Digital Image Bullying among School Students in Belgium: An Exploration of the Characteristics of Bullies and their Victims

Lieve Lembrechts[1]
Hasselt University, Belgium

Abstract

This article focuses on digital image bullying, which has never been studied separately from other types of cyber bullying with much detail. Based upon a survey among 456 Belgian students between 16 and 21 years old, the prevalence and circumstances of this way of cyber bullying, and the characteristics of victims and perpetrators were studied. The study reveals that 10.1% of the respondents have been victims, while 9.2% have been bullies. Based on logistic regression analysis, it was investigated whether cyber bullying influences victimization and vice versa, and if school variables, social variables and internet use impact upon victimization and perpetration. Boys are more often perpetrators than girls. Mostly, they bully youngsters they have met at school or during leisure times. Being a victim and being a perpetrator appear to be predictive for each other. Bullies and their victims have more specific social contacts than youngsters who do not bully or are not bullied. As for the frequency and intensity of internet use, the research could not reveal any difference between bullies and non-bullies, nor between victims and non-victims. These findings lead to the hypothesis that the specificity of digital image bullying consists of the fact that the real and the virtual world are closely interconnected.

Keywords: secondary school; images; cyber bullying; victimization; internet use.

Introduction

In the past a lot of scientific research has focused on assessing the link between computers and deviant behavior among youngsters. The internet seems to have given a new impulse to this interest, in that sense that not only the impact on internet users is studied, but also how people use the internet themselves. One of the deviant acts youngsters can commit using the internet is cyber bullying, which constitutes to a certain degree a new variant of an old phenomenon (Li, 2007b). Bullying was already considered as deviant behavior, though after the arrival of the internet and other new media it has been reconfigured among others because of the advantages that new media can offer, like velocity, anonymity and wide circulation in comparison to 'traditional' bullying (Shariff, 2006; Shariff & Hoff, 2007). New media no longer limit social interactions of youngsters

[1] PhD Candidate, SEIN: Identity, Diversity and Inequality Research, Hasselt University, Agoralaan, building D, 3590 Diepenbeek, Belgium. Email: lieve.lembrechts@uhasselt.be

to the direct environment – in the case of traditional bullying often the school grounds, but have broadened them to the virtual world (Williams & Guerra, 2007).

Smith and his colleagues (2008, p. 376) found inspiration in Olweus' (1991, 1993) popular definition of traditional bullying to describe cyber bullying as 'an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself'. Even though this definition is complete in its formulation, it is problematic at some points, among others because it implies that the features of bullying can be transposed integrally into cyber bullying. As will be discussed further on, the repeated character of the bullying behavior is one of the elements subject to discussion, since in cyberspace repetition may be of another nature (Shariff, 2008). Perhaps a more important problem is that the above mentioned definition lacks precision concerning the type of acts that can be classified as cyber bullying, with the consequence that it is often studied in a global manner. Nonetheless, studies have indicated that different types of cyber bullying exist, with different characteristics, which make it important 'to consider different varieties of cyber bullying, rather than taking them as a global phenomenon' (Smith et al., 2008:384). Also the research on traditional bullying, which has a longer tradition, demonstrates that different types of bullying are related to different types of perpetrators and victims. For instance, physical bullying is more likely to be committed by and directed at boys than girls, while girls use more relational types of bullying (Björkqvist, 1992; Marcum et al., 2012; Stockdale et al., 2002; von Marées, & Petermann, 2010; Wang et al., 2009). Even though empirical research tries to take into account this specificity by focusing only on certain types of cyber bullying, in further analysis assessing the characteristics of perpetrators and victims, the different subtypes are often taken together (Hinduja, & Patchin, 2007, 2008; Li, 2006; Li, 2007a; Raskauskas, & Stoltz, 2007; Slonje, & Smith, 2008). For these reasons a specific type of cyber bullying will be dealt with in this paper, i.e. digital image bullying.

Present research

Digital image bullying can be classified as a specific type of cyber bullying through visual material. Previous research has mainly focused on images and video clips, sent through the internet or cell phones (NCH, 2005; Raskauskas & Stoltz, 2007; Slonje, & Smith, 2008; Smith et al., 2008; Walrave et al., 2008).

Empirical research on this type of cyber bullying is hardly available. Studies almost exclusively focus on the prevalence, indicating that between 2% and 12% of the teenagers had cyber bullied by use of visual material in the last couple of months (Patchin, & Hinduja, 2010; Smith et al., 2008; Slonje, & Smith, 2008; Walrave, & Heirman, 2009) and that between 5% and 14% had experienced this type of cyber bullying (Smith et al., 2008; NCH, 2005; Slonje, & Smith, 2008; Raskauskas, & Stoltz, 2007, Walrave, & Heirman, 2009). Cyber bullies focus first of all on students of their own school and, most of the time, they do not act alone. They would bully for fun, because they feel bad about themselves or to take revenge (Raskauskas, & Stoltz, 2007).

