al. 2006; Sheldon and Howitt 2007; Webb et al. 2007). Much of this variance may be explained by the varying methodologies and subjects under study; some investigate the issue by researching child

pornography offenders using qualitative interviews, others have examined arrest statistics of contact offenders.

Several researchers have concluded that few child pornography offenders are also online or offline contact offenders. Sheldon and Howitt concluded that “many of the offenders we studied did not seem to stray beyond the Internet for their paedophilic activities” (Sheldon and Howitt 2007: 120). Mitchell, Finkelhor, and Wolak wrote that, “despite its plausibility from anecdotal accounts, there is little research confirming a regular or causal role for pornography in child molestation” (Mitchell et al. 2003: 334). Bensimon (2007) noted that the mixed results of studies on the role of pornography on offending (not limited to child pornography or child offenses) resist conclusions.

The connection between child pornography and molestation is still much disputed, and we make no attempt to reconcile the various worthy theoretical stances on this important issue. A typology of child pornography and offenders is simply outside of the scope of this report. What is certain is that the activities of “mixed offenders” intersect with youth safety in several critical ways. Sheldon and Howitt (2007) argue that there are three primary reasons to be concerned about online child pornography: offenders who view and trade child pornography create a demand, “deviant sexual fantasies based on Internet images may fuel a need to sexually abuse other children,” and child pornography is sometimes created during the grooming process by both solicitors and youth victims (which may or may not be initiated online). Similar to how child pornography viewers were widely varied in their motivations, “there was no typical scenario for [child pornography] production” (Wolak et al. 2005: 44). The N-JOV study found that 21% of Internet-initiated sex crimes involved the victim being photographed in a “suggestive or sexual pose,” 9% of offenders sent the victim adult pornography, and 10% of offenders sent the victim child pornography (Wolak et al. 2004). Additionally, some offenders may send pornographic images of themselves (such as genitals) to potential victims, or request them from potential victims. Youth victims of Internet solicitations said that the offender requested a sexual picture from them or sent them a sexual photograph (such as of their genitals) 15% of the time (Wolak et al. 2006). One in five online child molesters took “sexually suggestive or explicit photographs of victims or convinced victims to take such photographs of themselves or friends” (Wolak et al. 2008b: 120). Compared with the collection habits of child pornography collectors, requests for minors to self-produce pornography more directly affects

online youth. Despite low rates of compliance among youth, this is a serious issue for both contact and child pornography offenses, as, “[even] if only a small percentage cooperate, considering such requests flattering, glamorous, adventuresome, or testament of their love and devotion, this could be a major contribution to the production of illegal material” (Mitchell et al. 2007b: 201).

Adults are not exclusively involved in the production of sexual content depicting youth. An additional issue that intersects this topic is the presence of youth-generated sexual photographs intended for viewing by other minors. Though not intended for adult consumption, the Internet may play a role in spreading such camera phone, webcam, and digital camera photos, potentially putting them within reach of child pornography consumers. One of the first surveys to include questions on the topic, on a large number of students in New York, found that 3% of seventh through ninth graders asked for “naked pictures from another Internet user” (McQuade and Sampat 2008), showing that a small number of minors request self-produced erotic material.

## **6. Risk Factors**

With all three types of threats (sexual solicitation, online harassment, and problematic content), some youth are more likely to be at risk than others. Generally speaking, the characteristics of youth who report online victimization are similar to those of youth reporting offline victimization and those who are vulnerable in one online context are often vulnerable in multiple contexts (Finkelhor 2008). In the same way, those identified as “high risk” (i.e., experienced sexual abuse, physical abuse or parental conflict) were twice as likely to receive online solicitations (Mitchell et al. 2008) and a variety of psychosocial factors (such as substance use, sexual aggression, and poor bonds with caregivers) were correlated with online victimization (Ybarra et al. 2007, 2007b).

### **6.1. Online Contact with Strangers**

Chatting with strangers online is a common activity, and between 45% and 79% of U.S. youth participate in this activity (McQuade and Sampat 2008; Stahl and Fritz 1999; Wolak et al. 2006). Talking with strangers online does not appear to be universally risky, but it may increase the possibility of sexual solicitation, particularly among youth who are willing to engage in conversations about sexual topics (Wolak et al. 2008a). Recent research also suggests that talking to strangers may not be innately risky; those involved in other risky behaviors (such as making rude or nasty comments, using file-sharing software to download images, visiting X-rated web sites, or talking about sex to people online) in addition to chat are more likely to receive aggressive solicitations (Wolak et al. 2008a; Ybarra et al. 2007). With talking to strangers, it is difficult to discern cause and effect—are youth more at risk because they talk to strangers or are at-risk youth more likely to talk to strangers?

As with any type of correlation, these combinations of risk factors are not causally linked, and it is impossible to currently assess cause and effect. There is no consensus on whether youth are more at risk because they talk to strangers or at-risk youth are more likely to talk to strangers; various studies identify both parties are partly to blame for how these sexual relationships develop. Youth routinely lie when presenting themselves online, a small number request erotic material of other minors, minors who are solicited have a host of sociopsychological factors, and “online solicitation” is not exclusively meant to entice victims into sexual relationships. That

said, there is a widespread public belief, which is backed up by some research, that adult solicitors coerce, or “groom,” youth into sexualized situations, and certain social media and technologies mediate risk differently.

Making connections online that lead to offline contact are not inherently dangerous. A regional study in New York found that 10% of seventh and eighth graders and 14% of tenth through twelfth graders have invited online friends to meet offline (McQuade and Sampat 2008), but Internet-initiated connections that result in offline contact are typically friendship-related, nonsexual, and formed between similar-aged youth and known to parents (Wolak et al. 2002). For socially ostracized youth, these online connections may play a critical role in identity and emotional development (Hiller and Harrison 2007).

