

Original article

Electronic Bullying Among Middle School Students

Robin M. Kowalski, Ph.D.^{a,*}, and Susan P. Limber, Ph.D.^b^a*Department of Psychology, Clemson University, Clemson, South Carolina*^b*Institute on Family & Neighborhood Life, Clemson University, Clemson, South Carolina*

Manuscript received June 19, 2007; manuscript accepted August 28, 2007

Abstract

Purpose: Electronic communications technologies are affording children and adolescents new means of bullying one another. Referred to as electronic bullying, cyberbullying, or online social cruelty, this phenomenon includes bullying through e-mail, instant messaging, in a chat room, on a website, or through digital messages or images sent to a cell phone. The present study examined the prevalence of electronic bullying among middle school students.

Methods: A total of 3,767 middle school students in grades 6, 7, and 8 who attend six elementary and middle schools in the southeastern and northwestern United States completed a questionnaire, consisting of the Olweus Bully/Victim Questionnaire and 23 questions developed for this study that examined participants' experiences with electronic bullying, as both victims and perpetrators.

Results: Of the students, 11% that they had been electronically bullied at least once in the last couple of months (victims only); 7% indicated that they were bully/victims; and 4% had electronically bullied someone else at least once in the previous couple of months (bullies only). The most common methods for electronic bullying (as reported by both victims and perpetrators) involved the use of instant messaging, chat rooms, and e-mail. Importantly, close to half of the electronic bully victims reported not knowing the perpetrator's identity.

Conclusions: Electronic bullying represents a problem of significant magnitude. As children's use of electronic communications technologies is unlikely to wane in coming years, continued attention to electronic bullying is critical. Implications of these findings for youth, parents, and educators are discussed. © 2007 Society for Adolescent Medicine. All rights reserved.

Keywords:

Adolescents; Bullying; School health; Prevention

Bullying is commonly defined as repeated aggressive behavior in which there is an imbalance of power between the parties [1–3]. Traditionally bullying has included overt physical acts (e.g., hitting, shoving) and verbal abuse (e.g., taunting, name-calling) as well as more subtle or indirect actions such as social exclusion and rumor-spreading. More recently, the proliferation of electronic communications technologies has afforded children and youth a new means of bullying. Electronic bullying includes bullying through e-mail, instant messaging, in a chat room, on a website, or through digital messages or images sent to a cell phone [4–7].

Although electronic bullying has received extensive attention in the popular press [8–11], few studies have assessed the nature and extent of electronic bullying among students [7]. What research has been conducted has focused primarily on the frequency of children's use of the Internet (e.g., instant messaging, e-mail, social network sites) [12] and their experiences with Internet harassment (e.g., repetitive messages sent to a target that cause emotional distress to that target) [13–15].

Such studies attest to the “wired” culture within which contemporary teenagers operate. One study found that 97% of adolescents 12–18 years of age use the Internet [16]. More than half of those teens surveyed for the Pew Internet & American Life Project indicated that they spent time each day online [12]. Almost half (45%) had their own cell phone and one third communicated via text messaging.

*Address correspondence to: Robin Kowalski, Ph.D., Department of Psychology, 418 Brackett Hall, Clemson University, Clemson, SC 29634.
E-mail address: rkowals@clemson.edu

There is debate as to whether high levels of Internet use interfere with psychological functioning. On the positive side, Internet use opens up the possibility for the development of new relationships and the easy maintenance of existing friendships [17–19]. On the negative side, Kraut et al. found higher levels of Internet use to be associated with higher levels of depression and loneliness [20]. Furthermore, one of the most compelling and arguably most dangerous aspects of the Internet is that it allows people to maintain their anonymity when communicating with others. Unfortunately people are more likely to communicate messages on the Internet that they would not say to another person's face [6].

The potential threat of anonymity provided by the Internet is compounded by the fact that people cannot see the target's emotional reactions. Thus, reactions such as crying, which might lead people to realize that their comments have been carried too far or misinterpreted, are no longer visible [18,21,22].

This is not to imply that all Internet use is bad, any more than school attendance is bad just because there is the potential for bullying at school. Indeed most people report positive experiences with the Internet [22]. However the Internet simply provides another forum by which people can aggress against one another.

Only a handful of studies have focused on electronic bullying. Perhaps the earliest study was an unpublished survey conducted by the National Children's Home in Great Britain [23]. Researchers defined electronic bullying as being bullied via mobile phone or personal computer. They surveyed 856 children and youth 11–19 years of age and found that 16% had been bullied via mobile phone text messaging, 7% via Internet chat rooms, and 4% through e-mail [23]. Ybarra and Mitchell interviewed 1,501 regular Internet users 10–17 years of age to compare characteristics of aggressors, targets, and aggressor/targets [22]. They were interested in the degree to which respondents had been victims of or had perpetrated online harassment or rude and threatening online comments. They found that 19% of the sample was involved in online aggression, 4% as online victims only, 12% as online aggressors only, and 3% as aggressor/targets only.

Although comparisons with traditional bullying seem logical, there are unique and particularly troubling aspects of electronic bullying. Unlike traditional bullying, electronic bullying can occur at any time, which may heighten children's perceptions of vulnerability. Electronic bullying messages and images also can be distributed quickly to a wide audience. The interactions that occur in virtual reality can affect the everyday reality that students experience elsewhere.