The current study is aimed at closing part of the knowledge gap about digital image bullying. In contrast to previous studies, the following research is based on separate analysis for digital image bullying, which allows excluding the possibly biased impact of other types of cyber bullying. The concrete aims of this study are: 1) to survey the prevalence of victimization and perpetration of digital image bullying, 2) to investigate the

circumstances of this victimization and perpetration and 3) to identify the characteristics of bullies and victims of digital image bullying.

To meet the aim of identifying digital image bullies' and victims' characteristics, this study focuses on these characteristics that are most frequently integrated in research on other types of cyber bullying, i.e. gender, age, school variables, social activities, former victimization and perpetration of cyber bullying and internet use (Hinduja, & Patchin, 2009; Shariff, 2008).

A first frequently studied topic is the gender of cyber bullies and their victims. Previous research shows inconsistent results: some authors did not find gender differences (Patchin, & Hinduja, 2006; Raskauskas, & Stoltz, 2007; Ybarra, & Mitchell, 2004), while others noticed that boys are more often perpetrators or victims (Erdur–Baker, 2010; Li, 2006; Li, 2007b; Popović-Ćitić et al., 2011). Other studies show that girls are more often the perpetrator (Cassidy et al., 2009). As already mentioned, these inconsistent results can probably be explained by the fact that girls are involved in other types of cyber bullying than boys, for instance relational cyber bullying.

Furthermore, cyber bullying would be popular among students above the age of 10, and would decrease after the age of 15 (Raskauskas, & Stoltz, 2007; Smith et al., 2008; Ybarra, & Mitchell, 2004). As for other types of deviant behaviour, youngsters tend to desist as they reach adulthood.

Academic achievement appears not to be a significant predictor of victimization and perpetration (Li, 2007a; Li, 2007b). Cyber bullying can be anonymous and often lacks supervision, which explains why ideal as well as less ideal students can be involved (Shariff, 2006). Nonetheless, cyber bullies would demonstrate a low level of school commitment (Ybarra, & Mitchell, 2004), while perpetrators and victims experience more problems at school, like skipping school, cheating on an exam and traditional bullying (Hinduja, & Patchin, 2008; Hinduja, & Pathchin, 2012; Olweus, 2012). Cyber bullying would be popular in technical, vocational or artistic secondary education, more than in academic secondary education (Vandebosch, & Van Cleemput, 2009; Walrave, & Heirman, 2009). This seems logical, since it has been found that students with these characteristics are more inclined to deviant behaviour more in general (Moffitt et al., 1981).

Moreover, social competence (having friends, popularity in the class) would be predictive for cyber bully victimization and perpetration (Vandebosch, & Van Cleemput, 2009). This contradicts the findings for traditional bullying, implying that participating in social activities would be protective against bullying, because of the social control adults exercise (Feldman, & Matjasko, 2005; Peguero, 2008). This could be explained by the fact that in cyberspace, friends or adults cannot offer protection against bullying (Wang et al., 2009). Social contacts would even increase the risk of victimization and perpetration, simply because youngsters with more social contacts in the real world know more persons who are potential victims and perpetrators in cyberspace.

Also, former victimization appears to be a strong predictor for bullying (Vandebosch, & Van Cleemput, 2009; Walrave, & Heirman, 2009), and former bullying for victimization (Erdur-Baker, 2010; Kowalski, & Limber, 2007). This is in line with research stating that victimization and offending more in general are correlated: once someone has been involved in deviant behaviour as a victim or as an offender, this person tends to make part of a victim-offender cycle (Lauritsen et al. 1991). In traditional bullying this interaction has been repeatedly identified too, as is shown in research by Ma (2001) and Li (2007b), who stated that offenders are more often victims and vice versa.

970

In terms of internet use, victims and perpetrators score high both on frequency (daily use) as well as intensity (number of hours) (Hinduja, & Patchin; 2008; Smith et al., 2008; Yilmaz, 2011). This seems logical: the more (often) someone is online, the more opportunities to cyber bully or to be cyber bullied.

Methods

Sample

This research was conducted among 456 students, all in the third grade of secondary school in an urban city situated in the Dutch speaking part of Belgium. The main part of Belgian secondary education is divided in three grades: students between the age of 16 and 18 are usually in the third grade, which includes the fifth and sixth year. Students can choose between four types of education: academic, technical, vocational and art. Academic secondary education prepares students for higher education, while the technical and vocational levels are more practice oriented. Students from the vocational secondary education are trained for a specific occupation and those from the technical education receive a broader technical education, which prepares them for higher education, but also for a job. Since the amount of students taking secondary education in arts is limited, this group was not included in the study. Secondary education is offered in the three languages: Dutch, French and German, according to the official language of the territory of the school.

