

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

*Literature Review by the
Research Advisory Board of the
Internet Safety Technical Task Force
<http://cyber.law.harvard.edu/research/isttf/RAB>*

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Background to this Early Draft

The following is an early draft of the Literature Review produced by the Research Advisory Board (RAB) for the Internet Safety Technical Task Force (ISTTF). The Internet Safety Technical Task Force was formed to consider the extent to which technologies can play a role in enhancing youth safety in online spaces. The Task Force was collaborative effort among a wide array of Internet service providers, social network sites, academics, educators, and technology vendors. It was created in accordance with the Joint Statement on Key Principles of Social Networking Safety announced by the Attorneys General Multi-State Working Group on Social Network Sites and MySpace in January 2008. For more information on the ISTTF, see: <http://cyber.law.harvard.edu/research/isttf/>

The Task Force asked a Research Advisory Board, comprised of scholars and researchers whose research addresses children's online safety, to conduct a comprehensive Literature Review of relevant work. This is an early draft of that Literature Review. It was primarily written by Andrew Schrock and danah boyd. Members of the RAB provided valuable feedback and insights, critiques and suggestions. Members of the RAB were selected based on their longstanding, ongoing, and original contributions to this field of research. All members of the RAB are U.S.-based and do research with U.S. populations. This Literature Review – and the scope of the Task Force – is intentionally U.S.-centric.

In January, the Task Force will publish a report documenting its findings. This Literature Review will be an Appendix of that report. We are making a draft of this Literature Review available to the public early because we are seeking public feedback, especially from other scholars whose work is connected to this field. We are currently looking for feedback concerning the breadth, depth, and accuracy of this Literature Review. If you know of original research that we are missing concerning U.S. populations, please let us know immediately. A finalized version of this document will be available in January.

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1. Introduction

In the United States, youth have rapidly integrated the Internet into their daily lives (Center for the Digital Future, 2008; Madden, 2006). The recent rise of social media has provided youth with a powerful space for socializing, learning, and engaging in public life (Ito et al., Forthcoming; boyd, 2007; Gross, 2004; Palfrey & Gasser, 2008). The majority of parents say the Internet is a “positive influence” in their children’s lives, while only 7% say it is a “negative influence” (Rideout, 2007).

While there is little doubt that social media can be beneficial for youth, grave concerns have emerged with respect to the dangers posed by networked technology. Many of the contemporary fears parallel those of earlier technologies (Nye, 2007; Springhall, 1998; Potter & Potter, 2001) and unmediated public spaces where youth congregate (Valentine, 2004). Recently, a “moral panic” (Cohen, 1972; Goode & Ben-Yehuda, 1994) erupted over the potential dangers presented by social network sites (Marwick, 2008; Cassell & Cramer, 2007). As with earlier moral panics (Victor, 1993), media-driven fear mongering was disproportionate to the number of problematic incidents, the actual threats youth face, and the data about youth risks. That said, there are serious questions that must be addressed to provide an accurate picture of the online environment:

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 goal of this literature review is to map out what is currently known about the risks youth face and the youth who face them to further discussions about online safety. We believe that the first step in helping youth is to understand the problems that are occurring. The best solutions will be those that address real dangers, real risks, and the interrelated dynamics that put youth at risk. We do not discuss potential solutions, but we feel as though the research described in this document is essential for those who are looking to develop solutions.

In this literature review, we summarize ongoing scholarly research into threats youth face online and the psychosocial profiles of both adults and minors involved in problematic behavior.

Most research in this area focuses on sexual solicitation, online harassment, and the exposure of minors to problematic content. We organized this document around these three categories because they raise different issues for those seeking to protect minors. We also address child pornography as it relates to child safety. Following this topical discussion, we consider what factors put youth at risk and what is known about different genres of social media. Finally, we conclude by discussing future research.

This document is primarily the product of Andrew Schrock and danah boyd, with the help and guidance of the Research Advisory Board. Members of the Research Advisory Board were selected based on their long-standing and ongoing original contributions to this area of research. All are U.S.-based researchers who have executed large quantitative studies and published extensively; many of their contributions are addressed in this document. No researcher was excluded based on their findings or opinions. The Research Advisory Board has vetted this document for accuracy and integrity, but they played no role in organizing this document or prioritizing particular studies.

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, Livingstone, & Haddon, 2008). This literature review provides a complementary American perspective.

1.1. 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.

This review includes hundreds of different studies that address these issues at different degrees of depth, using different methodologies, and focused on different populations. While we only selected articles that included original research, we have attempted to include as many different studies as possible. That said, five questions shaped our thinking about the articles we read:

- 1) When was the research conducted?

- 2) Where was the research conducted?
- 3) What methodology was used?
- 4) How representative are the subjects?
- 5) How rigorous was the examination?

In this review, we prioritize recent, U.S.-focused, quantitative studies conducted using representative (and preferably national) samples concerning genres of social media that are particularly popular amongst today's youth. We also included additional studies, including those of non-U.S. populations and older studies that provide insight for contemporary issues. These help locate the studies that we are examining. While some of the studies address particular genres of social media, many address the Internet more broadly; we include both. We have also included qualitative studies that examine new phenomena, reveal dynamics that quantitative studies have not yet examined, and help provide rich context to explain issues introduced through quantitative studies. Finally, we have included research concerning populations and events that are not conventionally available for quantitative research, but provide deeper or comparative insight on threats to youth. We put more emphasis on studies backed by reputable institutions or funding agencies, but we did not reject any study solely on the basis of findings.

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. Not all of the online contact threats to youth we address (primarily sexual solicitation and online harassment) are 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 & Finkelhor, 2007) or sexual assault. Other forms of online contact, such as online harassment between two minors, ride the line of legality (Willard, 2005). The problematic content youth are exposed to online includes adult pornography, violent movies, and violent video games. This material is typically not illegal 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 rest on vague notions of "contemporary community standards." 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.¹

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, Espelage, & Mitchell, 2007c). 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, while several studies are underway, there is still a need for large-scale quantitative research, particularly nationwide longitudinal surveys. Meaningful qualitative research on victims and offenders is similarly needed to enhance our understanding of threats to youth online.

1.2. 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 while 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.