Although the scant research on electronic bullying is inconclusive, girls may be over-represented among both perpetrators and victims of electronic bullying. Research has consistently shown boys and men to be more likely to engage in direct forms of aggression (e.g., face-to-face

physical and verbal confrontations), whereas women and girls tend to engage in more indirect types of aggression (e.g., ostracism, gossip) [3,24]. Consistent with prevalence rates of indirect aggression among females, we expect more girls than boys to have experience with electronic bullying.

In sum, because so little is known about children's use of electronic technologies to bully each other, our study attempts to fill some of these gaps by examining age and gender differences in the nature and prevalence of electronic bullying among middle school-aged children and youth across the United States. This study represents one of the first large-scale studies to examine electronic bullying among middle school children in the United States.

Methods

Participants

Participants included 1,915 girls and 1,852 boys in grades 6, 7, and 8 who attended any of six elementary and middle schools in the southeastern and northwestern United States. The schools were selected because they were planning to begin a bullying prevention program after the collection of baseline data about bullying at their schools. Table 1 provides a description of the school locales, ethnicity of students, and socioeconomic status (SES) of students (as measured by the percentage of students eligible for free or reduced-cost lunches). All students in class on the day of the survey were invited to participate. Passive consent was obtained from parents. Parents received written notice from the school that their children would be participating in the survey and were invited to contact the school if they did not wish their children to participate. Treatment of human subjects was reviewed and approved by the Institutional Review Board of the authors' home institution.

Measures

Participants completed a questionnaire packet that included the 39-item Olweus Bully/Victim Questionnaire [25] and a 23-item questionnaire that examined participants' experiences with electronic bullying. The Olweus Bully/Victim Questionnaire is a reliable and valid self-report measure of bullying that defines bullying for students and then assesses participants' experiences with bullying at school, as victims and as perpetrators [25,26]. Bullying is defined in the following way on the Olweus Bully/Victim Questionnaire:

We say that a student is being bullied when another student, or several other students do any of the following: say mean and hurtful things or make fun of him or her or call him or her mean and hurtful names; completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose; hit, kick, push, shove around, or lock him or her inside a room; tell lies or spread false rumors about him or her or send mean notes and try to make other students dislike him or her; and other hurtful things like that.

Table 1
Descriptions of participating schools

School	Number of students in school	Grades in school	Locale	Ethnicity of students	% Eligible for free/reduced-cost lunches
School 1	920	6–8	Urban, fringe of large city (Southeast)	White: 87.7% Black: 1.4% Hispanic: 9.7% Asian: .9% American Indian: .1%	12.1%
School 2	1,521	6–8	Urban, fringe of large city (Southeast)	White: 87.2% Black: 8.2% Hispanic: 1.8% Asian: 1.2% American Indian: 0	6.0%
School 3	640	5–8	Large central city (Southeast)	Not available	Not available
School 4	1,185	7–8	Urban, fringe of large city (Southeast)	White: 85.1% Black: 5.1% Hispanic: 7.8% Asian: 1.2% American Indian: .1%	18.9%
School 5	475	Pre-K–6	Urban, fringe of mid-sized city (Northwest)	White: 78.9% Black: 2.5% Hispanic: 2.9% Asian: 3.3% American Indian: 12.2%	14.1%
School 6	125	K–9	Rural (Northeast)	White: 84.8% Black: 0 Hispanic: .8% Asian: 0 American Indian: 14.4%	37.6%

Source: Institute of Education Sciences Common Core of Data for the 2004–2005 School year.

K = kindergarten.

When we talk about bullying, these things happen repeatedly, and it is difficult for the student being bullied to defend himself or herself. We also call it bullying, when a student is teased repeatedly in a mean and hurtful way. But we do not call it bullying when the teasing is done in a friendly and playful way. Also it is not bullying when two students of about equal strength or power argue or fight.

The 23-item Electronic Bullying Questionnaire is a self-report measure that was developed for the purpose of this study and was patterned in part after the Olweus Bully/Victim Questionnaire. Like the Olweus measure, it included questions about participants' experiences with bullying—both being bullied by and bullying others. Key questions included, "How often have you been bullied electronically in the past couple of months?" and "How often have you electronically bullied someone in the past couple of months?" We defined electronic bullying as "bullying through e-mail, instant messaging, in a chat room, on a website, or through a text message sent to a cell phone." Also included were items examining how the electronic bullying occurred (e.g., "Has anyone made fun of you or teased you in a hurtful way through e-mail, instant messaging, in a chat room, on a website, or through a text message sent to your cell phone?"), the electronic venue through

which the electronic bullying occurred (e.g., "I was bullied through an e-mail message"), and by whom they were electronically bullied (e.g., "Another student at school?"). With the exception of the yes/no questions asking about the source of the electronic bullying, prevalence questions were answered using the five-point response format used in the Olweus Bully/Victim Questionnaire (i.e., it hasn't happened in the past couple of months; only once or twice; two or three times a month, about once a week, several times a week).