In line with previous research the subjects were chosen using a cluster sample among seven schools, divers in terms of students' socio-economic and demographic background (Cassidy et al., 2009; Raskauskas, & Stoltz, 2007; Slonje, & Smith, 2008). The clusters were classes, which means that every student from the selected classes has been surveyed, except those who were absent, e.g. because of illness. For each of the selected schools, a stratified sample of classes was taken, in proportion with the type of education in the population

Weight coefficients were applied on gender and educational level to match the sample with the proportions in the school population, primarily because of the under representation of students of the academic secondary education in the sample. The weight coefficients were calculated using the statistics of the Flemish Ministry of Education and Training. All results discussed below are weighted according to these coefficients.

The overall sample consisted of 50.9% boys and 49.1% girls. Their age varied between 16 and 21 years (mean age: 18.12 years; SD: 0.91): 50.2% was 18 years old, 23.8% 16 or 17, 17.4% 19 and 8.6% 20 or 21. Of the respondents, 20.4% was a student in the vocational secondary education, 31.3% in the technical secondary education and 48.3% in the academic secondary education. 50.2% was in the fifth year and 49.8% in the sixth. All of them had internet access, mostly on a daily basis.

Survey

The students were surveyed with a questionnaire containing three parts. A first and second part focused on their experiences as victims and perpetrators of digital image bullying, differentiating between unmanipulated (i.e. realistic) and manipulated (for instance, Photo-shopped) images. The third part contained questions about socio-demographic characteristics, school and social factors and media use.

971

The field work took place in April 2008. Each of the participants had 30 minutes to fill in a printed questionnaire in the class room, during regular classes. To avoid socially desirable responses, a researcher stayed in class during the entire process, stressing the anonymity of the study.

Measures
Cyber bullying by use of images spread via the internet

Perpetration was measured by asking if the respondent had (ever and in the past eight months, i.e. since the beginning of the school year) sent an unmanipulated/manipulated image (no=0; yes=1), and if yes, how often. To measure victimization, respondents were asked if they had (ever and in the past eight months) received an unmanipulated/manipulated image (no=0; yes=1), and if yes, how often. The respondents were explained that the questions referred to all types of images, portrait images and others (e.g. sexual), in manipulated and unmanipulated form, spread via the internet, e.g. via e-mail. Only images that were sent against the will of the victim (who was the receiver and/or was portrayed) and intended to hurt (Smith et al., 2008) were taken into account. Even a onetime incident was considered as an act of cyber bullying, since images often circulate for a long time on the internet (Vandebosch, & Van Cleemput, 2009).

Circumstances of victimization and perpetration

Victims were asked if they knew the perpetrator (no=0; yes=1) and if the cyber bullying had been reported (no=0; yes=1) and if yes, to whom (open coding). Perpetrators were asked to specify if they had been punished (no=0; yes=1) and the kind of relationship with their victim (unknown victim, someone from the same school, someone from outside school), for the last case of bullying.

School factors

All respondents were asked if they had failed at least one year in secondary school (no=0; yes=1). Respondents also rated on a 5-point response scale if their school grades were (far) under, (far) above or about average and on a 3-point response scale if they liked to go to school (very much) or not (at all).

Social factors

All respondents were asked if they were or had recently been a member of a sports club (no=0; yes=1), a hobby club (no=0; yes=1) or a youth organization (no=0; yes=1).

Internet use

Frequency of internet access was measured on a 5-point scale ranging from daily access to no internet access. Time spent on the internet on Wednesday afternoons (this is when students are free from school) was measured on a 5-point scale ranging from less than one hour to more than four hours.

Socio-demographic variables

Gender was coded as a dummy variable (boy = 0; girl = 1). Age was reported by asking the year of birth. Educational level was measured with one item with three categories (technical, vocational and academic secondary education). School year was measured by asking the respondents if they were in the fifth of sixth year of secondary school.

Results

The prevalence and circumstances are reported separately for cyber bullying using manipulated and cyber bullying using unmanipulated images, in order to give an accurate description of both types. As for the characteristics of cyber bullies and their victims no distinction is made between both types of bullying, since there is no indication for possible differences.

Prevalence

About one student in ten was perpetrator (9.2%) or victim (10.1%) of at least one of both types of cyber bullying. An important part of them – roughly between 1 and 3% – was involved in the last few months (see table 1 and 2). Most perpetrators and victims experienced cyber bullying once, but some of them three times or more.

Table 1. Reported victimization of unmanipulated images (N=452) and manipulated images (N=447) in %

	1 time	2–3 times	+ 3 times	Total
Unmanipulated image (ever)	5.5	0.9	0.9	7.3
Unmanipulated image (last school year)	2.1	0.5	0.3	2.9
Manipulated image (ever)	3.1	0.9	0.3	4.3
Manipulated image (last school year)	1.2	0	0	1.2

Table 2. Reported perpetration of unmanipulated images (N=449) and manipulated images (N=450) in %

	1 time	2–3 times	+ 3 times	Total
Unmanipulated image (ever)	3.8	0.9	1.4	6.5
Unmanipulated image (last school year)	1.5	1.1	0.5	3.1
Manipulated image (ever)	2.9	1.5	0.3	4.7
Manipulated image (last school year)	1.6	0.3	0.3	2.2

