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Comparing cyberbullying and school bullying among school students: prevalence, gender, and grade level differences

Noam Lapidot-Lefler · Michal Dolev-Cohen

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Abstract Recent technological developments have added cyberspace as part of adolescents' social milieu. Bullying, which is prevalent in adolescents' social environment, also takes place in cyberspace, although it is believed to have a more potent and harmful effect. A study of cyberbullying and FtF bullying could elucidate critical implications for children, educators, and policy makers. The present study examined cyberbullying and school bullying among 465 junior-high and high-school students (136 boys and 329 girls) in Israel, through an online survey. Findings revealed that the phenomenon of cyberbullying is less prevalent than school bullying. In the majority of cases in cyberspace, the identity of the cyber bully was known to the victim and the audience. According to the findings, in cyberspace, boys tended to bully more often than did girls; no correlation was found between gender and victim or gender and audience. The implications of these findings are discussed in the context of online communication theory.

Keywords Cyberbullying · School bullying · Aggressive behavior · Online communication · Adolescents

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N. Lapidot-Lefler (✉)
The Max Stern Yezreel Valley Collage, 19300 Emek Yezreel, Israel
e-mail: noaml@yvc.ac.il

N. Lapidot-Lefler · M. Dolev-Cohen
Oranim, Academic College of Education, Haifa, Israel

Present Address:
N. Lapidot-Lefler
Department of Behavioral Science, The Max Stern Yezreel Valley College,
19300 Emek Yezreel, Israel

1 Introduction

The last decade has seen rapid progress in the field of computers and information technology (IT). One outcome of this progress, enabled through the Internet and the resultant cyberspace, has been the emergence of a social environment, which is characterized by intensive human activity and multiple interpersonal interactions. This environment affords an enormous range of activities, devoid of physical limitations; thus, it gives rise to a wide variety of human behaviors. A behavior that has been shown to be characteristic of cyber-users is cyber aggression and bullying (e.g., Hinduja and Patchin 2008; Huang and Chou 2010; Rigby and Smith 2011; Willard 2006). To the best of our knowledge, as of yet, no study has compared cyberbullying and face-to-face (FtF) bullying among adolescents in Israel, in order to enhance our understanding of these phenomena.

1.1 What is bullying?

Bullying is defined as aggressive behavior, through which a powerful and influential individual or group (the bullies) consistently displays anti-social behavior with the intention of harming a less powerful individual (Olweus 2003; Pepler et al. 2008; Rigby 2002; Beldean-Galea et al. 2010). Olweus (1991, 1992) added that bullies use a variety of methods to gain superiority over their physically, emotionally or socially weak and defenseless victims. Thus, for example, bullies may rely on their physical proportions and strength; they may exert mental influence, intending to affect the victim's social status or identify the victim's weaknesses; or use their social influence to cause others (bullies and spectators) to gang up against the victim. Olweus emphasized that the concept of bullying refers specifically to situations characterized by an imbalance of power between the victim and the bully, which makes it different from other types of violence, in which rivals may have equal power and influence. Studies conducted in mainstream schools presented varied results regarding the rate of the bullying phenomenon. Previous studies have found that bullying is a common and normative phenomenon in both mainstream schools (Pepler et al. 1993; Olweus 1987; Perry et al. 1988; Rigby 2007; Whitney and Smith 1993) and special education schools (Reiter and Lapidot-Lefler 2007). Regarding gender differences, Craig and Pepler (1995) found that more boys (23 %) than girls (8 %) reported bullying a fellow student. Indeed, a similar gender ratio has been confirmed in several studies (Baldry 2003; Baldry and Farrington 2000; Garner and Hinton 2010). In contrast, no significant gender difference was found among those who reported being the victims of bullying (Charach et al. 1995; Pepler and Craig 1997). Regarding the type of harassment practiced by bullies, it appears that physical and verbal harassment are the most common methods used by boys, whereas girls tend to practice mostly verbal and indirect harassment (Delfabbro et al. 2006; Nansel et al. 2001).

1.1.1 The bully's characteristics

The literature on harassment distinguishes between the personality of the bully and that of the victim: Researchers have found that boys who bully are stouter and/or taller than their peers, and act in groups with a numerical advantage or are aided by social popularity, all of which gives them an advantage in terms of power (Pepler et al. 2006; Olweus 1993). Roland (1989) found that, contrary to boys, girls who bully usually tend to be physically weaker than other girls in their class.

Bullies are portrayed as being emotionally aroused and with an argumentative predisposition when playing and when engaged in sports. They tend to display a need for dominance, assertiveness, and control, through the use of force, and demand that their wishes be fulfilled at any cost. They evince a violent temper and an inability to exercise self-control, are impulsive and non-conformists. Most bullies show no remorse for hurting others and take no responsibility for their actions. They are usually underachievers, though they exhibit a positive self-image and enjoy a high status, at least in the early years of school (Ma 2001; Pepler et al. 2006).

Various researchers have noted that bullies display aggressive behavior towards their peers, towards their teachers, parents, siblings, and others (Baldry 2003). They have a positive attitude towards violence and are easily attracted to situations with aggressive content (Roland and Galloway 2004). A number of researchers have further indicated that, contrary to the prevailing myths, bullies are not anxious and have plenty of self-confidence. There is only limited support for the hypothesis that they bully others because they feel bad about themselves (Batsche and Knoff 1994; Olweus 1993).

