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STUDENTS

Bullying and Cyberbullying in Secondary School Students: The role of Moral

Disengagement, Hostile Attribution Bias and Outcome Expectancies

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Abstract

The present study investigated the relationship between cognitive mechanisms applied by people to rationalize and justify harmful acts, and engagement in traditional and cyber bullying among school children. We examined the contribution of Moral Disengagement (MD), Hostile Attribution Bias, and Outcome Expectancies and we further explored the individual contribution of each MD mechanism. Our aim was to identify shared and unique cognitive factors of the two forms of bullying. Three hundred and thirty nine secondary school children completed self-report measures that assessed MD, Hostile Attribution Bias, Outcome Expectancies, and their roles and involvement in traditional and cyber bullying. We found that MD total score positively related to both forms of bullying. Furthermore, traditional bullying positively related to children's moral justification, euphemistic language, displacement of responsibility and outcome expectancies, and negatively associated with hostile attribution bias. Moral justification also related positively to cyberbullying. Cyberbullying and cybervictimization were associated with high levels of traditional bullying and victimization, respectively. The results suggest that MD is a common feature of both traditional and cyber bullying, but it seems that traditional bullying demands a higher level of rationalisation or justification. Moreover, the data suggest that the expectation of positive outcomes from harmful behavior facilitates engagement in traditional bullying. The differential contribution of specific cognitive mechanisms indicates the need for future research to elaborate on the current findings in order to advance theory and inform existing and future antibullying school interventions.

Cognitive Distortions in Bullying and

Cyberbullying in Secondary School Students

Bullying is a subtype of aggression defined as an intentional and repeated aggressive

behavior by a group or individual, towards a victim who cannot readily defend

himself/herself (Olweus, 1999). Smith and Sharp (1994) describe it as ''a systematic abuse of

power'' (p. 2). School bullying is not rare. Various studies in different countries have

reported a rate of victimization between 9% - 32% and a rate of bullying between 4% - 27%

(Berger, 2007; Smith et al., 1999). Bullying can be physical (e.g. hitting, kicking), behavioral

(e.g. stealing one's lunch,), verbal (e.g. threats, insults), and relational (e.g. exclusion from a

group) (Berger). It can be direct or indirect (Underwood, 2000) and it can vary in terms of

intensity, duration and motives (Tattum, 1994). In general, boys engage in more physical

forms of bullying and girls in more indirect/relational bullying (Rivers & Smith, 1994;

Scheitauer, 2002).

Bullies and victims suffer from, and are at risk of various psychosocial problems

(Card, 2003; Haynie et al., 2001; Hawker & Boulton, 2000; Nansel, Overpeck, Saluja, &

Ruan, 2004; Olweus, 1999; Picket et al., 2002).Those who are both bullies and victims,

otherwise called aggressive victims, are at higher risk (Duncan, 1999; Wolke, Woods,

Bloomfield, & Karstadt, 2000), because they are prone to both internalising and externalising

behavioral problems (Berger, 2007; Haynie et al.).

Various theories of aggressive behavior have proposed cognitive mechanisms through

which such behaviors are rationalized and justified, and have been applied to the area of

school bullying.

Social cognitive theory (Bandura, 1986, 1992, 1999) identifies moral disengagement

(MD) as a cognitive process by which a person justifies his/her harmful or aggressive

behavior, by loosening his/her inner self-regulatory mechanisms. These mechanisms are

