



Identifying Potential Factors of Adolescent Online Victimization for High School Seniors

Catherine D. Marcum¹

Georgia Southern University, USA

Abstract

The purpose of this study was to investigate previous Internet usage in a sample of college freshmen, and to reflect on their experiences with online victimization, through variables representing the three constructs of Routine Activities Theory. A survey was administered to 100-level courses at a mid-sized university in the Northeast, which questioned respondents on their Internet behaviors and experiences with victimization during the high school senior period. The findings of the study indicated that participating in behaviors that increased exposure to motivated offenders and target suitability in turn increased the likelihood of the three types of victimization measured. Conversely, taking protective measures against victimization to improve capable guardianship generally did not decrease the likelihood of victimization. This research provides a significant contribution to the literature as there are few explanatory studies that attempt to identify reasoning for the victimization of adolescents online.

Keywords: Internet; Adolescents; Victimization; Routine Activities Theory; Computer;

Introduction

The idea of an electronic global communication system originated from J.C.R. Licklider of the Massachusetts Institute of Technology, in the early 1960s (Licklider & Clark 1962, as cited in Leiner et al. 2003). His “Galactic Network” idea entailed an internationally connected set of computers that allowed for easy accessibility to information. Now known as the Internet, this inter-continental information highway has enabled people of all ages, especially youth, to drastically expand their social circles and improve their ability to communicate with friends and family (Roberts, Foehr, Rideout & Brodie, 1999; Rosenbaum, Altman, Brodie, Flournoy, Blendon, & Benson, 2000). Unfortunately, young Internet users are often unable to participate in online activities without the annoyance of uninvited communication from other online users.

Several studies on the Internet use by youth have found that increasing numbers of young people are experiencing the following types of victimization while using computer-mediated communication (CMC) methods: (a) unwanted exposure to sexual material, (b) sexual solicitation, and (c) unwanted non-sexual harassment (Mitchell et al., 2003;

¹ Assistant Professor, Department of Political Science, Georgia Southern University, PO Box 8101, Statesboro, GA 30460, United States of America Email: cmarcum@georgiasouthern.edu

Mitchell, Finkelhor, & Wolak, 2007; O'Connell et al., 2002; Quayle & Taylor, 2003; Sanger et al., 2004; Wolak et al., 2002; Wolak et al., 2003; Wolak et al., 2004; Wolak et al., 2006; Wolak, Mitchell & Finkelhor, 2007; Ybarra, Mitchell, Finkelhor, & Wolak, 2007). However, majority of these studies are descriptive in nature, thus there is a lack of rigorous research that indicates what online behaviors may increase the likelihood of victimization.

Roncek and Maier (1991) suggested that Routine Activities Theory is excellent for the examination of predatory or exploitative crimes, which is precisely the type of deviant behavior examined in this study. According to the Routine Activities Theory, three elements must be present in order for a crime to occur:

- Exposure to motivated offenders,
- A suitable target, and
- Lack of capable guardianship (Cohen & Felson, 1979).

The purpose of this study was to investigate Internet usage in a sample of college freshmen, and to consider their experiences with online victimization, through variables representing the three constructs of Routine Activities Theory. The study is expected to provide significant contribution to the literature on adolescent online victimization, considering the overall lack of explanatory research on this topic.

Adolescent Internet Use and Victimization

Past empirical research on adolescent Internet use has demonstrated that Internet use by youth has increased drastically in the past 10 years (Addison, 2001; Izenberg & Lieberman, 1998; Lenhart, Rainie, & Lewis, 2001; Nie & Ebring, 2000; Rainie, 2006; United States Department of Commerce, 2002). Numerous studies have been conducted to examine the frequency and purposes of adolescent Internet use (Beebe, Asche, Harrison, & Quinlan, 2004; Lenhart, Rainie & Lewis, 2001; Mitchell, Finkelhor, & Wolak, 2003; United States Department of Commerce, 2002). Research suggests that the rate of Internet use in America is increasing, with adolescents becoming heavier users than adults (Subrahmanyam, Kraut, Greenfield, & Gross, 2001).

The various mediums of communication available on the Internet have been a contributing factor to increased Internet use (Clemmitt, 2006; Kirkpatrick, 2006; Lamb & Johnson, 2006; Rosen, 2006; Simon, 2006; Stuzman, 2006). The mediums of communication available on the Internet, often referred to collectively as social technology (Lamb and Johnson 2006), have enabled people of all ages (especially youth) to expand their social circles and improve their ability to communicate with friends and family in an inexpensive manner (Roberts, Foehner, Rideout, & Brodie, 1999). Social technology generally refers to computer-mediated communication (CMC) devices that connect people for personal and professional information sharing. The use of CMC methods allows for ease in the workplace, educational setting, or home to communicate effortlessly with others (Simon 2006). Although there are numerous ways to communicate and socialize with CMCs, this study will focus on the following mediums: chat rooms, instant messaging, e-mail, and social networking websites. Unfortunately, along with the beneficial use of these CMC methods comes the increased possibility of online victimization.

Multiple studies have recognized that increasing numbers of young people are experiencing the victimization while using CMC methods, very few studies have attempted to explain why this is happening. Of the few explanatory studies performed,

those using data from the Youth Internet Safety Survey (respondents were between the ages of 10-17) found that use of chat rooms, discussion of sexual topics with online contacts, and a tumultuous relationship with family or friends increased the odds of online victimization (Mitchell et al., 2007; Wolak et al., 2007; Ybarra et al., 2007). Furthermore, using data from the high school senior and college freshmen time period, Marcum (forthcoming) found that increased exposure to motivated offenders and providing personal information to online contacts also increased the likelihood of online victimization.

