



Effectiveness of Cyber bullying Prevention Strategies: A Study on Students' Perspectives

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Abstract

This study examined teenagers' perspectives on the effectiveness of a variety of cyber bullying prevention strategies. The data was collected from a nation-wide online survey of middle school and high school students. The 713 students who had completed responses to all of the 39 survey questions were grouped into four categories according to their roles played in cyber bullying: pure-offender, pure-victim, both-offender-and-victim, and neither-offender-nor-victim. Correlation between a student's role in cyber bullying and his or her perspective on the effectiveness of a prevention strategy is studied. The five most effective cyber bullying prevention strategies for the students in each of the four categories are analyzed. Teens in this study perceive the theme of taking away the offender's access to technology as the most effective measure, regardless of their roles in cyber bullying. The findings of this study could be useful for schools and communities in setting up policies and regulations to effectively reduce cyber bullying.

Keywords: cyber bullying, cyber bullying prevention, preventing online harassment, online bullying, Internet harassment, online harassment, in-school bullying, violence online.

Introduction

Technology has led to a new form of bullying in the 21st century called cyber bullying (Belsey, 2006; Beran & Li, 2005; Patchin & Hinduja, 2006; Shariff & Hoff, 2007). The increase in the prevalence of cyber bullying in 2005 from 2000 (Ybarra & Mitchell, 2007) and cases appearing in courts (Layshock v. Hermitage School District, 2006; Associated Press, 2005) show that schools are not well equipped to deal with cyber bullying issues. Most harmful incidents of cyber bullying occur off campus (Willard, 2008) making it extremely difficult for public schools to discipline a student without crossing the line for their free speech rights (Willard, 2007b). Developing cyber bullying prevention strategies is a challenge for schools. The strategies that adults may perceive to be effective for

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stopping and preventing cyber bullying may not be the same as the strategies students perceive to be effective.

Furthermore, within the peer group students' bully as means of gaining and maintaining power over a victim (Vaillancourt, Hymel, & McDougall, 2003). Students are not necessarily classified as either bullies or victims. They can be classified as both bullies and victims (Espelage & Swearer, 2003). Victims of bullying may bully younger children (Beran & Li, 2007; Willard, 2007b) or retaliate by bullying online (Beran & Li, 2007; Juvonen & Gross, 2008; Hinduja & Patchin, 2009; Shariff, 2008; Willard, 2007b). Some students are not involved in bullying or cyber bullying (Beran & Li, 2007). For this research, participants were grouped into four categories based on their role in cyber bullying as a pure-offender, pure-victim, both-offender-and-victim, or neither-offender-nor-victim.

In this research we surveyed 713 students to determine:

1. Which strategies are considered most effective from the students' point of view, for all as a whole and for each of the four categories of students? If we were to pick five strategies to adopt based on the data, which would they be?
2. Are there statistically significant differences among the four categories of students in their views on the effectiveness of each of the 14 cyber bullying prevention strategies? If so, how do the four categories correlate to the views of effectiveness of the strategies?

The Growing Problem of Cyber bullying

Cyber bullying is a problem that exists worldwide among youth today (Kraft, 2006; Shariff, 2008). As a result of this problem some teenagers harassed by cyber bullying are suffering from depression, having their education compromised, and committing suicide (Patchin & Hinduja, 2006; Shariff, 2008). Patchin and Hinduja studied 1,500 adolescents and found that 33% of the respondents were victims of cyber bullying (Patchin, 2006). In a February 2007 survey of 832 teenagers the National Crime Prevention Council reported that 43% of teens ages 13-17 had experienced cyber bullying (Moessner, 2007). The demographic group with the highest percentage reporting they experienced cyber bullying was 15 to 16 year old girls (Moessner, 2007). A University of New Hampshire study showed an increase in the prevalence of cyber bullying in 2005 from 2000 (Ybarra & Mitchell, 2007). Two-thirds of the teens surveyed in a May 2009 survey thought cyber bullying was a serious problem (Thomas, 2009).

Relationship of Bullying and Cyber bullying

Cyber bullying and bullying are often interrelated (Beran & Li, 2007; Willard, 2007b). A student who is being bullied at school may be bullied online (Beran & Li, 2007; Willard, 2007b). A study by Beran and Li (2007) showed that more than one-third of the participants, ages 12-15, who were bullied online were also bullied in school (Beran & Li, 2007). According to research by Patchin & Hinduja (2009) and Juvonen & Gross (2008) there is a significant relationship "between bullying and retaliation online and at school" (Szoka & Thierer, 2009, p.5). A student who is being bullied at school may become an online bully to retaliate against the bully at school (Beran & Li, 2007; Juvonen & Gross, 2008; Patchin & Hinduja, 2009; Shariff, 2008; Szoka & Thierer, 2009; Willard, 2007b).

Although bullying and cyber bullying can be interrelated cyber bullying can take place as a separate phenomenon (Ybarra, Diener-West, & Leaf, 2007). Victims of cyber bullying

are not always victims of bullying at school. A study by Ybarra, Diener-West, and Leaf, (2007) found that 64% of youth who are bullied online are not being bullied at school.

Most harmful cyber bullying incidents occur away from campus because technology use is often not supervised (Beran & Li, 2007; Shariff, 2007; Willard, 2008). Off-campus cyber bullying incidents have been shown to have a negative impact on school climate (Feinberg & Robey, 2008, Willard, 2007b), make it difficult for victims to function in school (Feinberg & Robey, 2008), increase the risk for psychosocial problems for victims (Ybarra & Mitchell, 2007) and place students' safety at risk (Feinberg & Robey, 2008).

Online incidents that occur away from school can trigger in school behavior such as school violence (Willard, 2008). Students may come to school angry as a result of conflicts that occurred through online communication (Szoka & Thierer, 2009). A student may not know what was said about him or her online until he or she hears about it the next day at school (Feinberg & Robey, 2008). Being upset about a cyber bullying incident while in school can interfere with a student's ability to concentrate on learning while at school (Beran & Li, 2007).

Schools are reluctant to discipline students for off campus cyber bullying incidents as they fear being sued for violating a student's First Amendment Free Speech rights (Tully, 2007; Willard, 2007b). A school can only discipline a student for off campus speech if the speech "materially disrupts" (Tinker v. Des Moines, 1969) school activities or "substantially interferes with the rights of others" (Tinker v. Des Moines, 1969).