## **6.2. Posting of Personal Information**

Youth frequently post information of all sorts (text, images, video) online through social media such as social network sites (SNSs). Though investigation in this area is quite new, it appears that only a small number of teens are posting the most sensitive contact information such as a phone number on a public profile (Lenhart and Madden 2007). Jones et al. concluded that “the inclusion of offline contact information was an anomaly in user profiles” (Jones et al. 2008), but nearly two-thirds of members posted more innocuous media such as a picture. Pierce (2007b) found a majority of youth on MySpace posted information such as a picture (81%), hometown (93%), and first name (53%). Only a small minority (5%–11%) of youth posts more sensitive information, such as a first and last name or phone number (Lenhart and Madden 2007; Pierce 2007b). Analysis by Hinduja & Patchin (2008b) of approximately 1,500 randomly retrieved MySpace profiles revealed only a minority of members provided descriptive information such as full name (9%) or phone number (0.3%), while a majority posted a picture (57%) and many (27.8%) included the name of their school. Interestingly, a follow-up study by the same authors found a significant increase in the percentage of youth posting their full name and a significant decrease with one’s school (Burgess-Proctor et al. 2009), pointing to somewhat unpredictable trends in the way youth are disclosing information on their SNS. Youth may disclose information differently; males were found to post personal information, and females posted images (Ybarra et al. 2005). More males were also found to have public profiles, and females were more likely to have private profiles (Burgess-Proctor et al. 2009).

Posting personal or identifying information is often viewed as a risky behavior, although research suggests that the mere act of posting information may not in itself be a risk factor. In explaining why there is no correlation, Wolak, Finkelhor, Mitchell, and Ybarra note that because posting information is common on these very popular sites, “in general, behaviors manifested by large numbers of people fail to predict events that are relatively uncommon” (Wolak et al. 2008b: 117). Rather risk is associated with interactive behavior. Other risky habits may be better predictors, and more related to why youth are at risk. In other words, the same psychosocial factors that place youth at risk for online solicitation and bullying outweigh the risk of posting personal information online. For instance, “talking with people known only online (‘strangers’) under some conditions is related to interpersonal victimization, but sharing of personal information is not” (Ybarra et al. 2007: 138).

These recent findings are contrary to many suggested best practices publicized by groups devoted to the protection of youth online. Despite these efforts, the number of youth revealing personal information increased from 2000 (11%) to 2005 (35%) (Wolak et al. 2006). During this time of rapid technological change and transition, it remains to be seen how the risk of transmission of personal information interacts with or mediates other risk factors. In YISS-2, researchers concluded that, “it is not clear what kinds of information are particularly problematic, or exactly what the risks are with respect to the different situations in which youth disclose personal information online” (Wolak et al. 2006: 50).

One area of concern involves youth who engage in age deception, indicating that they are older than they are (Gross 2004; McQuade and Sampat 2008). This may lead young adults to believe that they are interacting with someone who is of age when they are not. Little is currently known about the intersection of this risk behavior and sexual victimization.

As our knowledge of the area expands, we can likely draw more meaningful conclusions about how and where it is appropriate to reveal personal information.

### **6.3. Sharing of Passwords**

By sharing their passwords with friends and peers, youth run the risk of being impersonated online and having their accounts used in acts of harassment. Little is known about how often youth share their passwords or in what circumstances. Pew Internet research from 2001 found that 22% of youth aged 12–17 had shared a password with a friend or someone they

know (Lenhart et al. 2001). More recently, McQuade and Sampat (2008) found that 13% of fourth through sixth graders and 15% of seventh through ninth graders in upstate New York experienced someone using their password without their permission and a slightly smaller percentage of youth had someone else impersonate them online. In a qualitative study on teenagers and social media, boyd (2008) found that teens frequently share their passwords with friends and significant others, both as a symbol of trust and in order to get technical help. When the friendship falters, teens sometimes use this privileged access against one another. It is likely this password sharing introduces a risk with respect to online harassment, but little is currently known about this practice.

#### **6.4. Depression, Abuse, and Substances**

Depression, physical abuse, and substance abuse are all strongly correlated with various risky behaviors that lead to poor choices with respect to online activities. Depressed youth were more likely to report increased unwanted exposure to online pornography (Wolak et al. 2007b), online harassment (Mitchell et al. 2007a; Ybarra 2004; Ybarra et al. 2004), and solicitation (Mitchell et al. 2007a). Risk for online harassment was particularly pronounced among depressed male youth, who were eight times more likely to be victimized than nondepressed male youth (Ybarra 2004). Suicidal ideation has also been significantly correlated with online harassment victimization among adolescents (Hinduja and Patchin 2009). Self-harm, often a physical manifestation of depression, is also correlated with other risky behaviors that increase the likelihood of risk (Mitchell and Ybarra 2007, 2007; Mitchell et al. 2005a). Depressed youths were also prone to a host of other risk factors, and were more likely to be heavy Internet users and talk with strangers online (Ybarra et al. 2005), making it difficult to untangle where the risk lies.

Minors who formed close relationships online were more likely to be a victim of physical or sexual assault, and have at least one negative life event (Wolak et al. 2003a). Likelihood of solicitation and harassment has been correlated with offline sexual and physical abuse (Mitchell et al. 2007a, 2007b).

Online harassers were found to be three times more likely to be frequent substance users (Ybarra and Mitchell 2004b). Likewise, victims of solicitation were twice as likely to report substance use (Mitchell et al. 2007a). Youth who were both perpetrator–victims of Internet

harassment and unwanted online sexual solicitation were the heaviest users (Ybarra et al. 2007b). This finding parallels offline settings, where bullies tend to have used alcohol or other substances (Ybarra and Mitchell 2007). Substance abuse also appears to be linked to other risky behaviors. For instance, ninth-grade students who chatted online were more likely to drink or do drugs in the last year (Beebe et al. 2004).

## **6.5. Poor Home Environment**

A poor home environment full of conflict and poor parent–child relationships is correlated with a host of online risks (Wolak et al. 2003a; Ybarra and Mitchell 2004b). Home is where nearly all (91%) of youth reported using the Internet (Wolak et al. 2006) and by 2007 the majority (75%) of homes had broadband access (Center for the Digital Future 2008). A poor home environment full of conflict and poor parent–child relationships is correlated with a host of online risks. High parental conflict was correlated with higher online sexual victimization (Wolak et al. 2003a) and a poor caregiver–child relationship (with poor emotional bonds, infrequent discipline, and infrequent monitoring) was related to increased online harassment (Ybarra and Mitchell 2004b). These data mirror findings in the real world, where low parental monitoring is correlated with a host of negative consequences, such as increased likelihood of violence over time (Brendgen et al. 2001), police contact (Pettit et al. 2001), and traditional bullying (Patterson and Fisher 2002; Steinberg and Silk 2002), while a *positive* parental relationship mediated effects of poverty and other demographic indicators (Barnow et al. 2001).