1.1.2 The victim's characteristics

Olweus (1991) concluded that the findings of his study did not support the "stereotype" (as he calls it), according to which the victims have exceptional physical attributes (i.e., are weak, short, fat, etc.). In 1993, he added that some of the victims suffered from "body anxiety", a fear of hurting themselves or of being hurt by others. They did not excel in sports and were also less competent in various games. Roland (1989) found that low self-esteem was a common characteristic among students who were vulnerable to harassment, noting that the victims may view themselves as deserving their fate, as if they convey the message that—"I deserve to be a victim". He also revealed that victims of harassment tended to belong to relatively disadvantaged social strata and achieved lower scores on intelligence tests. Stephenson and Smith (1989) supported Roland's (1989) findings: They found a relationship between social discrimination and harassment. The victims were not popular among their peers and had low self-esteem. They were cautious, sensitive, and quiet. They were characterized by passive behavior, anxiety, and lack of self-confidence.

Victims were predisposed to feelings of failure and shame; they tended to represent situations in a negative manner and to feel less intelligent and attractive. They were found to be socially isolated, and to have few close friends or no friends at all (Nishina et al. 2005). Their relations with adults (such as teachers and parents) were frequently better than with their peers (Olweus 1991).

1.1.3 The characteristics of the 'victim-bully'

The third group, identified as being both bullies and victims, displayed still other typical features (Ma 2001). They were described as having a hot temper, being hyperactive, restless, emotionally immature, and clumsy (Rigby 2007). They are usually depicted as provocative and when under attack, tended to respond with violence, which in turn provoked more attacks (Besag 1989). Olweus (1993) placed special emphasis on a sub-group he called "provocative victims". According to Olweus, these children have specific characteristics, in most cases in addition to those of victims and bullies, as mentioned above: They are bad-tempered, hyperactive, restless, clumsy, immature, and find it hard to concentrate. Difficulties in concentration and in paying attention coupled with hyperactivity could be interpreted by the surroundings as being provocative, and lead to their harassment. Moreover, Rigby (2007) noted that these victims were considered provocative because they did not remain passive when aggression was directed at them, which escalates the cycle of harassment. They rarely evoked empathy or sympathy in adults, including the teaching staff.

Stephenson and Smith (1989) mentioned that this could be the most difficult group to identify, since at first glance they appear to be the victims. These researchers have also found that most of the harassment by these students is physical in nature, because they are impulsive and react quickly to both intended and unintended physical jostles and are easily provoked. Stephenson and Smith (1989) found that in certain cases "reactive" victims start as victims and turn into bullies in an attempt at retaliation. They noted that those victims who were also bullies were the children with the lowest self-confidence, who were liked the least, and were academic underachievers in comparison with other victims. Craig and Pepler (1995) assessed students belonging to the "victim-aggressor" group as being at high risk of having adjustment difficulties.

This typology appears to be in line with common sense. Indeed, some of the personality attributes mentioned are expressed in behaviors which we identify as typical of either a bully or a victim. For this reason, we were interested in investigating this typology among adolescents' involved in cyberbullying.

1.2 Cyberbullying

The definition of cyberbullying is based on the accepted definitions of bullying presented by Olweus (1991, 1993, 2003) and others (Pepler et al. 2008; Rigby 2002). Hinduja and Patchin (2008) noted that cyberbullying, which takes place in a virtual space, is a (relatively) new type of harassment, which uses applications intended for the Internet, cellular phone or other technological platforms that enable interpersonal communication. They defined cyberbullying as purposefully causing harm to others, in a repetitive manner, using electronic devices. Willard (2006) noted that bullying in cyberspace includes both verbal and indirect methods, e.g., by ridiculing the victim (through name-calling or use of cursing or bad language), offending, humiliating, intimidating, threatening, blackmailing, slandering, impersonating, or spreading malicious rumors and lies about the victim, as well as through public outing (of homosexuals), exclusion or removal of an individual from a group, stalking or cyberstalking, or any other type of elimination that keeps the victim from participating in the surrounding social activities (Willard 2006).

The bullying that takes place in cyberspace, in the virtual social sphere, is sometimes much more powerful than the conventional bullying that occurs in and around school, due to the Internet's unique features (Huang and Chou 2010). One of the main reasons for the unleashing of aggressive behaviors towards others, including bullying, on the Internet is the phenomenon of online disinhibition. This phenomenon refers to a process in which Internet users lose (or experience a lessening of) their normal sense of inhibition, leading them to give free rein to their thoughts and emotions, which they then express with little or no fear of being judged or rejected by others (Lapidot-Lefler and Barak 2012; Morahan-Martin and Schumacher 2003). Due to the openness and immediacy of the aggression, the injury is primarily of a mental nature, leaving the victim with deep emotional scars (Huang and Chou 2010). It seems that cyberbullying takes place mostly due to three main causes: the subjective sense of privacy the bully has online, the fact that the bully cannot see the victim or perceive that the victim is being hurt, and the third reason is that everybody does it, so it has become acceptable (Willard 2004). In addition, due to the second reason, i.e., the lack of visual contact between the bully and the victim (Strom and Strom 2005), the bullying can continue. However, although cyberbullying is parents' greatest fear, adolescents have reported being bullied at school more than online (Wang et al. 2009; Ybarra et al. 2012).

In summarizing the comparison between bullying that takes place at and around school and cyberbullying, Huang and Chou (2010) highlighted the following similarities and differences. In both spaces, bullying involves a repetitive behavior with an explicit intent to hurt or harm. However, the imbalance of power between bully and victim, which characterizes school bullying, is nonexistent in cyberspace. On the Internet, issues of power and status are neutralized. The sense is that all are equal there. Other differences include the type of bullying (no physical bullying) and the instruments of bullying. These differences suggest that the effects created by acts of cyberbullying are also different than those associated with FtF bullying; for example, the quick and extensive spreading of rumors on the Internet creates a greater impact (Huang and Chou 2010).

