University of Alberta

Adolescents' Safety on the Internet

by

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Abstract

Adolescent development requires adolescents to achieve certain developmental tasks such as establishing identity and relationships. The successful completion of these tasks leads to an understanding of who one is and assists adolescents in making appropriate future career and relationship choices – the foundation for health and well-being. The Internet offers adolescents an alternative and new way of working through their developmental tasks. The dynamics of adolescents on the Internet is complex and not fully understood; however, the process of using the Internet for developmental purposes poses a risk for harm. In this study, I examine grade 7 and 10 students' Internet safety knowledge and online trust levels as predictors of when participants engage in risky behaviours online such as disclosing personal information. Although both Internet safety knowledge and online trust levels were significant predictors of both grade 7 and 10 students' personal information disclosure, Internet safety knowledge was a stronger predictor for students in grade 7 while online trust was a greater predictor for students in grade 10. The difference in the influence of safety knowledge and trust on participants' risk-taking activities suggests that developmental factors are important considerations of their online vulnerability for sexual solicitation.

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CHAPTER I

Introduction

Home computers are becoming standard household items with teenagers using computers considerably more often than younger children or adults (Subrahmanyam, Greenfield, Kraut, & Gross, 2001). In today's highly technological society, it is not surprising that 97% of American youth are connected to the Internet (Ybarra, 2004) and that they learn to use the Internet primarily from their friends and from their own exploration (Environics Research Group, 2001) as the digital divide between parent's and children continues to widen (D'Arcy, 2004). The high access of youth to such a global, interactive, and unregulated medium raises many questions in regards to how and why adolescents use the Internet and how their Internet use affects them. Initial background information on these issues follows as a precursor for the succeeding rationale and purpose of the study. An overview of the study concludes this chapter.

Background

Adolescents use the Internet in many ways and for many reasons. Emailing, chat, playing games, (Lauman, 2002; Turow & Nir, 2000), and listening to and downloading music are adolescent's most popular Internet activities (Spears, Seydegart, & Zulinov, 2001). For most adolescents, going online means visiting Web sites (Turow & Nir, 2000). Nexopia is one such popular adolescent Web site which allows users 14 years and older to complete profiles, post pictures of themselves, and link to profiles of friends (Spears et al., 2001). Visiting offensive Web sites, such as pornographic, violence and gore, adult chat rooms, and hate sites also occurs (Spears et al., 2001), along with visits to gambling sites (Griffiths & Wood, 2000; Spears et al., 2001).

There are more similarities than differences in adolescent male's and female's Internet usage (Lauman, 2002). Any differences typically found in research indicate that females use email and chat more often than males who are prone to use gaming features more often than females (Lauman, 2002; Spears et al., 2001). Older adolescents are more likely than younger adolescents to participate in Internet chat features, such as instant messaging and chat rooms (Spears et al., 2001; Turow & Nir, 2000). Combining age and gender, Spears et al. (2001) found a higher percentage of older boys visiting offensive Web sites.

Adolescents' main motives in using the Internet include Internet-specific personal and social factors (Wolfradt & Doll, 2001). In a qualitative study with adolescents talking about their online experiences, Maczewski (2000) highlights three resulting themes: adolescents feel a sense of excitement; adolescents experience a sense of freedom, power, and connectedness; and adolescents have the opportunity to expand their sense of self and identities. These themes are present among the communication features of the Internet (Maczewski, 2002).

Communication features online are expanding from the existence of initial email and message/bulletin boards forms of communication to more current and modern day instant messaging programs and blogs (Weblogs). Email is still widely used by 64% of adolescents (Spears et al., 2001) with as many as 56% having more than one email account (Lenhart, Rainie, & Lewis, 2001). Daily, adolescents spend approximately 22 minutes using email and 6.5 minutes using message boards (Gross, 2004). Message boards are strings or threads of archived messages/discussions that are accessible all the time and are used to obtain answers to questions, express opinions or feelings, or display

talents or projects (Huffaker, 2004). Instant messaging is a means of synchronous communication with people who are chosen to be part of one's online community or "buddy list" and offers a means to track the presence or absence of people within one's community at any given time (Huffaker, 2004). MSN Messenger, the most widely used instant messaging program, has over 155 million customers globally that rely on the program to connect with family and friends (http://www.microsoft.com/presspass/press/2005/apr05/04-07GlobalMessengerSpacesPR.mspx?pf=true). Seventy-four percent of adolescents use instant messaging (Lenhart et al., 2001) for 40 minutes on average daily (Gross, 2004) and their usage continually increases as they get older (Spears et al., 2001). Blogs are publicly accessible personal online journals or diaries that are used to present personal reflections, opinions, commentaries, research, news, and/or stories (Huffaker, 2004). MSN created over 4.5 million spaces for Weblogs in a three month period at the beginning of 2005 (http://www.microsoft.com/presspass/press/2005/apr05/04-07Global MessengerSpacesPR.mspx?pf=true). The percentage of Canadian adolescents posting messages to online diaries or Weblogs ranges from 13% percent of 10 and 11 year olds to 18% of 16 and 17 year olds (Spears et al., 2001). Overall, these means of communication offer adolescents personal and informal opportunities to exercise their voices (Huffaker, 2004) and to candidly discuss sensitive topics (Suzuki & Calzo, 2004).

Online communication features also allow adolescents the opportunity to connect with others (Becker, Mayer, Nagenborg, ElFaddagh, & Schmidt, 2004; Boies, 2002; Boies, Knudson, & Young, 2004; Gross, Juvonen, & Gable, 2002; Wolak, Mitchell, & Finkelhor, 2002, 2003). Reasons for establishing connection with others online vary among adolescents. Some adolescents desire companionship (Gross et al., 2002) or

connection with like-minded individuals (Becker & Mayer et al., 2004) while others desire close interpersonal relationships (Wolak et al., 2002, 2003) or sexual interactions (Boies, 2002; Boies et al., 2004).

The effects of adolescents' computer and Internet usage have both positive and negative implications. Positively, the computer can assist in the development of some adolescent cognitive skills, particularly computer games on spatial, iconic, and attention skills (Boies, 2002; Boies et al., 2004). The computer and Internet can also help maintain social relationships (Subrahmanyam et al., 2001) and offer social support to otherwise isolated adolescents (Whitlock, Powers, & Eckenrode, 2006), increasing adolescents social involvement, psychological well-being (Kraut et al., 2002), and sense of self (Maczewski, 2002). In fact, Canadian research involving 5,272 adolescents found that 56% of adolescents rated their online experiences as good (Spears et al., 2001). Good experiences involve connecting with friends, playing games, homework, and information seeking all of which are engaging, challenging, and not offensive (Spears et al., 2001).

However, Internet usage maintains a paradox. Although online communications can increase connectivity with others and serve important emotional needs, it can also simultaneously promote isolation and lead to all sorts of Internet addictions (Maczewski, 2002), including usage addictions (Johansson & Gotestam, 2004), gambling addictions (Griffiths & Wood, 2000), and sexual addictions (Boies et al., 2004; Freeman-Longo, 2000). High Internet usage for whatever intent and purpose poses a risk for decreased social integration (Boies et al., 2004); Internet use has been found to displace adolescents time with and desire for spending time with family (Shim, 2004).

Rationale for the Study

Without minimizing all the benefits associated with the Internet, McColgan and Giardino (2005) highlight the major risks facing children and adolescents on the Internet. These risks include:

- Exposure to material that is inappropriate or encourages dangerous or illegal activities.
- Exposure to harassment through e-mail, chat room talk, or messages that harass, demean, or threaten the child.
- Revealing financial information (e.g., credit card numbers), producing negative consequences.
- Engaging in activity that has legal ramifications, possibly violating the rights of others (e.g., knowingly posting inaccurate information that causes others to act).
- Safety issues, including physical molestation or other injury resulting from sharing personal information and luring a child into meeting a stranger in person. (p.406)

These risks for adolescents on the Internet are valid concerns. Exposure to online material that encourages dangerous activities does occur. For example, The Globe and Mail (February 3, 2003) reported an incident of a man who committed suicide online while being watched and egged on by chat partners, one of whom was an adolescent. Message boards in which adolescents solicit and share self-injury information can normalize and encourage self-injurious behaviour leading to potentially lethal behaviours particularly among adolescents who already self-harm (Whitlock et al., 2006). Suicidal

adolescents have used the Internet to accessed information on suicide methods (Becker & Schmidt, 2004; Becker, ElFaddagh, & Schmidt, 2004; Prior, 2004) and to purchased materials online to implement those methods (Becker & Mayer et al., 2004).

Exposure to online material that is inappropriate or encourages illegal activities is also an important issue. Adolescents have a 19% to 59% chance of exposure to racial and prejudicial remarks in chat rooms depending on whether the chat room is monitored (Tynes, Reynolds, & Greenfield, 2004). Tynes et al. (2004) found an increased risk for exposure to racial or ethnic utterances in unmonitored chat rooms that have led lead to negative intergroup attitudes. In addition, because the Internet is not regulated, adolescents can access pornographic material simply by entering a chat room or Web site even though it is illegal for them to do so (Freeman-Longo, 2000). Spears et al. (2001) found that 16% of adolescents purposely visit porn sites, 18% violence and gore sites, and 5% hate sites. However, these figures are likely underestimates. Adolescents have been found to be reluctant to discuss their participation in visiting such sites (Freeman-Longo, 2000) or to lie about their participation (Lenhart et al., 2001). On the other hand, adolescents face unwanted exposure to sexually explicit material while online. Mitchell et al. (2003) found 25% of online adolescents have been exposed to unwanted sexual material. Of unwanted exposures, 73% occurred while searching or surfing and 27% while emailing or chatting. Most unwanted material consisted of naked pictures; however, 32% displayed people having sex, and 7% involved violence in addition to nudity and sex. Overall, 24% of these exposures led to feelings of personal distress for adolescents (Mitchell, Finkelhor, & Wolak, 2003).

Adolescents also use the Internet to bully and harass others (Ybarra & Mitchell, 2004a, 2004b; Ybarra, 2004). Ybarra and Mitchell (2004b) define cyberbullying as acting out towards someone online who is known to the aggressor/bullier and Internet harassment as acting out towards someone online who is unknown to the aggressor. In a nation-wide study interviewing 1,501 adolescents and parents in the United States, Ybarra and Mitchell (2004a) found 15% of adolescent Internet users had been involved in bullying others online. Similar statistics have been found in Canada in which 15% of 177 grade 7 students surveyed in Alberta admitted to bullying others online (Edmonton Journal, 2005, April16). In this study, 53% of students indicated that they knew someone being cyberbullied, and among victims, 23% were bullied via email, 36% via chat rooms, and 41% by multiple sources (Edmonton Journal, 2005, April16). Spears et al. (2001) survey of 5,272 adolescents across Canada found 27% have experienced cyberbullying and 70% have experienced online sexual harassment. The repercussions of cyberbullying and/or online harassment are huge for victims. The infamous case of the "Star Wars Kid" is one such example of an online harassment case that led to such humiliation for one adolescent that he dropped out of school and ended up in psychiatric care (Globe and Mail, 2003, July 23).

Online privacy is another major concern of children and adolescents on the Internet. One privacy issue involves adolescents submitting personal information online to Web sites. In 2002, the Federal Trade Commission (FTC) investigated the extent to which commercial Web sites requested and collected information from children under 15 years of age. The FTC (2002) found that 90% of Web sites collected some form of personal identifying information from children with 50% of these Web sites collecting

three or more types of information. Types of information varied from telephone numbers, age, gender, photographs, hobbies, and other interests, such as movies, books, and games (Federal Trade Commission, April 2002). Providing personal information to Web sites becomes a particular concern if these Web sites make the information available to others. The FTC discovered Web sites that posted users' personal identifying information online, including pictures. Established in 1998, The Children's Online Privacy Act (COPPA) attempts to protect children online. Although COPPA legislation requires that Web sites obtain parental consent from parents with children 12 years old and under (Federal Trade Commission, April 2002), Turow & Nir (2000) found that half of the parents they surveyed were unaware that Web sites collected sensitive information from children without their knowledge. Both adolescents and parents agree that parental consent should be obtained before supplying personal information online; however, adolescents caution disappears when enticed by a free gift (Turow & Nir, 2000).

Another privacy issue involves adolescents making their personal information available online in other ways, such as through blogs (Huffaker, 2004) or through communication features (Lenhart et al., 2001; Mitchell, Finkelhor, & Wolak, 2001; Stahl & Fritz, 2002; Turow & Nir, 2000; Ybarra, Alexander, & Mitchell, 2005). In terms of blogs, these means of expression typically become extensions of adolescents' real world in which adolescents reveal personal identifying information such as full names, ages, and locations (Huffaker, 2004). Huffaker and Calvert (2005) found similar types of identifying information between genders on adolescent blogs. Any difference in personal information supplied online found that males offer slightly more information on location and contact information such as email while females link slightly more often to their

home pages (Huffaker, 2004). Ybarra et al. (2005) found similar types of personal information disclosures between genders using online communication features; males more often provided personal identifiable information whereas females more often posted pictures of themselves. Twenty-five percent of adolescents have reported sharing identifying information online, including full name, school, address, and phone number (Stahl & Fritz, 2002).

Whether through Web sites, blogs, or in communication with others online, revealed identifying information create venues and opportunities for child predators to target victims (Federal Trade Commission, April 2002; Huffaker, 2004; Mitchell et al., 2001). Adolescents are more likely than their parents to believe it is okay to give out personal information online (Turow & Nir, 2000). This raises the question of whether adolescents are aware of the possible consequences of revealing personal information. Feeling safe is one consequence. Overall, half of parents feel the Internet is a safe place for their children to spend time (Turow & Nir, 2000); however 23% of adolescents have reported feeling unsafe – 11% because of a Web site they have visited and 16% because of contact with someone (Stahl & Fritz, 2002). Stahl and Fritz (2002) found males are more likely to feel unsafe by visiting Web sites and females are more likely to feel unsafe through contacts with strangers. Unsafe feelings were associated with the amount of chatting adolescents engaged in and with adolescents violating privacy guidelines and visiting pornographic Web sites (Stahl & Fritz, 2002).

Risk for solicitation is another consequence. Mitchell et al. (2001) found that adolescents are at an increased risk for solicitation when participating in chat rooms and when interacting with and submitting personal information to strangers online. Chat room

use is a regular activity for adolescents. In Canada, 58% of 11 and 12 year olds report using chat rooms and this amount increases to 72% by the time they reach age 17 (Environics Research Group, 2001). Interacting with strangers is also occurring. From the 60% of youth who reported chatting, 57% spoke to people they did not know personally and 25% of had been asked to meet offline with 15% actually doing so (Environics Research Group, 2001). Wolak, Mitchell, & Finkelhor (2002) found 84% of youth knew where their partner lives. Fifty (Lenhart et al., 2001) to 75% (Stahl & Fritz, 2002) of adolescents have reported communications with strangers. What is problematic is that 52% of adolescents do not worry about contacts from strangers (Lenhart et al., 2001) even though this risky behaviour leaves adolescents vulnerable to solicitation. Over the course of one year, Mitchell et al. (2001) found 19% of adolescents had experienced at least one sexual solicitation and 3% an aggressive solicitation in which the solicitor attempted or made offline contact. Frequency of Internet use, participating in chat rooms, engaging in risky behaviour, talking to strangers or using the Internet outside of their home were all factors associated with the risk of sexual solicitation. When examining distress from these solicitations, 25% of adolescents reported being "very or extremely" upset or afraid (Mitchell et al., 2001).

Research has started to examine the types and nature of sex crimes against adolescents on the Internet and the persecution of such crimes. Wolak, Finkelhor, and Mitchell (2004) found 73% of online offences against children were completed crimes involving child pornography or sexual assault in which 76% of these crimes had originated in chat rooms and 74% led to offline meetings with 93% of these entailing illegal sexual contact. Other online encounters were a result of victims' posted profiles.

