The permeation of ICT in society has come with many benefits, especially for age groups eagerly using these devices such as children and adolescents. Young people can, by using digitalized media, engage in a broad variety of activities such as entertainment, education, information and communication (Livingstone, Haddon, Görzig, & Ólafsson, 2011). Despite the creation of benefits for today’s generation of young people, there has been negative media coverage and public concern related to their use of digital media.

Next to some online content risks (e.g., exposure to sexually explicit or violent content), contact risks such as cyberbullying have emerged as a new societal problem tarnishing the image of an empowered young generation of digital kids.

Reviewing literature on cyberbullying reveals that there is a broad range of definitions available, with some studies (e.g., Juvonen & Gross, 2008) broadly defining cyberbullying as “the use of Internet or other digital communication devices to insult or threaten someone” (p. 497). Some studies, however, are more restrictive in defining cyberbullying, as they have applied Olweus’ (1994) traditional bullying criteria of repeated, intentional and harmful behavior to cyberbullying (Smith et al., 2008, p. 376): “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.”
Noteworthy, the prevalence rates of cyberbullying found in diverse studies tend to differ strongly between countries, partially due to different operationalization and measurements of cyberbullying (Tokunaga, 2010). For example, Kowalski and Limber (2007) asking for students’ involvement as cyberbullying perpetrator in the last couple of months found relatively low prevalence of cyberbullying with 4.1% of respondents as perpetrators and 6.8% as victimized perpetrators, whereas in a Turkish study (Aricak et al., 2008) no time frame was being used and a much higher prevalence was found with 35.7% of students admitting perpetration. Although prevalence rates between countries are difficult to compare, research clearly has established that cyberbullying is a widespread problem in schools worldwide (Tokunaga, 2010).

There has been a steady increase in studies focusing on possible predictors for victimization and perpetration of cyberbullying. Research so far has identified a variety of determinants of cyberbullying perpetration. Examining gender and age as predictors has yielded mixed results: Some studies found more cyberbullying perpetration. Examining gender and age as predictors for victimization and perpetration of cyberbullying. In the context of traditional bullying, some studies examined whether adolescents’ attitude towards cyberbullying helps to predict their motivation to engage in this form of deviant online behavior. The TPB incorporates this social factor by means of the concept of subjective norm. A second reason is that by closely examining how the three TPB-antecedents affect adolescents’ behavioral intention to cyberbully, we get valuable information on which prevention programs and intervention strategies are appropriate in tackling cyberbullying.

Attitude towards cyberbullying

The TPB proposes that attitudes towards behavior emerge from the behavioral beliefs that people hold. According to Ajzen (1991), behaviors we believe as having desirable outcomes are valued with a positive attitude, while we address negative attitudes towards behaviors that are perceived as having mainly negative outcomes.

In the context of traditional bullying, some studies examined the predictive value of attitudinal factors. For instance, minors who consider aggressive behavior as justified when someone deserves it, are more inclined to actually behave aggressively (e.g., Bosworth, Espelage, & Simon, 1999). Similar findings can be found in cyberbullying literature. Calvete and colleagues (2010) and Williams and Guerra (2007) found a positive relation between respondents’ scores on a “justification of violence”-scale, with high scores reflecting the respondents’ tendency to think about aggression as appropriate, and their involvement as perpetrator in cyberbullying. Similar results were found in a Flemish study showing that the majority of self-reported cyberbullies thought that their electronic bullying actions were funny, while the majority of self-reported victims did not see the humor of it and perceived these actions as hurtful (Vandebosch & Van Cleemput, 2009).

A first objective of the present study is therefore to examine whether adolescents’ attitude towards cyberbullying helps to predict their motivation to engage in this form of deviant online behavior.

Subjective norm on cyberbullying

The typical relationship that has been found in previous studies examining the predictive value of subjective norm on behavioral intention, is that the more an individual thinks that important others think he should perform the behavior, the more motivated an individual will be to comply with the pressure exerted by these others. Conversely, the more an individual thinks that significant others will react in a negative way, the less motivated the individual
will be to perform the disapproved behavior (Ajzen, 1991). In the context of traditional bullying it has been found that children who have friends sharing positive attitudes towards bullying, are more likely to act as perpetrators themselves (Espelage & Swearer, 2003; Fleming & Towey, 2002). Also the school climate significantly predicts students’ involvement as a bully, especially in schools with above-average bullying rates and where teachers have neutral or accepting attitudes towards bullying (Fleming & Towey, 2002). So far, this normative standard held by significant others has been largely ignored in most studies exploring cyberbullying among teenagers and children. Williams and Guerra (2007), however, found that cyberbullying among adolescents was significantly related with normative beliefs held by peers approving of cyberbullying. A second objective of the present study therefore is to examine whether adolescents’ perceived subjective norm on cyberbullying predicts their behavioral intention to perform it.