Procedure

Participants completed the Olweus Bully/Victim Questionnaire (which included demographic items assessing grade and gender), followed by the 23-item Electronic Bullying Questionnaire.

Results

Prevalence of electronic bullying

We divided students into four groups: those who had been electronically bullied at least once in the last 2 months (victims only), those who had electronically bullied others (bullies only), those who had both been electronically bullied and also had electronically bullied others (bully/vic-

Table 2
Frequency of electronic bullying (at least once), by gender and grade

	Girls				Boys				Total G/B
	6 th	7 th	8 th	Total	6 th	7 th	8 th	Total	
Victims	41 (8.5%)	114 (16.7%)	127 (18.2%)	282 (15.1%)	38 (7.9%)	53 (7.7%)	34 (5.4%)	125 (7.0%)	407 (11.1%)
Bullies	8 (1.7%)	33 (4.8%)	27 (3.9%)	68 (3.6%)	19 (4.0%)	26 (3.8%)	38 (6.1%)	83 (4.6%)	151 (4.1%)
Bully/victims	20 (4.1%)	64 (9.4%)	93 (13.3%)	177 (9.5%)	12 (2.5%)	34 (4.9%)	25 (4.0%)	71 (4.0%)	248 (6.8%)
Not involved	414 (85.7%)	473 (69.2%)	452 (64.7%)	1339 (71.8%)	412 (85.7%)	574 (83.6%)	530 (84.5%)	1516 (84.5%)	2855 (78.0%)

Note: Categories are mutually exclusive.

tims), and those who had no experience with electronic bullying as either victims or perpetrators. (Much of the research on school bullying has used a more conservative criterion [“2–3 times a month” or more often] to evaluate whether bullying occurred. However, because of the novelty of the construct of electronic bullying, we elected to use a criteria of the event occurring “once or twice” or more often. All analyses were conducted using the more conservative criterion and the pattern of findings remain virtually unchanged.) Of the students, 11% ($n = 407$) qualified as victims only; 7% ($n = 248$) were bully/victims; 4% ($n = 151$) fell into the bullies only category; and 78% ($n = 2961$) had no experience with electronic bullying.

Chi-square analyses revealed some important gender differences by group in involvement in electronic bullying at least once in the previous couple of months, with girls being over-represented among victims and bully/victims, $\chi^2(3) = 117.00$, $p < .001$. In all, 15% of girls ($n = 282$) and 7% of boys ($n = 125$) were victims only; 10% of girls ($n = 177$) and 4% of boys ($n = 71$) were bully/victims (Table 2); and 4% of girls ($n = 68$) and 5% of boys ($n = 83$) reported electronically bullying others (bullies only).

As shown in Table 3, significant differences by grade were also observed, $\chi^2(6) = 52.00$, $p < .001$. Sixth-graders were less likely than other students to be involved in electronic bullying. Specifically, they were half as likely as seventh- or eighth-graders to be bullies or bully/victims, and were somewhat less likely to be victims only.

Methods of electronic bullying

The specific means by which students reported being electronically bullied and bullying others electronically are reported in Table 4. Because of the small cell sizes across

methods of electronic bullying, participants were classified as either victims or bullies. Victims reported being electronically bullied most frequently through instant messaging, followed by chat rooms, e-mail messages, and on a website. Bullies similarly reported using instant messaging most frequently, followed by chat rooms and e-mail messaging, to bully others electronically. A 3 (grade: 6th/7th/8th) \times 2 (gender: male/female) multivariate analysis of variance (MANOVA) was conducted on the means by which the bullying occurred. A multivariate main effect of grade, $F(12, 1256) = 2.60$, $p < .002$ ($\eta^2 = .024$), was significant at the univariate level for two of the variables: bullied through instant messaging, $F(2, 632) = 10.51$, $p < .001$ ($\eta^2 = .03$), and bullied through text messaging, $F(2, 632) = 3.39$, $p < .001$ ($\eta^2 = .024$). Sixth-graders (mean 1.60, SD .73) were bullied via instant messaging significantly less frequently than either seventh- (mean 2.02, SD 1.02) or eighth-graders (mean 2.08, SD 1.04), the latter two conditions not differing significantly. Sixth-graders (mean 1.08, SD .38) were also bullied through text messaging significantly less than eighth-graders (mean 1.29, SD .78), p values $< .05$.

A 3 \times 2 MANOVA conducted on the means used to electronically bully others revealed a multivariate main effect of grade, $F(12, 768) = 2.05$, $p < .02$ ($\eta^2 = .03$), that was significant at the univariate level for the following variables: bullied someone through instant messaging, $F(2, 388) = 6.09$, $p < .001$ ($\eta^2 = .03$), and bullied someone through a text message, $F(2, 388) = 4.48$, $p < .001$ ($\eta^2 = .023$). Sixth-graders (mean 1.41, SD .56) reported using instant messaging at a significantly lower rate to bully others than did seventh- (mean 1.87, SD 1.00) or eighth- (mean 1.88, SD 1.01) graders. Similarly, sixth-graders

Table 3
Involvement in electronic bullying (at least once) by grade

	6 th -Graders	7 th -Graders	8 th -Graders	Total
Victims	80 (8.3%)	167 (12.1%)	162 (12.2%)	409 (11.1%)
Bullies	27 (2.8%)	60 (4.4%)	65 (4.9%)	152 (4.1%)
Bully/Victims	32 (3.3%)	99 (7.2%)	118 (8.9%)	249 (6.8%)
Not Involved	828 (85.6%)	1051 (76.3%)	988 (74.1%)	2867 (78.0%)
Total	967 (100.0%)	1377 (100.0%)	1333 (100.0%)	

Note: Categories are mutually exclusive.