The purpose of the current study was to compare cyberbullying and FtF bullying at school in terms of frequency, gender, and grade level. Furthermore, the study aimed to describe cyberbullying in terms of the familiarity among its participants, focusing on the active and passive participants: the bullies, the victims, and their audience (bystanders). Based on the relevant research, we hypothesized that adolescents would report more FtF bullying than cyberbullying, that the identity of most cyberbullies would be known to the victims, that boys would tend to cyberbully and schoolbully more than girls, and that bullying would be more prevalent in junior high than in high school. These hypotheses are important because they can shed light on these phenomena and extend the knowledge of the subject, affording parents and educators the opportunity to better deal with its causes.

2 Method

2.1 Participants

The current study included 465 participants (136 boys and 329 girls), all of them junior-high and highschool students in Israel. Their ages ranged from 7th to 12th grade, with 343 (73.8 %) adolescents in junior-high school and 122 (26.2 %) in high-school. The participants were recruited via Facebook (FB) advertisements. Volunteer participants downloaded the questionnaire through an online link.

2.2 Measurement of bullying and cyberbullying

The participants completed a questionnaire on bullying that included three sections: personal data, bullying at school, and cyberbullying. This questionnaire is based on the bullying questionnaire of Olweus (1991), after being translated into Hebrew and adapted to address cyberbullying (Huang and Chou 2010). The questions regarding FtF bullying differ from the questions related to cyberbullying.

2.2.1 The personal data section

The first part of the questionnaire, which gathers participants' personal data, served for the examination of the independent variables: gender, scholastic achievements, and type of cyberbullying (synchronous or asynchronous).

2.2.2 The section on bullying

The basis for this questionnaire was developed by Olweus (1991). The questionnaire included 30 items, dealing with the three roles in bullying: victim, bully and bystander. Items focused on the extent to which each adolescent was involved, for example, with making fun of, cursing, leaving out, threatening, banning, touching private places, stubbing, stealing, or beating, as a bystander, victim, or bully. To each item participants responded on a 4-point scale from $1 =$ never to $4 =$ every day.

The questionnaire was validated and widely used over an extensive period of time in Scandinavian countries (Olweus 1991). Split-half reliability was found $r = .77$ for measures of bullying on all three scales: audience, victims and bullies. Internal consistency (Cronbach's alpha) in the present study was $\alpha = .92$ for bystanders, $\alpha = .92$ for victims, and $\alpha = .89$ for bullies.

2.2.3 The section on cyberbullying

This section is based on the questionnaire of Huang and Chou (2010), which was developed to address the issues pertinent to cyberbullying. This part of the questionnaire included 27 items, dealing with the three roles in cyberbullying: victim, bully, and bystander. Items focused on the extent to which each adolescent was involved, for example, with making fun of, degrading, harassing, or emotionally hurting, as a bystander, victim, or bully. Participants responded to each item on a 5-point scale, from 1 = never to 5 = several times a week. High internal consistencies were reported by Huang and Chou (2010): $\alpha = .91$ for bystanders (being aware of cyberbullying experiences), $\alpha = .90$ for victims, and $\alpha = .95$ for bullies. In the present study, internal consistencies were $\alpha = .90$ for bystanders, $\alpha = .93$ for victims, and $\alpha = .94$ for bullies.

In addition, the adolescents were asked about the identity of the participants in cyberbullying: whether all participants were known to them, all participants were unknown to them, or some participants were known to them while others were unknown. This related to bystanders, victims (of known/unknown aggressors), and bullies (of known/unknown victims).

2.3 Procedure

The questionnaire was distributed via Facebook, according to age groups. Individuals who expressed their willingness to participate in the study received an online questionnaire asking about their social experience in FtF interactions and on social media platforms. Participants were assured that the information they provided would remain anonymous and confidential.

2.4 Ethical considerations

The current study examined aggressive aspects of human behavior in different environments. Therefore, it required a high degree of self-disclosure from the participants. This in turn demanded complete anonymity and confidentiality regarding all of the data collected in this study. Hence, findings are presented in relation to subgroups within the population rather than to individual participants. All participants freely volunteered to participate in the study. Furthermore, the participants received the researcher's contact details, in order to obtain additional information, a copy of the results, or additional details, within the accepted standards.

3 Results

The first hypothesis suggested that cyberbullying would be less frequent than FtF bullying at school. In order to compare cyberbullying with FtF bullying, both scales were transformed into 4 point scales.

Table 1 presents means and standard deviations for cyberbullying and FtF bullying.