Coercion or pressure for victims to engage in sexual activities occurred in 16% of cases and 40% of victims were given illegal drugs or alcohol (Wolak, Finkelhor, & Mitchell, 2004). Illegal sexual contact does not always result in coercion or force. Nonforcible sex crimes in which force is not used to engage the victim occurs as well (Walsh & Wolak, 2005).

In some cases, online solicitation leads to sexual assault with severe repercussions. It took several months before a Calgary adolescent girl could even speak to police after being raped in her own home by a 35-year-old predator who posed as a teenage boy in a chat room (Calgary Herald, 2002, February 21). This victim remained in a psychiatric ward for several more months. This is but one example of the many Canadian youth traumatized by their Internet activities.

To assist in combating child solicitation and exploitation on the Internet, legislation, organizations, and enforcement agencies are evolving. Nationally, the Canadian government added an amendment to the Criminal Code of Canada in recognition of this new form of crime against children. Sexual solicitation on the Internet is now known as luring, a punishable crime defined as "an offence to communicate via a computer system with a person under a certain age ... for the purpose of facilitating the commission of certain sexual offences in relation to children or child abduction" (http:// www.parl.gc.ca/common/Bills_ls.asp?lang=E&Parl=37&Ses=1&ls=C15A&source=Bills _Individual). In terms of organizations, Cybertip.ca is a Canadian organization available for the reporting of potential online child sexual abuse. Throughout 2005, Cybertip.ca's first year of operation logged 5,771 child sexual exploitation reports, a 430% increase over the previous year when the tipline operated as a pilot project (http://www.cybertip.

ca/PDFs/en/media_releases/First_Anniversary.pdf). Cybertip.ca reviews, analyzes, prioritizes, adds value to incoming reports and then sends potentially illegal activity to appropriate law enforcement jurisdictions (http://www.cybertip.ca/en/cybertip/how_does_it_work/). Provincially, Alberta has created an Integrated Child Exploitation Unit dedicated to the tracking and catching predators who prey on innocent children over the Internet (Grove Examiner, 2005, July 15). In the United States, federally funded Internet Crimes Against Children (ICAC) Task Forces have been established for the same purpose (Mitchell, Wolak, & Finkelhor, 2005). The same anonymity that is advantageous to predators online also assists law enforcement investigators trying to catch online predators; investigators pretend to be adolescents, have conversations with predators, which eventually lead to arrests (Mitchell et al., 2005). Arrests have led to the actual identification of molested youth, possession of child pornography, and intentions to commit sexual crimes; thus, using the Internet sometimes allows enforcement agencies to interdict before an adolescent is victimized, to gather evidence of offences, and to find and track some offenders (Mitchell et al., 2005).

It is estimated that only 10% of solicitation incidents come to the awareness of authorities (Mitchell et al., 2001). To alleviate concern, parents use protective software in attempts to shield children's access to some Web sites (Lenhart et al., 2001; Mitchell et al., 2001, 2003). Unfortunately, Mitchell et al. (2001, 2003) found that filters and blocking technology does not reduce children's solicitation risk. How then does society protect children? Going undercover is one solution that is limited by the amount of available resources, training, and effective legislation this method requires to be more effective (Earley, 1999; Mitchell et al., 2005). With the number of available Web sites on

the Internet growing exponentially daily, the feasibility of crime units to target all vulnerable Web sites is unrealistic. The alternative is prevention. Prevention requires an in-depth evaluation of youths' Internet activities in addition to a cross-examination of their social and emotional development.

When do children feel it is safe to give out private information and are they fully aware of their risk? Does society assume that children are properly educated on the risks they take when speaking to online strangers? Stahl et al. (2002) found that only 25% of adolescents had online safety discussions with an adult (Stahl & Fritz, 2002). Turow et al. (2000) noted that while 69% of parents and 66% of children had discussions regarding privacy and the provision of personal information online, their research illustrated that most pairs of parents and children did not agree on whether these sorts of discussions had ever occurred. In fact, parents are typically unaware of adolescents Internet activities and the extent to which adolescents divulge personal information online (Lauman, 2002), creating a situation in which parents believe they are more in control of their children's online usage and activities than they actually are (Spears et al., 2001). Regardless of safety discussions, rules for the Internet, or parental monitoring, large discrepancies between parents and adolescents reports of these issues continue to exist (Lauman, 2002; Lenhart et al., 2001). In addition, these issues have not been found to be influential in altering adolescents' online activities (Gross et al., 2002; Mitchell et al., 2001, 2003).

Purpose of the Study

A sense of adolescents' safety awareness and understanding becomes vital for prevention efforts. In addition, research has not considered how adolescent development influences the nature of their Internet use and vulnerability for solicitation. This research

offers an investigation of a unique combination of social and emotional characteristics, providing better understanding on youths' decision-making process when sharing sensitive information online. After all, adolescents' most important risk for online sexual solicitation is providing their predators with personal information about themselves. The questions this research addresses are as follows:

1. What are the Internet demographics of this population?
2. How much Internet safety knowledge do adolescents have?
3. How trusting are adolescents online?
4. How early do adolescents disclose personal information online?
5. What impact does an online contact's gender have on adolescents timing of disclosing personal information?
6. How early do adolescents engage in offline meetings with others they meet online?
7. What impact does an online contact's gender have on adolescents timing of offline meetings?
8. How much do adolescents' Internet safety knowledge, online trust, and gender affect the timing of disclosing personal information online?
9. How much do adolescents' Internet safety knowledge, online trust, and gender affect when they engage in offline meetings with others they meet online?

Overview of the Study

A review of the literature on adolescent development and online issues related to safety, trust, and decision-making occurs in Chapter Two. The methodological procedures used in this research, including a description of the sample, a description of

the measures, and a description of the procedure is outlined in Chapter Three. The presentation of statistical analyses used, along with the results of these analyses, follows in Chapter Four. Chapter Five concludes this study with a discussion of the findings, limitations, and implications of this research, in addition to future research directions.

CHAPTER II

Literature Review

The Internet is becoming a staple in adolescents' lives. In essence, the Internet is a portal for adolescents to reach out to the world at large; however, the reverse is also true, the Internet is a portal for the world at large to reach adolescents. This leaves adolescents exposed to many people, some of whom who wish to take advantage of their vulnerabilities. This exposure warrants the question of how trusting adolescents are in the online world. At the rate technology grows, the digital gap between adolescents and parents continues to widen, challenging the efforts of families to ensure adolescents remain safe while online. The complexity of the Internet attests to the need for a more comprehensive understanding of the factors associated with adolescents trust and safety online. The first objective of this chapter is to highlight existing developmental theories relevant for understanding safety and trust issues in adolescence. These theories include attachment, identity development, and decision-making. The second objective of this chapter is to examine the implications of these theories for adolescents on the Internet. Adolescents' developmental use of the Internet precedes an examination of adolescent safety and trust online, which includes a discussion of potential risk factors and how predators use the Internet for criminal activity. An overview of the challenges encountered in understanding adolescents' safety on the Internet and an outline of this study's purpose concludes this chapter.

Attachment

Attachment theory is often used to describe the development of safety and security in individuals. The goal of attachment systems is for individuals to obtain a sense

of "felt security" (Kobak, 1999). The central tenant and importance of attachment is providing what Bowlby (1988) refers to as a "secure base." A secure base provided by both or one of the parents offers children the confidence to take risks and venture into and explore their outside worlds, knowing that when they return, they will be welcomed back, nourished both emotionally and physically, and comforted and reassured if frightened or distressed (Bowlby, 1988). As children age, their exploration away from the secure base grows as they take for granted that the secure base will always be available for them. Strong and pervasive feelings of security results from knowing that an attachment figure is readily available (Bowlby, 1988).

Offering a means of protection, attachment systems lead to attachment behaviour. Attachment behaviour is "any form of behaviour that results in a person attaining or maintaining proximity to some other clearly identified individual who is conceived as better able to cope with the world" (Bowlby, 1988, p. 26-27). Two types of behavioural systems in people have been linked to attachment and protection. These are the exploratory and fear systems of behaviour (Cassidy, 1999). Exploratory behaviour is important for children to learn about their worlds; however, unbridled exploration can be dangerous or can put one at risk for harm. Attachment behaviour ensures that children are protected by maintaining some form of proximity to their attachment figure while exploring and learning about their world. An increased sense of safety and security increases children's exploration. When children become afraid of things within their environment, they are more likely to seek out their attachment figure for protection. Thus, available and accessible attachment figures lead children to be less susceptible to fear (Cassidy, 1999).

As children age, they remain exposed and vulnerable to dangers within their exploration yet continue to use attachment figures as secure bases while looking to others to provide them with the same sense of security (Marvin & Britner, 1999). Feeling secure in adolescence includes adolescents' beliefs that the lines of communication are open with their attachment figure, that their attachment figure is physically accessible, and that their attachment figure will respond if they are called upon for help (Kobak, 1999). The majority of adolescents maintain strong attachment to their parents while simultaneously creating strong ties of importance with others (Bowlby 1969, 1988). Early attachments provide adolescents the foundation for exploring and developing interpersonal relationships that grow in intimacy throughout their development.

Identity Development

Erik Erikson's (1968) psychosocial theory of development highlights the importance of identity development in adolescence. Erikson's theory suggests that individuals experience crises as they develop through stages (Erikson, 1968). Crises are viewed as turning points in development – crucial periods of time in which one's vulnerability and potential is heightened. The successful resolution of each crisis leads to an increased sense of inner unity, good judgement, and capacity to do well based on one's own standards and the standards of significant others (Erikson, 1968).

Adolescents' identity development cannot occur outside of trusting attachment relationships. The foundation for building trust rests in Erikson's first psychosocial development crisis known as "basic trust versus mistrust" (Erikson, 1968). An infant's goal is to develop a sense of basic trust defined as an "essential trustfulness of others as well as a fundamental sense of one's own trustworthiness" (p.96). Trust is an inner state

verifiable by testing and interpretation and a way of behaving that is observable to others (Erikson, 1968).

Forming an identity consists of many aspects of self, including gender, sexual, moral, political, and religious aspects each known as an identity unto itself (Erikson, 1959). Erikson (1959) believed that these separate identities could grow at different rates. Building an identity requires adolescents to consider all sorts of identity combinations and possibilities and reduce selections based on their personal, occupational, sexual, and ideological commitments (Erikson, 1968). Subrahmanyam, Smahel, and Greenfield (2006) propose that a stable identity encompasses not only one's self-definition but the roles and relationships one takes on as well as one's personal values and moral beliefs.

Within psychosocial development theory, Erikson (1968, 1989) discusses the requirement of forces or strengths used to assist the successful resolution of trust and identity crises. Developing trust in the first developmental stage of Erikson's theory is based on the strength of hope – hope in which an infant can trust that their needs will be met (Erikson, 1989). In adolescence, trust continues to develop from the strength of fidelity. Fidelity is found in youths search for somebody or something they can be true to (Erikson, 1968) and involves both a deeper capacity to trust oneself and others and to be trustworthy and able to commit one's loyalty (Erikson, 1989). Weak fidelity can result in shifting devotions and sudden perversities (Erikson, 1968), such as pervasive attitudes of defiance or attachment to defiant causes or cliques (Erikson, 1989).

In light of this discussion of trust and identity development, it is important to note that although each stage depends in some capacity on the completion of previous stages, basic trust and identity formation occurs at every stage of development in some form

(Marcia, 2002). This overlap of development suggests that trust and identity issues may need to be addressed and reworked based on crises at hand. In quoting, Marcia (2002), "the adolescent, who is resolving the crisis of identity and identity diffusion, is the beneficiary not only of the resolutions of trust [and other earlier developmental issues] but also of the reworking of each ... during preceding stages" (p. 200-201).

Decision-Making

Making decisions can be highly complex even under the best of circumstances. The developmental nature of adolescence increases the complexity for understanding adolescents' decision-making process. Typically, decisions consider moral judgements, problem-solving ability, and feelings of intuition or "gist."

Making morally based judgements engages a moral reasoning process. Both Piaget (1932, 1965; as cited in Hart, Burock, London, & Miraglia, 2003) and Kohlberg (1984; as cited in Hart et al., 2003) maintain theories on the development of moral reasoning important in understanding adolescents' decision-making process. Piaget theorized that young children are most concerned with following rules set by authority figures and that they harshly judge those who break the rules even if unintentionally (Hart et al., 2003). Consequently, young children show little understanding of or concerns for intentions in behaviours. Older children can judge behaviours in terms of intentions and in terms of mutual agreements of individuals involved in social conflicts. Negotiation rather than an assertion of power becomes a hallmark of the transition between types of moral judgements. Kohlberg proposed a stage theory of moral development that outlines how individuals grow in moral reasoning. The first stage in Kohlberg's theory supports Piaget's ideas that young children judge actions in terms of rules set by authority figures.

In the second stage, individuals consider intentions as long as intentions bear on one's instrumental goals and rights. In the third stage of moral reasoning, individuals begin to consider how others judge the self while the fourth stage includes coordination of the diversity in perspectives and pursuits of self and others. Kohlberg's fifth stage is characterized by a concern for fundamental human rights coordinated by ethical principals (Hart et al., 2003).

Research supports that moral judgements become increasingly sophisticated with age and follows in part along Piaget's and Kohlberg's trajectory (Hart et al., 2003). Halpern-Felsher and Cauffman (2001) found that when considering options, risks, long-term consequences, and benefits associated with decisions, adults outperform adolescents. This was particularly apparent between younger adolescents (6th and 8th graders) and adults. Adults were more likely to consider the risks and benefits of decisions and more likely to seek out advice from other resources (Halpern-Felsher & Cauffman, 2001).

On the other hand, Byrnes (2005) found no age differences between adolescents and adults except that adults decision-making skills were more pronounced when the complexity (content and nature) of the situation was greater. Knowledge and beliefs, values, processing capacity, and strategies all related to the discovery and evaluation of options and to the counteraction of deregulating factors all play a role in decision-making (Byrnes, 2005). Deregulating factors are those that influence the context of the situation such as emotionality, impulsivity, and presence of peers. Examining such a factor, Amsel, Bowden, Cottrell, & Sullivan (2005) found that preadolescents were able to make competent decisions equivalent to adults only under circumstances that cued adolescents

to anticipate and avoid regret. Amsel et al. (2005) propose that otherwise all types of context lead to biased decision-making in adolescents. For example, the presence of peers can lead to more or less risk-taking decisions depending on the context. In addition, the complexity of context in decision-making can undermine adolescents' rational thought processes (Amsel et al., 2005).

The process of problem solving can also be challenging for adolescents. Problem solving has been described as a "sequence of steps that attempt to identify and create alternate solutions for both cognitive and social problems" which includes "the ability to plan, resourcefully seek help from others, and think critically, creatively, and reflectively" (Smith, 2003, p. 321). Smith (2003) supports the idea that independent problem solving requires a higher level of cognitive processing with sophisticated verbal and abstract reasoning skills. Successful problem solving requires the (a) ability to express one's thoughts and feelings, (b) ability to recognize and predict cause and effect relationships, (c) ability to perceive and have empathy for another's perspective, (d) ability to engage in abstract, creative thinking, and (e) belief that one's actions can have a significant impact on the environment (Smith, 2003). Hence, problem solving requires formal operational thinking. Although adolescents enter a developmental period that includes formal operational thought, evidence for formal operational thinking in adolescents is not apparent until age 16 and is highly variable and context dependent (Elkind & Sameroff, 1970). This supports Halpern-Felsher's and Cauffman's belief that competence in decision-making occurs sometime in late adolescence. Young adolescents' good decision-making may therefore be a product of the presence of supportive and informed collaborators (Amsel et al., 2005).

Some theorists argue that intuition is more important than reasoning in decision-making (Reyna, Adam, Poirier, LeCroy, & Brainerd, 2005). Processes of intuition are part of what is known as the Fuzzy-Trace theory, which suggests that decisions are made based on the "gist" of a situation (Reyna et al., 2005). This theory maintains that processing information precisely is not the key to rationality since adolescents process details in parallel with gist and ultimately rely on gist to make judgements and decisions. Renya et al. (2005) propose that adolescents can learn to recognize and notice signals of risk across different situations and contexts and suggest that to reduce risky decision-making, adolescents should be encouraged to recognize the gist of risky situations.