Table 4

Frequency and method of electronic victimization/bullying (at least once)

	Girls				Boys				Total G/B
	6 th	7 th	8 th	Total	6 th	7 th	8 th	Total	
Electronic victimization									
Bullied through instant messaging	38 (61.3%)	127 (69.8%)	162 (73.3%)	327 (70.3%)	20 (40.8%)	58 (65.9%)	38 (61.3%)	116 (58.0%)	443 (66.6%)
Bullied in a chat room	17 (27.4%)	48 (26.5%)	42 (19.2%)	107 (23.2%)	12 (24.5%)	25 (28.7%)	19 (31.1%)	56 (28.4%)	163 (24.7%)
Bullied on a website	9 (14.5%)	54 (29.8%)	52 (23.9%)	115 (24.9%)	10 (20.4%)	15 (17.0%)	14 (23.3%)	39 (19.8%)	154 (23.4%)
Bullied through email	15 (24.2%)	51 (28.3%)	55 (25.0%)	121 (26.2%)	4 (8.2%)	20 (22.7%)	14 (23.3%)	38 (19.4%)	159 (24.2%)
Bullied through text message	5 (8.1%)	29 (16.1%)	34 (15.7%)	68 (14.8%)	1 (1.0%)	13 (14.8%)	14 (23.3%)	28 (14.3%)	96 (14.7%)
Bullied electronically in another way	7 (11.7%)	32 (18.0%)	35 (16.2%)	74 (16.3%)	5 (10.6%)	11 (13.1%)	10 (16.9%)	26 (13.7%)	100 (15.5%)
Electronic bullying									
Bullied through instant messaging	9 (32.1%)	57 (59.4%)	77 (63.6%)	143 (58.4%)	13 (40.0%)	32 (53.3%)	33 (52.4%)	78 (51.0%)	221 (55.5%)
Bullied in a chat room	7 (25.0%)	21 (22.0%)	22 (18.3%)	50 (20.5%)	3 (10.3%)	21 (35.0%)	18 (28.6%)	42 (27.6%)	92 (23.2%)
Bullied on a website	2 (7.1%)	16 (16.5%)	17 (14.2%)	35 (15.4%)	5 (17.9%)	8 (13.1%)	16 (25.4%)	29 (19.1%)	64 (16.1%)
Bullied through email	7 (25.0%)	18 (18.6%)	22 (18.2%)	47 (19.1%)	3 (10.7%)	13 (21.7%)	16 (25.4%)	32 (21.2%)	79 (19.9%)
Bullied through text message	2 (7.1%)	18 (18.6%)	21 (17.4%)	41 (16.7%)	1 (3.6%)	11 (18.3%)	17 (27.0%)	29 (19.2%)	70 (17.6%)
Bullied electronically in another way	1 (3.6%)	13 (13.4%)	15 (12.4%)	29 (11.8%)	2 (7.1%)	18 (30.0%)	14 (22.2%)	34 (22.5%)	63 (15.9%)

Note: Categories are not mutually exclusive. Participants in each sex and grade level could have been electronically bullied in multiple ways.

(mean 1.05, SD .23) used text messaging to electronically bully others less frequently than eighth-graders (mean 1.37, SD .92).

A multivariate interaction of grade and gender, $F(12, 768) = 2.32, p < .007 (\eta^2 = .04)$, was significant at the univariate level for bullying in a chat room, $F(2, 388) = 3.74, p < .03 (\eta^2 = .02)$, and through e-mail, $F(2, 388) = 3.16, p < .04 (\eta^2 = .02)$ (Figures 1 and 2). Across variables, sixth-grade boys show the greatest divergence from the other groups. In addition, relative to girls, boys show the greatest variation across grade levels. These findings are consistent with previous research showing that sixth-grade boys lag behind in their use of the Internet and related technologies [12].

Relationship between victim and perpetrator

Both victims and bully/victims were electronically bullied most frequently by a student at school, followed by a stranger (Table 5). More than half of bully/victims indicated they had been electronically bullied by a friend, whereas a little more than a quarter of the victims said they had been electronically bullied by a friend. More than 12% of victims and 16% of bully/victims reported that they had been electronically bullied by a sibling. Importantly, almost half (48%) did not know who had electronically bullied them. Perpetrators indicated that they electronically bullied another student at school most frequently, followed by a friend and strangers.

Discussion

The data suggest that, among middle school students, electronic bullying is a problem. Of the students, 11% had been electronically bullied at least once in the last couple of months; 7% were bully/victims; and 4% had electronically bullied someone else at least once in the previous 2 months. If anything, the statistics underestimate the true frequency of electronic bullying. Our survey assessed children's experiences with electronic bullying over the previous 2 months. It is quite possible that children may have had experience with electronic bullying, albeit not within the previous 2 months. In addition, because there is so little research on electronic bullying, targets may not have recognized that what they had experienced was actually a form of bullying.