More recent empirical studies examined the effect of different forms of protective measures on adolescent online victimization. Fleming, Greentree, Cocotti-Muller, Elias and Morrison (2006) and Marcum (forthcoming) found that the installation of filtering and blocking software had no effect on their exposure to inappropriate materials and behaviors and online victimization. Lwin, Stanaland and Miyazaki (2008) further explored protective measures through a quasi-experimental study of 10 to 17 year olds in regard to their experiences with Internet monitoring and mediation by parents. They found that active Internet behavior monitoring by parents decreased the likelihood of participation in risky behaviors online, as well as exposure to inappropriate materials. However, Lwin et al. (2008) noted that the effectiveness of active monitoring decreased the older the adolescent became, which may be a foreshadowing of the results found in the current study considering the age of the sample.

As stated before, there are few explanatory studies in the literature that attempt to assess the factors of online victimization. The literature is anemic in regard to studies that use a strong theoretical basis to examine these online outcomes. In the next section, a brief summary will be provided of the theoretical framework used in the present research to better investigate contributory factors that increase or decrease the likelihood of online victimization.

Routine Activities Theory

Society and its activity patterns are in a constant state of transformation (Madriz, 1996), especially with the development of new technology. For example, daily activities of children have evolved from bicycles and dolls to video games and the Internet. Rainie (2006) reported that 87% of youth are currently using the Internet, and that number is likely to grow. Yet, as innovative technologies emerge, new methods of victimization also accompany these developments (Mitchell et al., 2003; O'Connell et al., 2002; Sanger et al., 2004; Wolak et al., 2004; Wolak et al., 2006).

Routine Activities Theory has proved itself to be useful in explaining different types of criminal victimization. This theory states that there are three components necessary in a situation in order for a crime to occur: a suitable target, a lack of a capable guardian, and a motivated offender (Cohen & Felson, 1979). Moreover, crime is not a random occurrence; it follows regular patterns that require these three components.

Based on an examination of the relevant literature, Routine Activities Theory has been supported on both the macro- and micro-level (Arnold et al., 2005; Gaetz, 2004; Schreck & Fisher, 2004; Spano & Nagy, 2005; Tewksbury & Mustaine, 2000). Although not as plentiful as micro-level research, macro-level investigations of Routine Activities Theory have revealed empirical support for the components of the theory. In particular, lack of guardianship in areas with large amounts of traffic from non-residents having no ties to the area has shown to produce a significant effect on crime rates in neighborhoods (LaGrange,

1999; Roncek & Bell, 1981; Roncek & Maier, 1991). Moreover, the lack of guardianship and risky lifestyles of city residents have a significant relationship with victimization (Cao & Maume, 1993; Cook, 1987; Forde & Kennedy, 1997; Sampson, 1987). An examination of countries in different continents revealed support for the theory, by demonstrating how not only a lack of guardianship, but crossing paths with a motivated offender as a suitable target, increases the likelihood of victimization (Tseloni et al., 2004).

Micro-level studies utilize individual-level data, which allows for analysis of factors that specifically apply to individuals, rather than large groups. Literature on offending behavior indicated unstructured peer interaction and lack of parental supervision, reflected a lack of guardianship that was a significant predictor of criminal offending (Bernburg & Thorlindsson, 2001; Schreck & Fisher, 2004; Sasse, 2005). Personal and property crime victimization studies suggested a person's routine activities, such as participating in leisure activities away from the home and other lifestyle choices, which significantly increases the likelihood of victimization (Arnold et al., 2005; Cohen & Cantor, 1980; Gaetz, 2004; Moriarty & Williams, 1996; Mustaine & Tewksbury, 1999; Spano & Nagy, 2005; Tewksbury & Mustaine, 2000; Woolredge et al., 1992). Domain-specific models were noted to better explain routine activities in a specific environment (Mustaine & Tewksbury, 1997; Wang, 2002; Wooldredge et al., 1992). Finally, current studies revealed that drug and alcohol consumption is a significant predictor of sexual victimization of females (Mustaine & Tewksbury, 2002; Schwartz et al., 2001).

Early tests of Routine Activities Theory, which often is used to examine different types of victimization, focused on the importance of the environment as a vital component of interaction between criminal offenders and victims (Cohen & Felson, 1979). This is particularly relevant to the current research, as the environment, cyberspace, is a necessary factor that must be present in order to both participate in online activities and become a victim of harassment of other online crime. Cyberspace, which thrives on the possibilities of the unknown, also provides the opportunity for engaging in activities without the presence of a capable guardian. This is true for both the offender and victim, as both parties potentially can participate in deviant behaviors without guardianship present (Beebe et al., 1998; Danet, 1998; Jones, 1999).

According to Felson (1987), lack of behavioral controls encourages willingness to participate in criminal activity, and motivated offenders will place themselves in areas that have an abundance of suitable targets. The current study will examine how the routine activities of adolescents affect their likelihood of online victimization.

Methods

Research Design

The purpose of this study was to investigate Internet usage in a sample of freshmen enrolled in 100-level courses, as well as to consider their experiences with online victimization. In order to fully examine the topic, the chosen methodology was developed under the concepts and propositions of Routine Activities Theory, which has been utilized many times in the past to explain various types of victimization. This study employed a survey and was anticipated to produce a more complete understanding of adolescent Internet use and victimization.

Surveys were administered to enrolled freshmen in the spring of 2008, with a focus on their frequency and types of Internet use, and experiences with different types of Internet

victimization. It is important to note that since college freshmen were polled, they were asked to recall information from their senior year of high school. Recalling accurate information from the past may be difficult for respondents, which in turn would affect the validity of the findings. However, since this study asked questions that limit the scope of recall (less than one year earlier), the reliability and validity of the findings generally will be greater compared to a study asking for information further in the past.

Through the administration of the survey, the three central elements of Routine Activities Theory were measured. The first element of Routine Activities Theory evaluated was exposure to motivated offenders, which occurred through the examination of independent variables representing general usage of the Internet and specific modes of computer-mediated communication (CMC). This study asserts that general use of the Internet, including the use of various CMCs, exposes users to potential motivated offenders online as the chances of interaction between the user and the offender are reasonably high.