guided by moral self-sanctions, such as feelings of guilt and shame, which keep behavior in line with personal standards. In the case of MD, moral self-sanctions are not activated, thus eliminating self-censure and increasing the likelihood of harmful behavior. Put simply, MD is a socio-cognitive process through which people rationalize and justify harmful acts against others. Social cognitive theory describes eight MD practices: *Moral justification, advantageous comparison* and *euphemistic labeling* refer to the cognitive reconstruction of a harmful behavior into a good one, by viewing it as serving a worthy and moral purpose (e.g. crimes committed to protect one's honor or another gang member), by comparing it against more inhuman and harmful ones (e.g. stealing is not really harmful when compared with murder), or by giving it a sanitized label (e.g. soldiers refer to ''wasting'' people instead of killing them; Gambino, 1973), respectively. With *displacement of responsibility* people view their actions as the result of societal or authority pressures, thus minimising personal responsibility (e.g. "I had to steal because I did not have a job", or as in the case of war where individuals commit various atrocities but do not consider themselves personally responsible, because they are just 'following orders') . When someone is partially liable for a harmful act and shares responsibility for that act with others, or the harm is done collectively by a group, *diffusion of responsibility* obscures personal responsibility. *Blaming the victim* for what has happened to him/her also serves to obscure personal responsibility (e.g. "She wouldn't have been raped if she had not dressed like that"). By *disregarding or distorting the consequences* of a harmful behavior the person feels less guilt or shame and thus eliminates self-condemnation ("I did not really hit her. She bruises easily"). Finally, through *dehumanisation,* victims are stripped of their human qualities and are viewed as subhuman objects without feelings and concerns (e.g. Jews were seen by the Nazis as less than human).

Neutralisation theory (Sykes & Matza, 1957) describes five techniques, very similar to those proposed by social cognitive theory. With *denial of responsibility*, *denial of injury*

and *denial of the victim*, people attribute responsibility to external factors, deny the harm

done, or believe that victims deserve bad treatment. With *condemnation of the condemners*,

people exonerate themselves, by mentioning the injustice found in society, and with *appeal to*

higher loyalties, they present their act as following highly important norms at the sacrifice of

societal norms (e.g. gang honor).

Social information processing theory (Crick & Dodge, 1994) maintains that

aggressive youths have deficits in their processing of social information. Specifically, during

the cues interpretation phase, and in ambiguous social situations, they tend to attribute hostile

intent to others. Consider, for example, a situation at school where a peer accidentally bumps

into a student and the latter falls down. If the student has the tendency to *attribute hostile*

intent to others, he/she is likely to perceive this act as intentionally harmful and react

aggressively (Berkowitz, 1989; Dodge & Frame, 1982; Dodge, Murphy, & Bachsbaum,

1984; Slaby & Guerra, 1988). During the response selection phase, if they believe in the

legitimacy of aggression and *expect positive outcomes* for the self, they are more likely to

select an aggressive response (Erdley & Asher, 1998; Slaby & Guerra).

The theory of cognitive distortions (Barriga, Landau, Stinson, Liau, & Gibbs, 2000;

Gibbs, Potter, & Goldstein, 1995) emphasizes the relationship between self-serving cognitive

distortions and externalising behavior problems, such as aggression, delinquency and

antisocial behavior. Cognitive distortions are inaccurate ways of attending to, or conferring

meaning on experience (Barriga et al.). These cognitive distortions are: *causal attributions*,

which refers to the attribution of blame to people and factors outside the self;

minimizing/mislabeling the severity and the consequences of the behavior, or referring to

others using belittling or dehumanizing labels; and assuming the worst, that is, *attributing*

hostile intentions to others and considering a *worst-case scenario for a social situation*. The

first three are also proposed by Bandura (1992, 1999) and the last two are similar to those described by the social information processing theory (Crick & Dodge, 1994).

All the above theories describe distorted and dysfunctional thought patterns which facilitate engagement in harmful and aggressive behavior. Regardless of their name, moral disengagement, techniques of neutralisation, or cognitive distortions, they are ways with which aggressive individuals rationalize and justify their behavior, and which share the same function, namely to protect the self from negative feelings and self-condemnation, and to loosen inhibition for harmful conduct. The present study will examine the relationship between such cognitions and engagement in traditional bullying (t-bullying) and cyberbullying (c-bullying) adopting the approach of social cognitive theory and MD, and additionally assessing Hostile Attribution Bias and Outcome expectancies, proposed by the social information processing theory.