Perceived behavioral control on cyberbullying

Although it seems odd, at first sight, to assess adolescents’ perception of the ease of cyberbullying, an American study (Kowalski, Limber, & Agatston, 2008) showed that students who would otherwise not perform as traditional bullies become cyberbullies because they think, due to the anonymity, that they are invisible, which removes concerns of being caught and socially punished. Aricak and colleagues (2008) stated in this context that “the ability to anonymously interact on the Internet contributes to a lower self-awareness in individuals and may lead them to react impulsively and aggressively to other individuals online” (p. 258). Moreover, cyberbullying often occurs without receiving visual feedback from the victim, which entails that perpetrators do not have to witness the suffering they are causing by their acts (Hinduja & Patchin, 2008). An additional aspect potentially facilitating cyberbullying in comparison with traditional bullying is the 24/7-attainability by digital media. This entails that boundaries of time and place no longer exist for potential bullies to reach their targets (Kowalski & Limber, 2007). As a third objective of this study we therefore want to examine whether adolescents who perceive cyberbullying as easy to perform, will show higher intent to perform it.

Predicting cyberbullying from behavioral intention

Intentions indicate “how much of an effort an individual is planning to exert in order to perform the behavior” (Ajzen, 1991, p. 181). Except for behaviors that are largely out of an individual’s behavioral control, it has been found that the intent to perform a particular behavior is the strongest predictor of its actual performance (Ajzen, 1991). As an individual’s choice to engage in cyberbullying mainly relies within his own volitional will, a final objective of this study is to verify whether intention to cyberbully is a significant predictor of adolescents’ self-reported perpetration of cyberbullying.

Method

Participants

In total, 1,042 respondents (519 males, 523 females, M_{age}=15.47, age range 12-18 years) completed two self-administered questionnaires within a three-month interval. A random stratified cluster sample was applied to recruit the respondents. From each of the five Flemish provinces in Belgium, six schools were randomly selected. Subsequently, within each selected school three classes were selected to participate in the study. The following sampling criteria were used: educational grade (first, second and third grade) and the three Belgian schooling types (general secondary education; technical or artistic training; vocational training). All pupils from the selected classes were asked for their permission to take part in the survey study. The survey procedure was explained by a researcher. The students were assured verbally that their responses were anonymous and confidential, and that no information would be passed on to teachers, parents or fellow pupils.

Instruments

We developed a questionnaire containing scales, validated in previous research, testing TPB in other contexts and applied these measures to adolescent cyberbullying perpetration. The variables included in the questionnaire were operationalized as recommended by Ajzen (2011). All of the TPB-items were assessed using 6-point Likert-scales with item responses ranging from 1 (Strongly disagree) to 6 (Strongly agree), except for attitude and self-reported cyberbullying perpetration, as described below.

Self-reported cyberbullying perpetration. Cyberbullying perpetration was explained to the respondents as “intentionally hurting or harming someone you personally know online or offline through the use of digital media such as the Internet or mobile phone.” Following this brief definition, respondents were asked: “How often have you cyberbullied someone you know personally online or offline during the last three months?” Respondents could answer this question with never, only once or several times. In correspondence with previous studies (Kowalski & Limber, 2007; Sionje & Smith, 2008), the questionnaire asked for perpetration involvement during the last three months.

Intention to cyberbully. The questionnaire included four items that measured behavioral intention (e.g., “There is considerable chance that I will cyberbully someone in the course of the present school year”). Mean scores of the items are presented in Table 1. Cronbach’s alpha was .84.

Attitude towards cyberbullying. Respondents rated their evaluation of cyberbullying by means of the following four semantic differential 7-point scales: “What do you think about cyberbullying?” Item 1: Disadvantageous – Advantageous; Item 2: Not pleasant – Pleasant; Item 3: Bad – Good; Item 4: Harmful – Not Harmful. The item responses ranged between 1 and 7. The scale was reliable (alpha=.86). Summating the scores of the four items yielded a possible score ranging from 4 (very negative attitude) to 28 (very positive attitude). A sum score of 16 indicated a neutral attitude. In our sample approximately nine out of ten (89.4%) respondents held a negative attitude towards cyberbullying and the average attitude of adolescents towards cyberbullying was negative (M=6.86; SD=4.83).