Students were first asked questions regarding their general usage of the Internet as high school seniors. Next, questions based on the types of activities performed online were asked, accompanied by a set of pre-selected responses. Students were asked to mark, if any, of the Internet activities they performed as a high school senior. These activities included, research, gaming, planning travel, website design, shopping, socializing with others, and/or other. Respondents also were questioned on the type of social networking website used, if any, as a high school senior. In general, if a particular site is inhabited by more motivated offenders compared to another site, the respondent may increase his or her chance of victimization by use of that site.

The second element of Routine Activities Theory evaluated was target suitability, which occurred through the examination of independent variables representing behaviors that indicate attractiveness as a suitable target for victimization. Survey questions addressed this concept by asking respondents to reveal their behaviors regarding privatization of a social networking website, and personal information given to people online and posted on their social networking website.

The final element of Routine Activities Theory assessed the lack of capable guardianship. Independent variables represent the amount of monitoring experienced by respondents as high school seniors, and their experiences with protective measures while using the Internet.

Frequencies for categorical independent variables and descriptive statistics for continuous independent variables in the model are presented in Tables 1 and 2.

Table 1: Frequencies for Categorical Variables Representing Independent Variables (N = 483)

Variable	N	%
Activities performed on the Internet		
Research (n = 482)		
No	23	4.8
Yes	459	95.2
Gaming (n = 482)		

No	223	46.3
Yes	259	53.7
Planning travel (n = 482)		
No	326	67.6
Yes	156	32.4
Website design (n = 482)		
No	406	84.2
Yes	76	15.8
Shopping (n = 482)		
No	193	40.0
Yes	289	60.0
Socializing with others (n = 482)		
No	47	9.8
Yes	435	90.2
Other (n = 481)		
No	429	89.2
Yes	52	10.8
Use of email (n = 482)		
No	91	18.9
Yes	391	81.1
Use of instant messaging (n = 482)		
No	93	19.3
Yes	389	80.7
Use of chat rooms (n = 482)		
No	442	91.7
Yes	40	8.3
Use of social networking websites (n = 482)		
No	89	18.5
Yes	393	81.5
Social networking website used		
MySpace (n = 480)		
No	178	37.1
Yes	302	62.9
Facebook (n = 480)		
No	180	37.5
Yes	300	62.5
Other (n = 480)		

No	464	96.7
Yes	16	3.3
Used a non-privatized social networking website (n = 481)		
No	244	50.7
Yes	237	49.3
Information posted on social networking website ²		
Age (n = 481)		
No	120	24.9
Yes	361	75.1
Gender (n = 481)		
No	91	18.9
Yes	390	81.1
Descriptive characteristics (n = 481)		
No	355	73.8
Yes	126	26.2
Picture(s) of yourself (n = 481)		
No	98	20.4
Yes	383	79.6
Telephone number (n = 481)		
No	452	94.0
Yes	29	6.0
School location (n = 481)		
No	221	45.9
Yes	260	54.1
Extracurricular activities (n = 481)		
No	191	39.7
Yes	290	60.3
Goals/aspirations (n = 481)		
No	337	70.1
Yes	144	29.9
Sexual information (n = 481)		
No	471	97.9
Yes	10	2.1
Emotional/mental distresses/problems (n = 481)		
No	451	93.8
Yes	30	6.2
Family conflicts (n = 481)		
No	474	98.5
Yes	7	1.5
Other (n = 481)		
No	455	94.6
Yes	26	5.4
Communicate with strangers online (n = 479)		
No	272	56.8
Yes	207	43.2

² Independent variables listed as “Information posted on social networking websites” were combined into one variables termed “SNWInfo” for statistical analysis.

Personal information to others (n = 482)		
No	382	79.3
Yes	100	20.7
Information given to person(s) online ³		
Age (n = 482)		
No	381	79.0
Yes	101	21.0
Gender (n = 482)		
No	378	78.4
Yes	104	21.6
Descriptive characteristics (n = 482)		
No	425	88.2
Yes	57	11.8
Picture(s) of yourself (n = 482)		
No	422	87.6
Yes	60	12.4
Telephone number (n = 482)		
No	444	92.1
Yes	38	7.9
School location (n = 482)		
No	439	91.1
Yes	43	8.9
Extracurricular activities (n = 482)		
No	416	86.3
Yes	66	13.7
Goals/aspirations (n = 482)		
No	439	91.1
Yes	43	8.9
Sexual information (n = 483)		
No	468	97.1
Yes	15	3.1
Emotional/mental distresses/problems (n = 482)		
No	467	96.9
Yes	15	3.1
Family conflicts (n = 482)		
No	467	96.9
Yes	15	3.1
Other (n = 482)		
No	480	99.6
Yes	2	0.4
Location of computer use		
Home (n = 481)		
No	34	7.1
Yes	447	92.9
Living room/family room (n = 475)		
No	281	59.2
Yes	194	40.8

³ Independent variables listed as “Information given to person(s) online” were combined into one variables termed “ProvidedInfo” for statistical analysis.

Your bedroom (n = 475)		
No	320	67.4
Yes	155	32.6
Parent/guardian's bedroom (n = 475)		
No	467	98.3
Yes	8	1.7
Other room (n = 475)		
No	394	82.9
Yes	81	17.1
School computer lab (n = 480)		
No	458	95.4
Yes	22	4.6
Friend's home (n = 480)		
No	474	98.8
Yes	6	1.3
Coffee shop (n = 480)		
No	480	100.0
Yes	0	0.0
Other (n = 480)		
No	472	98.3
Yes	8	1.7
In same room		
Parent/Guardian (n = 481)		
No	256	53.2
Yes	225	46.8
Friend (n = 481)		
No	223	46.4
Yes	258	53.6
Teacher/Counselor (n = 481)		
No	415	86.3
Yes	66	13.7
Sibling (n = 481)		
No	258	53.6
Yes	223	46.4
Someone else (n = 481)		
No	429	89.2
Yes	52	10.8
No one (n = 481)		
No	275	57.2
Yes	206	42.8
Restrictions online		
Time spent online (n = 480)		
No	404	84.2
Yes	76	15.8
Viewing of adult websites (n = 480)		
No	309	64.4
Yes	171	35.6
Use of CMCs (n = 480)		
No	453	94.4
Yes	27	5.6
Other (n = 480)		
No	467	97.3
Yes	13	2.7