Table 1 Means and standard deviations for cyberbullying and FtF bullying in Israel

Participants	Cyberbullying *M* (*SD*)	FtF bullying *M*(*SD*)
Bystander	1.57 (0.58)	1.96 (0.81)
Victim	1.33 (0.52)	1.42 (0.60)
Bully	1.18 (0.42)	1.29 (0.48)

Range: 1–4

Table 2 Distribution of identity of the participants in cyberbullying

Participants	Known *N* (%)	Anonymous *N* (%)	Known and anonymous *N* (%)	Total *N* (%)
Bystander	154 (61.6)	53 (21.2)	43 (17.2)	250 (100)
Victim	112 (62.2)	45 (25.0)	23 (12.8)	180 (100)
Bully	59 (75.6)	16 (20.5)	3 (3.8)	78 (100)

Table 3 Means, standard deviations and F values for cyberbullying by anonymity of the participants

Participants	Known M (SD)	Anonymous M (SD)	Known and anonymous M (SD)	$F(\eta^2)$	*df*
Bystander ($n = 250$)	1.81 (0.60)	1.55 (0.52)	1.98 (0.76)	6.16** (.047)	2, 247
Victim ($n = 180$)	1.61 (0.63)	1.43 (0.60)	1.93 (0.68)	4.79** (.051)	2, 177
Bully ($n = 78$)	1.50 (0.68)	1.46 (0.75)	–	0.04 (.001)	1, 73

**$p < .01$, range 1–4, empty cell- due to $n = 3$

In order to compare cyberbullying and FtF bullying, a repeated measure MANOVA was conducted and found significant: $F(3, 449) = 41.61$, $p < .001$, , $\eta^2 = .218$. Univariate analyses revealed significant differences in all three measures (Bystander: $F(1, 451) = 119.86$, $p < .001$, $\eta^2 = .210$; Victim: $F(1, 451) = 17.06$, $p < .001$, $\eta^2 = .036$; Bully: $F(1, 451) = 40.12$, $p < .001$, $\eta^2 = .082$), with higher means found for FtF bullying than for cyberbullying, thus supporting the first hypothesis.

The second hypothesis dealt with the anonymity issue. As mentioned above, respondents were asked about their familiarity with the participants in cyberbullying: whether they knew them, were unknown to them, or they knew some and others were unknown. Table 2 presents the distribution of familiarity among the cyberbullying participants, by type of cyberbullying.

The data in Table 2 indicate that in most cases, regardless of the respondent's role—bystander, a victim, or a bully—the adolescents were familiar with the cyberbullying participants (62–76 %). In the other cases, they were either unfamiliar with the cyberbullying participants (20–25 %), or knew some participants and were unfamiliar with others (4–17 %).

Table 3 presents means, standard deviations, and F values for cyberbullying by anonymity of the participants. This was examined with ANOVAs of the three measures of cyberbullying by anonymity of the participants.

Significant differences were found in the rate of anonymous cyberbullying for bystanders and victims. Tukey post hoc analyses showed that for bystanders, bullying scenes more frequently involved participants who were known to the bystanders or a combination of both known and anonymous participants. For victims, bullying frequently involved both known and anonymous bullies. No difference was found for bullies. In sum, the adolescents reported that most often the cyberbullying scenarios they either participated in (as victim or bully) or witnessed involved participants whose identity was known to them (or a combination of both familiar and unfamiliar

Table 4 Means, standard deviations and F values for cyberbullying by gender

Participants	Boys ($n = 131$) M (SD)	Girls ($n = 321$) M (SD)	$F(1, 450)(\eta^2)$
Bystander	1.56 (0.62)	1.57 (0.55)	0.01 (.001)
Victim	1.33 (0.61)	1.32 (0.46)	0.01 (.001)
Bully	1.27 (0.60)	1.15 (0.32)	8.16** (.018)

$^{**}p < .01$, range 1–4, $F(3, 448) = 5.95$, $p < .001$, $\eta^2 = .038$

participants). Hence, it can be deduced that in none of the cases was the identity of the cyberbully participants uniformly unknown.

The third hypothesis suggested that both cyberbullying and FtF bullying would be higher among adolescent boys than girls. It was examined with a repeated measures MANOVA of the three measures of bullying by type of bullying (cyber vs. FtF), gender, and their interaction, as shown in Table 4.

The analysis was significant for type of bullying [$F(3, 448) = 46.99, p < .001, \eta^2 = .239$], gender [$F(3, 448) = 7.29, p < .001, \eta^2 = .047$], and their interaction [$F(3, 448) = 8.24, p < .001, \eta^2 = .052$]. Analysis of the significant interactions revealed that while in cyberbullying no gender differences were found for bystanders and victims, in school bullying, boys reported being bystanders more than did girls [$F(1, 450) = 7.46, p = .007, \eta^2 = .016$], as well as being victims of school bullying more than girls were [$F(1, 450) = 13.09, p < .001, \eta^2 = .028$]. Boys also reported taking the active role of cyberbullies more than did girls [$F(1, 450) = 8.16, p = .004, \eta^2 = .018$], as well as being school bullies more than did girls [$F(1, 450) = 28.83, p < .001, \eta^2 = .060$]. The gender difference regarding the role of bully was greater at school than in cyberspace. The third hypothesis was thus partly supported.

The fourth hypothesis suggested that both cyberbullying and FtF bullying would be more prevalent among junior-high school students than among highschool students. It was examined with a repeated measures MANOVA of the three measures of bullying by type of bullying (cyber vs. FtF), grade level, gender, and their interactions.

Differences in bullying by grade level (junior-high vs. highschool students) were generally non-significant. The interaction between grade level and type of bullying was found significant for bystanders [$F(1, 448) = 13.59, p < .001, \eta^2 = .029$], showing that while no grade level difference was found regarding cyberbullying, junior-high school students reported being bystanders to school bullying ($M = 2.00, SD = 0.80$) more than did highschool students ($M = 1.80, SD = 0.77$) [$F(1, 448) = 9.36, p = .002, \eta^2 = .020$]. No gender by grade level differences were found. The fourth hypothesis was thus supported for bystanders of school bullying only.