Circumstances

It appears that victims and perpetrators often know each other. Only 14.6% (unmanipulated image) and none (manipulated image) of the perpetrators cyber bullied an unknown victim. Only 5.6% (unmanipulated image) and 17.5% (manipulated image) of the victims did not know the perpetrator. They also frequently go to the same school, respectively 54.4% (unmanipulated image) and 46.8% (manipulated image) according to the victims, and 45.4% (unmanipulated image) and 53.2% (manipulated image) according to the perpetrators. Perpetrators indicated they were rarely sanctioned (unmanipulated image: 8.4%; manipulated image: 15.7%), even though the majority of the victims talked about their experience (unmanipulated image: 60.6%; manipulated image: 83%), mostly to peers and rather seldom to their parents.

Victims' and perpetrators' characteristics

Hierarchical logistic regression analysis was chosen to assess the impact of specific factors on victimization and perpetration. Due to an increased number of missing values in the regression analysis, the sample size was reduced from N=456 to N=384. The participants that were victim or perpetrator of at least one of the two types of cyber bullying, were coded as 1; those who were never involved, were scored as 0. The variables included in the models were: gender (boy = 0; girl = 1), age (continuous variable), educational level (reference category: academic secondary education) and school year (5th year = 0; 6th year = 1) in the first block, school variables (whether one likes to go to school = 1 or not = 0; having failed a school year = 1 or not = 0; whether one repeated at least one year in the secondary school = 1 or not = 0; and perceived academic achievement (far) under/around average = 0 or (far) above = 1) and social variables (membership of a sports club = 1 or not = 0; of a hobby club = 1 or not = 0; of a youth organization = 1 or not = 0) in the second block, internet use (internet use on an average Wednesday afternoon in hours, coded as a continuous variable; and daily access to the internet = 1 or not = 0) in the third block and in the fourth block victimization (ever have been a victim of at least one of the two types of cyber bullying = 1; never have been a victim = 0) in the model predicting perpetration, and perpetration (ever have been a perpetrator of at least one of the two types of cyber bullying = 1; never have been a perpetrator = 0) in the model predicting victimization.

Table 3 gives the results for the model in which victimization is the dependent variable. The final model (model 4) indicates that all variables taken together explain 14.9% of the variance in victimization. Nevertheless, it is only after the perpetration variable was added that the model became significant compared to the first block (the beginning block). Finally membership of a hobby club and perpetration appear to have a significant influence on victimization. More precisely, members of a hobby club and perpetrators are more likely to be victims. The beta values indicate that both predictors are almost of equal strength (beta membership of a hobby club = 1.314; beta perpetration of cyber bullying using images = 1.305). Background factors, internet use and the other school and social variables do not seem to have a significant impact on victimization.

Table 3. Hierarchical logistic regression of the impact of background variables, school and social variables, internet use and perpetrators on victimization of cyber bullying using images (N=384)

	Beta (conditional logodds)			
	Model 1	Model 2	Model 3	Model 4
Block 1: background variables				
Gender	0.149	0.080	0.160	0.350
Age	0.333	0.246	0.258	0.192
School year	0.559	0.642	0.593	0.605
Vocational secondary education	–0.523	–0.151	–0.200	–0.236
Technical secondary education	–0.312	–0.184	–0.367	–0.440
Block 2: school and social variables				
Likes to go to school		0.137	0.175	0.221
Having failed a school year		0.326	0.305	0.257
Perceived academic achievement above average		0.153	0.072	0.102
Membership of a youth organization		0.307	0.209	0.062
Membership of a sports club		–0.076	–0048	–0.169
Membership of a hobby club		1.074★★	1.157★★	1.314★★
Block 3: internet use				
Daily internet access			0.206	0.301
Internet use on Wednesday			0.298	0.282
Block 4: perpetration				
Perpetration of cyber bullying using images				1.305★
Nagelkerke R²	0.047	0.097	0.119	0.149
Significance of the model	$\chi^2(5)$=8.64; p=0.124	$\chi^2(11)$=18.03; p=0.081	$\chi^2(13)$=22.27; p=0.051	$\chi^2(14)$=28.06; p=0.014

★★ p ≤ 0.01 ; ★ p ≤ 0.05

Furthermore, the impact of the same variables on cyber bullying was tested (see table 4). The final model explains 25.6% of the variance of perpetration, which is more than for victimization. The proportion of explained variance of the model especially increased after the second block (school variables and social variables) was added. Finally, the following variables appeared to have a significant influence on perpetration: gender, membership of a youth organization, a sports club and a hobby club, and victimization of digital image bullying. More precisely, boys, members of a youth organization, members of a sports

club, non-members of a hobby club and victims of cyber bullying are more often a perpetrator. The strongest predictor is non-membership of a hobby club (-1.334), followed by victimization (1.275), being a boy (-1.118), membership of a youth organization (beta = 1.095) and membership of a sports club (0.821). Internet use and the other background variables and school and social variables do not seem to have a significant influence on perpetration.