Cyber bullying is considered to be more serious than traditional bullying as it is 24/7 and has an infinite audience (Beran & Li, 2005; Livingstone, 2006; Patchin & Hinduja, 2006; Shariff, 2008). Technology allows information to reach a large number of people in a short period of time (Keith & Martin, 2005). The speed of technology can spread rumors and humiliating pictures faster and to more people (Keith & Martin, 2005) than word of mouth. Everyone receives the same message when technology is used instead of word of mouth. The rumors can stay on the Internet indefinitely (Shariff, 2008).

Bullying Prevention Methods

The rise in school violence during the 1990's has prompted schools to take action against bullying. The Secret Service and the Department of Education studied 37 "incidents of targeted school violence" (Vossekuil et al., 2002, p. 12) that occurred from 1974 to June 2000. Of particular concern is that "almost three-quarters of the attackers felt persecuted, bullied, threatened, attacked or injured by others prior to the incident" (Vossekuil et al., 2002, p. 21). The attackers "described being bullied in terms that suggested that these experiences approached torment" (Vossekuil, et al., 2002, p. 44). It was determined that bullying was a factor that played some role in the perpetrator's decision to make the violent attack at school (Patchin & Hinduja, 2006).

Schools have developed programs to address the issues of school violence and bullying. Successful bullying prevention programs focus on changing the school culture to a climate that discourages bullying (Nansel, 2001 et al.; Olweus & Limber, 1999). The components of the world class Olweus bullying prevention program were setting clear rules and consequences (Olweus & Limber, 1999), incorporating social skills training into the curriculum (Nansel et al., 2001; Olweus & Limber, 1999), parental involvement, and intervention services for bullies and victims (Nansel et al., 2001; Olweus & Limber, 1999). This program was successful in Norway, but not as successful in the United States (Smith, Pepler, & Rigby, 2004). The results of the Olweus bullying prevention program have not

been replicated elsewhere (Smith, Schneider, Smith, & Ananiadou, 2004). It is speculated that the success of the Olweus bullying prevention program may be due to the fact that it was introduced into schools after there were highly publicized suicide cases that were linked to bullying (Smith, J.D. et al., 2004).

Anti-Bullying programs have had modest success with the average reduction in bullying incidents being about 15% (Smith, et al., 2004). Bystanders provide the audience for bullying incidents. According to research by Hawkins, Pepler, and Craig (2001) when a bystander intervenes in a bullying incident the bullying stops within 10 seconds 57% of the time. The success of a bullying program can be determined by the bystander's decision to intervene or encourage bullying.

Cyber bullying Prevention Methods in Schools

Cyber bullying most often occurs outside of school hours using home computers (Shariff & Hoff, 2007). School officials are often reluctant to take action against students making posts to websites while not in school (Franeck, 2006). Temporary e-mail accounts and pay as you go cell phones allow for bullies to remain anonymous (Patchin & Hinduja, 2006). The anonymity of the Internet and knowing that they are less likely to be punished for acts taking place off school grounds makes cyber bullying attractive as kids think they will not be held accountable for their actions (Shariff, 2008). First Amendment free speech rights reinforce that consequences for cyber bullying may not be upheld in a court of law (Layshock v. Hermitage School District, 2006; Associated Press, 2005) or possibly even rewarded with a monetary settlement (Associated Press, 2005) if the school is found guilty of violating a student's First Amendment free speech rights for taking disciplinary action for Internet postings (Associated Press, 2005). Given the vulnerability that school districts face for lawsuits, administrators have found that cyber bullying issues have been resolved informally by contacting the parents (Aftab, 2010b; Tully, 2007; Willard, 2007b).

Parental education can be the key to preventing cyber bullying (Aftab, 2010a; Tully, 2007; Willard, 2007a). In a study by Agatston, Kowalski, and Limber (2007) students reported that they would be more likely to report a threatening incident of cyber bullying to their parents than to an adult at school because they do not think the adults at school could help them with the cyber bullying problem (Agatston, Kowalski, & Limber, 2007). Parents who know what actions to take rather than overreacting (Aftab, 2010a) or thinking cyber bullying is just a part of growing up (Aftab, 2010a) will be better equipped to help their child cope with a cyber bullying incident. It is recommended that parents contact the school (Aftab, 2010a; Ybarra et al., 2007) when their child tells them he or she is being harassed online.

There is research evidence that ongoing communication about and supervision of online activities can also prevent teens' engaging in risk taking behaviors on the Internet such as disclosing personal information, offline meetings, sharing photos, and exposure to threatening messages (Berson, Berson, & Ferron, 2002). A study by Berson et al. (2002) showed that when teachers, parents, or other caregivers have an ongoing dialogue about cyber activities and monitor adolescent girls' Internet use there is a "decreased tendency to engage in cyber activities that lead to potential harm" (Berson et al., 2002, p. 51). Adolescent girls who had ongoing discussions and monitoring by parents were less likely to have filled out a form that discloses personal information, agreed to meet in person with someone they met online, told personal information, or sent suggestive e-mail (Berson et al., 2002). Having poorer parental monitoring and relationships with parents or other

caregivers is associated with increasing frequency of victimization online (Ybarra et al., 2007)

Besides parental involvement, several cyber bullying prevention strategies have been suggested in the literature. These strategies include incorporating cyber bullying prevention into anti-bullying programs (Willard, 2007b), setting clear rules and consequences (Aftab, 2010b; Willard, 2007b), raising awareness about cyber bullying (Campbell, 2006), Internet filters (Agatston, 2007), increased supervision of students (Berson et al., 2002; Campbell, 2006), acceptable user policies (Aftab, 2010b; Berson et al., 2002; Willard, 2007b.), Internet safety programs (Bullypolice.org, 2010; Willard, 2007b), federal legislation to criminalize cyber bullying (Megan Meier Cyber bullying Prevention Act, 2009), showing students how messages can be traced (Franek, 2006), and anonymous technological reporting of incidents for preventing cyber bullying (McCormick, 2005).