Greenfield wrote that, “a warm and communicative parent–child relationship is the most important nontechnical means that parents can use to deal with the challenges of the sexualized media environment” (Greenfield 2004: 741). The vast majority of parents (90%) are concerned about their child’s online safety (Wolak et al. 2006), and about half have discussed related topics (such as online sexualized talk, adult pictures, and harassment) with their children. About a third received this information from school. These instructions appear to be helpful, although the positive benefits may relate more to a healthy home life. Those parents who talked with their children about Internet safety or had rules for using the Internet generally had a better environment for most types of Internet threats., and parenting style was related to the techniques used to restrict access of minors to the Internet (Eastin et al. 2006).

A positive home environment inoculates youth against a host of dangers. Parents who talked about Internet dangers had more safety-conscious children (Fleming et al. 2006). More family rules regarding the Internet were correlated with less risk of a face-to-face meeting with someone met online (Liau et al. 2005). Family cohesion and shared activities led to less exposure to negative content such as pornography (Cho and Cheon 2005).

Despite an interest in the topic, parents generally believed that online issues of harassment, solicitation, and access to adult content were less prevalent than they actually were. Parents in the United States believed online harassment to be less prevalent than data showed (DeHue et al. 2008), and 33% of youths aged 9–19 in the UK reported online harassment, while only 4% of parents believed their children encounter online harassment (Livingstone and Bober 2004). Similarly, parents also underestimated the amount of adult content youth were exposed to either accidentally or deliberately (Cho and Cheon 2005) and the amount of information adolescents posted online (Rosen et al. 2008). These findings echo similar earlier studies that showed adults weren't savvy to the latest developments online; in 2002 parents were found to underestimate how frequently their children engage in activities such as e-mail (17% compared with 45%), posting online personals (68% compared with 81%), and corresponding with strangers (30% compared with over 50%) (Computer Science and Telecommunications Board National Research Council 2002: 165).

The underestimation of incidents may be due to the very infrequent reporting of incidents by youth to parents or other adults. Only around a third of those harassed reported the occurrence to a parent or guardian (DeHue et al. 2008; Opinion Research Corporation 2006b; Patchin and Hinduja 2006; Wolak et al. 2006) and less frequently told another adult such as a teacher. Wolak, Mitchell, and Finkelhor (2006) found that 63% did not report the incident because they thought it was “not serious enough.”

## **6.6. Intensity of Online Participation**

Though there is a correlation between online risk and high levels of online participation, online participation does not predict risk. Youth who are solicited and harassed do indicate that all genres of social media (IM, chat rooms, social network sites, email, blogging) are their top online activities (Ybarra and Mitchell 2008), but as these tools are broadly popular, this does not make them unique. One interesting note in this data is that youth who are not solicited are much

more likely to indicate that gaming is one of their top Internet uses as compared to those who are solicited (Ybarra and Mitchell 2008).

## **7. Genres of Social Media**

Many of the studies focus on the Internet at large, yet youth face different risks in different online environments. Sometimes this risk is because technologies facilitate certain communication between adults and minors or among minors. For instance, on SNSs, a popular genre of social media among youth, teens are more likely to interact with friends or friends-of-friends than complete strangers (Lenhart and Madden 2007). Norms are another factor at play. In some types of environments, such as gaming communities, it is more normative for youth to interact with people they don't know. At-risk youth are more attracted to some environments, elevating their levels of risk, as is demonstrated when depressed or sexually promiscuous youth are heavier users of online chat. Finally, certain environments provide means to actively combat solicitation and harassment, such as by blocking or ignoring users.

In understanding the interplay between genres of social media and threats to minors, it is also important to note that different media play a different role at different times because of trends and fads. Thus, comparing data across years is often difficult because youth adoption of particular genres of social media has changed rapidly over the years.

The risks presented by the newest genre of social media—social network sites—with respect to solicitation, and to a lesser degree with harassment, appear to be consistent with Internet risks more broadly and lower than those in other media (Ybarra and Mitchell 2008). Studies with broader definitions of bullying suggest that social network sites present an equal or slightly increased risk (Lenhart 2007), in part because these sites are popular tools of peer communication.

### **7.1. Chatrooms and Instant Messaging**

Chatrooms and instant messaging have been the most prevalent media in online solicitation, as well as more general “cybersex” activities (Lamb 1998) and harassment of minors. The current literature suggests that, “the nature of chat rooms and the kinds of interactions that occur in them create additional risk” (Wolak et al. 2007c: 329). For example, synchronous media that enables ongoing conversations may be important for grooming youth and coercing them into nonforcible relationships. On average, half of youth who report

harassment identified that it first occurred in chat rooms or through instant messaging (Kowalski and Limber 2007; Opinion Research Corporation 2006a, 2006b; Wolak et al. 2006).

Those soliciting youth online even more frequently use chat rooms and instant messaging. These technologies account for between 77%–86% of solicitation attempts and Internet-instigated relationships leading to offline sexual encounters; authorities reported that in more than 86% of Internet solicitation incidents resulting in arrest, youth were first contacted over chat (76%) or instant messaging (10%) (Wolak et al. 2004). Similarly, from the perspective of potential victims, 77% of youth reported being solicited through chat (37%) or instant messaging (40%) (Wolak et al. 2006). Authorities have used these technologies extensively for “sting” arrests (Wolak et al. 2003b).

Although the technology may be particularly supportive of problematic interactions, the higher risk profile of these technologies may have more to do with who uses these sites and why. Only 18% reported using chatrooms in 2006 (Lenhart et al. 2007a), down from 24% in 2001 (Lenhart et al. 2001). The majority of teens still use instant messaging, but it too has declined in popularity over the same period. Beebe et al. (2004) found that using online chat frequently is correlated with a poor home environment and engaging in other risky behaviors and Ybarra et al. (2005) found a connection between chatroom use and increased depression, suggesting that chat could be a particularly attractive mode of communication for youth who are in need of support and attention. Youth may be more willing to meet strangers through these tools where forums for teens to build relationships are common (Šmahel and Subrahmanyam 2007). Given that risk is highly correlated with certain types of attention seeking and talking with strangers about sexual topics (Wolak et al. 2008a), the youth who participate in chat and the motivations behind their chat use may be more of a factor than the technology itself.