Subjective norm on cyberbullying. The questionnaire contained two items that measured subjective norm (e.g., “Most people who are important in my life, do not perpetrate cyberbullying”). High response values on these items indicate that respondents perceived negative social pressure and disapproval from significant others to perform cyberbullying. The scale was reliable (alpha=.77).
Perceived importance of the opinion of peers, parents and teachers/other school personnel. Three items were used to measure the perceived importance of the opinion of each category of significant others – peers, parents, teachers and other school personnel - with regard to the role of ICT in respondents’ lives (e.g., “I attach much importance to the opinion of my peers on ICT-related matters”). Our analyses revealed that adolescents attach most importance to the opinions and reactions of their friends and peers (M= 4.35; SD= 1.19), followed by their parents (M= 3.99; SD= 1.38) and finally teachers or other school personnel (M= 3.15; SD= 1.36).

Perceived behavioral control. The questionnaire contained three items that measured perceived behavioral control (e.g., “Cyberbullying is easy to perform”). High response values on these items indicate that respondents have high PBC (i.e., they perceive cyberbullying as easy to perform). Cronbach’s alpha was .83.

Procedure

In January 2011, respondents had to complete a first questionnaire including the measures for attitude, subjective norm and perceived behavioral control on cyberbullying. Three months later, in April 2011, a follow-up questionnaire was administered which included measures to assess adolescents’ self-reported cyberbullying perpetration in the period since the first questionnaire. Respondents’ birth dates were used to link the answers provided on both questionnaires. In situations where two or more respondents within the same class had the same birth date, their handwritings were compared to make a match between the two questionnaires. If comparing the handwriting offered no decisive evidence on who had completed the questionnaires, cases were deleted from further analyses.

Table 1
Descriptives of the study variables

<table>
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<tr>
<th></th>
<th>Cronbach's α</th>
<th>Valid N</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
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<td></td>
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<tr>
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<td>1.26</td>
<td>1-7</td>
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<tr>
<td>Item 2</td>
<td>964</td>
<td>1.77</td>
<td>1.51</td>
<td>1-7</td>
<td></td>
</tr>
<tr>
<td>Item 3</td>
<td>962</td>
<td>1.66</td>
<td>1.39</td>
<td>1-7</td>
<td></td>
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<tr>
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<td>1.64</td>
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<td>SN</td>
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<td></td>
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<td></td>
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<tr>
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<td>1.63</td>
<td>1-6</td>
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<td>PBC</td>
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<td></td>
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<td></td>
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<tr>
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<td>1.10</td>
<td>1-6</td>
<td></td>
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<tr>
<td>Item 4</td>
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<td>1.56</td>
<td>1-6</td>
<td></td>
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<tr>
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<td>861</td>
<td>1.15</td>
<td>.45</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Note: SN= Subjective norm; PBC= Perceived Behavior Control

Measurement model

Table 2 displays the correlations between the latent constructs in the model. The measurement model provided a good fit for the data χ²(59) = 226.95, p<.001; CFI= .97, RMSEA= .053 (CI: .046 - .061), SRMR= .038. All factor loadings were significant and above .532 (see Figure 1).

Structural model

We display the model fit results of the structural model in figure 1. Overall, fit indices indicate an acceptable fit for the TPB as research model. Although chi-square was significant, other

Table 2
Correlations between latent constructs

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attitude</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Subjective norm</td>
<td>.366***</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. PBC</td>
<td>-.110***</td>
<td>.207***</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>4. Intention cyberbullying</td>
<td>.647***</td>
<td>-.324***</td>
<td>.050</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: N= 1,042.

*** p<.001.
fit indices less susceptible to large sample size all indicate good model fit (Kenny, 2011). Our analyses revealed that the three main factors—attitude, subjective norm and perceived behavioral control—explained 44.8% in total variance of adolescents’ intention to perform cyberbullying. Behavioral intention accounted for 33.2% of variance in self-reported cyberbullying perpetration.

As table 3 shows, our analyses revealed that attitude is the most important predictor of adolescents’ behavioral intention to perpetrate cyberbullying ($\beta = .62, p < .001$), indicating that the more favorable adolescents’ attitude is towards cyberbullying, the more they show the intention to perform cyberbullying. Furthermore, subjective norm was significantly associated with cyberbullying ($\beta = -.13, p < .001$), whereby adolescents perceiving a negative social pressure from significant others in their lives, showed less intention to engage in cyberbullying. Third, perceived behavioral control was found to significantly affect teenagers’ intention to cyberbully ($\beta = .15, p < .001$), with adolescents perceiving cyberbullying as an easy to perform behavior as being more inclined to do it.