The “Protecting Children in the 21st Century Act” of 2008 specifies that schools teach students about “appropriate online behavior, including interacting with other individuals on social networking websites and in chat rooms and cyber bullying awareness and response” (Protecting Children in the 21st Century Act, 2008, Sect 2(a)(3)(b) (i) & Sect 2(a)(3)(b) (ii)). Schools have used Internet safety education as strategy for reducing risky online behavior to protect students from cyber bullying and other forms of cyber harassment (Bullypolice.org, 2010; Willard, 2007b). Internet safety programs have been effective in increasing student’s knowledge of Internet safety strategies (Chibnall, Wallace, Leicht, & Lunghofer, 2006); however, there are no research findings that this prevention strategy results in a decrease in participants engaging in risky Internet behaviors (Chibnall et al., 2006; Crombie & Trinner, 2003).

In January, 2010, The National Computer Security Alliance surveyed teachers, administrators, and technology coordinators about online safety and security education attitudes and practices. Based on the results of the survey they concluded that “America’s young people aren’t receiving adequate instruction to use digital technology and navigate cyberspace in a safe, secure, and responsible manner and are ill-prepared to address these subjects” (The National Computer Security Alliance, 2010).

Laws against Cyber bullying

Forty-three states in US currently have bullying prevention laws as of June 2010 (Bullypolice.org, 2010). There are at least 21 states that have legislation against cyber bullying (Brookover, 2008; Bullypolice.org, 2010). These states are Arkansas, California, Delaware, Florida, Georgia, Idaho, Iowa, Kansas, Maryland, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, and Washington (Brookover, 2008; Bullypolice.org, 2010). Cyber bullying is defined in state anti-bullying prevention laws. Oklahoma, for example, modified anti-bullying legislation by requiring schools to add electronic communication to school bullying policies. Electronic communication is defined as “the communication of any written, verbal, or pictorial information by means of an electronic device, including, but not limited to, a telephone, a cellular telephone or other wireless communication device, or a computer” (Oklahoma STAT. ANN. title 70, § 24-100.4). State anti-bullying prevention laws require schools to develop policies against bullying which can include incorporating cyber bullying into the anti-bullying policy, have educational programs, and establish reporting procedures (Brookover, 2008). Some

states such as Colorado have comprehensive Internet safety education program requirements.

Missouri has revised Statutes §160.261, §565.090, §565.225 so that cyber-harassment is considered a Class D felony (Szoka & Thierer, 2009) instead of a misdemeanor. The law prohibits using electronic or any other means of communication to knowingly “frighten, intimidate, or cause emotional distress to another person,” making “repeated unwanted communication to another person” or using unwanted or offensive communication that “puts [a] person in reasonable apprehension of offensive physical contact or harm” (Missouri Revised Statutes §160.261, §565.090, §565.225, 2008). The law also requires schools to report harassment or stalking that occurs on school grounds to the police (Brookover, 2008). Missouri does not have any state anti bullying legislation (Bullypolice.org, 2010).

Cyber bullying Prevention Studies

Prior research by Harris Research for the National Crime Prevention Council revealed that 47% of teenagers thought that “cyber bullying happens because the cyberbully doesn't perceive any tangible consequences” (Moessner, 2007, p. 3) and 45% thought it “happens because the teen thinks he or she won't get caught” (Moessner, 2007, p. 3). That research also found that teens perceived the most effective strategies to be “blocking people online who bully, refusing to pass along cyber bullying messages and online groups having moderators who block offensive messages as being the most effective” (Moessner, 2007, p. 4). Strategies that were perceived as less effective were “all schools should have rules against cyber bullying; schools should educate students in small groups not to cyberbully, holding school assemblies to educate students not to cyberbully, and teaching adults to help young people not to cyberbully,” (Moessner, 2007, p. 4). These strategies were all strategies in which adults tell them not to cyber bully. The strategies students perceive as ineffective are those in which adults tell them not to cyber bully. The strategies which they perceive as effective are those in which they themselves can do something about the cyber bullying or someone else such as the moderator of the website will stop the cyber bullying.

Cyber bullying prevention programs need to empower students to stop cyber bullying themselves. In a study by Agatston, et al. (2007), students were able to suggest cyber bullying prevention strategies that utilized technological features to block the bully or not respond. However, the students were less aware of strategies such as trying to have the offensive material removed or how to respond when they witness cyber bullying as a bystander (Agatston et al., 2007).

Effective bullying prevention programs change the school culture (Nansel et al., 2001; Olweus & Limber, 1999). Cyber bullying prevention programs need to have a similar philosophy. Teens do not perceive being told not to cyberbully as changing the school climate. They may find programs that teach them what to do if cyber bullied more effective.

Method and Procedure

Determining Students Role in Cyber bullying

The definition of cyber bullying was given to the respondents of the survey, as follows:

Cyber bullying refers to the activities of using technology to bully others. Examples of cyber bullying adapted from (Willard, 2007b) were given in the survey to help students identify online bullying, such as:

1. Sending mean or threatening e-mails, instant messages, or cell phone text messages.
2. Tricking someone into telling personal information in an e-mail. The e-mail with the personal information is forwarded to others.
3. Creating a profile of someone at an online social networking site such as Myspace.com or Facebook.com without their permission.
4. Using someone else's IM screen name or e-mail account to bully others.
5. Making postings to a website saying mean things about teenager or teacher online.
6. Creating or voting in online polls with hurtful questions such as "Who's the ugliest girl in 9th grade?"
7. Posting embarrassing pictures of another person online.
8. Making harassing or threatening phone calls with a cell phone.