On the one hand, the magnitude of the numbers is somewhat staggering. Collapsing across victims and bully/victims, a quarter of the female respondents had been electronically bullied within the last 2 months. On the other hand, the sheer frequency of use of electronic technologies by adolescents provides a context within which the statistics are, sadly, not all that surprising. Almost 50% of the teenage population use cell phones; 97% use the Internet, and a large proportion of these use it everyday [12].

When discussing electronic bullying, questions are often raised regarding the degree to which victims and perpetrators of electronic bullying are the same as those involved

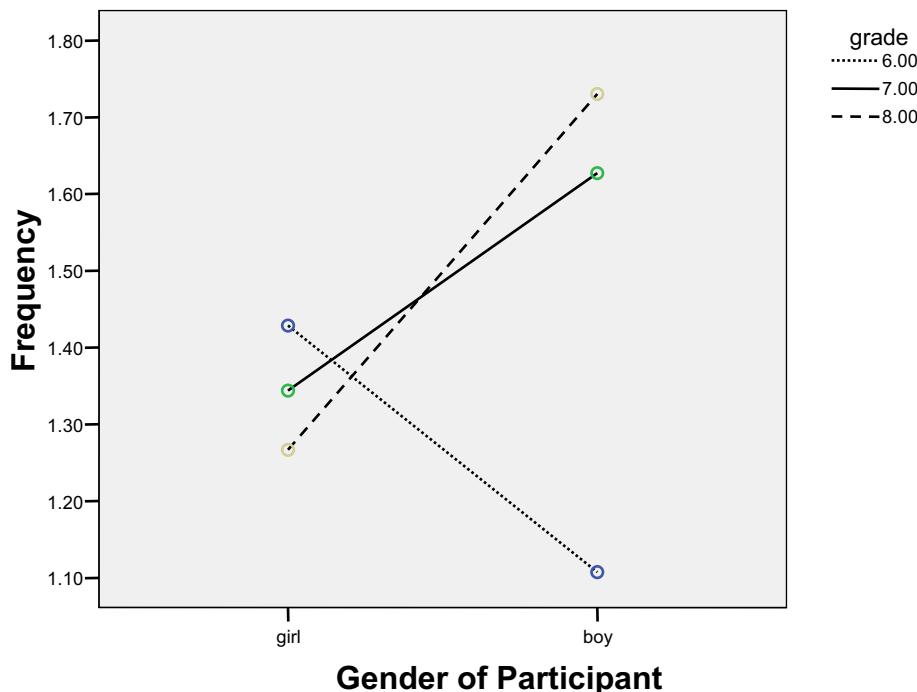


Figure 1. Interaction of grade and gender on having bullied someone in a chat room.

with traditional bullying; data from Kowalski and Limber suggest that, to a degree, they are [27]. Among individuals *not* involved with traditional bullying as either victims or perpetrators, 6.4% were victims of electronic bullying, 2.4% perpetrated electronic bullying, and 2.4% were electronic bully/victims [26].

Electronic bullying has features that make it more appealing to some than traditional bullying. The ability to hide behind fake screen names or to steal someone else's screen name and communicate as that person provides people with the opportunity to communicate things they would be reticent to say to another's face. For socially anxious teens who

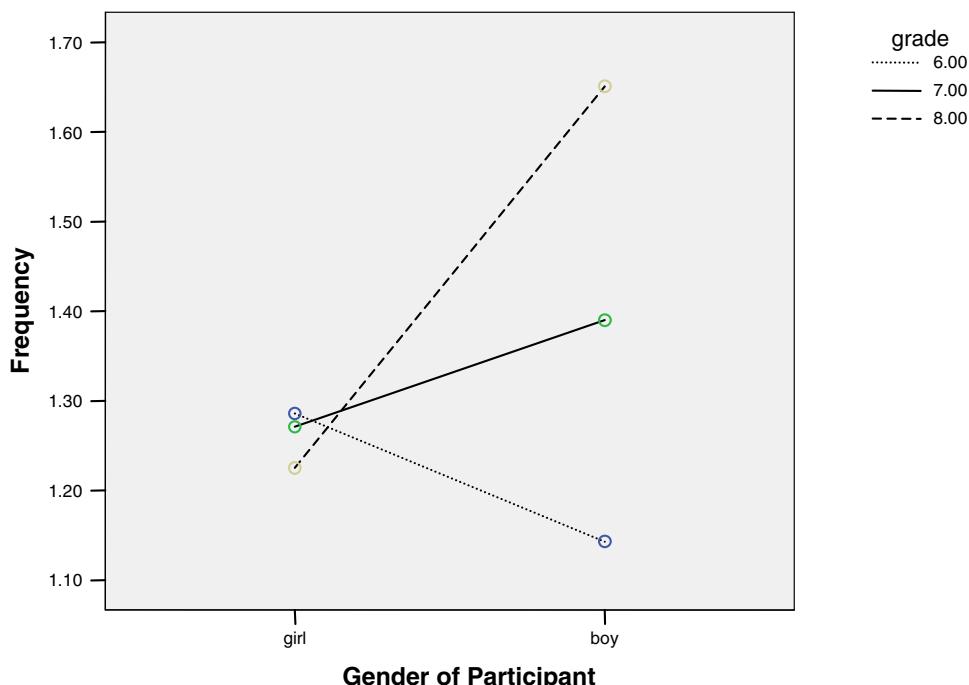


Figure 2. Interaction of grade and gender on having bullied someone through an e-mail message.