4 Discussion

The bullying that occurs in cyberspace or at school is a wide-spread phenomenon, associated with a wide range of behaviors. The current study examined various aspects of bullying, while focusing on cyberbullying. The phenomenon of FtF bullying at school was compared with that of cyberbullying and the relationship between the two types of bullying was investigated. In-depth studies help increase our understanding of bullying behaviors among children and adolescents in various situations and educational environments, which in turn sheds light on the scope and the numerous facets of this phenomenon.

At a time when society is experiencing an increase in aggressive behaviors, it seems that the phenomenon of bullying is taking a new and additional form, thus becoming an increasingly prevalent social phenomenon. Certainly such a trend is cause for alarm. However, the findings of this study, which are based on a self-report questionnaire distributed among adolescents in Israel, seem to suggest that the reasons for which the issue of cyberbullying has come to the forefront of social and primarily parental concerns are related more to the characteristics and potency of cyberspace than to the frequency of the cyberbullying phenomenon. Indeed, the profile that emerged from the current study suggests that despite the negative effects attributed to various Internet applications and especially to social networks, chief among them Facebook, the phenomenon of bullying in cyberspace is less prevalent than that of FtF bullying at school. This finding supports those of other studies (e.g., Jovonen and Gross, 2008; Lenhart 2007).

Notwithstanding, cyberbullying has been and continues to be the focus of much attention and concern, both in the professional and the public spheres. There seems to be a chief reason for this: the intensity of the bullying acts and the severity of their outcomes. This, in turn, is related to the Online Disinhibition Effect (ODE).

ODE describes a psychological effect, whereby human behaviors in cyberspace are stripped of their traditional inhibitions and boundaries (Suler 2004; Lapidot-Lefler and Barak 2012). The Online Disinhibition Effect increases the depth, intensity, and prevalence of many human behaviors, among them aggressive behaviors such as bullying. This effect can be seen in interpersonal interactions that take place online, during which the removal of inhibitions leads to a release, namely, an open demonstration of unrestrained behaviors, which are not seen in FtF interactions (Barak and Suler 2008; Joinson 1998, 2003, 2007; Suler 2004, 2008).

Given that cyberspace provides a convenient arena for disinhibition (Suler 2004), and since the Internet environment levels the playing field, nullifying the imbalance of power (Huang and Chou (2010), it may be claimed that cyberspace facilitates the transition from FtF bullying to cyberbullying. Thus, it is not surprising that adolescents, who are occupied with building and formulating their own identities, find cyberspace a convenient testing ground in which to explore and experience a variety of identities (Peter et al. 2009), some of which are contrary to the behaviors expected of them in the physical world (Subrahmanyam and Šmahel 2011).

There is another reason why cyberspace provides a more deleterious platform for bullying than that found in the physical world, namely, neither the bully's identity nor the victim's suffering is plainly visible. Bullies can exercise verbal violence and aggression towards others, and then walk away from the computer leaving the victim to face the hurtful words and occasionally the derision of other online participants. Thus, victims of cyberbullying are more lonely and helpless than victims of bullying in the physical world (Winter and Leneway 2008), since there is no refuge from bullying that has no physical boundaries. Thus, the victims remain humiliated and vulnerable in the space of their own homes and private bedrooms.

The intensity of the abuse and its outcome, namely, the suffering of the victim, are also multiplied due to the large diffusion of the bullying incident. In other words, this form of bullying can be more effective than FtF bullying; consequently, victims' reactions are also known to many, and thus the issue of cyberbullying is more conspicuous and captivates the public attention more than does FtF bullying. In addition, the open demonstration of unrestrained behaviors which are not seen in FtF interactions, as well as the finding that cyberbullies demonstrated less remorse, concern, or empathy for their victims than did bullies who operated in the physical space (Strom and Strom 2005) is apt to draw a great deal of attention, given that anything that is out of the ordinary—including aggressive behavior—is a source of curiosity.

However, in other aspects, cyberbullying is not entirely different from FtF bullying: interestingly, the findings showed that for the most part, the identity of the cyberbully was known to both the victim and the audience. This may be due to a prior acquaintance among those who partake in bullying in the physical space. In this sense, the aggressive behavior established in the physical space continues in cyberspace: hence, cyberbullying can be seen as an extension of FtF bullying relationships, a continuation of previous aggressive interactions. Furthermore, studies that compared cyberbullying and FtF bullying found that victims of cyberbullying were frequently also victims of bullying in the physical realm (Gradinger et al. 2009; Raskauskas and Stoltz 2007). Indeed, in a study that investigated cyberbullying among youths, bullies reported that the main motivation behind their bullying behavior was that they disliked the victims. Another reason that participants gave for bullying was a prior negative interaction, either in cyberspace or in the physical space, between bullies and victims (Cassidy et al. 2009).

All of these observations suggest that the bullying phenomenon is not place-dependent, but rather that it is a prevalent behavior within this age group, which entails toxic results regardless of the way it is delivered. Adolescents who are preoccupied with formulating their own identities clearly find it convenient to practice bullying their school and classroom peers in an online environment. Thus, while the conspicuous nature of cyberbullying has drawn public attention, and its severity has been the focus of many previous studies, the present study compared the frequency of aggressive involvement in the two arenas. Findings indicated that the phenomenon of bullying in cyberspace was less prevalent than that of FtF bullying at school. Thus, it appears that conventional aggression, which typically occurs face-to-face, is merely continued through the social media networks, from whence it is again redirected into the physical realm.