The 713 respondents are grouped into four categories, according to their responses to the following two questions to identify their roles played in cyber bullying:

1. Have you bullied anyone online in the past year?
2. Have you been a victim of cyber bullying in the past year?

In this study the researchers classified offenders and victims of cyber bullying as respondents who reported at least one incident of cyber bullying. We did not consider reports of the severity and frequency of the incidents when classifying the respondents. Beran and Li (2007) have found that most subjects reported being offenders or victims of cyber bullying only once or twice despite providing respondents with a definition that online harassment is repeated. In their research findings, Beran and Li (2007) stated that students may not report cyber bullying activities or being a victim of cyber bullying because they fear losing their technology privileges even though they are assured that their data reported in the study is confidential (Beran & Li, 2007). We decided that even though cyber bullying is conceptualized as a repeated phenomenon (Belsey, 2010; Patchin & Hinduja, 2006; Shariff, 2008) that we would consider respondents who reported being victims or offenders of cyber bullying at least once as victims or offenders due to students' inclination to underreport cyber bullying. The category *pure-offender* is composed of those who bullied others at least once online, but were never bullied online by anyone. The category *pure-victim* has the students who never bullied others online, but were bullied at least once online. The category *both-offender-and-victim* contains those who bullied others online and were also bullied online. The rest of the students are in the category *neither-offender-nor-victim*, who never bullied others and were never bullied online.

Demographics of Four Categories

Table 1 shows the demographics of the respondents and four categories. A total of 713 students' responses from 48 states were collected. Hawaii and Vermont were not

represented in the sample. States with larger populations had more students in the sample. There were no more than 10% of the participants from any single state.

The study was controlled to have 50% of the respondents self reporting that they were cyber bullies. Table 1 shows the demographics of the four categories in terms of gender, race, type of school attended, age, and household income. The sample of 713 students was representative in terms of race, household income, and gender of the 2000 census data. The sample is broken down based on the respondents' role of pure-victim, pure-offender, both- offender-and-victim, and neither-offender-nor- victim based on self reports of being a perpetrator or victim of cyber bullying.

Table 1
Demographics of the four categories and participants

	Percent-in-category (number-in-category)				Total number	Total %-in-713-responses
Category Category Total	neither- victim- nor- offender 100%(303)	pure- victim 100%(60)	both- offender- and-victim 100%(289)	pure- offender 100%(61)		
Gender					713	100%
Male	51% (154)	37% (22)	43% (125)	57% (35)	336	47.2%
Female	49% (149)	63% (38)	57% (164)	43% (26)	377	52.8%
Race						
White	75% (227)	75% (45)	78% (225)	66% (40)	537	75.2%
African American	9% (26)	3% (2)	7% (19)	10% (6)	53	7.4%
Asian	7% (21)	3% (2)	4% (13)	7% (4)	40	6%
Hispanic-non-white	5% (15)	8% (5)	6% (18)	7% (4)	42	6%
Biracial	4% (11)	7% (4)	4% (11)	8% (5)	31	4%
Other	1% (3)	3% (2)	1% (3)	3% (2)	10	1%
School						
Elem. up to grade 8	5% (14)	2% (1)	6% (16)	5% (3)	34	5%
Middle	22% (68)	25% (15)	18% (52)	21% (13)	198	21%
Junior High	14% (41)	12% (7)	14% (40)	16% (10)	98	14%
High	58% (177)	62% (37)	62% (178)	54% (33)	426	60%
Other	1% (3)	0% (0)	1% (3)	3% (2)	8	1%
Age						
13	20% (60)	17% (10)	11% (32)	16% (10)	112	16%
14	17% (51)	22% (13)	23% (67)	25% (15)	146	20%
15	20% (62)	20% (12)	30% (87)	25% (15)	177	25%
16	19% (58)	18% (11)	17% (49)	23% (14)	132	19%
17	19% (58)	22% (13)	18% (53)	11% (7)	131	18%
Other	5% (14)	2% (1)	0% (1)	0% (0)	16	2%
Household Income						
0-20k	12% (37)	3% (2)	5% (15)	8% (5)	59	8%
20k-50k	19% (58)	28% (17)	21% (62)	23% (14)	151	21%

50k-75k	17% (51)	13% (8)	22% (65)	16% (10)	134	19%
75k-100k	11% (34)	15% (9)	12% (36)	5% (3)	82	12%
100k-150k	8% (24)	5% (3)	9% (26)	7% (4)	57	8%
Over 150k	3% (10)	0% (0)	5% (15)	3% (2)	28	4%
Don't know	29% (89)	35% (21)	24% (70)	38%(23)	203	28%

Females in our study were more likely to report being victims or both-offenders-and-victims of cyber bullying as shown in Table 1. Note that in the category of pure-victim, 37% are males and 63% are females and for both-offender-and-victim 43% are males and 57% are females.

Boys were more likely to be offenders and less likely to be victims. For the category of pure-offenders, 57% are males and 43% are females. These results are consistent with a study by Li (2007) that showed that boys were more likely to be cyber bullies only and girls were more likely to be cyber victims only (Li, 2007).

Measure

This purpose of this study was to measure the perceived effectiveness of the 14 strategies presented in Table 2 by students who are offenders, victims, both offenders and victims, and neither offenders nor victims of cyber bullying. The strategies are numbered from one to fourteen in the first column of Table 2. The question number as it appeared in the survey is listed in the second column of Table 2. The abbreviated strategy listed in the third column of Table 2 provides a highlight of a strategy for the convenience of reference later in this paper. The full strategy as presented to the participants is listed in the fourth column of Table 2.

These strategies were selected from research in the literature, state regulations, and programs in schools. Strategy 1, not allowing the offender to use the computer at home or school; strategy 3, parent taking away computer and cell phone; and strategy 6, offender not allowed to use social networking were based on the premise that teenagers did not want to tell their parents that they had experienced cyber bullying because they feared that they would have their computer privileges restricted (Juvonen & Gross, 2008) or taken away (Beran & Li, 2007; Keith & Martin, 2005; Patchin & Hinduja, 2006; Shariff, 2008).

Table 2
Summary of Cyber bullying Prevention Strategies

Strategy Number	Question	Highlight of strategy	Strategy stated on questionnaire
1	Q-11-a	No computer use in school and home for offender	Cyber bullies would not be allowed to use the computer at home and school. Any assignments for school that required using the library would have to be done at the library using books.
2	Q-11-b	Sending offender to another school	Sending cyber bullies to an "alternative" school away from their regular school as punishment.