## **7.2. Blogging**

A sizeable minority of youth (28%) have created a blog (Lenhart et al. 2007a), but despite some suggestions that it is potentially dangerous (Huffaker 2006), youth bloggers do not appear to have a higher level of interaction with strangers online and are not more likely to be sexually solicited (Mitchell et al. 2008). That said, they have been found to be more likely to experience online harassment and cyberbullying (Mitchell et al. 2008).

In data collected in 2006, minors aged 12–17 were more likely to be female (Mitchell et al. 2008). Though half of adults who blog do so to network at least some of the times and 34% consider their blogs to be an act of journalism (Lenhart and Fox 2006), teen bloggers blog for an audience of their peers (Lenhart and Madden 2005). Compared to those who use chatrooms, youth bloggers are less likely to send personal information online, engage in online sexual behavior, purposely download pornography, and engage in aggressive online behavior (Mitchell et al. 2008). The fact that they are less likely to be solicited and more likely to face online harassment (Mitchell et al. 2008) may stem from the peer-centric environment of youth participation in blogging.

### **7.3. Social Network Sites**

Social network sites, such as MySpace and Facebook, are one of the most popular and controversial types of social media (boyd and Ellison 2007). Young people are frequently members (Lipsman 2007) and use them to communicate and maintain social relations (boyd 2008) and as a base for online communities (Ito et al. 2008). However, research is inconclusive on the extent to which they present a risk or mediate risk. As of 2006, 93% of American youth aged 12–17 used the Internet, and 58% had created an SNS profile (Lenhart et al. 2007b). Nearly half (49%) of teens used this form of communication to develop new friends (Smith 2007).

With this popularity has come wariness about these types of websites, particularly from parents. In 2007, 85% of adults were uncomfortable with their children participating in online communities (Center for the Digital Future 2008) and in 2006 63% of parents thought there were “quite a few sexual predators” on MySpace; 83% of teens felt that social network sites were generally safe (Rosen 2006). By 2008, 83% of Los Angeles area parents were concerned about sexual predators, yet only 35% of teens felt that predators were a concern (Rosen et al. 2008). Rosen (2008) found that 15% of teens reported being approached by strangers, but almost all (92%) took appropriate steps in response.

Initial research in the UK suggests that at least some minors meet people offline after meeting them on social network sites (Skinner 2008). Although certain SNS members (those who posted a picture and those who flirted online) were more likely to receive online contact from strangers, Smith concluded that, “despite popular concerns about teens and social

networking, our analysis suggests that social network sites are not inherently more inviting to scary or uncomfortable contacts than other online activities” (Smith 2007: 2).

With respect to online harassment, SNSs present an equal or increased danger as compared with other media. Lenhart found that, “social network users are also more likely to be bullied (Lenhart 2007: 4), although this may be a result more of increased (heavy) Internet use and other variables. SNS youth users were also found to be more susceptible to certain types of online harassment, such as spreading of rumors and receiving harassing e-mail (Lenhart 2007). Girls appear to be more prone to receiving unwanted messages on social network sites (Smith 2007). This may be because harassers and solicitors generally target girls or because studies suggest SNS membership is slightly more female (Jones et al. 2008; Thelwall 2008). That said, boys are more likely to see unwanted material such as pornography on SNSs (Rosen et al. 2008).

Privacy features on social network sites are actively employed, leading to increased youth safety. In 2006, Pew found that 66% of youth aged 12–17 had limited access to their SNS profiles (Lenhart and Madden 2007). In other studies, Hinduja found that 40% of MySpace members set their profiles to “private” in 2006 (Hinduja and Patchin 2008b) and 36% in 2007 (Patchin and Hinduja, in review)—a default setting, now, to users who register as under 18. Generally, users appear to realize the need for privacy settings (Lange 2007).

The risks on social network sites—most notably with respect to solicitation and harassment—appear to be consistent with Internet risks more broadly and lower than those in other media (Ybarra and Mitchell 2008). Given the broad popularity of these sites with youth, this suggests that the technology itself plays little role in altering the dynamics of online risk. Furthermore, the profile of those at risk on social network sites matches those who are at risk on the Internet more broadly (Wolak et al. 2008b), suggesting that psychosocial issues are more meaningful markers of risk than technology.

#### **7.4. Multiplayer Online Games and Environments**

Nearly all American youth play games daily (Lenhart et al. 2008), many of which have an online component. Of American youth who play games online with others, nearly half (47%) play with friends they know offline, and 27% with people they met online. Contrary to stereotypes, females do play online games, but in lower numbers than males for most genres (Entertainment Software Association 2008; Lenhart et al. 2008; Yee 2006). Youth do not limit

themselves to a single genre, and fully 80% of teens play five or more genres, such as action, sports, racing, and role-playing (Lenhart et al. 2008).

The research is split on whether players of certain games, such as MMOGs (Massively Multiplayer Online Games), are more at risk than other youth with respect to psychosocial factors such as depression, substance abuse, difficulties with self-regulation, trouble at school, and increased aggression (Ducheneaut et al. 2006; Ng and Wiemer-Hastings 2005; Seay and Kraut 2007; Williams and Skoric 2005; Williams et al. 2008). Certain types of online games may represent an attractive outlet for troubled youth, similar to other social media such as chat.

Youth are exposed to violent and sexualized content through video games, as almost one-third (32%) reported playing (Lenhart et al. 2008) at least one mature (“M”)-rated title (Thompson et al. 2006) and even video games with lower ratings contain significant amounts of content that may be considered inappropriate (Haninger and Thompson 2004). It is as yet unclear if the inappropriate content in games is viewed by youth who would not otherwise be exposed to sexualized or violent imagery, and how game playing relates with other activities, such as seeking of adult media through search engines. Youth are also exposed to other forms of problematic content and behavior. Nearly half of game-playing teens report seeing or hearing “people being hateful, racist, or sexist while playing” at least sometimes, and 63% report “people being mean and overly aggressive” (Lenhart et al. 2008).