No restrictions (n = 480)		
No	216	45.0
Yes	264	55.0
No active monitoring (n = 478)		
No	184	38.5
Yes	294	61.5
Active monitoring (n = 478)		
No	411	86.0
Yes	67	14.0
Unsure of active monitoring (n = 478)		
No	361	75.5
Yes	117	24.5
No filtering/blocking software (n = 478)		
No	291	60.9
Yes	187	39.1
Filtering/blocking software (n = 478)		
No	239	50.0
Yes	239	50.0
Unsure of filtering/blocking software (n = 478)		
No	426	89.1
Yes	52	10.9

Table 2: Descriptive Statistics for Recoded Continuous Variables Representing Exposure to Motivated Offenders (N = 483)

Variable	Minimum	Maximum	Mean	Standard Deviation
Hours per week on the Internet (n = 479)	0	35	15.14	8.97
Hours per week of use of email (n = 479)	0	4	1.29	1.06
Hours per week of use of instant messaging (n = 480)	0	15	4.39	4.09
Hours per week of use of chat rooms (n = 480)	0	1	0.08	0.27
Hours per week of use of social networking websites				

(n = 477)	0	15	4.05	3.79
-----------	---	----	------	------

Three dependent variables were examined in this particular study. Respondents were asked if, during their high school senior year, they had received the following from a person online: sexually explicit material (e.g., pornography), non-sexual harassment (e.g., unwanted emails, instant messages) and sexual solicitation (e.g., request for either online or offline sexual interaction). Dependent variables for this study were measured as dichotomous variables. Frequencies for categorical dependent variables are presented in Table 3.

Table 3: Frequencies for Categorical Variables Representing Dependent Variables (N = 483)

Variable	N	%
<hr/>		
Received unwanted sexually explicit material (n = 473)		
No	365	77.2
Yes	108	22.8
Received harassment in non-sexual manner (n = 468)		
No	324	69.2
Yes	144	30.8
Received solicitation for sex (n = 470)		
No	425	90.4
Yes	45	9.6

Sample

The population for the present research included all freshmen enrolled in 100-level course at a mid-sized university in the northeast during the spring 2008 academic term. In order to obtain a representative sample of freshmen, a sampling frame of all 100-level courses potentially available to freshmen at the main campus in spring 2008, along with the respective sections available for each course. Course sections were randomly selected and permission was requested from the professor of the course to administer the survey to the class of students. This process continued until a sample of 483 freshmen (out of the 744 surveys collected) was collected for analysis.

In regard to the demographics of the sample, approximately 40% of the respondents were male. This is comparable to the entire freshman population at this university (42.6% male). Also, much like the freshmen population, the majority of the sample (83.7%) was white non-Hispanic. Finally, 51.3% of the sample was 18 years old and the remaining members were 19 years old (this information was not available for the population).

Analysis

Data obtained through administration of the survey was analyzed in different manners through various techniques. Since the dependent variables initially were measured as a dichotomy, logistic regression models were used to assess relationships between the independent variables and the likelihood of victimization. Due to the large number of independent variables measured in this study, stepwise logistic regression was utilized to determine the appropriate variables to assess in the models. In multivariate analysis, some variables can have a statistically significant effect only when another variable is controlled, which is called a suppressor effect (Agresti & Finlay, 1997). As a result, backward elimination was selected as the method of stepwise regression, whereby all possible variables are initially contained in the model, and there is less risk of ruling out variables involved in suppressor effects (Menard, 2002).

Another step taken to enhance the discovery of potential relationships was to relax the $p < .05$ criterion for retention of variables in the models. Bendel and Afifi (1977) asserted that $p < .05$ is too low and further recommended that the criterion for retention in the stepwise model be set at .15 or .20, so important variables are not excluded. The criterion for retention of variables in this study was set at .20, to better reveal any possible statistically significant relationships. Furthermore, linear probability models first were utilized to identify any possible problems with multi-collinearity, through the use of tolerance statistics and variance inflation factors. These factors were found to be normal and therefore were not an issue in this study.

Results

Table 4 presents the logistic regression estimates for the dependent variable “receipt of sexually explicit material.” The high school senior time period model was shown to explain a range of 12.3% to 18.3% of the variation in the dependent variable. Respondents who shopped online (Shop) and those who used chat rooms one or more hours per week (ChatHour) were over two times more likely to be victimized, and those who provided various types of information to online contacts also were more likely to receive sexual material. In addition, two control variables emerged as significant predictors. First, respondents who were white (White) were less likely than minorities to receive sexually explicit material online ($b = -.750$, $p < .05$). Second, respondents whose parents more often took away privileges (Privileges) during the high school senior time period were more likely to be victimized ($b = .142$, $p < .01$). The temporal ordering of the latter relationship may be important to consider, as it is possible that when respondents received sexually explicit material, parents then took away computer privileges.

Table 4. Logistic Regression Estimates for the Dependent Variable of Receipt of Sexually Explicit Material (N = 483)

Variable	B(SE)	Exp(B)
Travel	-.456(.269)	.634
Design	..477(.305)	1.611
Shop	.812(.263)	2.253**
OtherActivity	..592(.357)	1.808

ChatHour	.774(.393)	2.169*
ProvidedInfo	.107(.046)	1.113*
ParInRm	.446(.237)	1.562
OthInRm	.489(.357)	1.630
RestrictTime	.498(.303)	1.645
Sex	-.436(.242)	.646
White	-.750(.297)	.472*
GPA	-.222(.109)	.801
Privileges	.142(.043)	1.153**
Constant	-1.464(.440)	.231**

-2 Log-likelihood	467.669
Model Chi-Square	62.651
Cox & Snell R ²	.123
Nagelkerke R ²	.183

p < .05

** p < .01

*** p < .001

Table 5 presents the logistic regression estimates of the dependent variable “receipt of non-sexual harassment” during the high school time period. The variables retained at the .20 level were shown to explain 15.7% to 21.9% of the variation in the dependent variable during the college freshman time period model. Socializing online (Social) continued to increase the likelihood of non-sexual harassment (b = 1.537, p < .05). Furthermore, hours per week spent using email (EmHours) now emerged as a variable that significantly increased the likelihood of this type of victimization (b = .232, p < .05). Providing various types of personal information to online contacts (Provided Info) was the most statistically significant predictor of non-sexual harassment (b = .178, p < .001). Finally, the only significant control variable in the model was placing an importance on succeeding in school. Respondents who had a stronger desire to succeed in school (Succeed) were less likely to receive non-sexual harassment (b = -.184, p < .05).