Trust and Safety Issues in Adolescence

In adolescence, trust has been found to be an element of developmental well-being from attachment relationships (Bridges, 2003). For example, inhibited personality styles have been found in adolescents with parental relationships they perceive are marked by low trust and communication (Marchese-Mazzeo, 2004). Marchese-Mazzeo (2004) suggests that adolescents expect higher levels of trust and communication in attachment relationships with their parents. Experiences of deep attachment to parents was one of the experiences Amagai (1999) found as affecting trust in 456 high school students. This concept of trust and attachment holds true in research examining the transition of attachments in adolescents. Early adolescents described less trusting and communicative relationships with parents than younger children (Nickerson & Nagle, 2005). The adolescents who perceived their relationships with parents as less secure in these ways were more likely to turn to peers for fulfilment of these attachment functions (Nickerson & Nagle, 2005).

Trust further mediates the relationship between adolescents' delinquency and family dysfunction (Kerr, Stattin, & Trost, 1999). Established trust between parents and adolescents appeared as a strong deterrent for risky behaviours in females (Borawski, IeversLandis, Lovegreen, & Trapl, 2003). Furthermore, delinquents' feelings of trust have been found to be mainly affected by their experiences of approval and acceptance by adults (Amagai, 1999). Although there is substantial agreement between adolescents and parents about parental trust in them, Kerr et al. (1999) highlight the importance of individual's unique perspectives. Research found adolescents' perspective of family dysfunction was based on whether they believed their parents trusted them while parental perspective of family dysfunction was based on parents own trust in their children (Kerr et al., 1999).

In predicting parents' level of trust for their children, Kerr et al. (1999) investigated parents' knowledge of adolescents' feelings and concerns, past delinquency, and daily activities. Parents' knowledge of adolescents' daily activities was the most important predictor of parental trust (Kerr et al., 1999). Secrecy from parents is an important risk factor for adolescent psychosocial well-being and behavioural adjustment (Frijns, Finkenauer, Vermulst, & Engels, 2005). Keeping secrets from parents leads to low levels of adolescent self-control, impeding self-regulation and suggesting that adolescents who keep secrets from parents are detached from them rather than independent. Frijns et al. (2005) propose that secrecy from parents may affect adolescents' sense of self-worth, emotions, actions, and control over themselves and their lives.

Individual trust, trust with peers, and academic success are also connected. Adolescents low in interpersonal trust are typically less confident, less popular, and more lonely (Mitchell, 1990). High school students trust has been found to be affected mainly by peer approval and personal accomplishment experiences (Amagai, 1999). Finally, relationships for minorities based on cultural principles of trust assist these adolescents in reaching developmental gains and academic success in school (Stanton-Salazar & Spina, 2005).

In terms of safety, safety can be thought of as encompassing feelings of security and containing elements of risk-taking behaviour. Broadly, safety and security includes the absence of injury and presence of safety-promoting behaviours and environments (Sleet & Mercy, 2003). Specifically, safety implies the absence of harm while security implies the absence from anxiety of harm. Safety and security needs change as children grow. From infancy through adolescence, the primary influences of safety are the family and home (Sleet & Mercy, 2003). However, not all children maintain these primary safety influences. Childhood abuse whether physical, verbal, or sexual more often than not occurs within familial relationships and within their own home.

In adolescence, the family context, parental attachment, and parental involvement continue to influence adolescents' feelings of safety and security, along with their risk-taking behaviours (Sleet & Mercy, 2003). A study examining parental attachment and supervision in 318 incarcerated adolescent males found those most attached to their parents felt safer in their environments and were less fearful of criminal victimization than those with weaker parental attachments (May, Vartanian, & Virgo, 2002). In terms of delinquency and risk-taking behaviour, adolescents are less likely to be delinquent and

to report having multiple sex partners when they interact more with their support network in the family context (Farrell, Bessel, Pan, & Barnes, 2001). On the opposite end of attachment, insecure relationships with parents has been linked to less functional behaviour with romantic partners, increasing adolescents' risk of sexually transmitted diseases and unwanted pregnancies (Donovan & Jessor, 1985).

Throughout adolescence, schools and peers, along with social bonds and personal protective practices, grow in their influence on safety even though the family and home environment remain crucial (Sleet & Mercy, 2003). In this way, relationships with not only parents but also with teachers, social workers, therapists, peers, etc. can all act as secure bases for adolescents (Bartick-Ericson, 2006). For example, these types of relationships provided experiences of emotional safety necessary to engage adolescents with disabilities or emotional disturbances in the challenges of their academic environment (Bartick-Ericson, 2006). High school students have also looked to teachers, counsellors, and administrators to help them deal with issues of sexual harassment at school (Selzer Boddy Inc. & Saydel Consolidated School District, 1994).

Increased autonomy in identity development while appropriate and necessary leads to increased exposure to all kinds of risks (Leffert & Petersen, 1996). Over the years, accidents, homicides, suicides, sexual activity, and substance use have all increased in adolescence (Leffert & Petersen, 1996). Engaging in risk-taking behaviour includes factors of adolescents' decision-making process. Affect along with experience in risky behaviour has been found to influence adolescents' decision-making for engaging in risk-taking activities (Caffray & Schneider, 2000). As adolescents gain more experience in risky activity, their motivation to engage in risky behaviour appears to stem

more from the enhancing positive affect of the experience than from reducing the negative deterrents. The opposite holds true for inexperienced adolescents; these adolescents focus more on avoiding negative consequences associated with regretting unfavourable future outcomes. Thus, adolescents with less experience in a risky activity may engage in risky behaviour when their social/emotional needs are high (Caffray & Schneider, 2000).

Parental and family connectivity remain key protective factors in adolescent health and elements essential for safety promotion (Johnson & Roberts, 1999; Sleet & Mercy, 2003). Additional elements include adolescent involvement with pro-social peers, building friendships, and developing a sense of identity (Sleet & Mercy, 2003). Although increased autonomy leads to increased exposure to risks (Leffert & Petersen, 1996), Sleet and Mercy (2003) highlight the importance of risk-taking for healthy adolescent development. Risk-taking enhances learning through opportunities for children to test their personal limits and increase their adaptation to their environment. As such, promoting safety and security is not to eliminate all risks but rather to "minimize, manage, and control risk exposure and outcomes" (Sleet & Mercy, 2003, p. 92).

Nature of the Internet

Greenfield and Yan (2006) argue that understanding adolescents on the Internet needs to expand beyond its effects, uses, and gratifications to consider how adolescents developmentally construct their online environment. Greenfield and Yan (2006) propose required directions in understanding adolescents' developmental constructions. First, the Internet requires recognition as a new social environment that adolescents participate in to address universal adolescent developmental issues such as identity, sexuality, and a

sense of self-worth. In this way, adolescents are co-constructing their own environments – the online environment is not understood as doing something to adolescents. Second, the Internet requires recognition as a cultural tool kit. It is a culture in which norms are developed, shared, and transmitted to other users. This culture constantly changes with the creation of new norms by new users as technology advances and access increases. It is also a tool kit because it offers an infinite series of applications, each with its own use and ability to use for good or bad purposes. Third, the Internet requires recognition as a new object of cognition that is neither concrete nor visible but rather an enormous virtual complex network of networks with great technological and social complexity. The Internet becomes a "hybrid of artifactual (e.g., computer screens and keyboards), social (e.g., communications with people), and mental-like systems (e.g., invisible virtuality)" (p.393) with layers of complexity in each system that challenges both adolescents understanding of it and researchers understanding of adolescents online (Greenfield & Yan, 2006).

The Internet maintains certain features that assist adolescents in achieving their developmental tasks of building relationships and developing identity. These features include anonymity (McKenna, Green, & Gleason, 2002), interactivity, accessibility, and connectivity (Maczewski, 2002; Suzuki & Calzo, 2004). Anonymity particularly provides an opportunity for building trust (Hardey, 2002) and an opportunity to reduce the risks of general relationship disclosure such as the fear of disapproval from those in one's social circle (McKenna et al., 2002). Interactivity, accessibility, and connectivity offer adolescents a resource they would not otherwise have and enables them to create and explore powerful relations and interactions (Maczewski, 2002; Suzuki & Calzo, 2004).

Wolak, Mitchell, and Finkelhor (2003) suggest that one of the most appealing aspects of the Internet for adolescents may be the development of online relationships. Viewed from a developmental perspective, this interest stems from adolescents increasing interest and need to successfully form relationships in this developmental stage. The Internet offers adolescents the ability go expand their opportunities for relationship development outside their normal social environment of family, school, and community (Wolak et al., 2003). The Internet also offer the absence of "gates" that are defined as restrictions such as physical appearance, social anxiety, stuttering, etc. common in offline interactions that can impede the development of relationships (McKenna et al., 2002). The absence of these restrictions online allow for greater disclosure. Furthermore, because relationships in general tend to develop with others who share similar interests, the Internet allows users to quickly establish relationships by entering interactions with those whom they already know have similar interests (McKenna et al., 2002).

Research supports adolescents' use of the Internet to develop relationships. Of adolescents in their research, Wolak et al. (2003) found 14% of adolescents had close online friendships and 2% had romantic relationships. Girls were twice as likely to form close associations if they were between the ages of 14 – 17. Of the close associations, 59% originated in chat rooms developed by common interests and two-thirds to three-quarters were with the opposite sex, indicating a predominance of opposite-sex relationships online compared to a predominance of same-sex relationships in offline contexts (Wolak et al., 2002). Several established relationships were also with adults. Wolak et al. (2002) propose that adult contacts serve as opportunities to meet helpful

people who can offer advice and companionship; however, most of adolescents' associations were with people of similar age. Some positive aspects of developing online relationships include the source of support that they offer adolescents who are troubled or have poor relationships with their parents and the alternate means of building relationships for adolescents who may have trouble in face-to-face interaction (Wolak et al., 2003).

The Internet and online relationship development can further assist adolescents in overcoming social issues and increasing their development of self. Positive online interactions have been found to increase adolescents' sense of self (Maczewski, 2002) and assist them in overcoming shyness and introversion (Mesch, 2001). Female adolescents with more online relationships report higher levels of self-esteem and lower levels of loneliness than females with fewer online relationships (Donchi & Moore, 2004). Characteristics of adolescents also play a role. Adolescents who feel relatively lonely or socially anxious at school on a daily basis (Gross et al., 2002) and adolescents who maintain high levels of conflict with parents, low levels of communication, or who are highly troubled are more likely to communicate online in search of intimacy and closeness and to establish close online relationships (Wolak et al., 2003). McKenna et al. (2002) suggest that the Internet can assist people in overcoming some of their social issues through the formation of new, close, and meaningful relationships in a relatively nonthreatening environment. The incorporation of online relationships into offline lives for socially anxious and lonely individuals increases their offline social circle while at the same time assists in decreasing social anxiety and loneliness (McKenna et al., 2002). This supports attachment theory, which suggests that adolescents' perceptions of attachment

relationships to parents and peers predict the expansion of friends into their attachment circles (Nickerson & Nagle, 2005).

There are overriding benefits of using the Internet to establish online relationships. Online relationships can facilitate the development of romantic relationships, improve chances of finding an optimal partner, facilitate the development of relationships based on attachments and not physical appearance, and improve interpersonal communication skills (Freeman-Longo, 2000). Overall, the Internet and online communication domains offer adolescents multiple ways of creating, practicing, experiencing, maintaining, and negotiating social relationships necessary for their development (Robbins, 2001; Subrahmanyam et al., 2001; Subrahmanyam, Greenfield, & Tynes, 2004; Wolak et al., 2003).

Researchers further support the use of the Internet for identity development (Calvert, 2002; Gross, 2004; Huffaker & Calvert, 2005; Maczewski, 2002; Robbins, 2001; Subrahmanyam et al., 2004; Subrahmanyam, Smahel, & Greenfield, 2006). Adolescents explore their identities and sense of selves through their virtual interactions and online spaces (Maczewski, 2002). Such spaces include bulletin boards (Suzuki & Calzo, 2004), blogs (Huffaker & Calvert, 2005; Huffaker, 2004), chat rooms (Subrahmanyam et al., 2004; Subrahmanyam et al., 2006), instant messaging, and personal Web pages (Spears et al., 2001), all of which offer adolescents means to exercise their voices (Huffaker, 2004).

Suzuki and Calzo (2004) investigated the use of bulletin boards addressing adolescent health and social issues. The types of questions most frequently posted and viewed by adolescents reflected interests and concerns regarding their changing physical,

emotional, and social selves. In this way, bulletin boards prove to be a valuable forum for personal opinions, actionable suggestions, concrete information, and emotional support that allow adolescents to candidly discuss sensitive topics such as interpersonal relationships and sexuality (Suzuki & Calzo, 2004). Blogs have been used for similar purposes. Half of bloggers in Huffaker's and Calvert's (2005) research discussed developmental issues relating to Erikson's psychosocial development theory in developing identities and mature intimate relationships such as sexual identity, love relationships, boyfriends/girlfriends, and crushes. Homosexuality discussions were also an important topic, particularly among males. Huffaker and Calvert suggest that coming out online offers a means for adolescents to accept their sexuality and perhaps make connections with others in similar situations that would otherwise not be available in offline worlds.

Chat rooms are another means of constructing sexuality and identity (Subrahmanyam et al., 2004; Subrahmanyam et al., 2006). More than half of adolescents in chat rooms provide their age, sex, and location and experiment with nicknames all of which convey identity information and allow identity exploration (Subrahmanyam et al., 2006). Young adolescents tend to provide more identity information while older adolescents more often explore sexuality issues. These results support Erikson's (1959) theory that younger adolescents are more concerned with individual identity and older adolescents with sexual identity. Using the Internet for sexual purposes typically begins around 16 years of age and offers users a means of entertainment and sexual gratification and a means to seek online romantic and sexual partners and increase offline sexual exploration (Boies, 2002). Choices of identity whether expressed explicitly in adolescents

description of self or implicitly through nicknames offer a means for them to pair up with one another (Subrahmanyam et al., 2004).

Instant messaging and Web pages are simply alternate means of self-expression and learning (Spears et al., 2001). Approximately one quarter of Canadian adolescents have a personal Web site and more than half of adolescents turn to the Internet daily to explore personal interests. Directly related to identity exploration, 52% of adolescents have pretended to be a different age, 26% a different personality, 24% having abilities and skills they do not have, and 23% a different appearance (Spears et al., 2001). Often, adolescents are motivated to pretend by desires to play jokes on friends; however, adolescents use a range of pretending content, contexts, and motives (Gross, 2004). Role-playing is an activity available to adolescents on the Internet in attempt to experiment with and construct a coherent, unified identity (Calvert, 2002).

The Internet offers a new means of addressing old adolescent issues (Subrahmanyam et al., 2004). Talking about relationships and sexuality are important in adolescent development (Devrome, 1997). Adolescents often experience confusion about love in terms of what love is, being in love, and ever experiencing love. In terms of sexuality, adolescents view sexuality as both natural and mysterious laden with tension, anxiety, and insecurity in relation to bodily changes and attraction to potential partners. Considering that discussions of sexuality occur most often in secret with same-aged peers (Devrome, 1997), the many features of the Internet offer an alternate resource and unparalleled opportunity for adolescents to explore the world, increasing their potential for knowledge to learn about human behaviour and explore their sexuality (Longo, Brown, & Orcutt, 2002). Overall, the Internet affords a relatively safe place to discuss

embarrassing issues such as sexuality, to practice with and experience new relationships, and to experiment with different identities whether fantasy or realistic aspects of identity (Subrahmanyam et al., 2004).