Online gaming environments frequently have multimedia capabilities and interactive possibilities that go well beyond web-based social media (such as SNSs). Many games offer real-time multimedia chat during gameplay through text, voice, or video, and may encounter aggressive behavior (Williams and Skoric 2005). These introduce the same problematic potential as other forms of synchronous chat. In addition to more familiar modes of communication, three-dimensional environments offer at least one unique way for harassment to occur: “griefing” (Foo and Koivisto 2004). This is defined as when a player “utilizes aspects of the game structure or physics in unintended ways to cause distress for other players” (Warner and Ratier 2005: 47) and disrupts the gaming experience (Lin and Sun 2005).

There is very little research into safety issues with respect to online gaming. It is unclear how frequently youth encounter solicitation or harassment, how other risk factors described in this paper relate to these environments, or if the new methods of harassment that emerge here are more upsetting to youth. More research is necessary.

## **7.5. Multimedia Communications**

Statistics on the overall prevalence of multimedia use in online harassment shows that it is more harmful, but not as widely prevalent as text forms. These multimedia communications may be images and movies created by victims (British Broadcasting Corporation 2006) posted publicly by harassers to embarrass them, “mash-ups” that combine user-generated content with other imagery or videos (Jenkins 2006), or content unrelated to the victim that is designed to disgust or offend. For instance, 6% of youth reported having an embarrassing picture of them posted online without their permission (Lenhart 2007) and 8% reported being a victim of images transmitted over a cell phone (Raskauskas and Stoltz 2007). Harassment involving multimedia images and movies have been found to be particularly distressing (Smith et al. 2008) and this affects a wide variety of different technologies. In addition, 16% of Internet users have reported using a “web cam” (Rainie 2005), but how this synchronous video is used by Internet offenders is not known.

Pornographic images are also used in the “grooming” process of online solicitation, where youth were sent inappropriate images (such as of genitalia or sexual situations), or images are requested from youth. In the N-JOV study, Internet-initiated sex offenders were found to send adult pornography (10%) or child pornography (9%) to victims (Wolak et al. 2004). In a national survey, 4% of youth who use the Internet reported receiving a request for a sexual picture of themselves (but only 1 youth in 1500 complied) (Mitchell et al. 2007c); in a regional study, 7% of students in grades 7–9 in the Rochester, N.Y. area received an online request for a nude picture (McQuade and Sampat 2008). Pornography production in the seduction process may also represent a way for images involving underage sex to propagate online. One in five online child molesters took “sexually suggestive or explicit photographs of victims or convinced victims to take such photographs of themselves or friends” (Wolak et al. 2008b: 120).

As mobile phones increasingly have more powerful still and video cameras, it is likely that issues around multimedia communications will continue to increase, especially with respect to harassment. Ideally, studies on this issue will track harassment levels as newer multimedia devices become available.

## **8. Future Research**

In addition to the topics discussed here, some areas of youth safety are critically under-researched, particularly (1) minor–minor solicitation; (2) the creation of problematic (sexual, violent, self-harm) content by minors; (3) less-visible groups, such as gay, lesbian, bisexual, or transgender (LBGT) youth and youth with disabilities who may be particularly vulnerable; (4) the interplay between socioeconomic class and risk factors; (5) the role that pervasive digital image and video capture devices play in minor-to-minor harassment and youth production of problematic content; (6) the intersection of different mobile and Internet-based technologies; and (7) the online activities of registered sex offenders.

New methodologies and standardized measures that can be compared across populations and studies are also needed to illuminate these under-researched topics. Finally, because these risks to youth are rapidly developing, there is a dire need for ongoing large-scale national surveys to synchronously track and quickly report these complex dynamics as they unfold.

### **8.1. Minor–Minor Solicitation and Sexual Relations**

To date, most research has considered bullying and harassment as primarily between similar-aged youths, while solicitation is sexualized communication involving a minor and an adult (frequently with the intent of seduction). However, one national study indicates that nearly half (43%) of minor solicitations are perpetrated by other minors (Wolak et al. 2006) and the majority of solicitations are anonymous, meaning that it is not entirely clear who the perpetrators are. Our focus on adult–minor solicitations often obscures the more frequent practice of minor–minor sexual solicitation.

It also remains unclear how Internet “solicitations” are integrated with offline relationships among similar-aged youth. We need to consider a more holistic perspective when analyzing how romantic relationships and friendships are created, maintained, and terminated, and the emotional implications this has on teens. Many youth use social media to maintain connections with family and friends, which were initiated offline, but some teens develop online relationships, leading to offline meetings for either friendship or romance (Wolak et al. 2006). The concept of meeting “strangers” online may not accurately reflect the online experiences of American youth, as these meetings are increasingly common and don’t contain the nefarious

connotations as seen in the press. The majority of online relationships reported by U.S. youth were similar-aged (70%) and crossed gender lines (71%) (Wolak et al. 2002), and 2% of youth reported romantic online relationships. A large survey of students in New York State found that 14% in grades 10–12 (some of whom may be adult-aged) have accepted an online invitation for an offline meeting, and 14% had invited someone to an offline meeting (McQuade and Sampat 2008). The same individuals who proposed offline meetings were typically the same ones who also accepted offers of meetings, indicating that there is a minority of youth for whom this behavior is normative. Methodologically and terminologically, relying on the term “stranger” is difficult, because two people are not necessarily strangers after interacting together online.

## **8.2. Problematic Youth-Generated Content**

Most content-driven concerns focus on youth accessing adult content that is deemed age-inappropriate. As more and more youth engage in the production of amateur content (Lenhart and Madden 2005), questions emerge about what kind of content they are producing as well as receiving. To what degree are youth contributing to the production of violent, hateful, and sexual content? The rates of the use of multimedia for consensual sexual relations among minors is nearly completely unknown, but seems likely, given the use of images to develop relationships online (Walther et al. 2001), the wide variety of amateur content created and distributed online both privately and publicly (Jacobs 2007), and the presence of sexualized pictures on SNSs such as MySpace (Pierce 2007a). These movies and images may be created during consensual sexual relationships between similar-aged adolescents, for instance, during flirting, which is common (Lenhart 2007; Schiano et al. 2002) or as an outlet for sexual thoughts and development (Atwood 2006; Subrahmanyam and Greenfield 2008). However, they may also constitute a source of underage pornographic material for adults, should it be posted on a website or otherwise distributed, or fodder for future harassment or bullying. Finally, web-based resources that host this content, such as video and image sharing sites, are a challenge to research using traditional quantitative methodologies. Therefore, in addition to clarification of the role of minors in creating this content, much work remains to be performed on rigorous methodologies for collecting online data, and theory for interpreting it.