Table 4. Hierarchical logistic regression of the impact of background variables, school and social variables, internet use and victimization on perpetration of cyber bullying using images (N=384)

	Beta (conditional logodds)			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Block 1: background variables				
Gender	–1.245★★	–0.942★	–1.054★	–1.118★
Age	0.334	0.038	0.059	–0.032
School year	0.231	0.516	0.457	0.464
Vocational secondary education	0.392	0.665	0.479	0.522
Technical secondary education	0.222	0.360	0.165	0.186
Block 2: school and social variables				
Likes to go to school		–0.334	–0.309	–0.326
Having failed a school year		0.951	0.902	0.982
Perceived academic achievement above average		–0.134	–0.112	–0.106
Membership of a youth organization		1.155★★	1.130★★	1.095★
Membership of a sports club		0.712	0.779	0.821★
Membership of a hobby club		–1.108	–1.168★	–1.334★
Block 3: internet use				
Daily internet access			–0.794	–0.819
Internet use on Wednesday			0.244	0.215
Block 4: victimization				
Victimization of cyber bullying using images				1.275★
Nagelkerke R²	0.109	0.214	0.230	0.256
Significance of the model	$\chi^2(5)=20.02$; p=0.001	$\chi^2(11)=40.46$; p=0.000	$\chi^2(13)=43.55$; p=0.000	$\chi^2(14)=48.80$; p=0.000

★★ p ≤ 0.01 ; ★ p ≤ 0.05

Discussion

In this study, all of the respondents were frequent internet users, which make everyone of them a potential victim or perpetrator of digital image bullying. Indeed, we found that about one student in ten had been involved in digital image bullying, as a victim or as a perpetrator.

The study revealed that cyber bullies are rarely punished, which is in line with previous research. Nonetheless, the lack of punishment does not automatically imply that there is no reaction to the digital image bullying. Actually, the greater part of the victims reported the bullying, more than other research indicated thus far (Li, 2007b; Vandebosch, & Van Cleemput, 2009). This relatively high willingness to report the incident could be explained by the fact that this study looked at rather visible types of cyber bullying. The research also demonstrated that victims and digital image bullies know each other much more often than literature indicates (for both at least in 8 in 10 cases), making anonymity a less important aspect for digital image bullying than literature on cyber bullying in general states (Li, 2007b; Shariff, 2006). Victims and perpetrators not only know each other very often, they also most of the time go to the same school. Digital image bullies apparently select their victims in the real world, and do not necessarily broaden their scope to unknown victims (for instance online 'friends').

The current research also analyzed the impact of some factors on victimization and perpetration, which appeared to be important according to studies on cyber bullying in general. The survey revealed that some youngsters are more at risk for victimization or perpetration of digital image bullying.

First, victimhood and perpetration are predictive for each other, which is also conclusive with the existing literature on other types of cyber bullying (see for instance Ma, 2001; Li, 2007b). Anyhow, it remains unclear how both factors precisely have a mutual influence: do victims first become offenders or vice versa? Further research is needed to elucidate the underlying mechanisms of the victim-offender cycle. For the present it can be put forward that cyber bullies and victims both deserve attention in prevention policies, not in the least because offending and victimization are narrowly connected.

The conclusion that being a boy is predictive for perpetration is in line with research stating that boys commit more often forms of non-verbal bullying, such as digital image bullying (Keith & Martin, 2005). In contrast with former research, it has been found that students from the academic secondary education are involved in digital image bullying as much as students from the vocational and technical secondary education, (Vandebosch & Van Cleemput, 2009; Walrave & Heirman, 2009). The lack of difference between educational levels could be due to the fact that digital image bullying involves a broader group, and depends less on educational level, in contrast to cyber bullying more in general. That academic achievement and school failure are not important for offending, is conclusive with previous research on cyber bullying (Li, 2007a; Li, 2007b). After all, cyber bullying requires less emotional involvement of the bully and lacks supervision, in order that not only 'less good' students tend to bully in that way (Kowalski & Limber, 2007; Smith et al., 2008). Besides, groups that are less powerful in the real world (for instance physically) have as much power on the internet as other groups, in order that such inequalities disappear (Hinduja & Patchin, 2008). The fact that digital image bullying is not related to 'not liking to go to school', reinforces the presumption that cyber bullying is not restricted to the students that are deviant at school, but also includes 'ideal' students.

Still, it has to be emphasized that the research was limited to affective and cognitive school variables: behavioural variables, like delinquent behaviour at school, that are supposed to have an impact on cyber bullying, were not included (Hinduja & Patchin, 2008; Ybarra & Mitchell, 2004).