Adolescents online are creating their own culture (Greenfield, 2004a, 2004b; Greenfield & Subrahmanyam, 2003; Greenfield & Yan, 2006; Merchant, 2001; Subrahmanyam et al., 2004). They develop norms (Greenfield & Yan, 2006) and co-construct important features of discourse, such as participant identity and characteristics and relevant utterances as a means of engaging in coherent communication (Greenfield & Subrahmanyam, 2003). Thus, adolescents are not targets of adult Internet creations but are active participants in creating their own cyber-cultures (Greenfield, 2004a) and in exploiting the possibilities of digital technology (Merchant, 2001). Because adolescents are choosing their media and peers, they are in control of their socialization processes rather than being controlled by socialization pressures that typically stem from families and schools (Subrahmanyam et al., 2004).

However, the Internet is a paradox. For example, although forming relationships online has advantages for adolescents, there are some possible negative consequences, particularly if adolescents are experiencing social difficulties in offline relationships or are troubled and rely too heavily on online relationships for fulfilment (Wolak et al., 2003). Wolak et al. (2003) propose that troubled adolescents can find online relationships full of complications if they already feel isolated from offline peers. There is also a decreased likelihood of adolescents receiving good advice and feedback from their regular social networks, an increased likelihood for having unsatisfying online

relationships, and an increased amplification of alienated feelings if they are forming relationships with other troubled youth (Wolak et al., 2003).

Furthermore, although exploring sexuality online maintains developmental benefits (Barak & Fisher, 2002), sexual content online can influence sexual violence, sexual attitudes, moral values, and sexual activity of adolescents (Greenfield, 2004b). Barak and Fisher (2002) suggest that healthy development of sexuality can occur online if content is age-appropriate and non-traumatic such as chats about sex and intimate relationships. Sexual exploration is healthy only if it leads to the fulfilment of appropriate sexual needs rather than primarily nonsexual needs such as a means to tolerate negative feelings, a means to compensate for feelings of emptiness, or a means to develop a sense of pseudointimacy (Longo et al., 2002).

Inherent challenges of sexual relationships online include the fact that they are not based in reality; adolescents apply their own desires and perspectives onto the relationship distorting reality (Freeman-Longo, 2000). Adolescents can continue to seek higher levels of excitement as current levels of gratification decrease leading to the possibility of earlier real-life sexual experiences and of increasing adolescents' sexual drive further leading to sexual compulsion and sexual addiction (Freeman-Longo, 2000). There are also developmental concerns of the kind of messages adolescents internalize from reviewing chat room conversations on topics of sexuality, which often degrades women and focuses on physical acts rather than emotional meaning (Greenfield, 2004a). Developmentally, such exposure can lead to disinhibition in the areas of sexuality, aggression, and race relations, to early sexual priming, and to the development of constructs and models for women, racism, homophobia, and the like. The anonymity of

the Internet that supports identity exploration and development can result in a lack of personal and social responsibility of these above concerns (Greenfield, 2004a).

Internet Safety and Trust

Considering all the benefits of the Internet for adolescents, there still exists an element of risk and potential harm (McColgan & Giardino, 2005). As a risk, sexual solicitation and exploitation of adolescents on the Internet is society's biggest concern. The activities adolescents engage in for their developmental use put them at great risk for solicitation. Using the Internet frequently, participating in chat rooms, talking to strangers (Mitchell et al., 2001), disclosing personal information, engaging in threatening or sexually suggestive communication, and engaging in offline meetings have all been identified as risk factors for harm and/or solicitation (Berson & Berson, 2005). Personal characteristics of adolescents themselves can also put them at an increased risk for sexual solicitation. Adolescent girls and adolescents who are troubled (Mitchell et al., 2001), isolated, secretive (Wolak et al., 2002), depressed (Ybarra, Leaf, & Diener-West, 2004), and/or lonely (Wolak et al., 2004) are at an increased risk for sexual solicitation. Wolak et al. (2004) also found an increased risk for gay or questioning adolescent boys and for adolescents who have poor relationships with parents.

From an attachment perspective, adolescents turn to the Internet for guidance and support particularly if they are dependent, insecure, frightened, evasive, and have difficulties opening up to parents regarding their fears, worries, and sorrows (Becker & Mayer et al., 2004). However, adolescents alienated from their parents have an increased vulnerability to online exploitation and solicitation (Wolak et al., 2003). One of the reasons these adolescents are at an increased risk is because they tend to engage more

frequently in high risk taking activities such as using chat rooms (Beebe, Asche, Harrison, & Quinlan, 2004; Mitchell et al., 2001), disclosing personal information online (Ybarra et al., 2004), and chatting with strangers (Gross et al., 2002).

It is important to note that adolescents do not have to be troubled or have poor relationships with parents in order to be at risk for solicitation. Any adolescent engaging in online communications with others is at risk. Adolescents social interaction typically occurs in private settings, such as email and instant messaging (Gross, 2004) and it is estimated that up to three-quarters of seventh through tenth graders have had contact with a stranger via e-mail or chat room (Stahl & Fritz, 2002) }. As much as 25 (Stahl & Fritz, 2002) to 59% of adolescents have been found to disclose personal identifying information and 12 (Berson & Berson, 2005) to 21% to engage in offline meetings (Spears et al., 2001). Typically, a higher number of offline meetings occur with associations who are referred to adolescents by family and friends, who live in the vicinity, or who are known to adolescents' parents (Wolak et al., 2002) but still many occur with strangers (Wolak et al., 2004).

Mediating factors, although small in influence, have been deemed important for reducing the sexual solicitation risk of adolescents on the Internet (Berson & Berson, 2005). Factors include the direct supervision of adolescents' Internet activity, periodic monitoring, education, and discussions with parents/teachers (Berson & Berson, 2005). Many households do maintain rules for Internet use (Spears et al., 2001). Spears et al. (2001) found 74% of households have rules for offline meetings, 70% for Web sites not to visit, 69% for giving out personal information, and 69% for informing parents of uncomfortable experiences. However, research is contradictory as to whether household

rules are influential. Although Spears et al. found rules helpful for reducing adolescents' risky behaviour other researchers have not (Gross et al., 2002) and instead found large discrepancies between adolescents' and parents' reports of rules for computer and Internet use (Lauman, 2002; Lenhart et al., 2001).

Large discrepancies also exist between adolescents' and parents' reports of parental monitoring and supervision (Lenhart et al., 2001). Mitchell et al. (2003) propose that parents may feel a need to report higher levels of monitoring and supervision than they actually perform. Overall, Spears et al. (2001) found 13% of parents monitor their children while online. Nine percent of adolescents reported adult supervision of their Internet use of only 10% of their online time (Stahl & Fritz, 2002). Furthermore, Internet discussions with adults are variable. Spears et al. (2001) found little in-home discussions on Internet use between grade 7 through 11 students and their parents. Less than half discussed protecting privacy (39%), porn sites (22%), and sexual harassment (18%) in the previous year (Spears et al., 2001). Bearson, Berson, & Ferron (2002) on the other hand found 70% of adolescents had safety discussions with parents and 35% with teachers. Discussions and supervision are deemed important because they reduce the odds of adolescents engaging in risky behaviours online (Berson et al., 2002; Spears et al., 2001).

The same features of the Internet that offer adolescents attachment and identity development opportunities also allow predators a venue for scanning and selecting their victims (Dombrowski, LeMasney, Ahia, & Dickson, 2004). Chat rooms offer a venue for predators to scan for adolescent vulnerability suggested through their screen names. Adolescents' personal Web sites, along with trojan and worm viruses, allow predators a means of extracting personal information. Other technology offers predators a chance to

"eavesdrop" on online conversations, allowing them to gain access to information such as victims' personal interests and emotional states used to help establish quick connections. The Internet simply increases predators' access to countless victims and provides a means to engage them in what is known as the grooming process.

The grooming process used by predators is an attempt to gain victims affection, interest, and trust through kind words and deeds (Dombrowski et al., 2004). Considering this process, a majority of online predators take their time in developing relationships with their victims (Wolak et al., 2004). Simultaneously, predators attempt to normalize sexual activity through desensitizing victims to sexual content (Dombrowski et al., 2004). Email, chat, and presentation of pornography are often used in grooming. Research has found that 80% of offenders discuss sexual topics, 20% engaged in cybersex, and 18% send sexual pictures (Wolak et al., 2004). Threats and coercion often follow sexual advances in attempts to conceal abuse, and once relationships are solidified, predators may attempt face-to-face contact (Dombrowski et al., 2004).

Because adolescents maintain a strong desire for attention, validation, and acceptance, they find the actions of unbeknownst predators appealing (Dombrowski et al., 2004). The heightened aspects of these desires in troubled adolescents makes them increasingly vulnerable to solicitation online; maladjusted children who lack support systems in their lives are considered to be especially vulnerable to the attention and affection offered by perpetrators (Dombrowski et al., 2004). There are also those adolescents known as "compliant" or "statutory" victims of online sexual solicitation (Wolak et al., 2004). These adolescents actively cooperate and develop strong emotional and sexual bonds with offenders. Wolak et al. (2004) found 83% of these victims who

met offenders offline went willingly somewhere with them, including riding in offenders' cars, going to offender's homes and/or going to hotels (Wolak et al., 2004). Furthermore, 41% reported spending at least one night together with the offender, 52% reported meeting the offender more than once, and 20% reported living with their offender for a short time together. Reoccurring meetings with offenders typically occur within 6 months of initial offline meeting (Wolak et al., 2004).

When solicited online, feelings of embarrassment, fear (Berson & Berson, 2003), and/or guilt (Mitchell et al., 2001) may prevent adolescents from coming forward and telling someone about the incident. This can cause a lot of distress for adolescents (Mitchell et al., 2001). Moreover, families do little to address the unpleasant experiences of online sexual solicitation (Finkelhor, Mitchell, & Wolak, 2000). Part of the challenge is that a majority of parents and adolescents are unaware of where to report such incidents (Mitchell et al., 2001).

Purpose of the Study

Developmentally, attenuating risk does not begin until middle-childhood and it continues through adolescence (Berson & Berson, 2005). Berson and Berson (2005) propose theories to address attenuating risk in adolescence. First, adolescents' disposition/personality traits of sensation seeking and self-esteem minimize and distort the potential for harm. Second, adolescents may engage in learned behaviour stemming from poor interactions in their family systems. Third, adolescents' lack of experience leads to error in the judgement of risk. Fourth, adolescents' sense of invulnerability leads to failure to consider risk and act in deliberate ways. Fifth, adolescents fail to categorize

actions within moral domains of behaviours. These theories suggest that adolescents emphasize personal gain over safety for self and others (Berson & Berson, 2005).

The inability to attenuate risks makes adolescents particularly vulnerable to online solicitation (Berson & Berson, 2005). Adolescents struggle with an onslaught of information from the Internet, which over stimulates their impulsive and emotional responses. This process occurs without the necessary physiological and critical thinking cues. Too much demand on adolescents' cognitive resources reduces their capacity to engage in thoughtful decision-making and diminishes adolescents' ability to make sense of what the Internet presents to them or their ability to respond appropriately. Consequently, adolescents cannot readily perceive threats or create barriers against harm (Berson & Berson, 2005).

The methods that online predators use to pursue their criminal interests and activities will continue to evolve as technology evolves (McColgan & Giardino, 2005). Although some adolescents adhere to basic safety rules, there are still concerns for those who do not (Wolak et al., 2002). A substantial number of adolescents see no need for adult supervision (Stahl & Fritz, 2002) and most adolescents feel safe on the Internet even though they engage in risky activities (Lauman, 2002). Perhaps they feel safe because they do not perceive offenders as strangers considering the extensive communications that typically occur before engaging in risky behaviours (Wolak et al., 2004). Research further finds that offenders do not generally deceive victims about being older and interested in sexual relationships and most offenders do not use force or coercion to engage victims in sexual activities (Wolak et al., 2004). Are adolescents aware that what they may be doing online is risky and furthermore illegal?

In spite of the growing research on adolescents' safety on the Internet, research has not specifically measured their Internet safety knowledge. Safety and well-being in any activity normally focuses on prevention in the form of education. The assumed principle at the centre of safety prevention is that the more we know about our activity or the environment of our activity, the more we will engage in practices that reduce our risk for harm. Use of the Internet is expected to follow this same principle; if adolescents know about the risks posed to them when in the online environment, they should do what is necessary to reduce their risk for harm. The extent of adolescents' Internet safety knowledge is an important consideration for determining whether adolescents are fully aware of the risks to them. Online trust levels also become relevant, as creating trust is the path predators take in building relationships and because adolescents maintain a strong desire for attention, validation, and acceptance (Dombrowski et al., 2004). If adolescents retain these strong desires and feel safe on the Internet regardless of risky activities (Lauman, 2002), do adolescents easily trust others online? Understanding adolescents Internet safety knowledge and online trust levels can help to determine whether these factors influence when adolescents engage in risky behaviours online.

Concern for adolescents' safety on the Internet involves both the disclosure of identifying information online to others and the engagement in offline meetings. The anonymity of the Internet protects users online and makes verifying disclosure of information challenging. Anyone can say anything and be anyone they wish. This is the greatest benefit to predators online. The challenge for adolescents is that they apply their own perspectives and desires onto online relationships (Freeman-Longo, 2000) and thus they can never be fully certain that the person on the other end of the keyboard is who

they say they are. Developmental considerations are further important considering the growth between early and late adolescents in their interpersonal relationship, identity, and cognitive development. Thus, this research examines grade 7 and grade 10 adolescents' Internet safety knowledge, online trust levels, disclosure of personal information online, and engagement in offline meetings. Specifically, the following research questions addressed by this study are:

1. What are the Internet demographics of this population?
2. How much Internet safety knowledge do adolescents have?
3. How trusting are adolescents online?
4. How early do adolescents disclose personal information online?
5. What impact does an online contact's gender have on adolescents timing of disclosing personal information online?
6. How early do adolescents engage in offline meetings with others they meet?
7. What impact does an online contact's gender have on adolescents timing of offline meetings?
8. How much do adolescents' Internet safety knowledge, online trust, and gender affect when they disclose personal information online to others?
9. How much do adolescents' Internet safety knowledge, online trust, and gender affect when they engage in offline meetings with others they meet online?

CHAPTER III

Methods

The purpose of this study was to investigate adolescents' Internet safety knowledge, levels of online trust, timing of personal information disclosure online, and timing of offline meetings. The effects of Internet safety knowledge and online trust levels were further examined as predictors of adolescents' timing of personal information disclosure online and timing of offline meetings. In this chapter, I provide details on the participant sample, research materials, and research procedure while providing operational definitions necessary for the completion of this study.

Participants

From January to December 2005, all grade 7 and grade 10 students (N = 639) within a school district in Parkland County, Alberta were invited to participate in this study. The total response rate was 47% (n = 302). Response rates were greater for grade 7 students (53% or n = 213) than for grade 10 students (38% or n = 89). Five participants were removed from this study because of incomplete information – two grade 7 students did not report their gender while another two students in grade 7 and one student in grade 10 did not fully complete either the online trust or personal information disclosure scale. This resulted in 209 grade 7 and 88 grade 10 adolescents ranging in age from 11 to 17 years old participating in this research. Of the grade 7 students, 93 were males and 116 were females. Included in the grade 10 sample, 53 were males and 35 were females.

Measures

The questionnaire used in this research was adapted from a pilot research project investigating safety, trust, personal information disclosure online, offline meetings, and other variables in undergraduates at the University of Alberta (Peske, 2004). Included in the questionnaire are demographic questions, a safety quiz, an online trust measure, an online personal disclosure measure, and a measure of offline meetings (see Appendix A). Demographic questions targeted participants' age, grade, gender, Internet access, weekly amount of time spent on the Internet and frequented online domains. Domains consist of areas/activities on the Internet such as email, chat rooms, gaming rooms, Instant Messaging, etc.