Table 5

Reports of relationship (at least once), by gender and grade

	Girls				Boys				Total G/B
	6 th	7 th	8 th	Total	6 th	7 th	8 th	Total	
Victims' reports with bully									
Brother or sister	5 (12.2%)	12 (10.8%)	17 (13.4%)	34 (12.1%)	2 (5.7%)	9 (17.3%)	5 (15.2%)	16 (12.8%)	50 (12.3%)
Friend	8 (19.5%)	32 (28.8%)	41 (32.5%)	81 (28.7%)	5 (14.3%)	22 (42.3%)	4 (12.1%)	31 (24.8%)	112 (27.5%)
Another student at school	15 (36.6%)	62 (55.4%)	63 (50.4%)	140 (49.6%)	13 (37.1%)	27 (51.9%)	10 (30.3%)	50 (40%)	190 (46.7%)
Stranger	13 (31.7%)	52 (45.6%)	65 (51.6%)	130 (46.1%)	18 (47.4%)	25 (47.2%)	12 (36.4%)	55 (44%)	185 (45.5%)
Someone else	3 (7.7%)	12 (10.9%)	17 (13.7%)	32 (11.3%)	3 (8.6%)	7 (14.0%)	2 (5.9%)	12 (9.6%)	44 (10.8%)
Bully/victims' report with bully									
Brother or sister	6 (30.0%)	7 (10.9%)	11 (12.1%)	24 (13.6%)	2 (16.7%)	8 (24.2%)	6 (25.0%)	16 (22.5%)	40 (16.1%)
Friend	7 (35.0%)	33 (51.6%)	53 (58.2%)	93 (52.5%)	4 (33.3%)	17 (50.0%)	14 (60.9%)	35 (49.3%)	128 (51.6%)
Another student at school	10 (52.6%)	40 (62.5%)	63 (68.5%)	113 (64%)	4 (33.3%)	16 (48.5%)	20 (83.3%)	40 (56.3%)	153 (61.7%)
Stranger	10 (50.0%)	35 (54.7%)	53 (57.0%)	98 (55.4%)	5 (41.7%)	16 (47.1%)	15 (60.0%)	36 (31.5%)	134 (54.0%)
Someone else	2 (10.5%)	15 (23.8%)	12 (13.2%)	29 (16.4%)	2 (18.2%)	5 (15.2%)	5 (22.7%)	12 (16.9%)	41 (16.5%)
Bully report with victim									
Brother or sister	0 (0.0%)	1 (3.0%)	6 (22.2%)	7 (10.3%)	1 (5.3%)	5 (19.2%)	2 (5.3%)	8 (9.6%)	15 (9.9%)
Friend	1 (12.5%)	6 (18.0%)	7 (25.9%)	14 (20.6%)	4 (21.1%)	6 (23.1%)	10 (26.3%)	20 (24.1%)	34 (22.5%)
Another student at school	2 (25%)	9 (27.3%)	6 (22.2%)	17 (25.0%)	7 (36.8%)	9 (34.6%)	11 (28.9%)	27 (32.5%)	44 (29.1%)
Stranger	3 (37.5%)	4 (12.1%)	4 (14.8%)	11 (16.2%)	3 (15.8%)	11 (42.3%)	8 (21.1%)	22 (26.5%)	33 (21.9%)
Someone else	0 (.0%)	0 (.0%)	2 (7.4%)	2 (2.9%)	2 (10.5%)	6 (23.1%)	1 (2.6%)	9 (10.8%)	11 (7.3%)

Note: Categories are not mutually exclusive. Participants in each gender and grade level could have been electronically bullied by more than one other person.

may have been victims of traditional bullying, the Internet and related technologies provide a forum within which to communicate without fear and to perhaps seek revenge on traditional bullying perpetrators. Finally, the venue of cyber space, where victim and perpetrator cannot see each other, may lead some perpetrators to remain unconvinced that they are actually harming their target. Thus, they can protect themselves from the knowledge that they are doing anything wrong.

Importantly, the data highlight gender differences in the frequency of electronic bullying, with girls outnumbering boys. This is consistent with girls tending to rely on more indirect forms of aggression relative to boys [24,28]. In addition, researchers have suggested that the Internet affords girls an opportunity to establish and maintain relationships independently of concerns with how others may be perceiving and evaluating their physical characteristics [29,30].