### **8.3. Impact on Less-Visible Groups**

Although it has been clearly established that girls are particularly more at risk online, the current research has been nearly silent on the impact of Internet crimes on understudied groups such as youth with disabilities and lesbian, gay, bisexual, and transgender (LGBT) youths. About 25% of cases of Internet solicitation in a nationwide survey were found to involve a male youth and a male adult (Wolak et al. 2004). Furthermore, in that study, “most of the Internet-initiated cases involving boys had elements that made it clear victims were gay or questioning their sexual orientations (e.g., meeting offenders in gay-oriented chatrooms)” (Wolak et al. 2008b: 118). All of the youth involved in these online activities may not identify as LGBT later in life, but these studies do identify teens who are questioning their sexuality (LGBT and “straight” alike).

LGBT minors use the Internet for purposes such as creating identities, for friendship, coming out, developing intimate relationships, and for locating communities of others like them (Hiller and Harrison 2007). They may be sensitive to cyberbullying such as ostracizing (Smith and Williams 2004), or more prone to online solicitation (Berson 2003), and have been found to receive more harassing online contact than heterosexual students (in an undergraduate sampling) (Finn 2004). Future studies conducted by Ybarra and other researchers will likely have more measures on LGBT youth and their experiences online, including how they may be using the Internet to meet consensual partners (Ybarra, personal communication, June 26, 2008).

There are no large, quantitative studies of youth with disabilities. Like LGBT youth, these youth may use the Internet to connect to others like them. They may also use the Internet to connect in ways that are simply not possible physically. Too little is currently known about these youth.

### **8.4. Interplay Between Socioeconomic Class and Risk Factors**

The “digital divide” involves complex debates about who does and who does not have Internet access (Hargittai 2002; Martin 2003; van Dijk and Hacker 2003). Recent studies by Pew Internet and American Life Project reveal that 93% of U.S. youth aged 12–17 have some form of Internet access (Lenhart et al. 2007a), but that access is not always equal (Jenkins et al. 2006). At play in all of these discussions is a fundamental question about how socioeconomic status or class interconnects with youth participating in digital culture.

Few studies have examined the relationship between class and specific types of online participation. With respect to social network site adoption, a class-based adoption divide among youth was demonstrated both quantitatively (Hargittai 2007) and qualitatively (boyd 2008). Yet this is an extremely understudied area.

There are no quantitative studies concerning the relationship between class and online risks. This is unfortunate given likely differences in adoption patterns, household dynamics, and educational infrastructure.

### **8.5. Photographs and Video in Online Harassment and Solicitation**

Text is still dominant in much of the current research (Lenhart 2007; Raskauskas and Stoltz 2007), but images and movies may be particularly distressing to victims (Smith et al. 2008) or increase the initial attraction (Walther et al. 2001). Indeed, we already accept elsewhere in this body of research that images of particular content (such as child pornography and hate crime videos) are upsetting. Multimedia-capable mobile devices are gaining in popularity (Center for the Digital Future 2008; Hinduja and Patchin 2009), which offer multimedia recording through an “always-on” connection direct to the Internet. A similar charge can be leveled against research on multimedia harassment as was made against multimedia computer-mediated communication (CMC) in 2000 (Soukup 2000): more research is required to overcome the “text-only bias” of online harassment. Harassment and solicitations are increasingly complex and multimodal, and offenders may integrate, process, and post photographs and videos in ways we don’t yet understand. Special care should be taken to assess the impact of and track this new form of cyberbullying over the next several years.

### **8.6. Intersection of Different Mobile and Internet-based Technologies**

The majority (77%) of Internet-initiated sex crimes against youth used multiple modes of communication (Wolak et al. 2004), but little is understood about the interplay between them. Furthermore, most research to date focuses on the role of the Internet, but mobile phones are increasingly playing a role in sexual solicitation, harassment, and access to problematic content. It is already known that mobile phone use is a risk factor for receiving aggressive sexual solicitations online (Mitchell et al. 2007b) and online harassment (Hinduja and Patchin 2009).

How mobile devices are used in the United States for harassment and solicitation requires further examination over the next several years as these devices are adopted and come into mainstream use.

### **8.7. Online Activities of Registered Sex Offenders**

No laws prevent registered sex offenders from participating in social media, but many people are concerned about their participation and the potential risk it poses to youth. There are no studies that concern the activities of registered sex offenders online, whether their participation in social media is correlated with increased risk, or whether they use social media to contact youth more than other channels. Much more research is necessary to determine whether registered sex offenders pose a threat to youth through their online activities.

### **8.8. Continued Research, New Methodologies, and Conceptual Clarity**

There is a dire need for more research on Internet risks to youth, particularly quantitative studies involving a representative sampling of Americans, and those with a meaningful qualitative dimension. Longitudinal research involving repeated measures is scarce (Center for the Digital Future 2008; Lenhart 2007; Wolak et al. 2006). Continued large-scale surveys and meta-analyses are required to gain an increased understanding of incidence rate, risk factors, and characteristics of threats. It is also important for us to understand how adults view the risks to youth, and how youth see the role and risks of social media. Currently, “less research is qualitative or multi-method in nature, so we have less knowledge of children’s own experiences or perceptions, or of the ways in which online activities are contextualized within their everyday lives” (Livingstone and Haddon 2008: 317).

As further research is conducted, our understanding of the activities of online perpetrators, victims, and participants is likely to change. The current concept of minors meeting “strangers” online, leading to real-world meetings, is too simple a perspective. Youth use various media to create and maintain friendships, whether they have their origins offline or online. Less attention should be placed on Internet-*initiated* relationships, and more on Internet-*maintained* ones. Little is known about the activities of how offline sexual interactions involve SNSs, or how registered sex offenders use these sites, for example.

Standardization of concepts would be useful to compare data across studies. For instance, as previously noted, age-related cyberbullying findings are difficult to compare, as studies alternately collect and report age with large ranges (such as “older adolescents”), smaller ranges (such as 12–13 years old), exact age (in years), and grade number (which corresponds only loosely to age). Reports of cyberbullying vary across the schools and districts from which participants are frequently recruited from (Kowalski and Limber 2007; Raskauskas and Stoltz 2007) as do the durations of the harassment under investigation (Moessner 2007; Smith et al. 2008).