Internet safety quiz. Internet safety knowledge refers to the extent of information known to adolescents that contributes to their sense of security and protection while engaging in online activities. Known facts regarding online precautions and safekeeping issues are part of what constitutes Internet safety knowledge. An Internet safety quiz measured the amount of participants' Internet safety knowledge. Questions for the quiz were researched online and compiled from various organization and government Web resources (Peske, 2004). Items addressed Internet safety included Internet knowledge, practices, and beliefs. Questions targeted: (a) basic knowledge, such as whether or not Web sites can legally ask for information from children under age 13; (b) online practices, such as whether or not you should respond to a threatening email; and (c) online beliefs, such as whether someone on an email "buddy list," "friends list," or "contact list," is someone who can be trusted. The quiz was presented in a multiple-choice format to quantify participants' online safety understanding. The scores

participants obtained on this 16-item quiz represented the amount of their Internet safety knowledge.

Online trust scale. A scale developed as part of a senior level undergraduate psychometrics course measured online trust using a 5-point likert scale ranging from strongly disagree to strongly agree. Items included online trust related activities such as sharing accurate information online, using false names online, and opening emails and attachments. Validated against users' self-report of their online trust levels, the original online trust measure obtained a Cronbach's alpha of .858 (Peske, 2004). The original 26-item scale was reduced to 20 items because six items contained an adult nature not applicable to adolescents such as shopping and using credit card information online. The reduction of items on the scale resulted in a new Cronbach's alpha of .814. With the possibility of scores ranging from 20 to 100, higher scores represented higher levels of online trust.

Online disclosure scale. The timing of personal information disclosure online entails the sharing of identifying information with someone an adolescent has met online. Early personal disclosure online indicates that adolescents quickly divulge personal information. There is very little withholding of personal information, if any at all. On the other hand, adolescents may never disclose personal information online. The timing of personal information disclosure online is a scale that accounts for when adolescents disclose personal information online. This variable was measured using participants self-report of when they engage in different types of personal self-disclosure. Participants responded to list of differing types of personal identification items that included first name, full name, age, gender, email address, telephone number, general location of their

residence, and home address. Participants indicated how soon they self-disclosed these personal identification items separately based upon their perception of whether they believed their conversational partner to be of the same gender or opposite gender as them. A 5-point likert scale quantified participants' responses based on the number of conversations they engaged in with someone. The scale ranged from "right away" to "never" with a breakdown in the number of conversations in between: 1-4 conversations, 5 – 10 conversations, and 11+ conversations. Participants' responses to the different types of personal identification items are totalled and range from 0 to 40 for each gender – whether they believe the person in their conversation to be of the same or opposite gender. The lower a participant's total, the earlier they tended to disclose personal information.

Offline meeting scale. The timing of offline meetings was measured using a 5-point likert scale and a question inquiring about how many conversations would take place before the participant expected to meet someone in an offline setting. Again, both same and opposite gender distinctions of online partners were made. Thus, participants' totals for offline meetings can range from 0 to 4 for each gendered partner and 0 to 8 without gender distinction.

Procedure

An ethics application was completed and submitted to the University of Alberta Faculties of Education and Extension Research Ethics Board (EE REB) (see Appendix B). Upon ethics approval from the University of Alberta and permission granted from the superintendent of the school district, principals from each of the schools within the district were contacted for permission to conduct research in their individual schools.

Grade 7 and grade 10 teachers were then provided with research information and consent forms to hand out to students. Because the potential participants were minors, students took home consent forms and obtained a parental signature to signify parental approval for their participation. Teachers collected and verified the consent forms, organizing the participation of their students in this research project. The teachers and researcher collaboratively set up dates of convenience for the researcher to administer the questionnaire at which time teachers called upon students with parental consent and assigned them to specified sections of their computer lab. Teachers then provided the researcher with the consent forms for safekeeping.

Before completing the online questionnaire, the researcher informed participants about the purpose of the research. The researcher indicated that the study explored how youth interact with others on the Internet and develop relationships online. Participants were informed of their voluntary right to participate and their right to withdraw at any time without any consequences of them doing so. The protection of participants' confidentiality and anonymity was outlined and discussed along with the procedures of taking the questionnaire, including how to navigate the survey and providing permission for participants to ask any questions throughout.

Participants were instructed to access the online questionnaire by typing in a secure University Web site address that was password-protected. Participants were unable to begin the questionnaire until the researcher personally typed in the password for each participant at individual computer stations. When entering the password individually to participants, the researcher obtained participants' verbal assent. If a student did not provide verbal assent, they worked on regular class exercises or

homework with other non-participating students as instructed by their teacher. In general, participants did not participate in the research if they did not have parental consent, if they did not provide verbal assent, or if they were absent on the day of administrating the questionnaire. Teachers provided participating students with direction for alternate work upon completing the questionnaire as the time allotment for the questionnaire did not require a full class. While participants were engaged in taking the questionnaire, the researcher was available to answer questions, to debrief, to thank participants for their participation, and to ensure that participants appropriately submitted their responses and logged off the Internet. Simultaneously, the teacher was available to assist non-participating students in completing alternate work.

Data Preparation

The survey responses from participants were pooled and stored in a secure data file on the researcher's personal University of Alberta Web space. The data was downloaded and transferred into the Statistical Program for the Social Sciences (SPSS) for data analysis. Participants with incomplete information on the pertinent scales were deleted and major variable totals were computed. The total of participants' Internet safety knowledge was computed by dividing the number of right responses by the total number of items. All other variables were averaged by dividing the total sum of individual items by the number of items in the scale. In the following chapter, I discuss the data analyses used for examining the variables and questions in this research.

CHAPTER IV

Results

In this chapter, I provide a detailed description of the statistical analyses of the data collected for the study. Descriptive statistics first examine Internet demographics. Next, a series of T-tests and ANOVAs compare grade and gender across all variables (Internet safety knowledge, online trust, the timing of personal information disclosure online and the timing of offline meetings). Regression analyses conclude this chapter and investigate Internet safety knowledge, online trust levels, and gender as predictors of the timing of personal information disclosure online to others and the timing of offline meetings.

Research question #1: What are the Internet demographics of this population?

From this sample, 92.6% (n = 275) of participants indicated having access to the Internet at home. In terms of grade level, 91.9% (n = 192) of grade 7 participants reported having home Internet access compared to 94.3% (n = 83) of grade 10 participants.

Grade 7 participants reported spending less time on the Internet for fun (M = 6.19 hours per week) compared to grade 10 participants (M = 7.45 hours per week). Conversely, grade 7 participants reported spending more time on the Internet for school (M = 4.48 hours per week) compared to grade 10 participants (M = 2.27 hours per week).

Table 1 outlines a grade and gender break down of the use and reported amount of time spent within each domain. The majority of participants reported frequenting email, gaming rooms/software, instant messaging, and audio/video conferencing domains more often than other domains. Participants reported use of "other" domains included surfing the Internet, downloading and/or listening to music/videos, and visiting particular

Web sites of interest. Instant messaging is the domain where the majority of participants spend most of their time online followed by gaming rooms/software and other activities, such as surfing the Internet or visiting favourite Web sites.

Gender differences indicate that although there are higher percentages of grade 10 males and females that use instant messaging, grade 10 males and grade 7 females spend the most time engaging in instant messaging. Grade 10 males and grade 7 females also spend the most time using audio/video conferencing, chat rooms, email, and "other" domains. When it comes to gaming domains, males use gaming features more often than females regardless of grade. Furthermore, the percentage (22.9%) of grade 10 females using and amount of time in (3.16 hours per week) online personals was substantially higher compared to other participants' percentages (1.7 – 6.5 %) and times of less than one-half hour per week (0 – 0.33 hours per week).

Table 1

Percentages and Weekly Hours of Grade 7 and Grade 10 Males and Females in Online Domains

Online Domain	Grade 7		Grade 10	
	Males	Females	Males	Females
	Percentages			
Audio/Video Conferencing	39.8	37.1	45.3	51.4
Bulletin Boards	18.3	14.7	26.4	22.9
Chat Rooms	23.7	22.4	28.3	20.0
Email	53.8	82.8	86.8	85.7
Gaming Rooms/Software	90.3	81.9	86.8	54.3
Instant Messaging	50.5	71.6	84.9	88.6
Online Personals	6.5	1.7	5.7	22.9
Other	24.7	18.1	18.9	20.0
	Hours			
Audio/Video Conferencing	2.12	2.25	5.46	1.44
Bulletin Boards	1.29	1.23	1.78	1.16
Chat Rooms	2.13	3.10	4.23	1.92
Email	1.35	3.48	2.66	1.72
Gaming Rooms/Software	5.44	3.21	5.50	3.84
Instant Messaging	4.15	5.99	7.35	3.94
Online Personals	0.18	0.00	0.33	3.16
Other	4.47	5.13	4.91	3.26

Research question #2: How much Internet safety knowledge do adolescents have?

The overall average on the safety quiz was 69.4% with a standard deviation of 14.6 and a range from 25 to 100. When analyzed at the grade level, both grades yielded the same average (see Table 2) with no significant difference between grades $t(295) = 0.96$, $p = .923$ (two-tailed), indicating that grade 7 and 10 students share similar Internet safety knowledge. However, grade 7 students' safety knowledge varies more considering their range of scores (25 – 100%) compared to grade 10 students' scores (38 – 94%). Gender analysis found males Internet safety knowledge lower than females. With an alpha level of .05, grade 7 males safety knowledge was significantly lower compared to females, suggesting that grade 7 females know considerably more about Internet safety than their male peers (see Table 3). Although grade 10 males also scored lower on the safety quiz than grade 10 females, no significant differences arose.

Table 2

Summary of Internet Safety Knowledge Scores

Group	*N*	*M*	*SD*	*Minimum*	*Maximum*
Grade 7	209	.695	.148	.25	1.00
Males	93	.671	.162	.25	1.00
Females	116	.713	.134	.25	1.00
Grade 10	88	.693	.141	.38	.94
Males	53	.684	.138	.38	.88
Females	35	.707	.146	.38	.94

Table 3

T-Test Comparisons of Males' and Females' Internet Safety Knowledge Between and Within Grades

Group	*df*	*t*	*p*
	Between Grades		
Males	144	-0.476	.635
Females	149	0.255	.799
	Within Grades		
Grade 7	207	-2.074	.039*
Grade 10	86	-0.753	.454

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

Research question #3: How trusting are adolescents online?

Participants' responses on the scale for online trust resulted in a normal distribution with a $M = 50.19$ and a $SD = 10.40$. Table 4 breaks down grade and gender averages. Comparisons of trust levels indicate that students in grade 10 are more trusting online than students in grade 7, $t(295) = -6.68$, $p = .000$ (two-tailed). Males and females within their grade share similar levels of trust (see Table 5).

Table 4

Summary of Online Trust Levels

Group	*N*	*M*	*SD*	*Minimum*	*Maximum*
Grade 7	209	47.75	9.41	26	76
Males	93	48.40	9.82	26	72
Females	116	47.23	9.07	29	76
Grade 10	88	55.99	10.41	38	79
Males	53	55.42	10.59	38	79
Females	35	56.86	10.21	40	79

Table 5

T-Test Comparisons of Males' and Females' Online Trust Levels Between and Within Grades

Group	*df*	*t*	*p*
Between Grades			
Males	144	-4.034	.000**
Females	149	-5.341	.000**
Within Grades			
Grade 7	207	.889	.375
Grade 10	86	-.634	.528

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

Research question #4: How early do adolescents disclose personal information online?

Overall, participants' scores on the scale measuring personal information disclosure online suggest that 5 – 10 conversations typically take place before participants disclose personal information online. A further analysis of the types of personal information disclosed revealed that participants typically disclosed their gender much earlier than other types of identifying information (see Table 6). Participants waited considerably longer to reveal their phone number and home address.

Table 6

Percentages of Participants Disclosing Personal Information Online

	Number of Conversations				
Information Type	Immediately	1 - 4	5 - 10	11 +	Never
Gender	35.0	15.5	11.8	10.1	27.6
First Name	13.1	21.9	13.5	14.8	36.7
Age	14.5	17.8	17.5	12.2	38.0
Email	4.7	14.5	13.8	15.8	51.2
Home Vicinity	3.7	7.5	7.4	10.4	71.0
Full Name	1.7	6.7	8.8	10.1	72.7
Phone Number	0	2.3	7.8	10.4	79.5
Home Address	0	1.0	3.7	7.1	88.2

Note. $n = 297$

T-Tests were used to compare grade and gender differences in the timing of personal disclosure online. Results indicate significant differences between grades with

alpha = .01, $t(295) = 6.42$, $p = .000$ (two-tailed), suggesting that grade 10 participants disclose personal information earlier than grade 7 participants (see Table 7). Within grades, grade 7 males disclose personal information earlier than grade 7 females while grade 10 males and females share similar timing of online disclosure (see Table 8).

Table 7

Summary of the Timing of Personal Information Disclosure Online

Group	*N*	*M*	*SD*
Grade 7	209	51.62	12.97
Males	93	48.71	13.84
Females	116	53.96	11.77
Grade 10	88	41.13	12.63
Males	53	41.60	13.08
Females	35	40.40	12.07

Table 8

T-Test Comparisons of Males' and Females' Timing of Personal Information Disclosure Online Between and Within Grades

Group	*df*	*t*	*p*
	Between Grades		
Males	144	3.042	.003**
Females	149	5.937	.000**
	Within Grades		
Grade 7	207	-2.961	.003**
Grade 10	86	-0.435	.664

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

Research question #5: What impact does an online contact's gender have on adolescents timing of disclosing personal information?

Overall, participants disclosed personal information earlier to someone they perceived was of the opposite gender ($M = 23.62$, $SD = 7.89$) compared to someone they perceived was of the same gender ($M = 24.90$, $SD = 6.56$). Although both these averages suggest that between 5 – 10 conversations typically take place before participants disclose personal information online, the difference is statistically significant, $t(297) = 4.64$, $p = .000$ (two-tailed). When examining the types of personal information disclosure to same and opposite gender contacts, a general pattern emerges in which all types of personal identifying information is provided earlier to opposite gender contacts (see Table 9).

Table 9

Percentages of Participants Disclosing Personal Information Online to Same and Opposite Gender Contacts

	Number of Conversations				
Information Type	Immediately	1 - 4	5 - 10	11 +	Never
Same Gender Contacts:					
Gender	40.1	12.5	5.7	9.4	32.3
First Name	13.8	18.9	8.1	12.1	47.1
Age	16.8	16.2	9.1	8.1	49.8
Email	6.1	11.4	8.4	14.8	59.3
Home Vicinity	5.7	4.1	4.7	8.7	76.8
Full Name	1.7	6.0	3.7	6.1	82.5
Phone Number	0.0	2.0	3.1	6.7	88.2
Home Address	0.0	0.3	0.7	6.7	92.3
Opposite Gender Contacts:					
Gender	42.1	10.1	4.7	9.1	34.0
First Name	23.6	15.5	8.4	12.4	40.1
Age	23.9	14.8	8.1	10.4	42.8
Email	9.4	13.8	8.1	11.8	56.9
Home Vicinity	7.7	4.4	4.1	9.4	74.4
Full Name	6.7	6.1	3.7	8.1	75.4
Phone Number	3.0	3.0	3.0	8.8	82.2
Home Address	1.3	1.7	1.7	5.4	89.9

Note. $n = 297$

Grade and gender analysis revealed that disclosure to opposite gender contacts compared to same gender contacts was earlier for both grade 7 and 10 participants overall (see Table 10). Upon examining genders in each grade, both grade 7 and grade 10 males disclosed significantly earlier to opposite gender contacts than to contacts they believed were the same gender as them (see Table 11). The timing of grade 10 females' personal information disclosure was unaffected by the gender of their contacts while grade 7 females disclosed significantly later to the opposite gender.