3	Q-11-c	Parent taking away offender's computers and cell phones	Parents would take away a cyber bully's cell phone and computer.
4	Q-11-d	Offender paying victim money	Cyber bullies would have to get a job and pay money to the person they bullied online.
5	Q-11-e	One year delay to a 4-year college for offender	Repeat cyber bullies would not go to 4 year colleges. They would have to spend at least one year at a community college before going to a 4 year college. It would not matter how well they did in high school.
6	Q-11-f	No access to social networking sites for offender	Cyber bullies would not be allowed to use social networking sites such as Myspace.com.
7	Q-11-g	Offender attending netiquette classes on Saturdays	Cyber bullies would have to attend netiquette classes on Saturdays for several weeks.
8	Q-11-h	20 hours of community service for offender	Cyber bullies would have to do at least 20 hours of community service.
9	Q-11-i	No extracurricular activities for offender	Cyber bullies would not be allowed to participate in after school activities such as sports.
10	Q-11-j	Offender doing presentation about cyber bullying	Cyber bullies would have to create a presentation about the effects of cyber bullying. They would have to let others know why they should not do what they did.
11	Q-25	Telling students in class what to do as a victim	Telling teenagers in a class what to do if bullied online.
12	Q-26	Setting clear rules and enforcing penalties on offender	Having clear rules for preventing cyber bullying and enforcing penalties on cyber bullies.
13	Q-28	Having written policy on zero toleration about bullying	Written policies in school saying online bullying will not be tolerated.
14	Q-30	Ongoing cyber bullying prevention programs	Cyber bullying prevention programs, which are not one-time assemblies, instead are ongoing programs that take place for the entire school year. Students participate in activities to help raise their awareness about cyber bullying, and learn skills to prevent cyber bullying.

The second strategy, sending the offender to an alternative school, was taken from Georgia's state anti-bullying law that stated that the law "provides for the assignment of certain students to alternative schools" to prevent bullying (Georgia HB 81, 1999, section 2(D) (2)).

Strategy 4, requiring the offender to find a job and pay the victim money from their wages, reflects the idea that a parent could be held financially liable for damages as a result of their teen's behavior online (High, 2009; Tully, 2007; Williard, 2007a).

Strategy 5, repeat offenders would not be allowed to go to a four year college their freshman year was based on the case in which Justin Layshock was denied admission to Pennsylvania State University (Associated Press, 2007) as a result of posting a phony online profile about his school's principal (Layshock v. Hermitage School District, 2006). It is also based on the new rule on the Common Application used by 320 colleges and universities, that has added a discipline question to screen applicants who have committed a school violation leading to "probation, suspension, removal, dismissal or expulsion" (Pappano, 2007).

Strategy 7, requiring the offender to attend netiquette classes on Saturday, follows Thorbahn's research result that Saturday school programs were effective in changing student attitudes and helping them to understand the consequences of their behavior (Thorbahn, 1995). The SMART (Saturday Morning Alternative Reach and Teach) Program is a Saturday school program for students who have serious disciplinary violations that can include cyber bullying. The SMART program is used by the School District of Philadelphia and in the Chicago Public Schools (School District of Philadelphia, 2009; Chicago Public Schools, 2008). Saturday morning classes and community service are frequently used as a disciplinary measure in the SMART programs reflecting the ideas proposed strategies 7 and 8 (Chicago Public Schools, 2008; Bannester, 2000).

Some schools punished students for cyber bullying by not allowing them to participate in extracurricular activities and to go on field trips (Associated Press, 2005). Such a strategy was addressed in strategy 9. Strategy 10 was from a case discussed in (Dickerson, 2005). Strategies presented in questions 11, 12, 13, and 14 are strategies are commonly used in schools for bullying/cyber bullying prevention (Willard, 2007 b).

Survey Design

A survey instrument was used to collect the data for the study. The survey was approved by Richard Stockton College of New Jersey's IRB for Human Subjects committee. The format of the survey was designed by the authors with Zoomerang.com's online survey tool.

There were a total of 39 questions in the survey, of which two questions were used to obtain and verify parental consent, ten demographic questions, four about students' roles as offenders and victims of cyber bullying, six about their roles as bystanders to cyber bullying, nine about their views on prevention strategies, three about why teens choose to or not to cyberbully, three about the cyber bullying problem and prevention measures at their school, one about how the respondent would prefer to report cyber bullying, and one about whose responsibility it was to prevent cyber bullying. Four of the 39 questions were open-ended. The others were multiple-choice questions.

Survey Administration

A professional market research firm, Market Tools, Inc. was hired to recruit subjects and collect the data online. Market Tools, Inc. is a leading full-service provider of market research services. They are the parent company of www.zoomerang.com. This organization deploys surveys created with the Zoomerang survey tool through the Zoomerang website. The people who answer the surveys are part of the ZoomPanel that consists of over two million people (Market Tools, Inc, & Zoomerang.com). The profile of ZoomPanel members is based on United States census data to ensure accurate population (Market Tools, Inc, & Zoomerang.com). The ZoomPanel is used by multinational companies such as McDonalds, General Mills, KFC, Procter and Gamble and Microsoft (ZoomPanel.com, 2010). We chose to use the Market Tools because they use True Sample Technology to verify that participants are, unique, real, and engaged (Conklin, 2009). True Sample is a unique Market Research technology that systematically ensures data quality. To ensure that data was real, Market Tools verified that information about gender, zip code, and household income matched with the data in extensive databases with validated consumer demographics that are used by the financial services industries for each member of the ZoomPanel. Market Tools used digital fingerprinting technology to check that the respondents did not repeat surveys, and used TrueSample technology to identify fraudulent responders and removed them from the sample (Conklin, 2009). True Sample technology detects common markers of erroneous data that include respondents repeating surveys, taking the survey too quickly and not reading the questions, and fraudulent data.

The time to take the survey was about 20 minutes. The survey was administered online from June 26, 2008 to July 8, 2008. Market Tools e-mailed the survey to the members of the ZoomPanel panel that have identified in their demographic profile that they have teenagers living in their home. The teenagers who live in homes with ZoomPanel members completed the survey for our study. The investigators did not have access to any personal identifiable information such as e-mail addresses.

Since it impossible to personally obtain informed consent in most online surveys having implied consent from respondents is an accepted practice when using online survey research (Patchin & Hinduja, 2006; Walther, 2002). Respondents obtain implied consent by presenting participants with a consent letter before starting the survey (Patchin & Hinduja, 2006). The consent letter tells what specific actions must be performed before taking the survey (Patchin & Hinduja, 2006). Having the respondents click on an icon to start the survey and then click a submit button to return the data back implies consent (King, 1996).