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

¹ 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.

strengths and weaknesses of studies in this review. While 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. For example, the Online Victimization studies done at the Crimes Against Children's Research Center (Finkelhor, Mitchell, & Wolak, 2000; Wolak, Mitchell, & Finkelhor, 2006) are frequently referenced to highlight that one-in-five or one-in-seven minors is sexually solicited online. While this statistic is accurate at one level, when it is taken out of context, it provides an inaccurate image. Most who hear this statistic imagine that 14-20% of minors are being solicited by older adults when only 1-9% of those doing the solicitation are known by victims to be over the age of 25 and the majority (43-63%) are other minors soliciting people their own age (Finkelhor, Mitchell, & Wolak, 2000; Wolak, Mitchell, & Finkelhor, 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. When it comes to policy and education, understanding the context of research is absolutely critical to addressing issues under study with appropriate solutions. The approaches one might take if one imagined that teens are being solicited primarily by adults is fundamentally different than those one should take if they understand that solicitation is primarily between similarly-aged youth.

The purpose of this literature review is to move beyond fears and get an accurate picture of what risks youth are truly facing. While fears of potential dangers are pervasive, the research presented in this document provides a realistic portrait of 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 & Potter, 2001), Internet sex crimes against minors have not overtaken the number of unmediated sex crimes against minors (Wolak, Mitchell, & Finkelhor, 2003b) nor have they contributed to a rise in such crimes. This 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, 2006a). Yet, the increased popularity of the Internet in America 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, 2006b). State-reported statistics show a -53% change in reports of sexual offenses against children from 1992 to 2006 (Calpin, 2006; Finkelhor & 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 & Sickmund, 2006; Wolak, Mitchell, & Finkelhor, 2003b) and the majority of sexual molestations are perpetrated primarily by those the victim knows offline, mainly by family members or acquaintances (Snyder & 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, Finkelhor, & Wolak, 2005c).

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, Mitchell, & Finkelhor, 2006). This type of encounter with objectionable media is debatably new to the Internet. On the topic of sexual solicitation, studies show that things are either improving or have been shown to be 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, Mitchell, & Finkelhor, 2006), although this decline was only seen among white youth and those living in higher income households (Mitchell, Wolak, & Finkelhor, 2007a). It was also discovered that the majority of cases of sexual solicitation involved adolescents while instances of pre-pubescent children being solicited online are nearly nonexistent (Wolak, Finkelhor, Mitchell, & Ybarra, 2008c).

1.3. Youths Facing Risks

This document examines online risks to *youth*, which is synonymous with *minor* and is used to refer to individuals under the age of 18. *Adolescent* or *teenager* is used to refer to youth aged 13 to 17 years old (inclusive), unless stated otherwise. *Children* are considered to be pre-

pubescent 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 and, 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, frequently for contradictory reasons. In the public's perspective, "children are fragilely innocent until the moment they step over some line, at which point they become instantly irredeemably wicked" (Levine, 2002, p. xxxii). The reality is that 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, Asche, Harrison, & Quinlan, 2004; Mitchell, Finkelhor, & Wolak, 2001; Mitchell, Wolak, & Finkelhor, 2007c; Wolak, Finkelhor, & Mitchell, 2004; Wolak et al., 2008c; Ybarra et al., 2007c), and are more likely to search out pornographic material online than pre-pubescent children (Peter & Valkenburg, 2006; Wolak, Mitchell, & Finkelhor, 2007c; Ybarra & Mitchell, 2005, p. 473). Even unwanted exposure occurs more among older youth (Snyder & Sickmund, 2006; Wolak et al., 2007c). Online harassment appears less frequently among early adolescents (Lenhart, 2007; Ybarra & Mitchell, 2004a) and children (McQuade & Sampat, 2008). It is seemingly highest in mid-adolescence, around 13 – 14 years of age, (Kowalski & Limber, 2007; Lenhart, 2007; McQuade & Sampat, 2008; Slonje & Smith, 2008; Williams & Guerra, 2007).

Beyond age, some youth are more at-risk than other youth. Race is generally not a significant factor in these crimes, such as cyber-bullying and online harassment (Hinduja & Patchin, 2009; Nansel et al., 2001; Ybarra, Diener-West, & Leaf, 2007a). Girls tend to be more at risk for being victimized by online solicitation (Wolak, Mitchell, & Finkelhor, 2006) and harassment (Agatston, Kowalski, & Limber, 2007; DeHue, Bolman, & Völlink, 2008; Kowalski & Limber, 2007; Lenhart, 2007; Li, 2004; Li, 2006; Li, 2007b; Smith et al., 2008). Boys generally see more pornography (Cameron et al., 2005; Flood, 2007; Lenhart, Rainie, & Lewis, 2001; Nosko, Wood, & Desmarais, 2007; Peter & Valkenburg, 2006; Sabina, Wolak, & Finkelhor, 2008; Stahl & Fritz, 1999; Wolak et al., 2007c; Ybarra & 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, Leaf, & Diener-West, 2004) and offline victimization (Finkelhor, 2008; Mitchell, Ybarra, & Finkelhor, 2007d).

1.4. Youth Perpetrators

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

1.5. 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., 2008c, p. 118). Not all child molesters are paedophiles (defined as a primary 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 anti-social character (Salter, 2004). Adults who solicit or molest adolescents are, by definition, not paedophiles (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, p. 45).

Different terms are used to categorize adult perpetrators. Paedophilia or pedophilia refers to persistent sexual attraction to children while sexual attraction to adolescents is labeled hebephilia. In popular discourse, pedophilia is typically used to refer to those who engage in acts with any minor, pre- or post-pubescent. 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 perpetuated against

children take place between adults in their 20s and post-pubescent 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 much lower than the actual number of offenders (Sheldon & Howitt, 2007, p. 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.

Online sexual solicitations do occur, but they are most common between pairs of adolescents and between older adolescents and 20-somethings (Wolak, Mitchell, & Finkelhor, 2006; Wolak et al., 2008c). Few solicitations lead to offline encounters - much of this contact is merely harassing or teasing - but adults especially fear the possible dangers of those that do. A sizeable minority (roughly 10 - 16%) of American youth makes connections online that lead to in-person meetings (Berrier, 2007; Wolak, Mitchell, & Finkelhor, 2006; Berson & Berson, 2005; Pierce, 2006; Pierce, 2007a), but the majority of these encounters are between minors and are not sexual in nature.