Table 10

Summary of the Timing of Personal Information Disclosure Online to Same and Opposite Gender Contacts

		Same Gender Contacts		Opposite Gender Contacts	
Group	*N*	*M*	*SD*	*M*	*SD*
Grade 7	209	26.22	6.20	25.40	7.48
Males	93	25.71	6.30	23.00	8.36
Females	116	26.64	6.12	27.32	6.08
Grade 10	88	21.74	6.33	19.39	7.24
Males	53	22.42	6.48	19.19	7.80
Females	35	20.71	6.05	19.69	6.41

Table 11

Paired T-Test Comparisons of the Timing of Personal Information Disclosure Online to Same and Opposite Gender Contacts by Grade and Gender

Group	*df*	*t*	*p*
Grade 7			
Males	92	4.982	.000**
Females	115	-2.287	.024*
Grade 10			
Males	52	4.004	.000**
Females	34	1.950	.059

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

ANOVA statistical procedures examined between and within group differences of disclosures to same and opposite gender contacts. When comparing genders between grades, both grade 10 males and females disclosed significantly earlier to both types of contacts compared to their grade 7 counterparts (see Table 12). When comparing genders within grades, only grade 7 males disclosed significantly earlier to opposite gender contacts than did their female peers.

Table 12

ANOVA Comparisons of Gender Between and Within Grades on the Timing of Personal Information Disclosure Online to Same and Opposite Gender Contacts

Variable	*df*	*MS*	*F*	*p*
		Between Grades		
Males				
Same Gender Contact	1	366.44	9.045	.003**
Opposite Gender Contact	1	490.41	7.367	.007**
Females				
Same Gender Contact	1	943.47	25.329	.000**
Opposite Gender Contact	1	1566.64	41.295	.000**
		Within Grades		
Grade 7				
Same Gender Contact	1	44.48	1.157	.283
Opposite Gender Contact	1	962.84	18.660	.000**
Grade 10				
Same Gender Contact	1	60.98	1.530	.220
Opposite Gender Contact	1	5.21	.098	.755

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

Research question #6: How early do adolescents engage in offline meetings with others?

Overall, participants' scores on the scale measuring the timing of participants' offline meetings suggests that well over 11 conversations would take place before participants expect to engage in offline meetings. It is important to note that although this average exists, most participants indicated that they would never engage in offline

meetings. Table 13 presents the percentages of participants that would engage in offline meetings after a set number of conversations with contacts online. Grade 7 students comprise the small percentage of participants that would meet someone immediately or after only a few conversations.

Table 13

Percentages of Participants that Would Engage in Offline Meetings with Others Met Online

	Number of Conversations				
Group	Immediately	1 - 4	5 - 10	11 +	Never
Grade 7					
Males[a]	0.0	9.8	14.1	14.1	62.0
Females[b]	1.7	1.7	5.1	15.6	75.9
Grade 10					
Males[c]	0.0	0.0	7.7	23.1	69.2
Females[d]	0.0	0.0	2.9	37.1	60.0
Overall Total[e]	0.7	3.7	8.1	19.0	68.5

Note. One male in each grade did not indicate whether they would engage in offline meetings.
[a]$n = 92$. [b]$n = 116$. [c]$n = 52$. [d]$n = 35$. [e]$n = 295$

T-Tests were used to compare grade and gender differences in the timing of offline meetings. Results indicate that grade 7 and grade 10 participants are relatively similar in the timing of their offline meetings (see Table 14). There were also no gender differences between grades, suggesting that the timing of offline meetings is similar for

both males and females across grade level (see Table 15). Within grades, grade 7 males would meet someone offline earlier that their female peers would.

Table 14

Summary of Grade and Gender Timing of Offline Meetings

Group	*N*	*M*	*SD*
Grade 7	208	7.07	1.75
Males	92	6.74	1.93
Females	116	7.34	1.55
Grade 10	87	7.32	1.05
Males	52	7.31	1.15
Females	35	7.34	0.91

Note. One male in each grade did not indicate whether they would engage in offline meetings.

Table 15

T-Test Comparisons of Males' and Females' Timing of Offline Meetings Between and Within Grades

Group	*df*	*t*	*p*
Between Grades			
Males	142	-1.941	.054
Females	149	-0.024	.981
Within Grades			
Grade 7	206	-2.478	.014*
Grade 10	85	-0.1.52	.879

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

Research question #7: What impact does an online contact's gender have on adolescents timing of offline meetings?

Overall, participants reported that they would meet someone of the opposite gender ($M = 3.52$, $SD = 1.00$) earlier than they would meet someone of the same gender ($M = 3.63$, $SD = 0.75$); however, grade and gender comparisons indicate that only grade 7 males would engage in offline meetings significantly earlier with opposite gender contacts (see Table 16 and Table 17). The timing of offline meetings for both genders in grade 10 and along with grade 7 females is unaffected by the perceived gender of their online contacts.

Table 16

Summary of Grade and Gender Timing of Offline Meetings with Same and Opposite Gender Contacts

		Same Gender Contacts		Opposite Gender Contacts	
Group	*N*	*M*	*SD*	*M*	*SD*
Grade 7	208	3.62	0.85	3.46	1.12
Males	92	3.57	0.80	3.17	1.35
Females	116	3.66	0.85	3.68	0.85
Grade 10	87	3.67	0.54	3.66	0.59
Males	52	3.69	0.54	3.62	0.66
Females	35	3.63	0.55	3.71	0.46

Note. One male in each grade did not indicate whether they would engage in offline meetings.

Table 17

Paired T-Test Comparisons of the Timing of Offline Meetings with Same and Opposite Gender Contacts by Grade and Gender

Group	*df*	*t*	*p*
Grade 7			
Males	91	3.415	.001**
Females	115	-0.403	.688
Grade 10			
Males	51	1.428	.159
Females	34	-1.139	.263

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

ANOVA statistical procedures examined between and within group differences of offline meetings with same and opposite gender contacts. Results indicate that grade 7 males would engage in offline meetings significantly earlier with opposite gender contacts when compared to grade 10 males and when compared to their grade 7 female peers (see Table 18).

Table 18

ANOVA Comparisons of Gender Between and Within Grades on the Timing of Offline Meetings with Same and Opposite Gender Contacts

Variable	*df*	*MS*	*F*	*p*
		Between Grades		
Males				
Same Gender Contact	1	0.54	1.034	.311
Opposite Gender Contact	1	6.48	4.903	.028*
Females				
Same Gender Contact	1	0.02	0.031	.861
Opposite Gender Contact	1	0.03	0.049	.825
		Within Grades		
Grade 7				
Same Gender Contact	1	0.42	0.607	.437
Opposite Gender Contact	1	13.20	10.942	.001**
Grade 10				
Same Gender Contact	1	0.09	0.286	.594
Opposite Gender Contact	1	0.21	0.591	.444

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

Research question #8: How much do adolescents' Internet safety knowledge, online trust, and gender affect when they disclose personal information online to others?

Linear regression analysis was used to determine the amount of variance explained by Internet safety knowledge, online trust, and gender in predicting the timing of personal information disclosure online. Initially, each predictor variable's affect on the

timing of personal information disclosure online was examined individually. Results indicated a positive correlation between Internet safety knowledge and the timing of personal information disclosure online ($r^2 = .189$) found to be significant at the .01 alpha level, $F(1, 296) = 68.72$, $p = .000$. This suggests that more safety knowledge leads to later personal disclosure. There was also a significant negative correlation between the level of participants' online trust and the timing of their disclosure online ($r^2 = .313$) suggesting that the more trusting participants are, the earlier they disclose personal information online, $F(1, 296) = 134.17$, $p = .000$. In terms of gender, a significant positive correlation was found ($r^2 = .029$) suggesting that the timing of personal information disclosure can be explained by whether a user is male or female; females typically disclose personal information later, $F(1, 296) = 8.89$, $p = .003$. Combined into one model, Internet safety knowledge, online trust, and gender are significant predictors in the timing of personal information disclosure online accounting for .381 (r^2) of the variance, $F(1, 296) = 60.08$, $p = .000$.

Grade level analysis indicates that Internet safety knowledge, online trust, and gender account for more variance in the grade 10 model compared to the grade 7 model (see Table 19). Comparisons of the two models reveal that Internet safety knowledge is a greater predictor of when grade 7 participants disclose personal information while online trust is a considerably higher predictor of personal disclosure for grade 10 participants (see Table 20). Gender is useful only in predicting grade 7 participants' timing of disclosure online.

Table 19

Model Summary by Grade of Internet Safety Knowledge, Online Trust, and Gender as Predictors of the Timing of Personal Information Disclosure Online

Grade	r^2	F	p
7[a]	.312	30.98	.000***
10[b]	.435	21.60	.000***

[a]$n = 209$. [b]$n = 88$.

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

Table 20

Regression Analysis by Grade of Internet Safety Knowledge, Online Trust, and Gender as Predictors of the Timing of Personal Information Disclosure Online

Variable	B	SE B	β
Grade 7[a]			
Internet Safety Knowledge	29.34	5.59	.336**
Online Trust	-0.40	0.09	-.289**
Gender	3.54	1.52	.136*
Grade 10[b]			
Internet Safety Knowledge	18.62	8.14	.208*
Online Trust	-0.66	0.11	-.544**
Gender	-0.68	2.12	-.027

[a]$n = 209$. [b]$n = 88$.

**. Coefficient is significant at the 0.01 level (2-tailed)

*. Coefficient is significant at the 0.05 level (2-tailed)

Research question #9: How much do adolescents' Internet safety knowledge, online trust, and gender affect when they engage in offline meetings with others they meet online?

Linear regression analyses were used to examine whether Internet safety knowledge, online trust, and gender explained when participants would engage in offline meetings with others they meet online. However, the distribution of the timing of offline meetings is skewed and did not meet the conditions necessary for this analysis.

Summary

In summary, most participants have Internet access at home and use the Internet on a regular basis. Grade 7 students' use the Internet more often for school while students in grade 10 use the Internet more often for leisure activities. Instant messaging appears to be the domain used the most by all participants.

In terms of Internet safety knowledge, both grades displayed equal amounts of knowledge with greater variability found in grade 7 students' scores. Males tended to display less knowledge, particularly in grade 7. Students in grade 10 were found to be more trusting than students in grade 7 with no difference between genders. Personal information disclosure was earlier for students in grade 10 compared to their grade 7 counterparts. Grade 7 males also disclosed significantly earlier than grade 7 females. When taking into account the gender of online contacts, both grade 7 and 10 males disclosed earlier to contacts they believed were of the opposite gender than contacts they believed were the same gender. Conversely, grade 7 females disclosed later to opposite gender contacts. In reference to the timing of offline meetings, no differences were found between grades and genders. Males and females across grades were similar in their expected timing of offline meetings. Within grades, however, grade 7 boys reported they

would meet someone offline earlier than grade 7 females. When accounting for the gender of online contacts, grade 7 males also reported they would engage in offline meetings significantly earlier with opposite gender contacts than with same gender contacts. Grade 7 males further reported that they would meet with opposite gender contacts earlier than their female peers and grade 10 counterparts would.

Internet safety knowledge, online trust level, and gender were predictors of the timing of personal information disclosure online but not of timing of offline meetings. Internet safety knowledge was a greater predictor of grade 7 students' timing of online disclosure while trust was a greater predictor of grade 10 students' timing of disclosure. Gender was useful only for predicting grade 7 students' timing of disclosure with males disclosing personal information earlier online than females.

I discuss the implications of these results in the following chapter.

CHAPTER V

Discussion

The results of this study and the implications these results have in understanding adolescents on the Internet and their safety online are discussed in this chapter. Limitations of this research will be highlighted along with some proposed directions for future research.

Internet Demographics

As adolescents age, their access to the Internet and the amount of time they spend online for personal use appears to increase. In grade 7, 91.9% of adolescents reported having access to the Internet, which increased to 94.3% in grade 10. Weekly hour averages for spending time online for fun and personal use shows a similar pattern. Grade 7 students reported 6.19 hours per week which grows to 7.45 hours per week for students in grade 10. Parents overall belief that the Internet is beneficial for academic growth (Turow & Nir, 2000) may account for the increased percentage of grade 10 students who have access and spend more time online. However, Lauman (2002) found that adolescents are using the computer more for recreational purposes and downloading files than their parents believe and know they are. The results of this research show that as adolescents age, they spend more time on the Internet for fun and less for educational purposes.

The investigation of adolescents' online domain usage found that the majority of adolescents regularly use gaming, email, and instant messaging features of the Internet. Congruent with other research (Spears et al., 2001), instant messaging was adolescents most popular activity followed by gaming features. Males overall predominant use of

gaming features on the Internet regardless of age is also similar to other research that finds males tend to engage in gaming domains more often than females (Lauman, 2002).

The present study also supports the pattern of growth in the percentage and use of instant messaging as adolescents get older (Spears et al., 2001). However, slight gender differences arose in the present study. Growth for males occurred both in numbers and in amount of time per week, yet only numbers increased in females' instant messaging usage. Although 17% more grade 10 females reported using instant messaging than their grade 7 counterparts, grade 7 females reported spending approximately two more hours per week actually engaged in this feature. Grade 7 females also reported more time in audio/video conferencing, chat rooms and email than grade 10 females. These findings align with Gross's (2004) research that found grade 7 females consistently spent more time chatting online compared to grade 10 females.

The increased usage of these communication features by grade 7 females raise some concerns. Adolescent girls of this age range (12 /13 years old) are most often identified in the media as victims of Internet solicitation. Considering chat features are the most common ways predators make contact with their victims (Mitchell et al., 2001; Wolak et al., 2004), these adolescents are more vulnerable to online sexual solicitation. Mitchell et al. (2001) proposed that girls between the ages of 14 – 17 were most vulnerable as this age range most often frequented chat rooms in their study. However, Wolak et al. (2004) examined 2574 cases within law enforcement agencies of victims involved in online sex crimes during a one-year period and found the primary victims to be adolescent females between the ages of 13 and 15. As more and more adolescents use the Internet, younger adolescents are likely exploring more of its features.

The predominant percentage and use of online personals for grade 10 females in the present study indicates that older adolescent females still engage in communication features but perhaps with different intent. As adolescents age, the amount of time spent addressing relationship issues online increases (Roberts, Foehr, Rideout, & Brodie, 1999). The use of online personals suggests that grade 10 females are exploring and perhaps searching out means of establishing relationships. These results support Erikson's belief that older adolescents tend to focus more of their development on relationship/sexual issues (Erikson, 1959). Grade 10 females may also be entering the early stage of establishing intimacy and online personals offer them an opportunity to explore this emerging developmental task.

Adolescents' Internet Safety Knowledge

Interestingly, the scores between grades on the Internet safety quiz yielded the exact same average; however, grade 7 students had a greater range of scores. This suggests that grade 7 students are more variable in their Internet safety knowledge; some students in grade 7 know less, some know the same, and some know more than students in grade 10. Although the range of scores was the same for both grade 7 males and females, the results show that grade 7 females' scores were significantly higher overall than grade 7 males. The heightened portrayal in media increasing society's awareness of the vulnerability and perhaps greater concern for young females on the Internet may account for grade 7 females' slightly greater knowledge. Considering previous research has also been variable in identifying the amount of adolescents who engage in safety discussions with adults (Berson et al., 2002; Spears et al., 2001), the safety results of this present study are not surprising under the assumption that adolescents learn about

Internet safety through adult discussions. Furthermore, adolescents and parents that engage in safety discussions do not agree on the content of discussions (Turow & Nir, 2000) creating additional variability in what safety discussions entail which will reflect in the amount of their knowledge. Leffert and Petersen (1996) state that to reduce the risks adolescents face, prevention must start by at least early adolescence.

Adolescents' Online Trust Levels

Overall, students in grade 10 reported significantly higher trust levels online compared to students in grade 7. Higher trust levels may be indicative of grade 10 adolescents' deeper involvement in identity development. Representing grade 7, early adolescents are in the beginning stage of identity development whereas grade 10 adolescents are at the height of identity development. Identity development requires trust in oneself and others and the search for opportunities to prove oneself trustworthy (Erikson, 1968). Research supports the use of the Internet for identity development (Calvert, 2002; Gross, 2004; Huffaker & Calvert, 2005; Maczewski, 2002; Robbins, 2001; Subrahmanyam et al., 2004; Subrahmanyam et al., 2006) and grade 10 adolescents have more Internet access and spend more time online for personal use. In consideration of the necessary components for identity development and with support for the use of the Internet in developing identity, it makes sense that at the height of identity development, grade 10 adolescents would maintain higher levels of trust.