That certain types of social contact are predictive for perpetration is in line with previous research on cyber bullying (see for instance Erdur-Baker, 2010; Kowalski & Limber, 2007). The fact that membership of a sports club or a youth organization is predictive for offending, could be explained by what the literature describes as 'the need to establish social status' (Wang et al., 2009): bullies try to be part of the group and to attract attention, by joining a sports club or a youth organization, but also by their bullying behaviour. Another explanation can be that members of sports clubs and youth organizations know more youngsters, and consequently more 'targets'. Indeed, the current research revealed that many offenders bullied someone they knew in real life, but that their victim did not go to the same school. The fact that non-membership of a hobby club is predictive for perpetration could seem contradictory, but on the other hand hobby clubs generally attract another type of members than youth organizations and sport clubs, in the sense that their members have the same − often intellectual or artistic − interests. This seems to indicate that not only social contacts as such are linked to digital image bullying, but in the first place social contacts in specific settings.

It is remarkable that the amount and frequency of internet use is not related to digital image bullying, in contrast to what literature suggests (see for instance Kowalski et al., 2008; Ybarra & Mitchell, 2004). Possibly digital image bullying is less dependent of the amount and frequency of internet use, because it requires only a minimum presence in cyberspace: for instance, images can be put on a website or circulate via email (Shariff, 2008; Slonje & Smith, 2008). It could also be hypothesized perpetrators do not have to be online very often to bully, because they have already targeted their victims in the real world.

For victimization it was found that gender does not correlate with victimization: boys are more often perpetrators, but girls and boys do not differ in terms of becoming a victim. This could possibly be explained by the fact that cyber bullies do not experience certain barriers, for instance by lack of face to face contact or social control, and therefore choose victims regardless of their gender, thus also including more girls.

Academic level does not appear to have an impact on victimization, which − as for offending − deviates from previous research findings, but could be explained by the fact that this type of cyber bullying appeals to a broader group of students. Furthermore, none of the studied school factors seems to have a significant influence, as with perpetration. That victims do not like going to school less often than non-victims, could be explained by the fact that the perpetrator can be someone from outside as well as someone from inside the school, as the survey reveals. As a consequence, school will not be necessarily experienced as an unsafe place. That victims also perform as good at school as non-victims, could indicate that cyber bullying also involves students that are normally less victimized, as previous research also demonstrated (Li, 2007a; Li, 2007b).

The social variables 'membership of a sports club' and 'membership of a youth organization' do not have an impact on victimization, in the sense that non-victims and victims are equally often members, is in line with other research on cyber bullying Vandebosch & Van Cleemput, 2009). This could be explained by the fact that the protective factors that apply to traditional bullying are no longer at stake (Wang et al.,

2009): there is little or no protection by friends or adults, making everyone equally vulnerable. In other words: the mechanisms that can mitigate bullying in the real world are no longer present in the virtual world. That membership of a hobby club is nevertheless predictive for victimization, could be explained by the fact that members of a hobby club do not necessarily share the same characteristics with members of a youth organization or sports club, also considering the fact that non-members are more often perpetrators as well. Possibly members of a hobby club are considered as weak and more vulnerable, an aspect that constitutes an important trigger for bullying according to literature on traditional bullying (Peguero, 2008): these members could be targets because of their membership of a specific type of association.

Finally, that the extent and frequency of internet use does not seem to be related to victimization could be explained along similar lines as for perpetration: victimhood would originate at school (this does not mean that students are already bullied at school, but they are at least identified as targets), which make frequency and intensity of internet use unimportant.

Conclusion

The current research aimed at investigating the specificity of digital image bullying, which has never been studied with much detail separately from other types of cyber bullying. In this paper it has been demonstrated that some of the characteristics of digital image bullying are inconsistent with previous research on cyber bullying. That the findings do not match the relatively limited available cyber bullying research could support the hypothesis that digital image bullying differs from other types of cyber bullying, or that by studying this type of cyber bullying separately, certain specificities are revealed that otherwise do not appear. For instance, the conclusion that boys are more likely than girls to participate in this form of cyber bullying, could be explained by the fact that digital image bullying differs from other types of cyber bullying, such as text cyber bullying. It was also remarkable that digital image bullying is seldom anonymous and that bully and victim knew each other, from school or outside school, which contradicts the assumption that cyber bullying is first of all an anonymous activity. Furthermore, it has been found that internet use is not related to perpetration or to victimization, one of the few aspects that research on cyber bullying thus far rather conclusively considered as an important predictive factor. A possible explanation is that bullies do not have to be online very often to bully by use of images, because they have already selected their victims in the real world. This can also be supported by the finding that members of a youth organization and sports club are more often perpetrator: these members can target more potential victims. That non-members of a hobby club are more likely to cyber bully can be explained be the fact that hobby clubs generally attract another type of members than youth organizations and sport clubs.

To summarize, these findings lead us to the hypothesis that the specificity of digital image bullying possibly consists of the fact that the real and the virtual world, more than is the case for other types of cyber bullying, are interconnected, involving a broader group of victims and perpetrators. Victim and perpetrator are more or less directly related, which also explains why the perpetrator possesses personal information like portrait images.