Fears of predators predate the Internet and were a source of anxiety around children's access to public spaces in the 1980s (Valentine, 2004). While 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 & 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; cases involving strangers are so rare as to be statistically non-existent (Mitchell et al., 2005c). In other words, dire predictions about the threat of Internet-initiated sex crimes committed by strangers appear to be extremely exaggerated (Finkelhor & 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, Mitchell, & Wolak, 2000). This definition encompasses a range of online contact. While 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 & Sampat, 2008; Smith, 2007), and many solicitations are simply meant to be harassing (Biber, Doverspike, Baznik, Cober, & Ritter, 2002; Finn, 2004; Wolfe & Chiodo, 2008).

All told, there are relatively few large-scale quantitative studies concerning the prevalence of online sexual solicitation (Fleming & Rickwood, 2004; McQuade & Sampat, 2008) and even fewer national U.S.-based studies (Wolak, Mitchell, & Finkelhor, 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, Mitchell, & Finkelhor, 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 paedophiles use to recruit child victims (Lang & Frenzel, 1988), neither online solicitations nor Internet-initiated relationships particularly tend to target pre-pubescent 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). Yet, significant deception does not appear to be common (Wolak et al., 2008c). While adults may shave off a few years from their real age, a practice also common in online adult-adult interactions (Hancock, Toma, & Ellison, 2007), only 5% of offenders claimed

to be the same age as the youth victim (Wolak et al., 2004). Wolak, Finkelhor, Mitchell and Ybarra (2008c) concluded that, “when deception does occur, it often involves promises of love and romance by offenders whose intentions are primarily sexual” (p. 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, Mitchell, & Finkelhor, 2006). A small number of youth (4%) reported *distressing* online sexual solicitations which made them feel “very upset or afraid” (Wolak, Mitchell, & Finkelhor, 2006, p. 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, Mitchell, & Finkelhor, 2006, p. 15). A small number (2%) of youth reported both aggressive and distressing solicitations. The researchers concluded that while 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, Mitchell, & Finkelhor, 2006, p. 15). Online solicitations were concentrated in older adolescents. Youth 14 – 17 years old reported 79% of aggressive incidents and 74% of distressing incidents (Wolak, Mitchell, & Finkelhor, 2006, p. 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 & Berson, 2005; McQuade & Sampat, 2008; Wolak, Mitchell, & Finkelhor, 2006; Rosen, Cheever, & Carrier, 2008). The relative stability and in some cases, decline (Wolak, Mitchell, & Finkelhor, 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 & Lenton, 2001). Studies in Europe, the United Kingdom, New Zealand, and Singapore show a wider range (8 - 26%) of Internet-initiated offline encounters (Livingstone & Bober, 2004; Gennaro & Dutton, 2007; Berson & Berson, 2005; Liau, Khoo, & Ang, 2005; Livingstone & Haddon, 2008), with New Zealand showing the highest prevalence.

The majority of Internet-initiated connections involving youth appear to be friendship-related, non-sexual, and formed between similar-aged youth (Wolak, Mitchell, & Finkelhor, 2006). 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., Forthcoming). 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, Mitchell, & Finkelhor, 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 the YISS-2 survey, 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 20s (Wolak, Mitchell, & Finkelhor, 2006).

In the small number of offline meetings between minors and adults that involved sex, the offense typically followed a model of statutory rape with a post-pubescent minor having non-forcible sexual relations with an adult, most frequently in their 20s (Hines & Finkelhor, 2007; Wolak et al., 2008c). Of all law enforcement reports of Internet-initiated sexual encounters, 95% of reported cases were non-forcible (Wolak et al., 2004). In the YISS-1 survey, no instances of Internet-initiated sex were reported, and in YISS-12, 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. 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, p. 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 & 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 & Finkelhor, 2007, p. 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, 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, p. 424.e17). Similarly, despite anecdotal reports (Quayle & Taylor, 2001), cyberstalking, a crime where offenders locate youth offline using information found online (Jaishankar, Shariff, & Ramdoss, 2008), appears to be extremely rare (Wolak et al., 2008c).

2.3. Victims

Over the last several years, the focus of research has shifted from offenders to characteristics of adolescents who are solicited online (Ybarra & Mitchell, 2004a; Peter, Valkenburg, & Schouten, 2005; Ybarra, Mitchell, Wolak, & Finkelhor, 2006). Youth victims of online solicitation tend to be older (McQuade & Sampat, 2008), female (Wolak, Mitchell, & Finkelhor, 2006), and experiencing difficulties offline, such as physical or sexual abuse (Mitchell et al., 2007c). Adolescents are more likely to be solicited online, while solicitation of pre-pubescent children by strangers (including those solicitations leading to an offline sexual encounter) is extremely rare (Wolak, Mitchell, & Finkelhor, 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 & 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., 2008c, p. 114). This is a perspective that is at odds with studies and programs that have found that younger adolescents are less safety conscious, and that equate younger age with more risk (Brookshire & Maulhardt, 2005; Fleming, Greentree, Cocotti-Muller, Elias, & Morrison, 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 & Berson, 2005; McQuade & Sampat, 2008; Wolak, Mitchell, & Finkelhor, 2006; Rosen et al., 2008).

Most adolescents deflect online solicitations without experiencing distress (Wolak, Mitchell, & Finkelhor, 2006). 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 to 17 years old, with 76% being high school aged, 14 - 17 (Wolak, Ybarra, Mitchell, & Finkelhor, 2007d), 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, Mitchell, & Finkelhor, 2006). The majority (74 - 79%) of youth who reported “distressing” or “aggressive” incidents were also mostly aged 14 - 17, as well (Wolak, Mitchell, & Finkelhor, 2006).

Girls have been found to receive the majority (70 - 75%) of online solicitations (Wolak, Mitchell, & Finkelhor, 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). While 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, Mitchell, & Finkelhor, 2006).