Finally, there is clearly a need for a more rapid processing and delivery of results. There is currently a dearth of academically rigorous, peer-reviewed online journals, particularly those that make data sets available for secondary analysis. Any study of how youth use and integrate technologies in their everyday lives is a snapshot of a moving target, and we must keep up. As Livingstone and Haddon note, “research in this field becomes quickly out of date, as the technologies, institutions that promote and manage them, and children’s own practices all continue to change” (Livingstone and Haddon 2008: 317).

## 9. Understanding Research Methodologies (Appendix A)

This appendix provides a brief overview of research methodologies that assist in the understanding of the studies included in this document, particularly terminology and concepts that provide an understanding of the limitations of this research. The purposes of quantitative research are to help explain, add to our understanding, and predict (Kerlinger and Lee 1999). This paper focuses on quantitative, national-level studies with a large sample size, but includes studies that vary by methodology (qualitative or quantitative), sample size (number of participants), location, funding source, and administration method.

### 9.1. Samplings

A *probability* sampling will typically select its users at random from a sampling *frame* (list of potential participants), such as a list of all the home phone numbers in the United States. This sampling is generally preferred in quantitative research, particularly a *representative* sampling, which refers to a group of participants that is a miniature of the population (Shadish et al. 2001). For instance, an ideal research population would mirror the gender and racial makeup of the population to which the findings are *generalized* (also known as having *external validity*). Few studies in this paper claim a representative national sampling of Americans.

The reasons that representative samplings are comparatively rare is that (1) the population under research may not be known (making the sampling by definition *nonprobability*), (2) ethnical restrictions prohibit collection of data from underage populations without parental approval, and (3) national studies are expensive and difficult to conduct. They are expensive because they require that phone calls be made and voice interviews conducted, or paper surveys sent out and the results processed. They are difficult to conduct because research involving underage subjects is typically not as easy to clear, particularly through the Institutional Review Boards (IRBs) that exist at most research institutions to guarantee that studies are conducted in a safe and ethical manner. Additionally, in some cases, the topic under study may be impossible to research in any meaningful way using a national survey. Researching the prevalence of solicitation of youth is one example: few Americans would admit to this blatantly illegal activity. In this case, the only way to examine the national prevalence of online solicitations with a probability, national, sampling frame is by surveying youth and asking them

how frequently they were solicited (Wolak et al. 2006). The challenge of collecting meaningful information on these incidents has been called a “tip of the iceberg” problem, where the number of reported offenses might be much lower than the actual number of offenders (Sheldon and Howitt 2007: 43).

Localized studies are more common, and generally use smaller groups of participants, termed *convenience* samplings, because the population is easily available. This sampling may be of a selection of youth in certain grades across several schools (Li 2005), school systems (McQuade and Sampat 2008), or certain grades in a statewide survey. Additionally, research may be conducted entirely online and not relate directly to any physical location (Fielding et al. 2008). A convenience sampling is probably easier to collect data from, and may have a larger participation rate, as youth are more likely to take part in a survey conducted by a teacher or researcher whom they’ve met than participate in a phone- or computer-based survey in which researchers are remote and nonvisible. Convenience samplings are not necessarily a problem, as long as the researchers are aware of the lack of generalizability of their results (Shadish et al. 2001).

Another common recruiting method online is a snowball sampling, which is a group of users selected by asking participants to recommend their friends. Many researchers find this a convenient and effective way to recruit participants from social network sites (Rosen 2006), MMOGs (Lin and Sun 2005) and blogs (Faulkner and Melican 2007). It is difficult to claim a representative sampling using a snowball method, as the participants vary depending on the social networks of the group under research and how they forward requests to others. Rothenburg notes that “in the absence of a probability sample . . . desirable statistical properties are not available to the investigator. The subsequent use of statistical tests that rest on assumptions of random sampling from a known underlying distribution is problematic. The absence of a statistical cornerstone has been a concern of investigators in the field and a source of skepticism for those in other disciplines” (1995: 106). This does not mean that these types of studies aren’t valuable in advancing our understanding of online safety, but merely that it is difficult to make inferences to a larger population via this collection method.

## **9.2. Response Rates**

Different administration methods have different response rates (Sue and Ritter 2007). A survey, for instance, may be administered via phone (Wolak et al. 2006), on paper (Li 2007b), or

on a computer (McQuade and Sampat 2008). Because it is not ethical to force an individual to participate in research, individuals who are contacted may elect not to participate, or (typically) discontinue involvement in the research at any time. This leads to lower response rates. The less likely individuals are to respond and participate in the survey through a given medium, the lower the response rate. Online surveys, for instance, have the lowest response rate (Sue and Ritter 2007), as most Internet users are saturated with emails and just ignore the invitation to participate. In addition to these *cooperation* and *completion* rates, phone surveys that don't draw on a sampling frame (such as a phonebook) are also subject to a lower *contact* rate due to the dialing of inactive numbers (Lenhart et al. 2008). The advantage of this method is that all phones are in the sampling frame, including cell phones.

### **9.3. Prevalence**

The prevalence and character of online threats to youth will be examined throughout this document. The *overall* prevalence of these threatening acts and problematic content remains difficult to estimate, because (1) there is no government body collecting statistics on online child abuse (Finkelhor 2008) or harassment; (2) offenders are mostly unavailable to research (a goal is to evade capture); (3) minors may be unlikely to speak out about sensitive issues such as harassment (DeHue et al. 2008; Slonje and Smith 2008) or solicitation (Mitchell et al. 2004) to parents, teachers, or police; (4) statistics on certain types of offenses (such as possession of child pornography) nearly universally involve data from offenders in various stages of prosecution or incarceration, biasing the data; (5) as previously mentioned, many of these activities are not illegal, and therefore not frequently reported; and (6) the Internet provides an extremely high degree of connectivity along with low levels of identifying information. Given the challenge of collecting meaningful information on these crimes, some have argued that—similar to sex crimes in general—the number of reported Internet-based offenses is much lower than the actual number (Sheldon and Howitt 2007: 43).