This research leads to important advice for school practitioners, teachers and parents, in terms of prevention and intervention. First, they should pay attention to peers' interactions in the 'real' world to prevent and detect cyber bullying, since perpetrator-victim relations

appear to develop outside cyberspace. Because a broad group seems to be involved in digital image bullying, they should be encouraged to monitor not only classic bully and victim profiles, but also unusual types, like 'good' students. Furthermore, it is insufficient to monitor the amount and frequency of internet use: parents should also keep an eye on what their children exactly are experiencing on the internet. It seems useful to appoint a confidential counselor at school, to whom victims and perpetrators could address their problem. In fact, it is important that perpetrators also can get help, all the more because the victim-perpetrator cycle appears to persist. Since peers appear to be the first source of support for victims, they should be considered as important go-betweens, who can incite victims to report the problem to such a counselor. An important group does not talk about their victimization at all (up to 40%), even not to their peers: those victims should be encouraged to ventilate, which can be facilitated by stressing that cyber bullying is not an acceptable act. Victims not easily admit to suffer from the bullying (Cullingford, & Morrison, 1995) and not always perceive themselves as victims (Stockdale et al., 2002). It may be important that victims talk about their experience, since we noticed that they can become perpetrators. Also perpetrators should be made aware of the seriousness of cyber bullying again because of the victim-perpetrator cycle, the more since youngsters do not need a certain distance to cyber bully using images, as the lack of anonymity indicates.

Limitations and suggestions for further research

One of the limitations of this research is that the selected types of cyber bullying were exclusively studied using a quantitative research method, leaving the causal mechanisms of cyber bullying mainly un(der)exposed. It would be interesting to test the hypothesis that the virtual and the 'real' world are interconnected, for instance using a qualitative approach. Furthermore, also social factors and school factors that are not limited to the individual level should be taken into account (e.g. school climate). It also has to be recognized that the research was limited to affective and cognitive school variables: behavioural variables, like delinquent behaviour at school, were not included (Hinduja, & Patchin, 2008; Ybarra, & Mitchell, 2004). In general, the conclusion that school variables are not related to cyber bullying should be explored in more detail, considering that previous research on cyber bullying also found that both factors are not interconnected (Li, 2007a; Li, 2007b). Additionally, further research is needed to elucidate the conclusion that victimhood and perpetration are predictive for each other, which is also conclusive with the existing literature on other types of cyber bullying (Ma, 2001; Li, 2007b). It remains unclear how both factors precisely have a mutual influence: do victims first become perpetrators or vice versa? Finally, we refer to limitations of generalizability. Although the sample is conform to other research and representative for the researched area, the findings cannot incautiously be generalized to urban areas in other countries or to more rural regions. Therefore we would like to encourage other researchers to continue studying specific types of cyber bullying, in order that more complete knowledge will be acquired.

References

Björkqvist, K., Lagerspetz, K. M. J., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior,* 18*(2), 117-127.*

Cassidy, W., Jackson, M., & Brown, K. (2009). Sticks and stones can break my bones but how can pixels hurt me? *School Psychology International*, *30*(4), 383-402.

Cullingford, C., & Morrison, J. (1995). Bullying as a formative influence: the relationship between the experience of school and criminality. *British Educational Research Journal*, *21*, 547-560.

Erdur-Baker, O. (2010). Cyber bullying and its correlation to traditional bullying, gender and frequent and risky usage of internet-mediated communication tools. *New Media and Society*, *12*(1), 109-125.

Feldman, A. F., & Matjasko, J. L. (2005). The role of school-based extracurricular activities in adolescent development: A comprehensive review and future directions. *Review of Educational Research*, *75*(2), 159–210.

Hinduja, S. & Patchin, J. W. (2012). Cyber bullying: Neither an Epidemic Nor a Rarity. *European Journal of Developmental Psychology,* 9(5), 539-543.

Hinduja, S., & Patchin, J. (2007). Offline consequences of online victimization: School violence and delinquency. *Journal of School Violence 6*(3), 89–112.

Hinduja, S., & Patchin, J. W. (2009). *Bullying beyond the Schoolyard: Preventing and Responding to Cyber bullying.* Thousand Oaks, CA: Sage Publications.

Hinduja, S., & Patchin, J. W. (2011). High-tech cruelty. *Educational Leadership*, *68*(5), 48-52.

Hinduja, S., & Patchin, J.W. (2008). Cyber bullying: an exploratory analysis of factors related to offending and victimization. *Deviant Behavior*, *29*(2), 129-156.

Keith, S., & Martin, M. E. (2005). Cyber-Bullying: Creating a Culture of Respect in a Cyber World. *Reclaiming Children and Youth*, *13*(4), 224–28.

Kowalski, R. M. & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health, 41*(6)*,* 22-30.

Kowalski, R. M., Limber, S. P., & Agatston, P. W. (2008). *Cyber bullying: bullying in the digital age*. Oxford: Blackwell Publishing.