The research literature is divided on the subject of the effect of gender on cyberbullying. Some studies found that in cyberspace, boys tend to be the bullies (Huang and Chou 2010; Li 2006), which corresponds to the situation in the real world (Olweus 2003), whereas other studies did not find a significant correlation between gender and bullying. A significant finding in the current study was that the boys reported using cyberbullying more frequently than the girls did. Furthermore, it appears that there is no difference in the approach used in FtF bullying compared to that used in cyberbullying, which substantiates the claim that adolescents' social space includes both the physical world and cyberspace without any defined dichotomy. Nevertheless, although studies did find that girls tended to be victims more frequently than boys (Wang et al. 2009), the current study found no correlation between gender and victims or gender and audience. This might be due to the particular characteristics of cyberbullying, which differ from FtF bullying. Studies have found that in FtF situations, girls tended to use indirect violence, whereas boys tended to be more directly aggressive (Crick et al. 2002). It is also possible that just as bullies are not always aware of the intensity of their actions, in the case of cyberbullying, the victims do not necessarily see themselves as such, and consequently this was reflected in the responses provided on the self-report questionnaire.

Although previously, the professional literature has suggested that cyberbullying is a new kind of bullying (Juvonen and Gross 2008; Smith et al. 2008), the recent debate regarding whether cyber- and conventional bullying are the same concluded that the harm that bullying inflicts depends more on the act itself than on the way it is delivered (Bauman and Newman 2012). In line with this finding, the current study's findings suggest that the phenomenon of cyberbullying may be inseparable from the FtF bullying phenomenon. Rather than two separate phenomena, FtF bullying and cyberbullying appear to be a single phenomenon which is expressed in two different social spaces in which young people gather and interact: the physical space and cyberspace. However, at a time when society is experiencing an increase in aggressive behaviors, the broad distribution, conspicuous behaviors, and the severity that characterize cyberbullying seem to overshadow FtF bullying.

This finding has important implications regarding the most suitable type of intervention for addressing this social phenomenon. While it appears that the most appropriate way to deal with cyberbullying is through education and publicity, it is perhaps equally important that education systems realize that cyberspace cannot be severed from the physical space. Oftentimes physical violence stems from bullying that began online, and vice versa: cyberbullying is often a continuation of previous interactions that have been extended into cyberspace.

In addition, adolescents should be made aware of the increased vulnerability of cyber victims, so as to enable bullies to experience empathy towards their victims, despite the lack of online information about the victims, the lack of visibility, and the absence of eye contact with the victims in cyberspace. Moreover, a supportive environment should be provided not only for the victims, but also for the bystanders, so as to empower them to take responsibility and report incidents of bullying.

4.1 Limitations and recommendations for future studies

The current study was based on a population sample of Israeli junior-high and high-school students recruited through Facebook. While adolescence is a period of personal development recognized and similarly characterized in most of the Western world, it would be interesting to replicate this type of study in other countries, and thus to determine whether the findings reported here are duplicated in countries of greater geographical size and a more dispersed population.

As mentioned, participants responded to an advertisement that was placed on Facebook and published on pages of adolescents ages 13 to 18, which offered them the opportunity to participate in the study. Given that participants' identity remained undisclosed, and that they did not meet or interact with the researchers, there is a slight chance that the age of a few of the participants did not correspond to the inclusion criterion defined for this study. However, it also may be assumed that if there were such incidents, they were few and negligible, and thus could not diminish the significance of the study's findings.

Various studies have attempted to link gender with cyberbullying; however, findings on this subject have not been consistent (Patchin and Hinduja 2006; Keith and Martin 2005; Li 2006). Although the current study did demonstrate significant results in this regard, a broader study should be conducted in order to examine the link between various applications (including modes of communication), gender, and personal characteristics. Such a study would shed additional light on the multiplicity of findings and would enrich our understanding of this field.

The type and degree of harm resulting from bullying is subjective; therefore, the findings of the current study were based on responses to a self-report questionnaire. Nevertheless, in order to obtain a more complete overview of the phenomenon, it should be studied also from the perspectives of the educational staff and of the parents. In this context, it would be interesting to examine the effect of parental intervention on cyberbullying, specifically its effect on the bullies, the victims, and the audience.

Finally, the research literature in this field suggests that in various situations, the individual may play a different role, so that it is possible for an adolescent who was the victim of cyberbullying to play the role of the bully under different circumstances, or to be cast as a member of the audience witnessing a bullying incident (Price and Dalgleish 2010). It would be interesting to study this type of role change in relation to gender and age.

In conclusion, the current study's findings provide an overview of the phenomenon of bullying in order to enable a comparison between cyberbullying and FtF bullying at school. In this sense, the study serves to expand the range of existing theoretical knowledge in the field. More specifically, by providing a detailed description of the cyberbullying phenomenon, the present study identified and differentiated between characteristics of bullies and victims, thus creating a profile of the phenomenon as it occurs among adolescents in Israel. This in turn may contribute to the understanding of the patterns of interpersonal relationships among adolescents in relation to bullying in particular and online behaviors in general. This description of the bullying phenomenon may facilitate the development of future intervention programs that address FtF bullying and cyberbullying as a single behavioral phenomenon. In fact, it could be said that in the age of cyberspace there seems to be a tendency to pay more attention to what happens there than to what happens in the "real" world. It is clear from our findings that in the case of bullying, at least as much, if not more, attention should be paid to FtF bullying as to cyberbullying.

References

Baldry, A. C. (2003). Bullying in schools and exposure to domestic violence. *Child Abuse Neglect*, *27*, 713–732.