For this study the researchers presented participants with a consent letter. A participant under age 18 was asked to have his or her parents give them permission to participate in the survey. To give consent the parent entered his or her initials in a text box below the consent letter. This method is similar to the method Patchin and Hinduja (2006) used to obtain parental permission in their online survey. After parental permission was obtained the respondent clicked on an icon to start the survey. Because the survey is anonymous it is impossible to verify if parental consent was obtained. As a check the researchers asked the students in the first question if they had their parent's permission to take the survey. If the student responded 'no', the survey was terminated.

The Zoomerang survey tool has a quota feature that rejects respondents based on responses after the desired sample size for a category is achieved. The limit of respondents

was set to 350 for cyber bullying offenders and 350 for non-offenders based on the funding available for the study. Once the number of completed surveys reached the quota for a group, the survey was closed to the filled group. There were 13 extra samples for non-offenders.

The 713 samples of the survey were complete and valid based on our pre-set qualifications such as ages and parents' permissions, and within the quota. This data is from a convenience sample in which participants decide to participate in the study. It is not possible to generalize convenience samples to a larger population (Couper, 2000), but the technique has been used for exploratory studies (Patchin & Hinduja, 2006) to obtain initial data for further research (Berson et al., 2002). There is limited empirical research about what methods students perceive to be effective to prevent cyber bullying. We believed that using a convenience sample would provide data that could lead to further study using more scientific methods.

Results and Discussion

This study compares the perspectives of pure-victims, both-offenders-and-victims, pure-offenders, and neither-offenders-nor-victims, and explains correlations between a student's role in cyber bullying and his or her views of the effectiveness of various cyber bullying prevention strategies. The results of the data analyses presented in this section are organized into answers to the inquiries about cyber bullying prevention strategies that school administrators, researchers, and legislators may be concerned about.

Students' Roles in Cyber bullying vs. Their Views

Inquiry 1. Are there statistically significant differences among the four categories in their views on the effectiveness of each of the 14 cyber bullying prevention strategies? If so, how do the four categories correlate to the views of effectiveness of the strategies?

To answer this inquiry, one needs to investigate (1) whether the students in each of the four categories have significantly different views on the effectiveness of the prevention strategies, and (2) how they are correlated. For that purpose, the regression method was selected to be used in the analysis. By using this method the researchers could tell the significance of a correlation, as well as whether the correlation was positive or negative. Considering possible colinearity existing among the 14 strategies, single regression, instead of multiple regressions, was used. Each single regression model takes the effectiveness of one strategy as the independent variable X, and the category of the respondent as the dependent variable Y. There are five possible values for X, one through five, representing very ineffective to very effective. There are four values for Y, 1 through 4, each representing a category of a student's role in cyber bullying. Since different ways of numbering categories may have different results in regression, twenty four (permutation of four) single regression models were run for every strategy. Each model is associated with a way of category numbering. The results showed that the most significant differences always occur when numbering the categories as 1 for pure-offender, 2 for both-offender-and-victim, 3 for neither-offender-nor-victim, and 4 for pure-victim.

Table 3 lists the eight strategies that students' views of effectiveness are significantly different among the four categories. The eight strategies are sorted according to their p-values for statistical correlation with the smallest (most significant) on top. The table does

not include those strategies that are not significantly correlated with the categories such as $p > 0.056$. The plus or minus sign in the parentheses after a p-value gives the correlation direction telling whether the correlation between X and Y is positive or negative. For example, 0.005(+) for strategy 3 means that the chance of making an error is 0.005 by asserting that different categories of students would have different views of the effectiveness of this strategy, and the correlation is positive.

In the regression models that derived the results in Table 3, the meanings of values of dependent variable Y are 1 for pure-offender, 2 for both-offender-and-victim, 3 for neither-offender-nor-victim, and 4 for pure-victim. Since independent variable X's values are 1 through 5 representing very ineffective through very effective, a positive correlation between a strategy and four categories implies that students who have had experience cyber bullying others (pure-offender and both-offender-and-victim) tend to rate a prevention strategy's effectiveness lower than those who have never bullied others. Also, with positive correlations students who have been victims of cyber bullying tend to rate the effectiveness of a particular strategy higher than the offenders. When there are positive correlations pure-victims give a prevention strategy the highest ratings while pure-offenders give the same prevention strategy the lowest ratings. The reverse is true when negative correlations exist. When there are negative correlations pure victims give a strategy the lowest ratings while pure offenders give the same strategy the highest ratings. A high rating for a strategy means that a student views that strategy as effective. Hence, offenders view strategies with negative correlations as effective since negative correlations mean that offenders gave that strategy a high rating.

Table 3
Eight Strategies those Four Categories of Participants Have Significant Different Views

Strategy	Description	p-value (+ or - relation)
9	No extracurricular activities for offender.	0.000000(+)
10	Offender doing presentation about cyber bullying.	0.000008(+)
7	Offender attending netiquette classes.	0.00008(+)
3	Taking away offender's computers and cell phones.	0.005(+)
1	No computer use in school and home for offender.	0.01068(+)
4	Offender paying victim money.	0.0202(+)
12	Setting clear rules and enforcing penalties on offender.	0.002235(-)
14	Ongoing cyber bullying prevention programs.	0.05562(-)

The results in Table 3 provide important references for school administrators and educators who are setting up cyber bullying prevention strategies. The student's view on the effectiveness of a strategy is a determinant of its effectiveness in implementation. However, students' views typically differ on a strategy, depending on their roles in cyber bullying. When deciding to use a strategy, one should not only consider the strategy's overall effectiveness, but also to whom it is most effective and to whom it is least effective. For example, if a policy is to prevent cyber bullying by penalizing offenders, a negative correlation would be better than a positive one, since such a policy is mainly for the offenders and a negative correlation shows that the pure-offenders tend to view the strategy as effective. On the other hand, if the goal is to prevent ordinary students from cyber bullying others, a positive correlation would be better, since such a strategy is

mainly for non-offenders. In this case a positive correlation shows that the non-offenders tend to view the strategy as effective.