The outcomes of our analyses showed that in correspondence with the TPB, the self-reported cyberbullying perpetration was strongly determined by adolescents’ behavioral intention to perform it ($\beta = .58, p < .001$).

Discussion

Cyberbullying is an emerging societal problem in countries where technologically advanced media are ready accessible to
young people. In reviewing the current literature, we found that cyberbullying researchers so far have mainly examined their topic of interest in absence of theory (Tokunaga, 2010).

Our results suggest that the TPB provides a sound theoretical framework for predicting adolescent cyberbullying perpetration. From the relative weights of each structural model path, we can derive which TPB-antecedent—attitude, subjective norm or perceived behavioral control—is most important in predicting adolescent cyberbullying perpetration. This is highly relevant information for intervention purposes, as the greater the relative weight of a given factor, the more likely it is that changing that factor will influence intentions and behavior (Ajzen, 2011). In this study we found that attitude was the strongest predictor of adolescents' behavioral intention to perpetrate cyberbullying followed by perceived behavioral control and subjective norm. An implication of this finding is that interventions aimed at tackling cyberbullying among school pupils should primarily focus on converting neutral or positive attitudes towards cyberbullying into negative attitudes. Prevention programs should warrant that the majority of adolescents persist in thinking negative about cyberbullying.

In schools facing the consequences of cyberbullying incidents, the main challenge of intervention strategies should be to detect pupils holding neutral and positive attitudes on cyberbullying and to promote perspective-taking skills and activities to help them understand the impact of their behaviors on victimized students (Mason, 2008).

Although subjective norm and PBC were less important than attitude in predicting adolescents’ perpetration of cyberbullying, it would be a mistake to ignore these significant predictors in designing prevention programs and intervention strategies. With regard to subjective norm, our analyses support the notion that adolescents care about the opinion of significant others, with adolescents perceiving negative social pressure towards cyberbullying as showing lower intent to perform it. This finding counts in favor of involving these significant others in prevention programs tackling cyberbullying and thus supports the call made by various scholars for a whole school approach towards bullying (e.g., Olweus, 1994). The central entity within this approach is the school, as the schoolground is the most common place where all relevant actors in cyberbullying can potentially meet: school direction, teachers, parents, fellow pupils and so forth. Implementing a whole school program in tackling general bullying behavior or, more specifically, cyberbullying involves various stages, starting from collectively acknowledging that bullying is a problem within a specific school, to collectively working out anti-bullying initiatives. It is crucial that students’ voices are being heard in setting up possible ways to intervene. In support of this statement is our finding that adolescents attach much importance to the opinion of their peers on ICT-related matters. Also previous research revealed that victimized students were more inclined to tell their friends about what happened to them, rather than telling it to their parents or teachers (Aricak et al., 2008; Smith et al., 2008).

The finding that PBC is positively related with the intention to perform cyberbullying, suggests that it is possible that students are motivated to engage in cyberbullying, partially because they think it is easy to perform or at least they feel that there a few constraints that hinder them from perpetrating it. In this paper, we have discussed three potential triggering aspects of digital media in cyberbullying: online anonymity, the 24/7-attainability and a lack of visual feedback from the cybervictim when real pain is caused by digital actions. Integrating media education within an anti cyberbullying program may change students’ perception that cyberbullying is easy to realize due to anonymity, by clearly showing that identities can be retraced using IP-addresses. Another important insight to be disseminated is that virtual acts of cyberbullying cause real pain and suffer for the victim (Kowalski et al., 2008). Given the importance of adolescents’ attitudes towards cyberbullying, more research is needed in order to identify possible factors that foster violence-approving beliefs.

One potential weakness of the present study is that, given the clustering in the present study’s sample design, we cannot exclude that some of the main effects found were in fact mediated by variables of the levels to which the respondents belong (class, school or province). A possible venue for future research is to apply multilevel SEM (MSEM), which could contribute relevant information to the analyses about the amount of variability that can be explained by level-variables.

In discussing cyberbullying, a crucial insight is that ICT are not the cause of it happening, but rather adolescents’ decision to use these devices in an anti-social way. While using ICT in an antisocial way can have devastating effects on adolescents, using ICT in a prosocial way can foster their mental development and well-being tremendously.

References