Moral reasoning can guide moral action and is an important correlate in the study of aggressive behavior. People adopt standards of right and wrong and behave accordingly. At the same time they refrain from behaviors that conflict with their moral standards, in order to avoid self-condemnation (Bandura, 2002; Blasi, 1980). When people act contrary to moral standards they activate disengagement mechanisms in order to avoid negative self-sanction. Facile moral disengagers are less prosocial, more aggressive, violent, and more likely to commit serious crimes. They experience low levels of guilt and little or no empathy for the victims (Bandura). Research findings show a positive relationship between MD, anti-social behavior and aggression in children and adolescents (e.g. Bandura et al., 1996; Caprara, Pastorelli, & Bandura, 1995; Yadava, Sharma, & Gandhi, 2001).

Regarding school bullying, two studies in Italy found that bullies had higher scores on MD than their peers and they mostly used the mechanisms of moral justification and dehumanisation (Bacchini et al., 1998; Menesini, Fonzi, & Vannucci, 1997). A cross-

sectional study in Italy and Spain, using a semi structured interview with students in grades four and eight, confirmed the above findings (Menesini et al., 2003). When asked to put themselves in the role of the bully in a bullying scenario, bullies tended to report morally disengaging emotions (indifference and pride) and stressed the positive outcomes for the self by denying and distorting the consequences and by ignoring the victim. Another study (Gini, 2006) examined Italian elementary students' levels of MD and found that bullies had higher levels than victims and uninvolved students.

Hymel, Rocke-Henderson, and Bonanno (2005) assessed four categories of MD mechanisms in Canadian students in grades 8-10; cognitive restructuring of the harmful conduct into a good one, minimisation of responsibility, distortion of negatives consequences, and attribution of blame to/dehumanisation of the victim. In total, bullies showed the highest levels of MD and victims the lowest. The cognitive restructuring and the attribution of blame to the victim were the techniques more strongly associated with bullying. However, the authors do not report if students were given a definition of bullying. If a definition was not given, and since assessment of bullying/victimization was based on two single items which asked students how often they had been bullied, or took part in bullying others, the possibility of subjective interpretation undermines the reliability of the findings.

Various justification strategies have been examined separately in relation to different bullying roles (Hara, 2002). Using a peer rating scale, one hundred Japanese junior high school students provided open-ended descriptions of their experience regarding situations where they viewed bullying as justified. Denial of the victim and denial of injury were the most frequent justifications for bullying, for all students. Victims also justified bullying using denial of the victim which seems to suggest that victims have a tendency to blame themselves for being bullied.

It is well established that aggressive children, in school or outside school, are more likely than their peers to attribute hostile intent to others in ambiguous situations of provocation. These children are more likely to interpret a peer's negative but unintentional behavior as ill-intentioned, and are less likely to spend time considering the peer's motives and an appropriate behavioral response (Dodge, 1980; Dodge, Pettit, McClaskey, & Brown, 1986; Guerra & Slaby, 1989; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002).

Another cognitive correlate of aggression towards peers is the expectancy of positive and favorable outcomes from physical or verbal aggression. This could be a tangible reward, enhancement of self-esteem or status, peer admiration, etc. Bullies are more likely than their non aggressive peers to legitimize aggression and expect a positive outcome from bullying (Bentley & Li, 1995; Crick & Dodge, 1996; Deluty, 1983; Dodge et al., 1986; Perry, Perry, & Rasmussen 1986; Quiggle, Garber, Panak, & Dodge, 1992; Smithmyer, Hubbard, & Simons, 2000).