The top three strategies listed in Table 3, strategy 9, no extracurricular activities for offender; strategy 10, offender doing a presentation about cyber bullying; and strategy 7, offender attending Netiquette classes on Saturday, are relatively “mild” prevention strategies. The extremely low p-values show that students’ views are significantly different. Considering the fact that the three strategies are all penalties to offenders or something against the wills of offenders, the effectiveness of implementing these strategies would be most dependent on offenders’ views. However, the correlation directions are all positive, which suggests that offenders tend to view these strategies as ineffective compared to non-offenders.

Offenders often have low school commitment (Patchin, 2006) and may not care if they are not allowed to participate in extracurricular activities as they may not want to participate in these activities in the first place. Hence, strategy 9, revoking the privilege to participate in extracurricular activities would not be an effective strategy to deter offenders from cyber bullying. Offenders may not perceive cyber bullying to be wrong and would not be embarrassed to give a presentation about it making strategy 10 ineffective. They may not believe that strategy 7, netiquette classes, are necessary and may perceive taking the classes as being told what to do online (Moessner, 2007). Hence, they may view strategy 7 as ineffective because it is a strategy in which adults at school tell them what to do online.

There are two strategies in Table 3 with negative correlations. They are “setting clear rules and consequences” and “having ongoing cyber bullying prevention programs.” The negative correlation is interpreted as that offenders tend to view the strategies as being more effective than victims. Students who have had experience cyber bullying others tend to view “clear rules” and “ongoing programs” as being more effective than those who have never cyber bullied others. Compared to strategies 7, 9, and 10 that have positive correlations, strategies, 12 and 14, are general and not specific. It suggests that although cyber bullying offenders may not view the three specific and mild strategies as being effective, they would not consider any rule to be ineffective. Clear rules with penalties enforced and ongoing cyber bullying prevention programs are in general viewed as effective by the offenders. So, when a specific cyber bullying prevention strategy is established, its effectiveness should be accessed carefully and individually.

Students’ views on effectiveness of the strategies other than the above eight were not significantly different, and they are not shown in Table 3. Those six strategies are: strategy 2 (sending offender to another school), strategy 5 (one year delay to 4-year college for offender), strategy 6 (no access to social networking sites for offender), strategy 8 (20 hours of community service for offender), strategy 11 (telling in class what to do as a victim), and strategy 13 (having written policy on zero toleration about bullying).

Top-Five Effective Prevention Strategies

Inquiry 2. Which strategies are considered most effective from the students’ point of view, for all as a whole and for each of the four categories? If you were to pick five strategies to adopt based on the data, which would they be?

Table 4
Average effectiveness of 14 strategies in the eyes of students
(1=very ineffective, through 5=very effective)

Strategy	pure-offender (n=61)	both-offender-and-victim(n=289)	pure-victim (n=60)	neither-offender-nor-victim (n=303)
1	3.459	3.858	3.983	3.937
2	3.262	2.962	3.083	3.281
3	3.770	4.066	4.150	4.132
4	3.098	3.495	3.583	3.617
5	2.738	2.696	2.883	2.846
6	3.869	4.080	4.150	4.089
7	3.066	3.547	3.683	3.848
8	3.264	3.844	4.050	3.997
9	3.148	3.367	3.967	3.812
10	3.213	3.592	4.033	3.845
11	3.426	3.522	3.617	3.637
12	3.221	3.920	4.083	4.109
13	3.426	3.474	3.483	3.495
14	3.426	3.540	3.683	3.657

Table 5
Strategies Ranked on Effectiveness with Four Categories

Effective	pure-offender (n=61)	both-offender-and-victim (n=289)	pure-victim (n=60)	neither-offender-nor-victim(n=303)
Most	6	6	3	3
2nd most	3	3	6	12
3rd most	1	12	12	6
4th most	11	1	8	8
5th most	13	8	10	1
6th most	14	10	1	7
7th most	2	7	9	10
8th most	8	14	7	9
9th most	12	11	14	14
10th most	10	4	11	11
11th most	9	13	4	4
12th most	4	9	13	13
13th most	7	2	2	2
Least	5	5	5	5

Each of the fourteen cyber bullying preventing strategies had five choices in the survey for the students to pick. Five numbers were assigned to the five choices with 1 for very ineffective and 5 for very effective. Table 4 summarizes the statistics of the effectiveness of

14 strategies with respect to the four categories. For each strategy, Table 4 shows its category mean in each category. A larger mean indicates a higher average rating of effectiveness given by the students. To identify the strategies that are effective from the perspective of students, the fourteen strategies are sorted in descending order of the means within each of the four categories. Table 5 shows the results of the sorting, which tells for each category which strategy is viewed as most effective and which strategy is viewed as the least effective. From Table 5 it would be convenient to pick the top-five or top-three most effective strategies viewed by students in a category.

Note the difference between category means in Table 4 and the correlations in Table 3. A strategy whose correlation with categories is statistically significant, as those shown in Table 3, does not have to have a high mean as in Table 4. Moreover, a strategy that has a low mean in Table 4 may show a significant correlation in Table 3. Of the eight strategies in Table 4, three strategies, 1, 3, and 12, are among the top nine most effective strategies from the perspectives of students in any of the four categories as in Table 5. Actually, a ranking under a category in Table 5 is derived by comparing means of the fourteen strategies *within* a category, while Table 3 is derived by comparing students' views on a strategy *among* categories.

For three categories, both-offender-and-victim, pure-victim, and neither-offender-nor-victim, the top five most effective cyber bullying preventing strategies are as follows, albeit their orders in categories are different.

- (1) Strategy 6: No access to social networking sites for offender.
- (2) Strategy 3: Parent taking away offender's computers and cell phones.
- (3) Strategy 12: Setting clear rules and enforcing penalties on offender.
- (4) Strategy 8: 20 hours of community service for offender.
- (5) Strategy 1: No computer use in school and home for offender.

The top-five most effective strategies for category pure-offender are somewhat different from the other categories:

- (1) Strategy 6: No access to social networking sites for offender.
- (2) Strategy 3: Parent taking away offender's computer and cell phone.
- (3) Strategy 1: No computer use in school and home for offender.
- (4) Strategy 11: Telling in class what to do as a victim.
- (5) Strategy 13: Having written policy on zero toleration about cyber bullying.