Adolescents' Personal Information Disclosure Online

Adolescents online typically wait for a few conversations to take place with someone new before providing their contacts with personal identifying information. Adolescents provide general types of personal information such as gender and age before

other types of more identifying information like phone number and home address. Gender is often disclosed immediately while more than five conversations need to take place before adolescents begin to disclose direct contact information. This pattern of disclosure has been found in other research with young adults (Whitty & Gavin, 2001). First emails were shared, then telephone numbers, and then home addresses. Whitty et al. (2001) propose this pattern to represent increasing levels of trust that correspond to the growing strength of commitment by partners to their online relationship (Whitty & Gavin, 2001).

Grade and gender differences exist in adolescents' disclosure online. Overall, adolescents in grade 10 disclose personal information earlier than adolescents in grade 7. Developmentally, the transitional nature of attachment relationships can explain grade 10 adolescents' earlier disclosure. As adolescents age, they gradually develop relationships that increasingly fulfill their attachment needs. Adolescents can find complete fulfillment of attachment needs in romantic relationships that typically begin around mid-adolescence (Hazan & Zeifman, 1999). Personal information disclosure online reflects the development of commitment to relationships with a hope and expectation that these relationships will eventually lead to offline relationships (Whitty & Gavin, 2001). Grade 10 adolescents' earlier disclosure may represent their desire to establish romantic attachment relationships that can be incorporated into their offline lives. Grade 7 males earlier disclosure compared to grade 7 females may stem from males being at less risk for victimization. Males' sense of invulnerability may be higher since females have been found to be at greater risk for online solicitation (Mitchell et al., 2001; Wolak et al., 2004) and because solicitation incidents in media most often identify females as victims.

Earlier disclosure of all types of identifying information also typically occurs if adolescents perceive their online contact as someone who is of the opposite gender. This is especially true for males; both grade 7 and 10 males will disclose earlier to contacts they believe are female. These results tend to support Wolak et al.'s (2002) research that found a predominance of opposite-sex relationships online. Because adolescent males disclose earlier to opposite gender contacts, they likely have a predominance of online relationships with females.

Females disclosure online follows a different pattern. Grade 7 females will disclose identifying information later to male contacts while grade 10 females appear not to be influenced by gender. This does not mean though that adolescent females are not establishing relationships with males, but rather that they may be exercising more caution when interacting with someone they believe is male. The discrepancy between younger and older female adolescents disclosure to males may in part be a condition of the domains they frequent and the purpose of their interactions. If younger females are interacting with males through chat rooms and instant messaging and older females are interacting with males more through online personals, then the intentions of establishing relationships may be different. Older females visits to online personals suggests a desire to establish relationships which would result in regular patterns of personal disclosure while younger females presence in chat rooms and instant messaging suggests relationships are established more through exploration. This form of exploration would produce more chance and unexpected encounters with others that likely create more of an intrinsic sense of caution, resulting in a pattern of later personal information disclosure.

Adolescents' Engagement in Offline Meetings

Approximately two thirds of participants in this study indicated that they would never meet someone face-to-face with whom they have established an online relationship. If participants considered meeting someone offline, a majority reported many conversations would need to take place first. These reports suggest that adolescents are promoting their safety and well-being by not engaging in meetings. What adolescents may not be considering is the grooming process predators use to build relationships and to set up meetings. Online predators slowly start establishing trust (Dombrowski et al., 2004), taking time to build relationships with unknowing victims (Wolak et al., 2004). They simultaneously normalize sexual activity and when they are ready to further their criminal interest such as engage in offline meetings, predators threaten and coerce their victims (Dombrowski et al., 2004). Therefore, although adolescents report they would not meet someone offline or would only do so after many conversations, they still may end up in risky situations.

Interestingly, a very small percentage of adolescents overall (< 1%) reported that they would meet someone immediately. These adolescents were grade 7 females even though grade 7 females reported later personal information disclosure. Another small percentage of adolescents (< 4%) reported that they would engage in offline meetings within a few conversations and included both grade 7 males and females. Grade 7 males reported that they would meet someone significantly earlier if they believed their contact was the opposite gender. These results suggest that grade 7 adolescents are those most likely to meet someone early, if they do so at all. These reports are another example of this group's vulnerability for solicitation and willingness to consider meetings. Even though this percentage is small, a majority of solicitation victims of this age willingly

engage in offline meetings and illegal sexual contact (Wolak et al., 2004). Younger adolescents' willingness to consider early offline meetings even though small may render them more malleable for predators.

Prediction of Personal Information Disclosure Online

One of the main objectives of this study was to determine whether adolescents' Internet safety knowledge, online trust levels, and gender would be helpful in predicting their disclosure of personal information. The results indicate that all three variables are significant factors in how early adolescents disclose online. The more Internet safety knowledge adolescents have, the longer they wait before disclosing personal information. The more trusting adolescents are, the earlier they disclose personal information, which is also the case if an adolescent is male. Between grades, Internet safety knowledge was a greater predictor for grade 7 adolescents' timing of personal information disclosure while trust was a greater predictor for grade 10 adolescents' timing of disclosure. In addition, gender was only significant for grade 7 adolescents' prediction of disclosure.

The fact that greater Internet safety knowledge in adolescents leads to later or no personal information disclosure online is not surprising. Internet safety guidelines outline the factors adolescents should be aware of in their explicit or implicit ways of disclosing personal information online to partners. Furthermore, the fact that Internet safety knowledge was a greater predictor for grade 7 adolescents' timing of personal information disclosure compared to adolescents in grade 10 can be explained by developmental factors. Adolescents' moral judgement and decision-making processes are likely important underlying factors in adolescents who decide to communicate with others online and in the nature of their conversations. Based on Kohlberg's theory of

moral reasoning development, adolescents are transitioning between the stage in which moral judgements and decisions are based on rules set by authority figures and the stages in which adolescents consider the intentions of their decisions, how others judge the self, and the diversity of perspectives and pursuits of self and others (Hart et al., 2003). Younger adolescents still maintain important beliefs about doing what is right based on rules, and as such, if they know the rules and guidelines for safe practices online including what not to personally disclose, they likely follow them. Grade 10 adolescents' increased cognitive abilities of formal operational thinking allow them to more fully consider the intentions of their decisions along with the perspectives and pursuits of themselves and others online. Thus, for grade 10 adolescents, Internet safety rules are more guidelines that are situational based and more flexible. If they are aware that they should not be disclosing personal information, they will make a decision whether or not to do so based on their situation in the moment including their intentions and desires.

Unfortunately, understanding adolescents on the Internet and their decisions to engage in risky behaviours online like personal information disclosure is more complex than Internet safety knowledge and moral reasoning can explain. Adolescents are also looking to build attachment relationships and to establish their identity while simultaneously dealing with an egocentric worldview. These developmental issues can help explain why online trust is a greater predictor of grade 10 adolescents' personal information disclosure compared to adolescents in grade 7.

Although using the Internet for attachment and identity purposes occurs at both grade levels, the developmental nature of attachment relationships and identity development may account for differences between grades. In summary, younger

adolescents turn to peers to fulfill partial attachment needs while older adolescents turn to peers for the purpose of intimacy and establishing romantic relationships that more completely fulfill attachment needs (Hazan & Zeifman, 1999). Younger adolescents are also at the beginning stages of identity development whereas older adolescents are at a heightened stage of identity development, requiring higher levels of trust. Trust is an important factor in meaningful and close relationships (Johnson-George & Swap, 1982; Larzelere & Huston, 1980) and has been found to increase in significance as adolescents' romantic relationships develop (Shulman & Kipnis, 2001). Throughout adolescence, romantic relationships grow from a companionship valued for experiences of totality and enthusiasm to a mature relationship characterized by trust, support, and stability (Shulman & Kipnis, 2001). In using the Internet to address attachment and identity issues, personal information disclosure patterns reflect growing patterns of trust online and the development of online relationships (Whitty & Gavin, 2001). Consequently, grade 10 adolescents looking for relationships that are more intimate online are more trusting and disclose personal information earlier compared to adolescents in grade 7.

Additional developmental factors may also account for grade 7 adolescents' lower trust levels online. One such factor revolves around their increased awareness of safety issues. Moral reasoning development explains grade 7 adolescents' desire to abide by online safety rules. With greater awareness of online safety, the less trusting grade 7 adolescents are of others. As such, adolescents in grade 7 engage in their own form of dishonesty online as they experiment with different identities and false information in efforts to keep themselves safe.

Adolescent egocentrism further assists young adolescents into believing that the way they perceive the online environment is how others they are interacting with perceive it, which can both assist and hinder attempts to keep themselves safe. As an egocentric worldview, adolescents preoccupation with an imaginary audience can assist them with staying safe online if it is perceived that the online environment is one to engage in cautiously. If they engage in dishonesty online, they likely believe others are doing the same. However, because adolescents are also beginning to turn to peers to fulfil attachment needs (Hazan & Zeifman, 1999), the moment they begin to trust someone online, their imaginary audience mental construction will likely deem the other person trustworthy as well. This can lead to the premature development of trust with online acquaintances who quickly become "friends." Younger adolescents may then not view personal information disclosure with "friends" as a risk to their safety. Furthermore, their personal fable mental construction can provide them with an unrealistic feeling of invulnerability and safety as they further develop relationships with others online. Although the personal fable mental construction is still prevalent in older adolescents, imaginary audience tends to diminish by age 15/16 (Elkind, 1967). Grade 10 adolescents are less egocentric and more cognitively able to differentiate between their own sense of trustworthiness and the trustworthiness of others. Grade 7 adolescents' lack of metacognitive skills and inexperience in handling situations results in a bias that leads to poor conclusions and risky decisions (Amsel et al., 2005). So although grade 7 adolescents overall are less trusting online and disclose personal information later than grade 10 adolescents, they likely develop an inaccurate perception of trust when they do

trust online leading to disclosure without regard and making them more vulnerable to solicitation.

Limitations

One limitation of this study was the difference in response rates between groups. The grade 10 sample was much lower than the grade 7 sample. Grade 10 students were not as conscientious in obtaining parental signatures for parental consent of their participation in this research. This could represent a lack of interest on behalf of students in grade 10. Developmentally, this could also be representative of grade 10 students' growing autonomy and desire not to participate in the research. Grade 10 female numbers were also lower than grade 10 male numbers. Lower response rates by grade 10 females may further reflect their desire to not share information regarding their online activities as they may consider their activities too private. The participant sample as a whole was not randomly selected which further limits the findings of this study. Those who participated were students who were interested enough to ensure they obtained parental consent and as such may use the Internet more than others. Should this be the case, then these students may also explore different features of the Internet than those who did not participate.

A major limitation in this research is adolescents' self-report. As with all surveys, self-report may not actually reflect behaviours. Because the present study investigated safety aspects online, participants may have provided socially desirable responses on the scales that investigated risky behaviour. There is a possibility that adolescents may have underreported the timing of their personal self-disclosure and offline meetings for the sake of protecting themselves, particularly if they have experienced negative consequences as a result of their online activities. The influence of any previous negative

consequence may also have changed their otherwise regular practices of self-disclosure and their knowledge of Internet safety. Furthermore, one of the biggest challenges of investigating Internet behaviour is that adolescents use of and behaviour on the Internet likely changes as technology and context changes. The survey in this present study captured a moment in time and did not include a means to measure change over time or a means to measure context. In addition, because research is still relatively new in this field, there is a lack of standardized procedures and validated instruments for measuring online constructs. This study is limited by its lack of valid standardized procedures and indexes.

Significance

Increased use of technology results in an increased temptation for misuse and abuse (Berson & Berson, 2005). The implications of adolescents using the Internet for developmental needs results in a concern for their safety. The present study supports adolescents' use of the Internet for developing relationships and exploring identities, which ultimately leads to the engagement of some risky behaviour online. This risk can result in online sexual solicitation that can further lead to trauma and/or stress. Stress at any developmental stage interferes in some degree upon the completion and mastery of developmental tasks appropriate to that stage (Berlin, 1990). If consequences of adolescents' Internet use result in a significant amount of trauma or stress, then their developmental tasks may be disrupted or prolonged. Furthermore, the effects of negative consequences in adolescence can be long lasting (Petersen, 1993). Consequently, online solicitation could result in the slower development of adolescents' developmental task of

building relationships causing difficulties in establishing intimate relationships in young adulthood and beyond.

Changes in culture that allow curiosity, exploration, and novelty seeking are important for human adaptation and the development of intellect (Wentworth & Witryol, 2003). The introduction of the Internet into society is no exception. The value of curiosity, exploration, and novelty seeking depends critically on the nature of the stimulation – the object of an individual's desire (Wentworth & Witryol, 2003). These attributes are not typically bound by appropriateness. For example, curiosity can lead adolescents to view pornography on the Internet in the same way as it can lead them to explore a museum (Wentworth & Witryol, 2003). The anonymity features of online interactions leads adolescents to believe they will not be caught if they engage in deception online (Berson et al., 2002). Anonymity may also provide adolescents with a false sense of security and lead them to believe they will not be contacted even if they disclose personal information online. This minimizes their perception of potential harm to themselves and others. Thus, Wentworth and Witryol (2003) suggest that careful monitoring and guidance of adolescents' exploration is sometimes necessary. The inherent risks of adolescents on the Internet should not inhibit their use of the Internet; however, the risks need to be attended to and managed (McColgan & Giardino, 2005).

Applications

Risks can be managed at both technological and psychoeducational levels. Technological means of assisting the safety of adolescents on the Internet include the use of firewalls, antivirus software, key loggers, browser history, encryption (i.e. hides text from predators using software to "eavesdrop"), privacy filters, application tracking and

usage, and chat logging (Dombrowski et al., 2004). While technological means of safety prevention are not foolproof and sufficient in and of themselves, they are beneficial in assisting parents' efforts to keep their children safe online. Adolescents have a tendency to remain secretive about their online activities (Berson et al., 2002) which is an important risk factor for adolescent psychosocial well-being and behavioural adjustment (Frijns et al., 2005) particularly because adolescents feel it is acceptable to deceive parents on issues of a moral or personal nature (Smetana, Metzger, Gettman, & Campione-Barr, 2006). Remaining secretive while on the Internet poses great risk to adolescents' well-being and safety. Furthermore, adolescents are less likely to seek out advice and opinions when facing issues that require them to make a decision (Halpern-Felsher & Cauffman, 2001). The technological devices available for safety prevention online can assist parents in coping with some of these adolescent tendencies.

However, the concerns and attention of parents along with their continued involvement in adolescents' lives are essential for safety promotion (Sleet & Mercy, 2003) and the major factor that can reduce the impact of stress (Berlin, 1990). Keeping adolescents safe online requires parents and other caregivers to remain directly responsible for them (McColgan & Giardino, 2005). The digital gap demands parents to take an active role in learning and understanding the Internet (McColgan & Giardino, 2005) and in monitoring and understanding their children's online practices (Berson et al., 2002). A warm, communicative, and open relationship is the most important non-technical tool parents have at their disposal to deal with the challenges of the Internet (Greenfield, 2004b) for parent-child interactions and bonding have great influence on adolescents' choices and attitudes (Moore & Zaff, 2002). This type of relationship allows

parents to do what they can to teach adolescents necessary Internet safety practices. Necessary ingredients for education include common sense "rules of the road" on the Internet such as privacy (Earley, 1999), Internet dangers, Internet friends, appropriate screen names, and cybertip hotlines (Dombrowski et al., 2004). However, safety promotion strategies should match the developmental stages of children and connect throughout the stages (Sleet & Mercy, 2003). Internet safety education should account for all developmental levels and begin early. Concrete approaches are necessary for younger adolescents and although these are still good approaches for older adolescents, older adolescents' growing cognitive abilities allow them to handle abstract approaches as well (Leffert & Petersen, 1996). It is also important to teach younger adolescents decision-making skills (Leffert & Petersen, 1996).