Fewer gender differences were observed across the methods used to electronically bully. The most frequently reported methods were instant messaging, chat rooms, websites, and on e-mail. These findings are consistent with those in the Pew report, showing that the Internet technologies most likely to be used by adolescents include instant messaging and e-mail [12]. Grade differences were observed for young people's use of instant messages and text messages as means to be bullied, with sixth-graders reporting the least victimization. Interestingly, the Pew report also found that girls, particularly in the 15–17-year-old age range, use e-mail at a much higher percentage than boys, a finding that may be reflected in our data showing that

sixth-grade boys seemed to differ most markedly from the other participants.

That grade differences were observed across methods is not altogether surprising. As children move through middle school, they spend more time on computers and related technologies (e.g., PDAs), and they become more skilled at their use. With age, they are also more likely to begin participating in social network sites, such as Facebook and Xanga, all likely places for electronic bullying to occur.

One of the most problematic issues of electronic bullying relative to traditional bullying is the anonymity involved with electronic bullying. In our sample, almost half of the victims of electronic bullying did not know the identity of the person(s) who electronically bullied them. This is problematic for several reasons. First, the victim has no way of knowing whether the electronic bullying is being perpetrated by one or a group of individuals. Second, the enemy we know is often less frightening than the enemy we do not know. Not knowing the identity of the electronic bully may leave a child wondering if each person he or she meets was potentially the perpetrator. As noted earlier, for the perpetrators, anonymity may provide a cover, a "cloak of invisibility," under which they will communicate things that they would not say if their identity were known [31].

These findings have implications for children, parents, and educators. Given the frequency of electronic bullying, children, parents, and school personnel need to become more aware of what electronic bullying is, how to help to prevent it, and how to address electronic bullying that has occurred [4,15,32,33]. School administrators should work to educate students, teachers, and staff about electronic bully-

ing, its dangers, and what to do if it is suspected. They also should ensure that school rules and policies related to bullying include electronic bullying. Suspected instances of electronic bullying should be investigated immediately. Those that involve threats of physical harm or other illegal behavior should be reported immediately to the police.

Parents also should be proactive in discussing electronic bullying with their children [33]. Data from focus group interviews show that adolescents are reluctant to report instances of electronic bullying that do not involve death threats for fear their parents will restrict their time on the Internet or cell phones or discover information that the adolescents themselves have posted on the Internet [33]. Given this, parents need to set developmentally appropriate guidelines for children's use of the Internet and other cyber technologies and maintain open communication with their children regarding their use. They should regularly discuss appropriate steps to take if children or youth experience or witness electronic bullying or threats.

Our focus was on electronic bullying among middle school children, because this is when traditional bullying is quite prevalent and because earlier research has suggested an increase in the use of electronic technologies during these ages. However, future research should focus on a wider range of ages, from elementary school through high school. Furthermore, although our sample was drawn from several areas around the country, random sampling was not used. The relative homogeneity of our sample (particularly in terms of race and ethnicity) leaves open the possibility that other samples of children may experience electronic bullying differently than those in our study.

More detailed research is needed to explore the venues (e.g., social networking sites) through which electronic bullying occurs, the content of electronic bullying episodes, and the context in which the behavior takes place. For example, as our research suggests that a relatively large percentage of "friends" (and, to a lesser extent, siblings) were perpetrators of cyberbullying, it will be important to explore further the extent to which these behaviors are indeed indicators of intentional aggression via electronic sources or something less intentional and potentially less serious.

As one of the early studies in this area, this study examined overall prevalence rates of electronic bullying. However, an important next stage will be to examine how often students report electronic bullying, to whom they report, and with what effect. How do parents respond when their children confide in them or when they find out through other means that their child is involved in electronic bullying as either the victim or the perpetrator? What role do schools have in designing interventions to educate students about electronic bullying and to intervene on behalf of targets of electronic bullying? Finally, this research did not examine the effects of electronic bullying on the victim or the perpetrator—variables that need research attention.

In conclusion, electronic bullying represents a problem of significant magnitude. Although it would seem that one could apply what is known about traditional bullying to the electronic world, this is not entirely the case. For example, unlike traditional bullying in which boys are more likely to be the perpetrators, girls electronically bully and are electronically bullied more than boys. Unlike traditional bullying in which the perpetrator usually is known to his or her victims, our findings suggest that about half of children who are bullied electronically do not know the identity of the perpetrators. Unlike traditional bullying, in which the audience of bystanders usually consists of a handful of children or youth who are physically present to witness the bullying, the potential audience of bystanders and observers of electronic bullying is limitless. As children's use of electronic communications technologies is unlikely to wane in coming years, continued attention to electronic bullying (and other cyber threats) is critical.

Acknowledgment

The authors thank Melinda Keith for helpful comments on an earlier version of this manuscript.