Lauritsen, J. L., Sampson, R. J., & Laub, J. H. (1991). The link between offending and victimization among adolescents. *Criminology*, *29*(2), 265-292.

Li, Q. (2006). Cyber bullying in schools. A research of gender differences. *School Psychology International*, *27*(2), 157-170.

Li, Q. (2007a). Bullying in the new playground: research into cyber bullying and cyber victimisation. *Australasian journal of educational technology*, *23*, 435-454.

Li, Q. (2007b). New bottle but old wine: a research of cyber bullying in schools. *Computers in human behavior*, *23*, 1777-1791.

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

Marcum, C. D., Higgins, G. E., Freiburger, T. L., & Ricketts, M. L. (2012). Battle of the sexes: an examination of male and female cyber bullying. *International Journal of Cyber Criminology*, *6*(1), 904-911.

Moffitt, T. E., Gabrielli, W. F., Mednick, S. A., & Schulsinger, F. (1981). Socioeconomic status, IQ, and delinquency. *Journal of Abnormal Psychology*, *90*(2), 152-156.

NCH (2005). *Putting U in the picture: mobile bullying survey 2005*. Retrieved June 9, 2010, from
http://www.filemaker.co.uk/educationcentre/downloads/articles/Mobile_bullying_report.pdf

Olweus, D. (1991). `Bully/victim problems among school children: Basic facts and effects of a school based intervention program'. In D. J. Pepler, & K. H., Rubin (eds.), *The development and treatment of childhood aggression* (pp. 411- 248). Hillsdale, NJ: Erlbaum.

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

Olweus, D. (2012). Invited Expert Discussion Paper. Cyber bullying: An overrated phenomenon? *European Journal of Developmental Psychology*, *9*(5), 520–538.

Patchin, J. W. & Hinduja, S. (2011). Cyber bullying and Self-Esteem. *Journal of School Health*, *80*(12), 614-621.

Patchin, J. W. & Hinduja, S. (2011). Traditional and nontraditional bullying among youth: A test of general strain theory. *Youth and Society*, *43*(2) 727-751.

Patchin, J. W., & Hinduja S. (2006). Bullies move beyond the schoolyard. A preliminary look at cyber bullying. *Youth violence and juvenile justice*, *4*(2), 148-169.

Peguero, A. A. (2008). Bullying victimization and extracurricular activity. *Journal of school violence*, 7(3), 71-85.

Popović-Ćitić, B., Djurić, S., & Cvetković, V. (2011). The prevalence of cyber bullying among adolescents: a case study of middle schools in Serbia. *School Psychology International*, *32*(4), 412-424.

Raskauskas, J., & Stoltz, A.D. (2007). Involvement in traditional and electronic bullying among adolescents. *Developmental psychology*, 43*(3),* 564-575.

Shariff, S. (2006). Cyber-dilemmas: Balancing free expression and learning in the virtual school environment. *International Journal of Learning*, *12*(4), 269-278.

Shariff, S. (2008). *Cyber bullying: Issues and solutions for the school, the classroom and the home*. New York, NY: Routledge.

Shariff, S., & Hoff, D. L. (2007). Cyber bullying: clarifying legal boundaries for school supervision in cyberspace. *International Journal of Cyber Criminology, 1*(1), 76-118.

Slonje, R., & Smith, P. K. (2008). Cyber bullying: another main type of bullying? *Scandinavian Journal of Psychology*, *49*(2), 147-154.

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyber bullying: its nature and impact in secondary school pupils. *The Journal of Child Psychology and Psychiatry*, *49*(4), 376-385.

Stockdale, M. S., Hangaduambo, S., Duys, D., Larson, K., & Sarvela, P. D. (2002). Rural elementary students', parents', and teachers' perceptions of bullying. *American Journal of Health Behavior*, *26*, 266-277.

Vandebosch, H., & Van Cleemput, K. (2009). Cyber bullying among youngsters: profiles of bullies and victims. *New Media & Society*, *11*(8), 1-23.

von Marées, N. & Petermann, F. (2010). Bullying in German primary schools: gender differences, age trends, and influences of parents' migration and educational backgrounds. *School Psychology International*, *31*(2), 178-198.

Walrave, M., & Heirman, W. (2009). Cyber bullying: predicting victimisation and perpetration. *Children & Society*, *23*, 1-14.

Wang, J., Iannotti, R. J., & Nansel, T. R. (2009). School bullying among adolescents in the United States: physical, verbal, relational, and cyber. *Journal of Adolescent Health*, *45*(4), 368-375.

Williams, K. R., & Guerra, N. G. (2007). Prevalence and predictors of internet bullying. *Journal of Adolescent Health*, *41*, 14-21.

Ybarra, M.L., & Mitchell, K.J. (2004). Online aggressor/targets, aggressors, and targets: a comparison of associated youth characteristics. *Journal of Child Psychology and Psychiatry*, *54*, 1308-1316.

Yilmaz, H. (2011). Cyber bullying in Turkish middle schools: an exploratory study. *School Psychology International, 32,* 645-654.