The technological skills of adolescents surpass their critical thinking and judgement skills (Berson et al., 2002). When it comes to the Internet, safety education requires preparatory experiences that provide adolescents a means to identify and assess ambiguous and risky situations, a means to develop necessary coping techniques to minimize their vulnerability, and a means to practice responses in various situations to increase their informed decision-making process for safe interactions online (Berson & Berson, 2005). Adolescents need opportunities to create, test, and revise their online constructs. This includes engaging adolescents in making sense of their online experiences through consideration of the sensory data available to them and raising adolescents' sensitivity to how their online communications impact others (Berson & Berson, 2005).

Using adolescents' personal experiences predicts self-efficacy for obtaining positive expectations (Eastin, 2005). Experiences influence one's interpretation of a given situation, which then guides one's behaviour, which in turn affects one's perception of the environment (Smith, 2003). Judgements about one's self-efficacy grows from following this sequence of events (Smith, 2003), but so can adolescents' perception of safety. The more they are online without any safety issues arising, the more likely they perceive themselves safe. Experience accounts for competency in decision-making only if experience is structured, unambiguous, and accurate (Byrnes, 2005). The constantly changing dynamics of the Internet and growing developmental needs of adolescents challenge the use of online experiences as opportunities for learning effective decision-making skills. It is important to identify the affective motivators that assume the greatest importance for individual adolescents on the Internet (Caffray & Schneider, 2000). Adolescents may engage in risky online behaviours for the perceived ability to satisfy particular affect goals. In these cases, intervention requires the provision of alternative outlets for adolescents to gain their affective goal while highlighting the long-term consequences of behaviour (Caffray & Schneider, 2000).

The heightened use of the Internet by females for relationship activities removes the societal pressures on the importance of appearances (Berson et al., 2002). The comfort and safety of one's home and the perceived anonymity features allows females to explore different aspects of themselves online (Berson et al., 2002) and search for not only intimacy but also sexual fulfilment (Miller & Benson, 1999). Online, females engage in passive behaviours to attract attention such as implicit sexual comments and sexualize and gendered nicknames (Subrahmanyam et al., 2006). By mid-adolescence,

females can distinguish between willing and unwilling desire for sex and do make self-conscious choices of whether to engage in sexual relations (Tolman, 1999). They also feel that sex should be with someone they care about (Devrome, 1997) supporting their willingness to enter sexual relations with adults on the Internet if they have established perceived loving and caring relationships (Wolak et al., 2004). Adolescents' willingness to voluntarily enter sexual relationships with adults online should be targeted for prevention (Wolak et al., 2004). Education with these adolescents should teach them why such relationships are not safe and healthy choices. Young adolescents may not be fully aware of the illegality of such relationships and of how easily any pictures or videos of their involvement in sexual activities can end up on the Internet or in court as evidence. Furthermore, education should outline the manipulations used by offenders and clarify that someone who cares for someone else would not propose and engage them risky sexual encounters or activities (Wolak et al., 2004).

Implications for Counselling

The development of interpersonal relationships and identity for adolescents has been altered by the Internet and has changed the dynamics of adolescents achieving these developmental tasks. Counsellors need to appreciate the developmental issues adolescents face along with how these developmental issues are addressed using the Internet while at the same time posing a risk. Because adolescents turn to counsellors and speak openly with them if they experience a risk to their safety (Surko et al., 2005), it is vital for counsellors to be aware of and understand adolescents' Internet issues and safety violations. The present study allows counsellors an opportunity to learn about adolescents' variability of Internet safety knowledge, differences of online trust levels,

and the way in which these factors influence risky behaviours online. This study also offers counsellors important information to assist them in developing new ways of working with adolescents who have been victimized or traumatized by their Internet activities. Sensitive care is needed to prevent adolescents from further experiencing embarrassment, fear, or guilt when coming forward to deal with these issues.

Counsellors need to continually learn about all aspects of the Internet (McColgan & Giardino, 2005) and remain actively involved (Barak & Fisher, 2002) in efforts to inform their clients and the parents of their clients. Counsellors can be in the best position to inform and shape the media's and society's understanding of the intricacies and repercussions of such issues (Martin, 2005).

Future Research Directions

Research continues to support the fact that stable homes in which both parents offer much time and attention to children lead to healthy, happy, and self-reliant adolescents and young adults. Future research directions could investigate whether adolescents' attachment relationships influence their use of the Internet for relationship development and their vulnerability for solicitation online. Do adolescents use the Internet and explore more with less fear and greater security perceptions when attachment relationships with parents are secure? Are secure adolescents more vulnerable to online solicitation or greater distress when experiencing negative consequences online? Offline and online attachment research can examine how adolescents' bonds with parents influence their attitudes and choices on the Internet.

A growing body of research is examining the technological and social complexities of the Internet. Adolescents' developing cognitive abilities question whether

they can fully understand these complexities. Would knowledge of these complexities influence adolescents' online behaviours? Does adolescents' understanding of the online technological aspects and complexity create appropriate caution for their safety? Would knowledge of these complexities interact with adolescents' use of the Internet to address other important developmental needs? Developmental research to examine these issues would be beneficial for obtaining a broader picture of adolescents' safety online.

The present research creates a foundation for further investigations into the negative consequences of online solicitation. Adolescents interact with others in the comfort and safety of their own home. Solicitations from online communications may challenge adolescents' sense of safety in the core of their safety environment rippling to their larger society. If adolescents cannot feel safe at home, where else can they? The negative consequences of online solicitation are still unclear and are important aspects to understand for intervention and warrant further research efforts. Online solicitation may have its own unique side effects that are not yet fully appreciated.

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Appendix A

SECTION 1: Demographics

1. I am in ❑ Grade 7 ❑ Grade 10
2. I am ❑ Male ❑ Female
3. I have brothers or sisters ❑ Yes ❑ No
4. I have a computer at home ❑ Yes ❑ No
5. I have the Internet at home ❑ Yes ❑ No
6. The number of hours I spend on the Internet per week for the following is:

   Fun _____

   School _____

   Other _____

SECTION 2: Please check off which of the following online areas you use and fill out the information as completely and honestly as you can. If you do not use a certain area, please indicate "No" and continue onto the next question.

I use	Yes / No	# of hours / wk	When	Where
7. Bulletin Boards / Newsgroups / List Serves / Threaded Discussion	❑ Yes ❑ No	_____	❑ Morning ❑ Afternoon ❑ Evening ❑ After Midnight	❑ Home ❑ School ❑ Friends ❑ Other: _____
8. Gaming Rooms / Gaming Software	❑ Yes ❑ No	_____	❑ Morning ❑ Afternoon ❑ Evening ❑ After Midnight	❑ Home ❑ School ❑ Friends ❑ Other: _____
9. Chat Rooms	❑ Yes ❑ No	_____	❑ Morning ❑ Afternoon ❑ Evening ❑ After Midnight	❑ Home ❑ School ❑ Friends ❑ Other: _____
10. Instant Messaging	❑ Yes ❑ No	_____	❑ Morning ❑ Afternoon ❑ Evening ❑ After Midnight	❑ Home ❑ School ❑ Friends ❑ Other: _____

11. Email	❑ Yes ❑ No	_____	❑ Morning ❑ Afternoon ❑ Evening ❑ After Midnight	❑ Home ❑ School ❑ Friends ❑ Other: _____
12. Online Personals	❑ Yes ❑ No	_____	❑ Morning ❑ Afternoon ❑ Evening ❑ After Midnight	❑ Home ❑ School ❑ Friends ❑ Other: _____
13. Audio / Video Conferencing	❑ Yes ❑ No	_____	❑ Morning ❑ Afternoon ❑ Evening ❑ After Midnight	❑ Home ❑ School ❑ Friends ❑ Other: _____
14. Other: _____	❑ Yes ❑ No	_____	❑ Morning ❑ Afternoon ❑ Evening ❑ After Midnight	❑ Home ❑ School ❑ Friends ❑ Other: _____

SECTION 3:

TRUST:
Please indicate how much the following sentences show how you act in the online environment. Work quickly and record your first thoughts.

❑	❑	❑	❑	❑
Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree

15. When I share personal information about myself online, it is usually true.

16. I feel comfortable opening email sent to me by someone I don't know.

17. I believe there are more hurtful people online than harmless people.

18. I would not fill out a contest form online.

19. I would provide my true personal information for online contests.

20. I feel comfortable sharing personal problems with people I do not know on Instant Messenger programs.

21. I would consider providing false personal information to online questionnaires.

22. I feel comfortable posting personal messages on public message boards or in chat rooms.

23. I believe that grades which are posted on the Internet are safe from other people's view.

24. I would give out my name and email address to receive emails from a Website.

25. I have a different password for every Website I am a part of.

26. I use a false name when chatting online to people I do not know.

27. I never open any email attachments.

28. I believe personal information given to me online by people I don't know offline.

29. I would never add my name to a Website's contact list.

30. I believe news reports on the Internet are less accurate than on T.V.

31. I would buy concert tickets using the Internet from someone I do not know.

32. I assume that information on a Website is truthful.

33. I would buy concert tickets online at Ticketmaster.

34. When I share personal information about myself online, it is usually false.

RISK:
Indicate how much each of the following sentences describe you.

❑	❑	❑	❑	❑
Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree

35. I like the feeling that comes with taking physical risks.
36. I like the feeling that comes with taking psychological or social risks.
37. While I do not deliberately look for things to do that involve physical risk, I often end up doing things that involve physical risk.
38. I often look for things to do that society does not like.
39. While I do not deliberately look for things to do that society does not like, I find that I often end up doing things that society does not like anyway.
40. I often do things that I know my parents would not like.
41. I like the feeling that comes from entering a new situation.
42. I consider myself a risk taker.
43. Being afraid of doing something new often makes it more fun in the end.
44. The greater the risk the more fun the activity.
45. I like to do things that almost scare me to death.

46. I do not let the fact that something is illegal stop me from doing it.
47. I do not let the fact that something is considered immoral stop me from doing it.
48. I often think about doing things that involve physical risk.
49. I often think about doing things that I know my friends would not like.
50. I often think about doing things that I know my parents would not like.
51. I often think about doing things that would create a great deal of fear or anxiety in me.
52. I often think about doing things that I know society would not like.
53. I often think about doing things that are illegal.
54. I often think about doing things that are considered immoral.

SECTION 4: PERSONAL INFORMATION

When you communicate with someone you have met online, how many online conversations take place before you give out the following information:

❑	❑	❑	❑	❑
Never	Right Away	1 - 4 Conversations	5 - 10 Conversations	11 + Conversations

To someone you believe is of the SAME sex as you:

55. My first name.
56. My full name.
57. My age.
58. My sex.
59. My email address.
60. My telephone number.
61. General location of where I live.
62. My home address.

To someone you believe is of the OPPOSITE sex as you:

63. My first name.
64. My full name.
65. My age.
66. My sex.
67. My email address.
68. My telephone number.
69. General location of where I live.
70. My home address.

When you communicate with someone you have met online, how many online conversations take place before you would meet this person offline.

71. Someone that I believe is of the SAME sex as me.

72. Someone that I believe is of the OPPOSITE sex as me.

SECTION 5: SAFETY QUIZ
For the following questions, please choose only one alternative.

73. How many children/adolescents are asked for sex per year on the Internet?
    a. 1 out of 5
    b. 1 out of 50
    c. 1 out of 100
    d. 1 out of 500

74. Can North American Websites legally ask for information from children under age 13?
    a. Yes
    b. No

75. Is it possible to get a map to someone's home by typing his or her phone number into a search engine?
    a. Yes
    b. No

76. I am online and I get a message from my Internet company asking for my password. They say they need it to fix my account. Should I give it to them?
    a. Yes
    b. No

77. I am completely safe if I only use chat rooms that limit people in the room to those the same age as me.
    a. Yes
    b. No

78. If someone sends me an inappropriate message or material, I should:
    a. Never reply to these messages and tell my Internet company or parents
    b. Keep it a secret
    c. Reply to the message and ask the sender politely to stop sending the messages

79. The worst screen name I could use is:
    a. katie_ny13
    b. CuteLitlAngel
    c. BlueEyes7642

80. If someone is on my email "buddy list," "friend list," or "contact list" and I only know that person online, he/she is:
    a. My friend and someone I can trust
    b. The person he/she claims to be
    c. Someone I should be cautious about because I don't know him/her well

81. Someone I met in a chat room wants me to send him/her my picture. Is it okay to send it since he/she is my age?
    a. Yes
    b. No

82. Someone I met online wants to send me a free CD. Is it okay to just give him/her my mailing address?
    a. Yes
    b. No

83. I've been emailing someone for a while and he/she wants to meet me at the mall. Is it okay since it's a public place?
    a. Yes
    b. No

84. Someone I met online sent me an email with some files attached. Is it okay to down load them?
    a. Yes
    b. No

85. Someone sent me a threatening email. I should email him back and tell him/her to leave me alone.
    a. Yes
    b. No

86. Someone sent me some pictures that make me feel uncomfortable. I should just delete them.
    a. Yes
    b. No

87. My friends and I are creating our own Web page. Is it okay to post our pictures?
    a. Yes
    b. No

88. A friend tells me about an Internet site with good games. When I get to it I am asked to fill in my name and address on a form. My friend says it's OK because I am only filling in a form not giving my details to anyone. I can fill it out.
    a. Yes
    b. No

Appendix B

FACULTIES OF EDUCATION AND EXTENSION RESEARCH ETHICS BOARD (EE REB)

I. Application for Ethics Review of Proposed Research

(revised July 15/04)

Name: SYLVIA PESKE **Student ID (if applicable):** 1054333

E-mail:

Complete mailing address (if student):

Project Title: Adolescents' safety understanding and perceptions on the Internet

Project Deadlines:
Starting Date (year/month/date): **2005/01/01** Ending Date (year/month/date): **2006/08/31**
If your project is not finished before the Ending Date, you must apply for an extension by submitting the appropriate *Status of Research Study* form.

Annual Reporting
If your project extends beyond one year from the date of EE REB approval, you will be required to submit an *Annual Report for Multi-Year Studies* at the end of each year of the project. Projects are normally subject to a complete re-submission after 3 years.

Status (if student):
( ) Master's Project (✓) Master's Thesis ( ) Doctoral Dissertation ( ) Other (specify):

Funding (if applicable):
(✓) Grant Application ( ) Contract Research ( ) Non-Funded Research ( ) Other (specify):

Do you plan to gather data in University of Alberta units other than Education or Extension? Yes ( ) No (✓)
If yes, name the unit(s) _____.

I, the applicant, agree to notify the Faculties of Education and Extension Research Ethics Board in writing of any changes in research design, procedures, sample, etc. that arise after the EE REB approval has been granted. A *Request for Change in Methodology* form must receive approval from EE REB before the modified research can proceed.

I also agree to notify the EE REB immediately if any untoward or adverse event occurs during my research, and/or if data analysis or other review reveals undesirable outcomes for the participants.

I have read the University of Alberta Standards for the Protection of Human Research Participants [GFC Policy Manual, Section 66 [http://www.ualberta.ca/~unisecr/policy/sec66.html] and agree to comply with these Standards in conducting my research.

_____ November 24/04
Signature of Applicant Date

As the supervisor/instructor, I have read and approve submission of this application to the EE REB, and ensure that the proposed project is compliant with the University of Alberta Standards for the Protection of Human Research Participants [GFC Policy Manual, Section 66 [http://www.ualberta.ca/~unisecr/policy/sec66.html].

ROBIN EVERALL _____ Nov 24/04
Printed name of Supervisor/Instructor Signature of Supervisor/Instructor Date

ETHICS REVIEW STATUS

(✓) Application approved by EE REB member ( ) Application approved by EE REB ( ) Application not approved

_____ Nov 26 2004
Signature of EE REB Member Date

Distribution of approval page: Original to EE REB file; Copies to Applicant, Supervisor/Instructor (if applicable), Unit student file (if applicable)