If the top-three most effective strategies are selected, then two strategies will be picked by every category. These strategies are strategy 3 (taking away offender's computers and cell phones) and strategy 6 (no access to social networking sites for offender). Students, no matter whether they are offenders or victims, believed that "not allowing offenders to access to social networking sites" and "parent taking away offenders computers and cell phones" are among the top-three strategies that could most effectively prevent cyber bullying. That is a strong message for school administrators and parents.

The finding is consistent with research that teenagers use technology as a link to their friends and social life (Keith & Martin, 2005). They fear losing their technology privileges (Beran & Li, 2007; Keith & Martin, 2005; Patchin & Hinduja, 2006; Shariff, 2008). Without the Internet and cell phone they feel disconnected from their peer group. No student, regardless of whether they are a pure-offender, pure-victim, both-offender-and-victim, or neither-offender-nor-victim, would want to be isolated from their social network online. In contrast with strategies 3 and 6, strategy 5, "one year delay to 4-year-college for offenders", is rated as least effective consistently by all the four categories. This

is another strong message for school administrators when considering avoiding ineffective cyber bullying prevention policies. The disciplinary question on the application for colleges will most likely not be a deterrent for cyber bullying.

Strategy 11 (telling in class what to do as a victim) and strategy 14 (having written policy on zero toleration about bullying) are in pure-offenders' top five picks. However, the two strategies are ranked very low in the other categories. It seems that pure-offenders tend to rate these two strategies as more effective than the students in the other categories as strategy 11 does not penalize them. Note the six strategies that offenders rated lower than any other categories. These strategies are strategy 4 (offender paying victim money), strategy 7 (offender attending netiquette classes), strategy 8 (20 hours community service for offender), strategy 10 (offender doing presentation about cyber bullying), and strategy 12 (setting clear rules and enforcing penalties on offender). For those strategies that restrict technology access, pure-offenders tended to view strategy 1, (No computer use in school and home for offender), strategy 3 (Taking away offender's computers and cell phones), and strategy 6 (No access to social networking sites for offender) as effective. Penalties that would consume an offender's time or money were viewed to be ineffective. That is a message from the pure-offenders that they are deterred by the penalties restricting their access to technology rather than consuming their time or money.

Conclusion: Implications for Preventing Cyber bullying

First, the category of students that prevention strategies must deter is the offenders. The data revealed that the specific strategy that offenders' viewed as effective was the penalty that restricted his or her Internet and technology use. In general, clear rules with enforced penalties and ongoing prevention programs were perceived as effective by the offenders. Secondly, teens perceived the theme of taking away the offender's access to technology as an effective prevention measure, regardless of their roles in cyber bullying. This finding makes sense as all teenagers, regardless of their roles in cyber bullying, are part of a generation that engages in cyber immersion (Brown, Jackson, & Cassidy, 2006). Cyber immersion means that the Internet serves as the primary way that they communicate for relationships, commerce, and recreation (Brown et al., 2006). By taking away access to Internet and technology teenagers would lose their primary means of communication and feel isolated.

Teenagers view having their own cell phone and computer as prize possessions, regardless of their roles in cyber bullying. They use these items everyday and would miss them if they were taken away. Having these personal possessions taken away by their parents, even for a short period of time, would cause them to lose their social status within their peer group. So even though the argument could be made that if a teen's cell phone or computer were taken away they could use a friend's technology or go to a public library, losing the technological convenience and the stigma would indeed serve as a punishment.

Parents, schools, and social networking sites all are important stakeholders in preventing cyber bullying (Ybarra et al., 2007). Hence their cooperation is needed to for that purpose. Policies need to be in place at school, and the school should involve parents when a cyber bullying issue arises. Meanwhile, parents have a responsibility to establish and enforce rules at home. Such a joint work is necessary for effectively resolving the problem of cyber bullying.

Limitations of the study

A limitation of this anonymous online study is that the researchers do not really know who the respondents are or if they are completely honest in their answers. This survey is a convenience survey. It is possible that the responses are not representative of larger population of teenagers or online teenagers, although the study does have value as it provides insights into how teenagers view cyber bullying prevention strategies. Furthermore, online demographic groups may not be the same as real world demographic groups (Witte, Amoroso, & Howard, 2000) as people on the Internet are more educated and have higher incomes (Berson et al, 2002). However, there is evidence that Web study populations “are more representative of the public than samples from more traditional lab experiments” (Berson et al., p. 56).

The market research firm, Market Tools, estimated that the margin of error was 5–6% for the survey. This estimate was based on the profile of people that have 13–17 year olds in their database, incidence of cyber bullying, total completes; total screenouts, total partials, and accesses are used to calculate the margin of error rate. We estimated an incidence rate of 25% based on studies in the literature (Kraft, 2006). By using True Sample technologies Market Tools took technological measures to eliminate common markers of fraudulent data. Common markers of fraudulent data are respondents who take the same survey multiple times, people who do not exist, respondents who provide answers to open ended questions such as “dsflkj dagsfi”, and respondents who do not read survey questions (Conklin, 2009) True sample technology correlates survey-taking time and response patterns to identify fraudulent behavior and remove the fraudulent data from the sample (Conklin, 2009).

In this study the investigators differentiated pure-offenders, non-offenders, pure-victims, and non-victims, according to whether they reported at least one incident of cyber bullying or not. We did not take the severity and frequency of the incidents into account. There is no universal precise definition of cyber bullying (Szoka & Thierer, 2009). Cyber bullying is conceptualized as being repeated incidents (Belsey, 2010; Hinduja and Patchin, 2006; Shariff, 2008) of online bullying. However, Aftab notes that “Cyber bullying is usually not a one time communication, unless it involves a death threat or a credible threat of serious bodily harm” (Aftab, 2010c). Beran and Li (2007) found that most participants in their study reported being victims or offenders of cyber bullying only once or twice. Our definition of cyber bullying did not have the word repeated in it. We needed 350 students to admit to cyber bullying someone. We also did not want to exclude students who may have had one traumatic incident online such as receiving a death threat. Since students tend to report cyber bullying once or twice, we decided to ask if the respondent had been cyber bullied or bullied someone online at least once.

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