Table 5. Logistic Regression Estimates for the Dependent Variable of Receipt of Non-Sexual Harassment (N = 483)

Variable	B(SE)	Exp(B)
Shop	.344(.221)	1.410
Social	1.537(.631)	4.651*
EmHours	.232(.111)	1.261*
IMHours	..048(.028)	1.049
ProvidedInfo	.178(.043)	1.195***
LivRm	-.391(.221)	.677
SchLab	-1.420(.809)	.242

RestrictCMC	.767(.459)	2.152
DKActMon	-.331(.256)	.718
Sex	.381(.240)	1.464
GPA	-.181(.112)	.835
Grades	.154(.089)	1.167
Succeed	-.184(.075)	.832*
Constant	-2.707(.872)	.067**

-2 Log-likelihood	525.572
Model Chi-Square	82.029***
Cox & Snell R ²	.157
Nagelkerke R ²	.219

* p < .05

** p < .01

*** p < .001

Finally, the full logistic regression model examining the last type of victimization analyzed in this study, receipt of sexual solicitation, is presented in Table 6. Variables retained at the .20 level were shown to explain 15.4% to 30.0%⁴ of the variation in the dependent variable. Two independent variables were statistically significant predictors, along with three control variables. Providing personal information to online contacts (ProvidedInfo) had the most highly significant impact on this type of victimization, as it increased the likelihood of receipt of sexual solicitation by approximately 38% [Exp(B) = 1.377] for each type of information provided. Main use of the Internet in locations noted as “Other Place” (OthPl) (i.e., not in the parent’s or friend’s home, or school computer lab) also significantly increased this likelihood (b = 2.196, p < .05). With regard to the control variables, respondents who reported they could share thoughts and feelings with friends (ShareFriends) (b = -.228, p < .05) and those who had greater respect for their teachers (RespectTeachers) (b = -.214, p < .05) were significantly less likely to receive sexual solicitation online. In addition, a respondent whose parents more often took away privileges (Privileges) was more likely to receive sexual solicitation online (b = .143, p < .05). Again, this could indicate that privileges were removed as a result of inappropriate online behaviors, or that conflict with parents actually influenced the likelihood that a respondent would be in a position to receive sexual solicitation online.

⁴ There is a notable spread between the Cox & Snell and Nagelkerke R² in this model. After careful evaluation of the model, the author believes the reason for this spread is the low amount of respondents who experienced this dependent variable (n = 45) compared to the total sample.

Table 6. Logistic Regression Estimates for the Dependent Variable of Receipt of Sexual Solicitation (N = 483)

Variable	B(SE)	Exp(B)
Gaming	-.567(.343)	.567
Social	1.366(1.089)	3.919
SNWHours	.081(.044)	1.085
ProvidedInfo	.320(.055)	1.377***
OthPI	2.196(.949)	8.988*
FriInRm	.605(.349)	1.831
SibInRm	-.630(.347)	.532
RestrictTime	-.761(.511)	.467
ShareFriends	-.228(.089)	.796*
RespectParents	.203(.125)	1.225
RespectTeachers	-.214(.098)	.080*
Succeed	.146(.082)	1.157
Nag	-.122(.072)	.885
Privileges	.143(.071)	1.153*
Constant	-3.214(1.484)	.040*

-2 Log-likelihood	265.676
Model Chi-Square	80.393***
Cox & Snell R ²	.154
Nagelkerke R ²	.300

* p < .05

** p < .01

*** p < .001

Discussion and Conclusion

Daily use of the Internet is a customary behavior for so many Americans, whether it is for socialization, research, or various other activities. Considering the idea for the Internet was not conceived until 1962 (Leiner et al., 2003) and just became a familiar facet of businesses and homes in the early 1990s (Sanger et al., 2004), this new commodity of communication has become a prevalent mainstay in American homes. Due to its easy accessibility and availability, the frequency of Internet use has increased in all age groups; however, Internet use by adolescents has had the largest increase of use compared to any other age group (Addison, 2001).

Today's adolescents have grown up using the Internet, and in turn they are extremely familiar with the multiple opportunities of use available online. Youth are especially involved in online socialization with various methods of computer-mediated communication (CMC), such as email, chat rooms, instant messaging, and social

networking websites. Moreover, not only are more adolescents using the Internet to socialize, they are also spending more time online (Izenberg & Lieberman, 1998; Nie & Erbring, 2000; United States Department of Commerce, 2002). Unfortunately, while the use of CMCs can produce positive interaction and develop enjoyable relationships for its users, these young people spending extensive amounts of time online are also placing themselves at risk for an increased likelihood of victimization.

The purpose of this study was to further investigate past Internet usage in a sample of college freshmen, as well as to consider their experiences with online victimization. In order to more fully examine this topic area, the chosen methodology was developed under the concepts and propositions of Routine Activities Theory, which has been utilized many times in the past to explain various types of victimization. As few studies have attempted to provide an explanation for adolescent online victimization, this study employed a survey utilizing a theoretical basis and was anticipated to produce a more complete understanding of adolescent Internet use and victimization.

Examination of the data showed that behaviors that increased exposure to motivated offenders had a sizeable impact on the likelihood of victimization. Consistent with the findings of Wolak et al. (2007), respondents in this study reported that participation in certain activities while online, and amplified use of CMCs, increased the likelihood of victimization through receipt of sexual material as well as non-sexual harassment. These results, which indicated that exposure to motivated offenders increased a person's likelihood to experience victimization, are also consistent with previous victimization research using Routine Activities Theory.