As technology offers new and various ways for social interaction, a new form of bullying has emerged, called c-bullying. C-bullying happens when mobile phones and the Internet are used to make threats, insult victims, circulate photos, spread rumors, etc. (Slonje & Smith, 2008). What mainly distinguishes c-bullying from traditional face to face forms of bullying is the anonymity of the mediums used. C-bullying provides the perpetrators with "invisibility", and the distance between the perpetrator and the victim prevents the perpetrators seeing the harmful consequences of their actions. Consequently, any empathy or sympathy that the perpetrator may experience for the victim in more traditional forms of bullying is less likely to be generated in c-bullying. Furthermore, c-bullying transcends school boundaries since it can target the victim at home, and its audience can be very large, as in the case of circulation of embarrassing photos on the Internet (Slonje & Smith).

Although c-bullying in adolescents is less common than t-bullying (Raskauskas & Stoltz, 2007; Williams & Guerra, 2007), victims of each form of bullying experience similar psychosocial problems (Finkelhor, Mitchell, & Wolak, 2000; Ybarra, 2004). Studies in England, Canada, Australia and USA report a rate of 4%-25% of youth c-victimization and a rate of 11%-17% of c-bullying (Campbell, 2005; Li, 2006; NCH, 2005; Noret & Rivers, 2006; Ybarra & Mitchell, 2004).

Few studies have examined the relationship between c-bullying and t-bullying. Ybarra and Mitchell (2004) found that physical bullying was a significant predictor of Internet bullying, but examined only limited forms of t-bullying and c-bullying (e.g. mobile phone use was not included). Furthermore, half of the online bullies/victims and bullies-only reported being targets of t-bullying and the authors suggest that, for the victims of t-bullying, Internet may serve as a means to assert dominance over others and compensate for their victimization. However, this was not supported by subsequent studies in adolescents (Raskauskas & Stoltz, 2007; Slonje & Smith, 2008). Raskauskas & Stoltz found that students' role in t-bullying predicted the same role in c-bullying, and moreover, being a t-bully was associated with c-victimization. T-victims were not found to be c-bullies.

One study that did examine the relationship between c-bullying and normative beliefs approving of bullying, found that the two were positively related (Williams & Guerra, 2007). The same was found for verbal and physical bullying leading the authors to suggest that c-bullying and t-bullying share common predictors. However, involvement in t-bullying was assessed using only three items and in c-bullying using only one item, thus the findings may have limited reliability and generalisability.

The current study focused on middle school students in years 7-9 because research has shown that bullying is most prominent during these years due to the transition from primary to secondary school (e.g. Pellegrini & Long, 2002). Students have to adapt to a new

environment and re-establish their social relationships. Bullying is one of the mechanisms used by students during this transitory period to establish status and attain dominance (Bosworth, Espelage, & Simon, 1999; Pellegrini & Bartini, 2001; Pellegrini & Long). Rapid changes in body size during this period also play a role in the formation of dominance hierarchies (Pellegrini & Bartini).

Since cognition predicts social behavior (Bandura, 1986) and school bullying is social in nature (Björkqvist, Ekman, & Lagerspetz, 1982), we wanted to examine the relationship between cognitions that facilitate aggressive behavior and both t-bullying and c-bullying. Our first aim was to see if overall levels of MD relate to both t-bullying and c-bullying. We expected that high levels of MD would positively correlate with engagement in both types of bullying. However, regarding c-bullying, we hypothesized that its correlation with MD would not be as strong as in t-bullying. It is possible that children who prefer to c-bully rather than t-bully may also use MD but to a lesser extent. Since cyberbullying is more subtle and covert than   t-bullying and it does not involve a direct contact with the victim or the immediate consequences, it might offer children, whose morality may ordinarily prevent them from getting involved in bullying, the chance to do so.