2.4. Perpetrators

While 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., 2008c), 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, Mitchell, & Finkelhor, 2006). While 11% of victims did not know the perpetrator’s gender, 73% reported that the perpetrator was male (Wolak, Mitchell, & Finkelhor, 2006). In a small number (14%) of cases, the victim knew the perpetrator prior to the incident (Wolak, Mitchell, & Finkelhor, 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 to 25 (23%), 26 to 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., 2007c). While online flirting is fairly common amongst 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 & Greenfield, 2008), there is little known about how frequently these interactions are unwanted. Likewise, while 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 (e.g., “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

Online harassment or “cyberbullying” is defined as “an overt, intentional act of aggression towards another person online” (Ybarra & Mitchell, 2004a, p. 1308) or a “willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices” (Hinduja & Patchin, 2009, p. 5). They may involve direct (such as chat or text messaging), semi-public (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, p. 26). “Cyberstalking” is another term that captures online activities that may be related to harassment (Jaishankar et al., 2008; McQuade & Sampat, 2008), but suffers from a similar lack of conceptual clarity, as definitions of cyberstalking vary widely. Researchers consider it variously as be an attempt to harass or control others online or understand it as an online extension of offline stalking (Ogilvie, 2000; Adam, 2002; Philips & Morrissey, 2004; Sheridan & 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, Mitchell, & Finkelhor, 2007a). Some argue that cyberbullying should narrowly mark those acts of harassment that are connected to offline bullying while online harassment should refer to all forms of harassments that take place online, regardless of origin (Wolak et al., 2007a, p. S51), while 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, Patchin, & Hinduja, 2009; Hinduja & 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, p. 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 while less than half that number (25%) were victims of cyberbullying (Li, 2007b), 42% of cyberbully victims were also school bullying victims (Hinduja & Patchin, 2009), and a survey of over 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; Fight crime sponsored studies: Opinion research corporation, 2006a; Fight crime sponsored studies: Opinion research corporation, 2006b; Finkelhor, Mitchell, & Wolak, 2000; Kowalski & Limber, 2007; Kowalski, Limber, & Agatston, 2007; McQuade & Sampat, 2008; National Children's Charity, 2005; Hinduja & Patchin, 2009; Patchin & Hinduja, 2006; Smith et al., 2008; Williams & Guerra, 2007; Wolak, Mitchell, & Finkelhor, 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 & 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, while 19% reported "a few times," 3% "many times," and only .01% were cyberbullied on a daily basis.

3.1. Victims

About a third of all reports of cyberbullying involve "distressing harassment" (Wolak, Mitchell, & Finkelhor, 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 & 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 & Hinduja, 2006, p. 149). Wolak (2006) found that youth (10 - 17 year olds) 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 is of concern since 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 & Young, 2003).

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

Age-related findings are difficult to compare across studies, as researchers alternately collected age with large ranges (e.g. “older adolescents”), two-year ranges (e.g. 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 & Patchin, 2008a; Lenhart, 2007; McQuade & Sampat, 2008; Ybarra & Mitchell, 2004a) and higher in mid adolescence (around age 14 - 15) (Hinduja & Patchin, 2008a; Lenhart, 2007; Kowalski & Limber, 2007; Slonje & Smith, 2008). Some studies identified a peak period for online harassment, such as 8th grade (Williams & Guerra, 2007) or 15 years of age (Hinduja & Patchin, 2008a; Wolak, Mitchell, & Finkelhor, 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 7th to 12th grades (Devoe et al., 2005), while online harassment tends to peak later, in 8th grade, and declines only slightly (Smith et al., 2008; Wolak, Mitchell, & Finkelhor, 2006). This

may be due to the fact that only a minority of online harassment is school-related (Beran & Li, 2007; Slonje & Smith, 2008; Ybarra et al., 2007a) and in some cases has entirely different dynamics than offline bullying. While 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 & Limber, 2007; Lenhart, 2007; Li, 2004; Li, 2006; Li, 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 the some studies found no difference in gender with respect to percentages of victims of online harassment (Hinduja & 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 & Patchin, 2009).

3.2. Perpetrators

Youth are most often involved with bullying other youth online. Between 11 – 33% of minors admit to harassing others online (Kowalski & Limber, 2007; McQuade & Sampat, 2008; National Children's Charity, 2005; Patchin & Hinduja, 2006; Wolak, Mitchell, & Finkelhor, 2006). Consistent with offline bullying, online harassers are typically the same age as their victims (Kowalski & Limber, 2007; Slonje & Smith, 2008; Wolak, Mitchell, & Finkelhor, 2006; Wolak et al., 2007a) and half of victims reported that cyberbullies were in their same grade (Stys, 2004).

Perpetrators are frequently anonymous to the victim, although not necessarily unknown. Between 37% to 54% of bullied minors report not knowing the identity of the perpetrator or perpetrators (DeHue et al., 2008; Kowalski & Limber, 2007; Li, 2004; Li, 2007a; Wolak et al., 2007a). That said, 44% of victims reported that the perpetrator was an offline friend (Wolak, Mitchell, & Finkelhor, 2006).

Mid-adolescents were more likely to be perpetrators (Smith et al., 2008; Williams & Guerra, 2007) and age (ranging from 13 – 18) was correlated with likelihood to engage in online

harassment (Raskauskas & Stoltz, 2007). Boys were identified as more likely to be online harassers (DeHue et al., 2008; Li, 2007a; Williams & Guerra, 2007), yet these findings that online harassers are primarily male against conflicts 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, Mitchell, & Finkelhor, 2006), while others found no gender difference in perpetrators (Hinduja & Patchin, 2008a; Wolak et al., 2007a; Ybarra & Mitchell, 2004b; Li, 2006). 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. While not well studied, between 3 - 12% of youth have been found to be both online harassers and victims of online harassment (Beran & Li, 2007; Kowalski & Limber, 2007; Ybarra & Mitchell, 2004a). Due to methodology issues and anonymity, the rate of overlap is likely 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 & Mitchell, 2004a, p. 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), which are reported to involve between 6-15% of U.S. youth (Nansel et al., 2001; Haynie 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; in a recent study, 27% of teenaged girls were found to “cyberbully back” in retaliation for being bullied online (Burgess-Proctor et al., 2009). The relationships of bullies to victims require further examination through both quantitative and qualitative studies.