The examination of the data also showed that behaviors that increased target suitability had a large impact on the likelihood of victimization. In fact, participating in behaviors that increased target suitability was shown to have the largest effect on dependent variables. Supporting findings by Mitchell et al. (2007), this study indicated that communicating with people online and providing personal information to online contacts increased the likelihood of all three types of victimization measured in the study for respondents during the high school senior time period.

These findings were analogous with previous studies examining victimization through Routine Activities Theory. Multiple studies have found that decreasing a person's target suitability in turn decreases his or her likelihood of becoming a victim of crime (Felson, 1986; Horney, et al., 1995; Schreck & Fisher, 2004). For example, Arnold et al. (2005) discovered that if the main activities of respondent involve drinking and other leisure activities, their level of target suitability is increased and in turn, they are more likely to be a victim of crime. Moreover, Wang (2002), during his examination of causal factors associated with bank robberies, determined that banks who presented themselves as suitable targets (i.e., excessive amounts of cash and located close to a major highway) were more likely to be robbed.

Unlike the other two constructs of Routine Activities Theory, protective measures taken during Internet use (measured under the theoretical construct of lack of capable guardianship) had minimal effect on the dependent variables measured in the study. In regard to measures examining lack of capable guardianship, findings from this study indicated that protective software had no significant effect on victimization for survey respondents. Contrary to what was expected in the findings, the use of filtering and blocking software did not appear to decrease victimization for the respondents. Conversely, some respondents who were unsure if the software was present were more

likely to be victimized; in other words, although there was a possibility that software was present to filter unwanted materials, respondents were still more likely to receive some type of sexual material.

Little support was found supporting that online restriction given to respondents would decrease the likelihood of victimization online, as only one type of restriction (viewing of adult websites) had a statistically significant effect on the victimization. High school seniors who had this type of restriction were less likely to be victimized online, while college freshmen were not affected. Furthermore, little support was found for the expectation that adolescents who were monitored while online were less likely to be victimized.

The findings of this study were not similar to previous studies examining victimization through Routine Activities Theory, as past research revealed that uses of protective measures, which decreased lack of capable guardianship, decreased the likelihood of victimization (Cao & Maume, 1993; Cook, 1987; Sampson, 1987). In regard to the Wang (2002) study mentioned previously, he discovered that banks that increased security and had armed security guards were less likely to be robbed. Tseloni et al. (2004), who used data from the British Crime Survey to examine victimization through burglary, found further support. He discovered that single parent families were more likely to have their homes burglarized due to a lack of guardianship.

Policy Suggestions

The findings of this study indicated that respondents who spent an increased amount of time using the Internet and specific CMCs (in turn exposing their likelihood of encountering a motivated offender) were more likely to be victimized. Nevertheless, it would be futile to attempt to develop prevention programs that encouraged youth to reduce their use of the Internet. Use of the Internet is often necessary for educational purposes, and many youth use the Internet to socialize and connect with others. In fact, after the administration of the first Youth Internet Safety Survey, Wolak et al. (2002) determined that over half of the youth (55%) examined reported the use of chat rooms, instant messages, and e-mail to communicate with people they had never met, with the hopes of forming relationships. Rather than encouraging youth to stop socializing on the Internet, it would be more effective to educate youth on the dangers present online so they are aware of the potential for victimization.

Adolescents using the Internet should be educated to only participate in online communication with people they know and trust. Many of the respondents in this study reported that they communicated with and provided personal information to people they met online, as well as participated in offline relationships with these online contacts. In other words, these youth were revealing personal information to complete strangers (people who may intend to prey upon a vulnerable population) and were likely to continue the virtual relationship offline through various modes of communication, often in person. Although none of the respondents in this study reported participating in unwilling sexual relationships with people met online, past research has shown that there are adolescents who are physically victimized by contacts met online (Kendall, 1998; Tarbox, 2000). If adolescents limit their online communication to people they know, the risk of offline victimization should be lower.

With limited past research available, this study sought to generate greater understanding about the relationships between Internet behaviors and activities (representing the three

constructs of Routine Activities Theory) and online victimization and relationship formation. Providing personal information to online contacts and communicating with people met online (variables representing the theoretical construct of target suitability) were the strongest and most consistent predictors of online victimization. Moreover, use of certain CMCs (variables representing the theoretical construct of exposure to motivated offenders) also was shown to predict certain types of victimization. However, variables representing the third construct of Routine Activities Theory, lack of capable guardianship, were not shown to be strong or consistent predictors of online victimization of youth.

From the knowledge gained through this study, hopefully more effective policies and programs can be developed to educate youth and families about protecting themselves while online. Youth should be aware of who they are conversing with online and refrain from providing any type of personal information to people they do not know and trust. No matter what the preferred solution by parents is, the reality is that as children get older and become more independent, they become more technologically savvy and therefore are able to participate in online communication without the watchful eye of a parent or guardian. We as adults have the responsibility to educate youth that predators come in many forms, not just the stereotypical “creepy old man” preying on little children on the playground. This especially is true on the Internet where multiple identities can be created and used to prey on young online users. The main goal we should have is not to create paranoia, but rather intelligent awareness.

Finally, there is ample of opportunity for future research in this area. Surveying a wider age range of adolescents, as well as those in different geographical areas, would add to the knowledge base. Also, further investigation of the use of social networking websites and the offending behaviors of adolescents, as well as their familiarity with deceptive Internet practices, will advance our knowledge of the online behaviors and experiences of adolescents. With this knowledge, better protective measures and policies can be developed to keep adolescents safe online.