Our second aim was to identify the individual contribution of MD mechanisms, and the mechanisms of Hostile Attribution Bias and Outcome Expectancies. Regarding the MD mechanisms, Bandura et al. (1996) suggest that, although they operate as a single factor, they may also differ in their relative contribution to detrimental behavior. Generally research has treated MD as a unidimensional concept and regarding research in school t-bullying, very few studies to date have examined each MD technique separately, and to the best of our knowledge none in the UK. Research on MD in c-bullying is non-existent. Therefore, due to the dearth of research in this area and the inconclusive findings, we could make no specific hypothesis. Hostile Attribution Bias and Outcome Expectancies have been found in school

bullying and aggression between peers, but it has not been examined if the same applies to c-bullying. No research has assessed cognition in c-bullying, nor has any attempted to identify common cognitive factors between t-bullying and c-bullying.

Finally, we aimed to see if roles in t-bullying predict the same roles in c-bullying, and test the hypothesis that t-victims engage in c-bullying in order to "take revenge" (Ybarra & Mitchell, 2004). This is also a very new area of research and previous studies have failed to find consistent results due to methodological differences and limitations (Raskauskas & Stoltz, 2007; Ybarra & Mitchell). We expected that the roles in t-bullying would predict the same roles in c-bullying, and being a t-victim would predict engagement in c-bullying. Although it was not a primary aim of the study, we also wanted to see how these cognitive mechanisms relate to the victims of both forms of bullying.

Method

Participants

The final sample consisted of 339 students, 159 (47%) boys and 180 (53%) girls in years 7-9 attending a secondary modern school (see Table 1). In terms of ethnic/racial background 92.3% were white, 2.9% and 2.4% reported mixed race and other race, respectively.

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Insert Table 1 about here

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Measures

*Demographic questionnaire. S*tudents recorded their gender, year of birth, school year, and ethnic background, in order to identify if there is a demographic pattern of involvement in bullying.

Bullying/Victimization Questionnaire. This questionnaire comprised 26 items: 10 for t-bullying (direct -physical and verbal- and indirect), 10 for t-victimization (direct -physical and verbal- and indirect), three items for c-bullying and three for c-victimization (text messages, e-mails, Internet chat rooms/forums). The items measuring t-bullying/victimization were adapted, with some alterations, from the Direct and Indirect Aggression Scale (Björkquist, Lagerspetz, & Österman, 1992) and the wording was changed in order to be administered as a self-report measure. The items assessing c-bullying/victimization were devised specifically for the present study. Students had to indicate on a 5-point Likert scale (Never-Very Often), how often they were the actors or the victims of various behaviors in the past six months. In order to control for subjectivity regarding frequency, they also had to indicate if the behavior happened between 1-3, 4-8, 9-12, 12+ times. The scores used in analyses were calculated only from the 5-point Likert scale. The minimum score for t-bullying and t-victimization is 10 and the maximum is 50. For c-bullying and c-victimization the minimum is 3 and the maximum is 15. Example items for t-bullying and t-victimization are: ''Have you ever hit or kicked another kid in your school?'', ''Has any kid in your school deliberately ignored or rejected you?''. Example items for c-bullying and c-victimization are: ''Have you ever sent an insulting or threatening message to another kid's e-mail?'', ''Have you ever received an insulting or threatening message on your mobile phone? ''.

Questionnaire for the assessment of Moral Disengagement, Hostile Attribution Bias, and Outcome Expectancies. This was a 40-item questionnaire assessing MD (32 items), hostile attribution bias (4 items), and outcome expectancies (4 items). The questionnaire comprised all the items of the Mechanisms of Moral Disengagement Scale (Bandura et al., 1996), and eight items based on the How I Think Scale (HIT, Barriga & Gibbs, 1996). Moral Disengagement Scale (MD Scale) measures the eight mechanisms of MD: moral