3.4. Offline Connections

The connection between online and offline harassment varies. 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, giving 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), while 56% of Canadian students in grades 7 – 9 who were bullied at school were also victims online (Beran & 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 & Smith, 2008). Other studies show connections between online and offline bully perpetration (Raskauskas & Stoltz, 2007) and online and offline bully victimization (Beran & Li, 2007; Kowalski & Limber, 2007; Slonje & Smith, 2008, p. 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, while 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 & 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 & Mitchell, 2004a). Some victims do not know who is bullying them (Ybarra & Mitchell, 2004a), although many do (Hinduja & Patchin, 2009).

Wherever harassment takes place, the effects can impact school. For example, those bullied outside of school were four times more likely to carry a weapon to school (Nansel, Overpeck, Haynie, Ruan, & Scheidt, 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., 2007c). Youth who are “perpetrator-victims” (both perpetrators and victims of Internet harassment and unwanted sexual solicitation) comprise 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 with respect to minors covers a broad spectrum, but most research focuses on “material obscene with respect to minors” and offensive material (Computer Science and Telecommunications Board National Research Council, 2002). This includes violent media (movies, music, and images) and pornographic content that is legal for adults to consume. Problematic content raises two issues with respect to youth. First, there is the issue of unwanted exposure where youth are unwittingly exposed to problematic content during otherwise innocuous activities. Second, there is the issue of youth’s ability to access problematic content that they desire but which their parents do not want them to be able to access. Embedded in both of these issues are ongoing debates over the behavioral and psychological effects of immersive transmedia exposure to this type of content (Glassner, 1999; Gerbner & Gross, 1976; Jenkins, 2006; de Zengotita, 2006).

4.1. Pornography

Youth commonly encounter pornography online. Around 42% (Wolak et al., 2007c) of U.S. youth aged 10 to 17 encountered sexualized content online in the previous year, a significant increase from 2000 (Mitchell et al., 2007a). They saw it through either wanted (deliberate) exposure, unwanted (accidental) exposure, or both (Cameron et al., 2005; Peter & Valkenburg, 2006; McQuade & Sampat, 2008; Mitchell, Finkelhor, & Wolak, 2003; Greenfield, 2004; Sabina et al., 2008; Wolak et al., 2007c; Flood, 2007; Ybarra & Mitchell, 2005). Exact statistics on how pervasive pornographic content is on the Internet has been much-disputed (Rimm, 1995; Hoffman & Novak, 1995; Thomas, 1996) but does not appear to be as pervasive as initially thought (Mehta & Plaza, 1997; Mehta, 2001).

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). Unwanted exposure comes from “spam” emails, mis-typing of URLs into a web browser, and key word searches that “produce unexpected results” (White, Gregory, & Eith, 2008). In YISS-2, 34% of youth reported either only wanted exposure or both unwanted and wanted exposure. Wanted exposure is also indicated by 19 - 21% of minors who deliberately visited a pornographic website. For instance, in a 1999 study, 21% of

7-10th graders were found to visit such a site for more than 3 minutes in the past month (Stahl & Fritz, 1999), and in YISS-1 and YISS-2, 19-21% of youth admitted deliberately going to an “X-rated” website (Wolak, Mitchell, & Finkelhor, 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., 2007c, p. 248). In YISS-1, 25% of minors ages 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 ages 10-17 reported being exposed to unwanted pornography, while 9% of them indicated being “very or extremely upset” (Wolak, 2006, *Online Victimization of Youth: Five Years Later*, 96). 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., 2007c).

Rates of exposure vary in other countries, and in some cases were reported to be higher than in the U.S. (Flood, 2007; Livingstone & Bober, 2004; Lo & Wei, 2005; Hasebrink, Livingstone, & Haddon, 2008). 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 & 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 pre-adult 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). While the Internet plays a dominant role in adult fears and older youth are more likely to encounter pornographic content online, young children are more likely to encounter offline adult material such as movies or magazines than Internet-based pornography; 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 (Ybarra & Mitchell, 2005). Ybarra and Mitchell (2005) concluded that, “concerns about a large group of young children exposing themselves to pornography on the Internet may be overstated” (p. 473).

Most studies found that males are more frequently exposed to pornographic material (Cameron et al., 2005; Flood, 2007; Lenhart, Rainie, & Lewis, 2001; Nosko et al., 2007; Peter & Valkenburg, 2006; Sabina et al., 2008; Stahl & Fritz, 1999; Wolak et al., 2007c; Ybarra & 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, Mitchell, & Finkelhor, 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., 2007c).

4.2. Violent Content

Violent content on the Internet can take the form of movies and images, as well as video games (Thompson & 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). While 13% of U.S. youth in 2000 and 17% in 2005 reported seeing “pictures that were violent” online in the past year (Wolak, Mitchell, & Finkelhor, 2006), nearly one-third (31%) of youth in the UK reported seeing “violent or gruesome material online” ever (Livingstone & Bober, 2004), as did 32% of online teenagers in Europe (in a meta-analysis) (Hasebrink, Livingstone, & Haddon, 2008).

Video games are another genre of media where 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 6 months (Olson et al., 2007). While 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, Davies, & Chappell, 2004; Gross, 2004; Olson et al., 2007), and girls tend to prefer games that include social interaction, non-violent content, and fewer competitive elements (Hartmann & 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. While 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, Grant, & Chiang, 2003), as well as threaten others (McKenna & Bargh, 2000). An analysis of US-based extremist groups found that these types of sites predominantly were used for sharing ideology, propaganda, and recruitment and training (Zhou, Reid, Qin, Chen, & Lai, 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 & 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 & Xu, 2007).

While 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, Reynolds, & Greenfield, 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, p. 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 (a.k.a. “pro-ana” and “pro-mia” sites) encourage youth to engage in problematic activities, particularly given the addictive nature of some of these practices (Whitlock, Powers, & Eckenrode, 2006). Many sites concerning self-harm are structured as support groups and can actually benefit youth and enable them to get help (Murray & Fox, 2006; Whitlock et al., 2006), but the act of identifying with disorder such behaviors may actually impede recovery (Keski-Rahkonen & 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 & 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 & 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. While some content involving suggestive poses is not illegal, most child pornography is illegal in the United States (Jenkins, 2001, p. 3), primarily because children are harmed in the making of this content. 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 & Quayle, 2003). Child pornography may not directly physically harm youth each time it is viewed by an adult. However, youth are harmed in the creation of images and video of illegal sexual acts, and 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 & Sheldon, 2007).