#### **9.4. Sources of Bias**

There are many sources of *bias* in both qualitative and quantitative research. Bias is defined as “systematic error in an estimate or an inference” (Shadish et al. 2001: 505), and can take many forms, some of which we will cover here. A related issue to administration medium and sampling method is self-selection bias, which occurs when participants are allowed to control whether they participate. If those who choose to participate are different than those who don’t want to participate, inaccurate results emerge. Unfortunately, self-selection bias is a caveat in most studies considered here (except for content analyses or meta-analyses, which involve the use of secondary data), as it is typically considered to be unethical to force participants to participate in research. Reasonable coercive methods may be employed such as a lottery, small payment, or small gift. Other threats to internal validity imposed by participants include social expectations, where participants give answers they believe are more in line with social norms, particularly for sensitive topics such as pornography or drug use (which they would be inclined to deny). These threats may be addressed by well-designed studies, such as double-blind administration.

#### **9.5. Constructs**

As with many new areas of research, many definitions have been proposed for *constructs* (or concepts) under study. There is no standard accepted definition for cyberbullying, solicitation, or offensive content. Constructs used in the studies in this paper have emerged from various disciplines, including developmental psychology, interpersonal communication, and mass communication. Each discipline has a particular perspective it brings. To a degree, this is positive, as it drives a healthy debate over how and why modes of interaction online present risk to youth. In other ways, varying constructs presents a challenge, because data from various studies are difficult to compare. Also, if a construct is faulty, a study is at risk for construct validity. As previously discussed, solicitation encompasses a variety of contact, including sexual harassment, flirting, and online seduction. If two studies defined solicitation differently, then the two studies have an issue of external validity. In other words, they may be comparing apples and oranges.

## 9.6. Question Wording

The process of creating a question to collect responses relating to a concept is known as *operationalizing* it. In addition to disparity in concepts, the wording used to operationalize questions varies between studies, producing sources of variation. These points of variance explain in part why certain statistics vary greatly, such as the wide disparity in reported cyberbullying (4%–46%). For example, McQuade and Sampat (2008) use age-appropriate language to capture aspects of cyberbullying in different age groups. These researchers preferred to collect information about various behaviors that are perhaps related to cyberbullying, but did not predefine cyberbullying as a set of behaviors. In this way, “interpreters of the data are left to draw their own conclusions about the nature and extent of cyberbullying, as well as other types of online behaviors” (S. McQuade, personal communication, November 5, 2008). By comparison, Li (2007a) collects cyberbullying with a much more detailed, paragraph-long definition of what cyberbullying is, then asks questions using that terminology: “I have been cyberbullied (e.g., via email, chat room, cell phone).” There are benefits as well as drawbacks to each of these methods, but naturally, different wordings and research instruments will result in widely varying statistics on the prevalence of cyberbullying. Clearly defined constructs would also address the confusion surrounding the wording of questions.

## 9.7. Causality and Complexity

Simply put, when an event can be said to lead to a specific effect, this is *causality*. Causality typically cannot generally be inferred from the reviewed studies, for several reasons. A survey or single study cannot by itself “prove” why an observed effect occurs, as can be said of a mathematical equation. In a larger sense, “proving” concepts does not have relevance for social sciences as it does in sciences such as physics, which directly measures empirical truths. Many of the larger questions in communications or psychological research, such as “Does violent media exposure lead to violent actions?” remain a subject of dispute even after decades of study. What is more common is a *correlation*: finding that two variables are related, but also that neither can be said to cause the other. For instance, people who are tall also tend to weigh more. These are simply two variables that are linked due to the size of an individual. Compounding this issue is that online communication is extremely complex. Youth use increasing numbers and

types of social technologies in combination, and it is difficult to isolate the variance of a single effect. Advanced techniques (such as computer modeling) can be said to account for such variance, but they do not necessarily increase the ability for a researcher to claim causality.

## **9.8. Qualitative Methodologies**

A different kind of study, which is referenced sparingly in this paper, is the qualitative study (Berg 2004). This type of research typically focuses on in-depth analysis of a smaller group of subjects, analyzing intrinsic meaning of their activities. It is theoretically distinct from quantitative research, but informs our understanding of how these individuals operate. For instance, interviews can be used to discuss how offenders integrate pornography into their online habits (Frei et al. 2005) and focus groups on the topic of how youth encounter sexualized media on the Internet (Cameron et al. 2005). Both of these are topics and groups that would be difficult to research using quantitative methodologies, and led to richer sets of data to inform areas of investigation. The question of whether these populations can be extrapolated to larger populations is moot with qualitative research, as it does not reference an empirical reality, generally uses words instead of numbers as the units of analysis, and uses vastly different data collections methods (such as focus groups, interviews, and immersive ethnographic research). “Mixed-methods” research—quantitative and qualitative research applied together—also exists, although it appears extremely infrequently in the research compiled in this paper.

Qualitative research is quite beneficial for understanding the topology of a domain. Many of the scholars cited in this review work with qualitative scholars or do qualitative research before organizing their survey. Qualitative work like ethnography can surface important topics that have not yet been considered analytically by quantitative scholars. Many of the suggestions for future research stem from issues surfaced in qualitative work, such as the ethnographic studies funded by the MacArthur Foundation (Ito et al. 2008).

## **9.9. Funding Sources**

Many studies, particularly national surveys that are expensive to conduct, receive some form of funding. Funding generally will be disclosed in a published, peer-reviewed article. For instance, the YISS-1 and YISS-2 surveys were funded by the U.S. Department of Justice. This

affiliation is disclosed on the first page of some reports (Wolak et al. 2006) and at the end of others, prior to the references (Wolak et al. 2007c). It is common for larger studies to require some financial backing. Though it does not mean that the researchers are necessarily biased, it is ethical for them to disclose such affiliations.

#### **9.10. Underreporting of Incidents**

The small number of successful online solicitations by adults of children or adolescents defies examination with a survey, because the incident rate is so low, and because both perpetrators and victims are unlikely to report such activities to parents or authorities. Similarly, adults are unlikely to disclose information on their online consumption of child pornography, and minors may be ashamed to admit to nonconsensual or consensual sexual situations that occurred. Creative ways of recruiting and examining inaccessible populations are needed, such as examining how the Internet is integrated into incidents of minor–minor forcible sex by using data collected from rape crisis center volunteers.

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