Baldry, A. C., & Farrington, D. P. (2000). Bullies and delinquents: Personal characteristics and parental styles. *Journal of Community Applied Social Psychology*, *10*, 17–31.

Barak, A., & Suler, J. (2008). Reflections on the psychology and social science of cyberspace. In A. Barak (Ed.), *Psychological aspects of cyberspace: Theory, research, applications* (pp. 1–12). Cambridge, UK: Cambridge University Press.

Batsche, G. M., & Knoff, H. M. (1994). Bullies and their victims: Understanding a pervasive problem in the schools. *School Psychology Review*, *23*, 165–174.

Bauman, S., & Newman, M. L. (2012). Testing assumptions about cyberbullying: Perceived distress associated with acts of conventional and cyberbullying. *Psychology of Violence: Special Issue on Violence and Technology*, *3*, 27–38.

Beldean-Galea, I. E., Jurcau, N., & Tigan, S. I. (2010). Frequency of bullying behaviors in secondary schools in Cluj-Napoca. *Applied Medical Informatics*, *27*, 62–66.

Besag, V. E. (1989). *Bullies and victims in schools. A guide to understanding and management*. England: Open University Press.

Cassidy, W., Jackson, M., & Brown, K. (2009). Sticks and stones can break my bones, but how can pixels hurt me? Students' experiences with cyber-bullying. *School Psychology International*, *30*, 383–402.

Charach, A., Pepler, D., & Ziegler, S. (1995). Bullying at school: A Canadian perspective. *Education Canada*, *35*, 12–18.

Craig, W. M., & Pepler, D. J. (1995). Peer processes in bullying and victimization: An observational study. *Education in Canada*, *5*, 81–95.

Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer provocations. *Child Development*, *73*, 1134–1142.

Delfabbro, P., Winefield, T., Trainor, S., Dollard, M., Anderson, S., Metzer, J., et al. (2006). Peer and teacher bullying/victimization of South Australian secondary school students: Prevalence and psychosocial profiles. *British Journal of Educational Psychology*, *76*, 71–90.

Garner, P. W., & Hinton, T. S. (2010). Emotional display rules and emotion self-regulation: Associations with bullying and victimization in community-based after school programs. *Journal of Community and Applied Social Psychology*, *20*, 480–496.

Gradinger, P., Strohmeier, D., & Spiel, C. (2009). Traditional bullying and cyberbullying: Identification of risk groups for adjustment problems. *Journal of Psychology*, *217*, 205–213.

Hinduja, S., & Patchin, J. W. (2008). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying*. Thousand Oaks, CA: Corwin Press.

Huang, Y.-Y., & Chou, C. (2010). An analysis of multiple factors of cyberbullying among junior high school students in Taiwan. *Computers in Human Behavior*, *26*, 1581–1590.

Joinson, A. N. (1998). Causes and implication of disinhibited behavior on the Internet. In J. Gackenbach (Ed.), *Psychology and the Internet: intrapersonal, interpersonal, and transpersonal implications* (pp. 43–60). San Diego: Academic Press.

Joinson, A. N. (2003). *Understanding the psychology of Internet behavior: Virtual worlds, real lives*. New York: Palgrave Macmillan.

Joinson, A. N. (2007). Disinhibition and the internet. In J. Gackenbach (Ed.), *Psychology and the internet: Intrapersonal, interpersonal and transpersonal implications* (2nd ed., pp. 76–92). San Diego, CA: Elsevier Academic Press.

Juvonen, J., & Gross, E. F. (2008). Extending the school grounds? Bullying experiences in cyberspace. *The Journal of School Health*, *78*, 496–505.

Keith, S., & Martin, M. E. (2005). Cyberbullying: Creating a culture of respect in a cyber-world. *Reclaiming Children and Youth: The Journal of Strength-Based Interventions*, *13*, 224–229.

Lapidot-Lefler, N., & Barak, A. (2012). Effects of anonymity, invisibility, and lack of eye-contact on toxic online disinhibition. *Computers in Human Behavior*, *28*, 434–443.

Lenhart, A. (2007). Cyberbullying. Pew Internet and American Life Project. Retrieved October 7, 2012. http://pewinternet.org/~/media//Files/Reports/2007/PIP%20Cyberbullying%20Memo.pdf.pdf

Li, Q. (2006). Cyberbullying in schools. A research of gender differences. *School Psychology International*, *27*, 157–170.

Ma, X. (2001). Bullying and being bullied: To what extent are bullies also victims? *American Educational Research Journal*, *38*, 351–370.

Morahan-Martin, J., & Schumacher, P. (2003). Loneliness and social use of the internet. *Computers in Human Behavior*, *19*, 659–671.

Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *Journal of the American Medical Association*, *285*, 2094–2100.

Nishina, A., Juvonen, J., & Witkow, M. R. (2005). Sticks and stones may break my bones, but names will make me feel sick: The psychosocial, somatic, and scholastic consequences of peer harassment. *Journal of Clinical Child and Adolescent Psychology*, *34*, 37–48.

Olweus, D. (1987). School-yard bullying: Grounds for intervention. *School Safety*, *6*, 4–11.

Olweus, D. (1991). Bully/victim problems among school children: Some basic facts and effects of a school-based intervention program. In D. Pepler & K. Rubin (Eds.), *The Development and Treatment of Childhood Aggression* (pp. 411–448). Hillsdale: Hillsdale Press.

Olweus, D. (1992). Bullying among schoolchildren: Intervention and prevention. In R. D. Peters, R. J. McMahon, & V. L. Quincy (Eds.), *Aggression and violence throughout the life span*. UK: Macmillan Press.