The COPINE project in Europe found that child pornography offenders frequently collect and organize illegal content that depict child molestation (Taylor & Quayle, 2003), as did similar studies in the U.S. (Wolak, Finkelhor, & Mitchell, 2005). The idea of this content being used in the fantasies of child sex offenders (Sheldon & 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 & 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 & Quayle, 2003, p. 24).

5.1. Child Pornography Offenders

Adults who view child pornography online are likely to be paedophiles (Seto, Cantor, & Blanchard, 2006), although not all are. Some adults who are not paedophiles may have a passing and casual interest in, or arousal by, sexualized media involving children (Briere & Runtz, 1989; Hall, Hirschman, & Oliver, 1995; Malamuth & Check, 1981). “Child pornography” on the Internet does not exclusively feature pre-pubescent children - many images online are of adolescent minors (Taylor & Quayle, 2003). A number of child pornography offenders are true paedophiles that use the Internet to satisfy their attraction to pre-pubescent youth by locating and collecting images and movies featuring child nudity or sex acts (Frei, Erenay, Dittmann, & Graf, 2005; Sheldon & 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 & Taylor, 2002; Quayle & Taylor, 2003). While 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

While some claim a direct relationship between consumption of child pornography and contact offenses (Kim, 2005), particularly the media (Potter & Potter, 2001), 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% and 41% of contact offenders possessed child pornography (Frei et al., 2005; Fulda, 2002; Fulda, 2007b; Fulda, 2007a; Frei et al., 2005; Sheldon & Howitt, 2007; Mitchell, Finkelhor, & Wolak, 2005a; Seto et al., 2006;

Webb, Craissati, & Keen, 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, “[m]any of the offenders we studied did not seem to stray beyond the Internet for their paedophilic activities” (Sheldon & Howitt, 2007, p. 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” (Pardun, L’Engle, & Brown, 2005) (Mitchell et al., 2003, p. 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, p. 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, Mitchell, & Finkelhor, 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., 2008c, p. 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, Wolak, & Finkelhor, 2007e, p. 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. While 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 7 – 9th graders asked for “naked pictures from another Internet user” (McQuade & 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, those most at risk online are those most at risk offline. Finkelhor offers a theory of “poly-victimization” that describes how certain youth are victimized in a multitude of ways by different parties and environmental situations, making them a vulnerable group for harm online and offline (Finkelhor, 2008). Wells and Mitchell (2008) found that youth identified as “high risk” (i.e., experienced sexual abuse, physical abuse or parental conflict) in the last year were twice as likely to receive online solicitations. Similarly, a variety of psychosocial factors (such as substance use, sexual aggression, and poor bonds with caregivers) were correlated with online victimization (Ybarra et al., 2007c; Ybarra, Mitchell, Finkelhor, & Wolak, 2007d).

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 & Sampat, 2008; Stahl & Fritz, 1999; Wolak, Mitchell, & Finkelhor, 2006). Talking with strangers, though not necessarily adult strangers, on the Internet has been correlated with receiving online solicitations (Beebe et al., 2004; Liao et al., 2005; Mitchell et al., 2001; Ybarra et al., 2007d). There is a correlation between youth who talk with strangers *about sexual topics* and those who are victimized (Wolak, Finkelhor, & Mitchell, 2008a), but recent research also suggests that talking to strangers may not be universally 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., 2007d).

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 are at-risk youth 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 socio-

psychological factors, and “online solicitation” is not exclusively meant to entice victims into sexual relationships. That said, there is the 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.

6.2. Posting of Personal Information

Youth frequently post information of all sorts (text, images, video) online through social media such as SNSs. While 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 (Lenhart & Madden, 2007). Jones et al. concluded that, “the inclusion of offline contact information was an anomaly in user profiles” (Jones, Millermaier, Goya-Martinez, & Schuler, 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 & 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, while females posted images (Ybarra et al., 2005). More males were also found to have public profiles while 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, “[i]n general, behaviors manifested by large numbers of people fail to predict events that are relatively uncommon” (Wolak et al., 2008c, p. 117). 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., 2007d, p. 138).

These recent findings are contrary to many suggested best practices publicized by groups devoted to the protection of youth online (Brookshire & Maulhardt, 2005; National Center for Missing and Exploited Children, 2006a). Despite these efforts, the number of youth revealing personal information increased from 2000 (11%) to 2005 (35%) (Wolak, Mitchell, & Finkelhor, 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, Mitchell, & Finkelhor, 2006, p. 50).

One area of concern involves youth who engage in age deception, indicating that they are older than they are (Gross, 2004; McQuade & 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. McQuade (2008) found that 13% of 4-6th graders and 15% of 7-9th graders experienced someone using their password without their permission and a slightly smaller percentage of youth had someone else impersonate them online. Little is known about how often youth share their passwords or in what circumstances. Pew Internet research from 2001 found that 22% of teens 12-17 had shared a password with a friend or someone they know. (Lenhart 2001). Qualitatively, 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., 2007c), online harassment (Mitchell et al., 2007d; Ybarra, 2004; Ybarra et al., 2004), and solicitation (Mitchell et al., 2007d). Risk for online harassment was particularly pronounced among depressed male youth, who were 8 times more likely to be victimized than non-depressed male youth (Ybarra, 2004). Suicidal ideation has also been significantly correlated with online harassment victimization among adolescents (Hinduja & Patchin, 2009). Self-harm, often a physical manifestation of depression, is also correlated with other risky behaviors that increase the likelihood of risk (Mitchell & Ybarra, 2007; Mitchell et al., 2005a; Mitchell & Ybarra, 2007). 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, Mitchell, & Finkelhor, 2003a). Likelihood of solicitation and harassment has been correlated with offline sexual and physical abuse (Mitchell et al., 2007d; Mitchell et al., 2007c).