Limitations of the study

A sample of adolescents was chosen for this study because past research has shown that youth between the ages of 12 to 17 years old are at a high risk for online victimization (Mitchell, Finkelhor, & Wolak, 2003; O’Connell, Barrow, & Sange, 2002; Sanger, Long, Ritzman, Stofer, & Davis, 2004; Wolak, Finkelhor, & Mitchell, 2004; Wolak, Mitchell, & Finkelhor, 2002; Wolak, Mitchell, & Finkelhor, 2006). The ideal sample for this particular study would include respondents who fall into this age group. However, based on human subject issues that would have been encountered while trying to survey this group, college students who were legally able to participate in research (without parental consent) were chosen. The sample included adolescents ages 18 and 19 years old and was lacking the inclusion of younger adolescents.

A second limitation regarding the representativeness of this sample is based on the geographical area from which the sample was drawn. The mid-sized university in the northeast is located in a rural area, and many of its students originate from surrounding rural areas. This limited the number of students from urban and suburban settings in the sample, thereby decreasing the general ability of the findings. In comparison, the YISS-1 and YISS-2 utilized a nationally representative survey by collecting data from adolescents throughout the United States, making the results more generalized. Nonetheless, since this

is one of the few explanatory studies performed in this topic area, issues of recall and geographical location did not prevent a significant contribution from being made to the knowledge and understanding of potential causes of adolescent online victimization.

A final issue involved the wording of survey items, specifically pertaining to the measurement of persons in the room with the respondent during Internet use. The variable representing having a person in the room designated as “Other” during Internet use was shown to be a significant predictor. However, a qualitative response to elaborate on the identity of the person designated as “Other” was not available in the survey. Since this was shown to be a significant independent variable, it should be investigated further in the future.

References

- Addison, D. (2001). Youngsters Increase Time Online as Sites Seek Return Visits. *Marketing* 10.
- Arnold, R., Keane, C., & Baron, S. (2005). Assessing risk of victimization through epidemiological concepts: An alternative analytic strategy applied to routine activities theory. *Canadian Review of Sociology and Anthropology*, 423, 345-364.
- Beebe, T., Asche, S., Harrison, P., & Quinlan, K. (2004). Heightened vulnerability and increased risk-taking among adolescent chat room users: Results from a statewide school survey. *Journal of Adolescent Health*, 35, 116-123.
- Bernburg, J., & Thorlindsson, T. (2001). Routine activities in social context: A closer look at the role of opportunity in deviant behavior. *Justice Quarterly*, 18, 543-567.
- Cao, L., & Maume D. (1993). Urbanization, inequality, lifestyles and robbery: A comprehensive model. *Sociological Focus*, 26, 11-26.
- Clemmitt, M. (2006). Cyber socializing. *CQ Researcher*, 16(27), 1-34.
- Cohen, L., & Cantor, D. (1980). The determinants of larceny: An empirical and theoretical study. *Journal of Research in Crime and Delinquency*, 17, 140-159.
- Cohen, L., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44, 588-608.
- Cook, P. (1987). Robbery Violence. *Journal of Criminal Law and Criminology*, 78, 357-376.
- Danet, B. (1998). Text as mask: Gender, play, and performance on the Internet. In S. G. Jones (Ed.), *Cybersociety 2.0: Revisiting computer-mediated communication and community* (pp. 129-158). Thousand Oaks, CA: Sage Publications.
- Felson, M. (1986). Linking criminal choices, routine activities, informal control, and criminal outcomes. In D.B. Cornish & R.V. Clarke (Eds.), *The Reasoning Criminal: Rational Choice Perspectives on Offending* (119-128). New York: Springer-Verlag.
- Felson, M. (1987). Routine Activities and Crime Prevention in the developing metropolis. *Criminology*, 25, 911-932.
- Fleming, M., Greentree, S., Cocotti-Muller, Elias, D. K. & Morrison, S. (2006). Safety in cyberspace: Adolescents' safety and exposure online. *Youth and Society*, 38, 135-154.
- Forde, D., & Kennedy, L. (1997). Risky lifestyles, routine activities, and the general theory of crime. *Justice Quarterly*, 14, 265-289.
- Gaetz, S. (2004). Safe streets for whom? homeless youth, social exclusion, and criminal victimization. *Canadian Journal of Criminology and Criminal Justice*, 46, 423-455.

- Horney, J., Osgood, D. & Marshall, I. (1995). Criminal careers in the short-term: Intra-individual variability in crime and its relation to local life circumstances. *American Sociological Review*, 60, 655-673.
- Izenberg, N., & Lieberman, D. (1998). The web, communication trends, and children's health: How the children use the web. *Clinical Pediatrics*, 37, 335-340.
- Jones, S. 1999. *Doing internet research*. London: Sage.
- Kendall, V. 1998. The lost child: congress's inability to protect our teenagers. *Northwestern University Law Review*, 92, 1307-1315.
- Kirkpatrick, M. (2006, May 17). Top 10 social networking sites see 47 percent growth. *The social software weblog*. Retrieved September 25, 2006, from <http://socialsoftware.weblogsinc.com>
- Lamb, A., & Johnson, L. (2006). Want to be my friend? What you need to know about social technologies. *Teacher Librarian*, 34(1), 55-57.
- Leiner, B., Cerf, V., Clark, D., Kahn, R., Kleinrock, L., Lynch, D., Postel, J., Roberts L., & Wolff, S. (2003). A brief history of the Internet. *Internet Society*. Retrieved September 24, 2006, from <http://www.isoc.org/internet/history/brief.shtml>
- Lenhart, A., Rainie, L. & Lewis, O. (2001). Teenage life online: The rise of the instant-message generation and the internet's impact on friendships and family relationships. Washington, DC: Pew Internet and American Life Project. Retrieved September 25, 2006, from www.pewinternet.org/reports/toc.asp?Report=36
- Lwin, M., Stanaland, A. & Miyazaki, A. (2008). Protecting children's privacy online: How parental mediation strategies affect website safeguard effectiveness. *Journal of Retailing*, 84, 205-217.
- Madriz, E. (1996). The perception of risk in the workplace: A test of routine activity theory. *Journal of Criminal Justice*, 24, 407-412.
- Marcum, C.D. (forthcoming). Adolescent online victimization: Comparing genders through a test of routine activities theory. *Journal of Criminal Justice and Popular Culture*.
- Mitchell, K., Finkelhor, D., & Wolak, J. (2003). The exposure of youth to unwanted sexual material on the internet: a national survey of risk, impact and prevention. *Youth and Society* 34: 3300-3358.
- _____. (2007). Youth internet users at risk for the more serious online sexual solicitations. *American Journal of Preventative Medicine* 32: 532-537.
- Moriarty, L., & Williams, J. (1996). Examining the relationship between routine activities theory and social disorganization: an analysis of property crime victimization. *American Journal of Criminal Justice*, 21, 43-59.
- Mustaine, E., and Tewksbury, R. (1999). A routine activities theory explanation for women's stalking victimization. *Violence Against Women*, 5, 43-62.
- Nie, N., & Erbring, L. (2000). *Internet and Society: A preliminary report*. Stanford: Stanford Institute for the Quantitative Study of Society.
- O'Connell, R., Barrow, C., & Sange, S. (2002). Young peoples use of chat rooms: Implications for policy strategies and programs of education. Retrieved November 1, 2005, from <http://www.uclan.ac.uk/host/cru/publications.htm>
- Quayle, E., & Taylor, M. (2003). Model of problematic internet use in people with a sexual interest in children. *CyberPsychology and Behavior*, 6, 93-106.
- Rainie, L. (2006). Life Online: Teens and technology and the world to come. Speech to the annual conference of the Public Library Association, Boston. Retrieved October 1, 2006, from www.pewinternet.org/ppt/Teens%20and%20technology.pdf