Olweus, D. (1993). *Bullying at school: What we know and what We can do*. Oxford, UK: Blackwell Publishers.

Olweus, D. (2003). A profile of bullying at school. *Educational Leadership*, *60*, 12–17.

Patchin, J. W., & Hinduja, S. (2006). Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence and Juvenile Justice*, *4*, 123–147.

Pepler, D. J., & Craig, W. M. (1997). *Bullying: Research and interventions*. Youth Update. Publication of the Institute for the Study of Antisocial Youth.

Pepler, D. J., Craig, W. M., Ziegler, S., & Charach, A. (1993). A school based anti-bullying intervention: Preliminary evaluation. In D. Tattum (Ed.), *Understanding and managing bulling* (pp. 76–91). Nigeria: Heinmann Books.

Pepler, D. J., Craig, W. M., Connolly, J. A., Yuile, A., McMaster, L., & Jiang, D. (2006). A developmental perspective on bullying. *Aggressive Behavior*, *32*, 376–384.

Pepler, D., Jiang, D., Craig, W., & Connolly, J. (2008). Developmental trajectories of bullying and associated factors. *Child Development*, *79*, 325–338.

Perry, D. G., Kusel, S., & Perry, L. C. (1988). Victims of peer aggression. *Developmental Psychology*, *24*, 807–814.

Peter, J., Valkenburg, P. M., & Fluckiger, C. (2009). Adolescens and social network sites: Identity, friendships and privacy. In S. Livingstone & L. Haddon (Eds.), *Kids online* (pp. 83–94). Bristol, UK: Policy Press.

Price, M., & Dalgleish, J. (2010). Cyberbullying: Experiences, impacts and coping strategies as described by Australian young people. *Youth Studies Australia*, *29*, 51–59.

Raskauskas, J., & Stoltz, A. D. (2007). Involvement in traditional and electronic bullying among adolescents. *Developmental Psychology*, *43*, 564–573.

Reiter, S., & Lapidot-Lefler, N. (2007). Bullying among special education students with intellectual disabilities: Differences in social adjustment and social skills. *Intellectual Developmental Disabilities*, *45*, 174–181.

Rigby, K. (2002). *New perspectives on bullying*. London, UK: Jessica Kingsley.

Rigby, K. (2007). *Bullying in schools and what to do about it: Revised and updated. Australian Council for Educational Research*. London, UK: Jessica Kingsley.

Rigby, K., & Smith, P. K. (2011). Is school bullying really on the rise? *Social Psychology of Education*, *14*, 441–455.

Roland, E. (1989). Bullying: The Scandinavian research tradition. In D. Tattum & D. Lane (Eds.), *Bullying in Schools* (pp. 21–32). Stoke-on-Trent: Trentham.

Roland, E., & Galloway, D. (2004). Professional cultures in schools with high and low rates of bullying. *School Effectiveness and School Improvement*, *15*, 241–260.

Subrahmanyam, K., & Šmahel, D. (2011). *Digital youth: The role of media in development*. New York: Springer.

Suler, J. (2004). The online disinhibition effect. *Cyberpsychology Behavior*, *7*, 321–326.

Suler, J. (2008). Image, word, action: Interpersonal dynamics in a photo-sharing community. *Cyberpsychology Behavior*, *11*, 555–560.

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry*, *49*, 376–385.

Stephenson, P., & Smith, D. (1989). Bullying in two English comprehensive schools. In E. Roland & E. Munthe (Eds.), *Bullying: An International Perspective*. London: Fulton.

Strom, P. S., & Strom, R. D. (2005). When Teens Turn Cyberbullies. *Education Digest: Essential Readings Condensed for Quick Review*, *71*, 35–41.

Wang, J., Ionnotti, R. J., & Nansel, T. R. (2009). School bullying among adolescents in the United States: Physical, verbal, relational, and cyber. *Journal of Adolescent Health*, *45*, 368–375.

Winter, R. E., & Leneway, R. J. (2008). Cyberbullying—Terror in the classroom: What can be done? [Electronic Version]. Retrieved September 22, 2012, from http://www.chaminade.org/cyberbullying.htm

Whitney, I., & Smith, P. K. (1993). A survey of the nature and extent of bullying in junior/middle and secondary schools. *Educational Research*, *35*, 3–25.

Willard, N. (2004). I can’t see you, You can’t see me. *How the use of information and communication technologies can impact responsible behavior*. Retrieved 5, July, 2013. from http://www.cyberbully.org/docs/disinhibition.pdf

Willard, N. (2006). Flame retardant: Cyberbullies torment their victims 24/7: Here’s how to stop the abuse. *School Library Journal*, *52*, 54–56.

Ybarra, M., Mitchell, K., & Espelage, D. (2012). Comparisons of bully and unwanted sexual experiences online and offline among a national sample of youth. Complimentary Pediatrics, 203–216.

Noam Lapidot-Lefler is a lecturer with tenure, at the Department of Behavioral Sciences and Education, The Max Stern Yezreel Valley College, and at the Department of Special Education, The Faculty of Education, Oranim College for Education, Israel. Her main research topic centers on Internet psychology, especially on aggression and disinhibition, and, in the field of education, she focuses on special education social spaces.

Michal Dolev-Cohen is a lecturer and researcher of CyberPsychology at Oranim Academic College of Education, Israel. Her research interests include psychological impact of the internet on teens, counseling applications on the Internet and risk behavior online.