Online harassers were found to be 3 times more likely to be frequent substance users (Ybarra & Mitchell, 2004b). Likewise, victims of solicitation were twice as likely to report substance use (Mitchell et al., 2007d). Youth who were both perpetrator-victims of Internet harassment and unwanted online sexual solicitation were the heaviest users (Ybarra et al., 2007c). This parallels offline settings where bullies tend to have used alcohol or other substances (Ybarra & 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

Home is where nearly all (91%) of youth reported using the Internet (Wolak, Mitchell, & Finkelhor, 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 & 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, Vitaro, Tremblay, & Lavoie, 2001), police contact (Pettit, Laird, Dodge, Bates, & Criss, 2001), and traditional bullying (Patterson, 2002; Steinberg & Silk, 2002)), while a *positive* parental relationship mediated effects of poverty and other demographic indicators (Barnow, Lucht, & Freyberger, 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, p. 741). The vast majority of parents (90%) are concerned about their child’s online safety (Wolak, Mitchell, & Finkelhor, 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, Greenberg, & Hofschire, 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 was 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 & 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 9-19 year-olds in the UK reported online harassment, while only 4% of parents believed their children encounter online harassment (Livingstone & Bober, 2004). Similarly, parents also under-estimated the amount of adult content youth were exposed to either accidentally or deliberately (Cho & 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 under-estimate how frequently their children engage in activities such as e-mail (17% compared with 45%), postposting online personals (68% compared with 81%), and correspondcorresponding with strangers (30% compared with over 50%) (Computer Science and Telecommunications Board National Research Council, 2002, p. 165).

The under-estimation 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; Fight crime sponsored studies: Opinion research corporation, 2006b; National Children's Charity, 2005; Patchin & Hinduja, 2006; Wolak, Mitchell, & Finkelhor, 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."

7. Genres of Social Media

While many of the studies focus on the Internet at large, youth face different risks in different online environments. Sometimes this is because technologies facilitate certain communication between adults and minors or among minors. For instance, on social network sites, a popular genre of social media among youth, teens are more likely to interact with friends or friends-of-friends than complete strangers (Lenhart & Madden, 2007). Norms are another factor at play. In some types of environments, 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.

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., 2007d, p. 329). On average, 50% of youth who report harassment identify that it first occurred in chat rooms or through instant messaging (Fight crime sponsored studies: Opinion research corporation, 2006a; Fight crime sponsored studies: Opinion research corporation, 2006b; Kowalski & Limber, 2007; Wolak, Mitchell, & Finkelhor, 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 over 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, Mitchell, & Finkelhor, 2006). Authorities have used these technologies extensively for “sting” arrests (Wolak, Mitchell, & Finkelhor, 2003b).

Several explanations exist for why chat and instant messaging are particularly prevalent in harassment and solicitation. Synchronous media may be particularly effective for grooming youth, because it is more effective for coercing youth into non-forcible relationships through an ongoing conversation. Additionally, these technologies are used by youth for locating partners (Šmahel & Subrahmanyam, 2007) and general socialization (Leung, 2001). Youth who have a poor home environment or engage in other risky behaviors are more likely to use online chat frequently (Beebe et al., 2004), and chatroom use is correlated with increased depression (Ybarra et al., 2005), suggesting chat could be a particularly attractive mode of communication for youth who are in need of support.

7.2. Blogging

A sizeable minority of youth (28%) have created a blog (Lenhart, Madden, Macgill, & Smith, 2007b), 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 nor are they more likely to be sexually solicited (Mitchell, Wolak, & Finkelhor, 2008; Mitchell et al., 2008). That said, they have been found to be more likely to experience online harassment (Mitchell et al., 2008).

In data collected in 2006, minors aged 12 – 17 were more likely to be female (Mitchell et al., 2008). While 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 & Fox, 2006), teen bloggers blog for an audience of their peers (Lenhart & 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 more likely to face online harassment (Mitchell et al., 2008) may stem from the peer-centric environment of youth participation in blogging; as previously discussed, a substantial percentage of youth harassers are known to the victim, and many (44%) were offline friends (Wolak, Mitchell, & Finkelhor, 2006).

7.3. Social Network Sites

Social network sites, or SNSs (boyd & Ellison, 2007), such as MySpace and Facebook, are one of the most popular and controversial types of social media. Young people are frequently members (Lipsman, 2007) use them to communicate and maintain social bonds (Granovetter, 1973; Granovetter, 1983), and as a base for online communities (Rheingold, 2001; Smith, 1999). However, research is inconclusive on the extent to which they present a risk or mediate risk. As of 2007, 942006, 93% of American youth aged 12-17 used the Internet, and 58% had created an SNS profile (Lenhart, Madden, Macgill, & Smith, 2007a). 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 (Rosen, 2006). This worry was not carried by the youth who use these sites; 83% of teenagers felt this type of website is generally safe (Rosen, 2006), and a sizeable minority (19 - 22%) of youth reported being upset by harassment or solicitation on these sites (Rosen et al., 2008).

Initial research in the United Kingdom 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, p. 2). Similarly, Ybarra and Mitchell (2008) concluded that, “[b]road claims of victimization risk, at least defined as unwanted sexual solicitation or harassment, associated with social networking sites do not seem justified” (p. e350).

Other studies describe found that SNSs present an equal or increased danger as compared with other media. Lenhart (2007) found that, “social network users are also more likely to be cyberbullied” (p. 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), and 8% of Los Angeles-area teens reported uncomfortable experiences of a sexual nature on

these types of sites, a rate similar to that of general online solicitation (Rosen et al., 2008). Girls appear to be more prone to receiving unwanted messages on SNSs (Smith, 2007). This may be because harassers and solicitors generally target girls, and studies suggest SNS membership is slightly more female (51-54%) (Hinduja & Patchin, 2008b; Jones et al., 2008; Thelwall, 2008; Schrock, 2006). 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 12-17 had limited access to their SNS profiles (Lenhart & Madden, 2007). In other studies, Hinduja found that 40% of MySpace members set their profiles to “private” in 2006 (Hinduja & Patchin, 2008b) and 36% in 2007 (Patchin & Hinduja, in review)- a default setting, now, to users who register as under 18 - and although 7-9% of SNS members were “approached for a sexual liason,” almost all immediately blocked the user (Rosen, 2006). Generally, users appear to realize the need for privacy settings (Lange, 2007).