- Roberts, D., Foehr, U., Rideout, V., & Brodie, M. (1999). *Kids and media @ the new millennium: A comprehensive analysis of children's media use*. The Henry J. Kaiser Family Foundation.
- Roncek, D., & Maier P. (1991). Bars, blocks, and crimes revisited: Linking the theory of routine activities to the empiricism of hot spots. *Criminology*, 29, 725-753.
- Rosen, L. (2006). *Adolescents in MySpace: Identity formation, friendship and sexual predators*. California State University, Dominguez Hills.
- Rosenbaum, M., Altman, D., Brodie, M., Flournoy, R., Blendon, R., & Benson, J. (2000). NPR/Kaiser/Kennedy School Kids and Technology Survey. Retrieved September 24, 2006 from <http://www.npr.org/programs/specials/pool/technology/technology.kids.html>
- Sampson, R. (1987). Personal violence by strangers: an extension and test of the opportunity model of predatory victimization. *Journal of Criminal Law and Criminology* 78, 327-356.
- Sanger, D., Long, A., Ritzman, M., Stofer, K., & Davis, C. (2004). Opinions of Female Juvenile Delinquents about their Interactions in Chat Rooms. *Journal of Correctional Education*, 55, 120-131.
- Sasse, S. (2005). Motivation and routine activities theory. *Deviant Behavior*, 26, 547-570.
- Schreck, C., & Fisher, B. (2004). Specifying the influence of the family and peers on violent and victimization. *Journal of Interpersonal Violence*, 19, 1021-1041.
- Schwartz, M., DeKeseredy, W., Tait, D., & Alvi, S. (2001). Male peer support and a feminist routine activities theory: Understanding sexual assault on the college campus. *Justice Quarterly*, 18(3), 623-649.
- Simon, J. (2006). Computer-mediated communication: Task performance and satisfaction. *Journal of Social Psychology*, 146(3), 349-379.
- Spano, R., & Nagy, S. (2005). Social guardianship and social isolation: An application and extension of lifestyle/routine activities theory to rural adolescents. *Rural Sociology*, 70, 414-437.
- Stutzman, F. (2006). *Social networking on campus*. University of North Carolina, Chapel Hill.
- Subrahmanyam, K. Kraut, R., Greenfield, P., & Gross, E. (2001). New forms of electronic media: The impact of interactive games and the Internet on cognition, socialization, and behavior. In D. G. Singer, & J. L. Singer (Eds.), *Handbook of Children's Media*. (pp.73-99). Thousand Oaks, CA: Sage Publications, Inc.
- Tarbox, K. (2000). *Katie.com*. New York: Penguin Group
- Tewksbury, R., & Mustaine, E. (2000). Routine activities and vandalism: A theoretical and empirical study. *Journal of Crime and Justice*, 23, 81-110.
- Tseloni, A., Wittebrood, K., Farrell, G., & Pease, K. (2004). Burglary victimization in England and Wales, the United States and the Netherlands. *The British Journal of Criminology*, 44, 66-91.
- United States Department of Commerce. (2002). Computer and Internet usage by Age and Disability Status: 2002. Washington, DC: United States Department of Commerce. Retrieved March 1, 2007, from <http://www.census.gov/hhes/www/disability/sipp/disab02/ds02f6.pdf>
- Wang, J. (2002). Bank Robberies by an Asian Gang: An Assessment of the Routine Activities Theory. *International Journal of Offender Therapy and Comparative Criminology*, 46, 555-568.

- Wolak, J., Mitchell, K., & Finkelhor, D. (2002). Close online relationships in a national sample of adolescents. *Adolescence*, 37, 441-455.
- _____. (2003). Escaping or connecting? Characteristics of youth who form close online relationships. *Journal of Adolescent Health*, 26, 105-119.
- _____. (2004). Internet-Initiated sex crimes against minors: Implications for prevention based on findings from a national study. *Journal of Adolescent Health*, 35, 11-20.
- _____. (2006). *Online victimization of children: Five years later*. Washington, DC: National Center for Missing and Exploited Children.
- _____. (2007). Unwanted and wanted exposure to online pornography in a national sample of youth internet users. *Pediatrics*, 119, 247-257.
- Wooldredge, J., Cullen, F., & Latessa, E. (1992). Victimization in the workplace: A test of routine activities theory. *Justice Quarterly*, 9, 325-335.
- Ybarra, M., K. Mitchell, D. Finkelhor, and J. Wolak. 2007. Internet prevention messages: targeting the right online behaviors. *Archives of Pediatric and Adolescent Medicine*, 161, 138-145.