References

- [1] Limber SP. Peer victimization: The nature and prevalence of bullying among children and youth. In: Dowd N, Singer DG, Wilson RF, eds. *Handbook of Children, Culture, and Violence*. Beverly Hills: Sage Publications, 2006, 313–32.
- [2] Nansel TR, Overpeck M, Pilla M, et al. Bullying behavior Among U.S. youth: Prevalence and association with psychosocial adjustment. *JAMA* 2001;285:2094–2100.
- [3] Olweus D. *Bullying at School: What We Know and What We Can Do*. Cambridge, MA: Blackwell, 1993.
- [4] Health Resources and Services Administration. Take a Stand. Lend a Hand. Stop Bullying Now. Available at: <http://www.stopbullyingnow.hrsa.gov/adult/indexAdult.asp?Area=cyberbullying>.
- [5] Keith S, Martin ME. Cyber-bullying: Creating a culture of respect in a cyber world. *Children and Youth* 2005;13:224–8.
- [6] Patchin JW, Hinduja S. Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence and Juvenile Justice* 2006;4:148–69.
- [7] Shariff S, Gouin R. Cyber dilemmas: Gendered hierarchies, free expression, and cyber-safety in schools. Available at: http://www.oi.ox.ac.uk/research/cybersafety/extensions/pdfs/papers/shaheen_shariff.pdf. Accessed January 15, 2005.
- [8] Batheja A. Cyber bullies' torments have much wider reach. *Miami Herald*, August 24, 2004.
- [9] Harmon A. Internet Gives Teenage Bullies Weapons to Wound From Afar. Available at: <http://www.nytimes.com/2004/08/26/education>. Accessed August 26, 2004.
- [10] Miller M. Bullying in schools cannot be tolerated. *Basco Times*. *Pasco Times*, November 17, 2004.
- [11] Paulson A. With the Click of a Key, Bullies Are Humiliating Their Peers. *What Are Schools Doing to Tame This Behavior?* Available at: <http://www.csmonitor.com/2003/1230/p11s01-legn.htm>. Accessed December 30, 2003.
- [12] Lenhart A, Maddeen M, Hitlin P. Pew Internet & American Life Project: *Teens and Technology: Youth Are Leading the Transition to a Fully*

Wired Mobile nation. Available at: <http://www.pewinternet.org>. Accessed December 15, 2005.

[13] Finkelhor D, Mitchell KJ, Wolak J. Online Victimization: A Report of the Nation's Youth. Washington, DC: National Center for Missing and Exploited Children, 2000.

[14] Finn J. A survey of online harassment at a university campus. *Interpersonal Violence* 2004;19:468–83.

[15] Willard N. Electronic Bullying and Cyberthreats: Responding to the Challenge of Online Social Cruelty, Threats, and Distress. Eugene, OR: Center for Safe and Responsible Internet Use, 2006.

[16] UCLA Internet Report: Surveying the Digital Future Year Three. Available at: <http://ccp.ucla.edu>. Accessed September 16, 2005.

[17] Gross EF, Juvonen J, Gable SL. Internet use and well-being in adolescence. *J Soc Issues* 2002;58:75–90.

[18] McKenna KYA, Bargh JA. Plan 9 from cyberspace: The implications of the Internet for personality and social psychology. *Personal Soc Psychol Bull* 2000;4:57–75.

[19] Russell DW, Flom EK, Gardner KA, et al. Who makes friends over the Internet? Loneliness and the “virtual” community. *International Scope Review* 2003;10.

[20] Kraut R, Patterson M, Kiesler V, et al. Internet paradox: A social technology that reduces social involvement and psychological well-being? *Am Psychol* 2004;53:1017–31.

[21] Ybarra ML. Linkages between depressive symptomatology and Internet harassment among young regular Internet users. *Cyber Psychol Behav* 2004;7:247–57.

[22] Ybarra ML, Mitchell KJ. Youth engaging in online harassment: Associations with caregiver–child Relationships, Internet use, and personal characteristics. *J Adolesc* 2004;27:319–36.

[23] National Children's Home. 1 in 4 Children Are Victims of “On-Line Bullying.” Available at: <http://www.nch.org.uk/information/index.php?i=77&r=125>.

[24] Bjorkqvist K, Lagerspetz KMJ, Kaukinen A. Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behav* 1992;18:117–27.

[25] Olweus D. The Revised Olweus Bully/Victim Questionnaire. Beren, Norway: Research Center for Health Promotion (HIMIL), University of Bergen, N-5015 Bergen, Norway, 1996.

[26] Solberg M, Olweus D. Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behav* 2003;29:239–68.

[27] Kowalski R, Limber SP. Children who bully in the schoolyard and in cyberspace: How different are they? [Manuscript in preparation.]

[28] Owens L, Shute R, Slee P. “I'm in and you're out . . .”: Explanations for teenage girls' indirect aggression. *Psychol Evolut Gender* 2000;2:19–46.

[29] American Association of University Women. Tech Savvy: Educating Girls in the New Computer Age. Washington, DC: AAUW Educational Research Foundation, 2000.

[30] Berson IR, Berson MJ, Ferron JM. Emerging risks of violence in the digital age: Lessons for educators from an online study of adolescent girls in the United States. Available at <http://www2.ncsu.edu/unity/lockers/project/meridian/sum2002/cyberviolence/cyberviolence.pdf>. Accessed March 23, 2007.

[31] Carrington PM. Internet Increases Cyber Bullying. Available at: <http://www.timesdispatch.com>. Accessed June 6, 2006.

[32] Willard NE. Cyberbullying and Cyberthreats. Champaign, IL: Research Press, 2007.

[33] Kowalski RM, Limber SE, Agatston PW. Cyber Bullying: Bullying in the Digital Age. Malden, MA: Wiley/Blackwell, 2007.