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; Griffiths, Davies, & Chappell, 2003; 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). Even in a single genre, the number of youth players may vary greatly between games; only 7% of *Everquest 2* players were teenagers (Williams, Yee, & Caplan, 2008), compared with 40% of players of *Everlore* being underage (Griffiths et al., 2003), despite that they are both online role-playing games. The research is split on whether players of certain games, such as MMOGs (Massively Multiplayer Online Games), are more at-risk than other youth for psychosocial factors such as depression, substance abuse, difficulties with self-regulation, trouble at school, and increased aggression (Ducheneaut, Yee, Nickell, & Moore, 2006; Ng & Wiemer-Hastings, 2005; Seay & Kraut, 2007; Williams & 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, Tepichin, & Haninger, 2006) and even video games with lower ratings contain significant amounts of content that may be considered inappropriate (Haninger & Thompson, 2004; Thompson & Haninger, 2001). It is as yet unclear if the inappropriate content in games is viewed by youth who wouldn’t 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.

Online gaming environments frequently have multimedia capabilities and interactive possibilities well beyond web-based social media (such as SNSs). As concerns online contact, many games offer real-time multimedia chat during gameplay through text, voice, or video, and may encounter aggressive behavior (Anderson & Bushman, 2002; Funk, Baldacci, Pasold, & Baumgardner, 2004; Williams & Skoric, 2005). 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).

In addition to more familiar modes of communication, 3-dimensional environments offer at least one new way for harassment to occur: “griefing.” 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 & Ratier, 2005, p. 47) and disrupt the gaming experience (Foo & Koivisto, 2004; Lin and Sun, 2005, Proceedings of DiGRA 2005 Conference: Changing Views Ð Worlds in Play; Warner & Ratier, 2005).

It appears that online game-playing youth routinely encounter violent content and risky situations. Some of these modes familiar from other social media, or conceptually similar to mass communication theory (such as exposure). Others are unique to these new environments (such as griefing). It is unclear how frequently youth encounter solicitation or harassment, how other risk factors described in this paper relate to these new environments, or if these new methods of harassment are more upsetting to youth.

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 & 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. 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 (Mitchell et al., 2007e) (but only one youth in 1500 complied), and 7% of students in grades 7-9 in the Rochester, N.Y. area received an online request for a nude picture (McQuade & 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., 2008c, p. 120).

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) minority at-risk groups, such as gay, lesbian, bisexual, or transgender (LGBT) youth who may be particularly vulnerable, (4) the role that pervasive digital image and video capture devices play in minor-to-minor harassment and youth production of problematic content, and (5) risks posed by the intersection of various mobile and Internet-based technologies. 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, Mitchell, & Finkelhor, 2006) and the majority of solicitations are anonymous, meaning 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, Mitchell, & Finkelhor, 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, Mitchell, & Finkelhor, 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 & 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 & 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, Slovacek, & Tidwell, 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 & 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 Minority Groups

While 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 minority groups such as 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., 2008c, p. 118). While all of the youth involved in these online activities may not identify as LGBT later in life, these studies do identify teens who are questioning their sexuality (LGBT and “straight” alike).

These 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 & Harrison, 2007). They may be sensitive to cyberbullying such as ostracizing (Smith & 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).

8.4. Photographs and Video in Online Harassment and Solicitation

Text is still dominant in much of the current research (Lenhart, 2007; Raskauskas & 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 & 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 multi-modal, 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.

8.5. 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., 2007c) and online harassment (Hinduja & 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.

9. Appendix A: Understanding Research Methodologies

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 & 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, Cook, & Campbell, 2001). For instance, an ideal research population would mirror the gender and racial makeup of the population you *generalize* the findings to (also known as *external validity*). Few studies in this paper claim a representative national sampling of Americans.

The reason that representative samplings are comparatively rare is that 1) the population under research may not be known (making the sampling by definition *nonprobability*), 2) ethical 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 are 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 Institutional Review Boards (IRBs) which 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, Mitchell, & Finkelhor, 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 & Howitt, 2007, p. 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 a selection of youth in certain grades across several schools (Li, 2004), school system (McQuade & Sampat, 2008), or certain grades in a state wide survey. Additionally, research may be conducted entirely online and not relate directly to any physical location (Fielding, Lee, & Blank, 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 they’ve met than participate in a phone or computer-based survey where researchers are remote and non-visible. 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 SNSs (Rosen, 2006), MMOGs (Lin and Sun, 2005, Proceedings of DiGRA 2005 Conference: Changing Views Ð Worlds in Play), and blogs (Faulkner & 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 (1995) notes that, “[i]n 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” (p. 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 & Ritter, 2007). A survey, for instance, may be administered via phone (Wolak, Mitchell, & Finkelhor, 2006), paper (Li, 2007b), or on a computer (McQuade & 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 & 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 non-active 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 & Smith, 2008) or solicitation (Mitchell, Finkelhor, & Wolak, 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 & Howitt, 2007, p. 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, p. 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. This 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, above, 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 disputed even after decades of study. What is more common is a *correlation*: finding that two variables are related, but 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 that by boyd (Cameron et al., 2005;).

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, Mitchell, & Finkelhor, 2006) and at the end of others, prior to the references (Wolak et al., 2007d). It is common for larger studies to require some financial backing. While it does not mean that the researchers are necessarily biased, it is ethical for them to disclose such affiliations.

9.10. New Methodologies and Measures

There is a dire need for more quantitative statistics on all types of risky online activities, particularly studies involving a representative sampling of Americans, and those with a meaningful qualitative dimension. Large-scale surveys and meta-analyses would be useful to gain an understanding of some of these issues. The need is clear, but so are the challenges. It is important for us to understand not only how adults view the risks to youth, but how youth see the role and risks of social media. More qualitative and mixed-methods research (those utilizing both qualitative and quantitative methodologies) would be useful to. 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 & Haddon, 2008, p. 317).

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 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 non-consensual or consensual sexual situations that occurred. Therefore, smaller-scale qualitative and quantitative methodologies could also be employed to add to the growing amount of literature on the topic. 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.

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, and, as previously discussed, this risk is often exaggerated. 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. Longitudinal research involving repeated measures is scarce (Center for the Digital Future, 2008; Lenhart, 2007; Wolak, Mitchell, & Finkelhor, 2006). Further studies would be useful to monitor the various complex ways technologies are integrated with adolescent communication.

Similarly, standardization in concepts and variable types 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 (e.g. “older adolescents”), smaller ranges (e.g. 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 & Limber, 2007; Raskauskas & 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 & Haddon, 2008, p. 317).

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