justification, euphemistic labeling, advantageous comparison, distortion of consequences, dehumanisation, attribution of blame, displacement of responsibility and diffusion of responsibility. Each MD mechanism is measured with four items, applied to four behavioral subscales: physically injurious conduct, verbal aggression, lying and stealing. The items from the How I Think Scale measure hostile attribution bias and outcome expectancies (anticipating a negative outcome for *not* behaving aggressively). For all items responses were given on a 5-point Likert scale (1 = Strongly disagree - 5 = Strongly agree), including a middle neutral point. The minimum score for the MD Scale is 32 and the maximum is 160. For hostile attribution bias scale and outcome expectancies scale, the minimum score is 4 and the maximum is 20. Example items are: ''It is alright to fight to protect your friends'' (moral justification), ''To hit annoying classmates is just giving them 'a lesson' '' (euphemistic labeling), ''Stealing some money is not too serious compared to those who steal a lot of money'' (advantageous comparison), ''Teasing someone does not really hurt them'' (distortion of consequences), ''A kid in a gang should not be blamed for the trouble the gang causes'' (diffusion of responsibility), ''If kids fight and behave badly in school it is their teacher's fault'' (displacement of responsibility), ''If people are careless where they leave their things, it is their own fault if they get stolen'' (attribution of blame), ''Some people deserve to be treated like animals'' (dehumanisation), ''Other kids are always trying to start a fight with me'' (hostile attribution bias), and ''Only a fool wouldn't steal, if he knows he can get away with it'' (outcome expectancies).

Procedure

Initially, the study obtained ethical approval from the University's Ethics Committee. Consent was obtained from both parents and students. Informed consent forms were given to students to take home for their parents to sign. Once parental consent was given students also read an information sheet describing the nature of the study and giving information regarding

anonymity, confidentiality, and their right to withdraw at any time. They then signed an

informed consent form. Students were given the opportunity to ask questions at any time.

Questionnaires were handed out in a classroom setting and the researcher remained in the

room to ensure that students worked individually. To control for order effects, the order of

the questionnaires was counterbalanced. Completion of the questionnaires took between 30-

40 minutes. The term bullying was not mentioned, either in the questionnaires, or in any oral

communication, in order to avoid under-reporting of bullying or victimization due to the

term's emotive nature (Espelage, Bosworth, & Simon, 2001). After completing the

questionnaires students were given verbal debriefing, explaining the aim of the study,

expected outcomes, and highlighting the anonymity and confidentiality of their responses as

well as their right to withdraw from the study. They were also given a written debrief to take

home which also provided a support line phone number in case any children experienced

emotional distress following the study, and detailed information regarding withdrawal from

the study.

<div align="center">Results</div>

Before analysis, all data were checked and fixed for outliers, skewness and any

violations of statistical assumptions. A reliability analysis was conducted to estimate the

internal consistency of the MD Scale, Hostile Attribution, Outcome Expectancies, t-bullying,

t-victimization, c-bullying and c-victimization scales. Cronbach's α coefficients were .91,

.73, .77, .87, .88, .82 and .76, respectively. Each scale's total score was computed by

summing the score of its items. Descriptive statistics are presented in Table 2. T-bullying and

t-victimization scores were skewed and, therefore, log – transformed. The distributions of c-

bullying and c-victimization were heavily skewed and the variables were dichotomized.

Therefore, students were classified as being perpetrators or victims of c-bullying (scoring 2 =

seldom and over) or not (scoring 1 = never). The significance level adopted for the statistical

analyses was α = .05

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Insert Table 2 about here

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Demographic Variables

No age or gender differences were found for t-bullying, t-victimization,

c-victimization, MD Scale, Hostile attribution bias and Outcome expectancies, and for this

reason age and gender were not controlled for in subsequent statistical analyses (analyses

controlling for them gave the same results). However, boys ($M = 11.32$, $SD = 4.86$) reported

more direct bullying than girls ($M = 10.09$, $SD = 3.40$, $t(336) = 2.51$, $p < .05$) and girls ($M =$

7.24, $SD = 2.59$) slightly more indirect bullying than boys ($M = 6.70$, $SD = 2.52$, $t(336) =$

-1.95, $p = .05$). Gender was weakly associated with c-bullying, $\varphi = .12$, $p < .05$. A logistic

regression analysis showed that gender significantly predicted c-bullying (B = .51, Wald =

4.39, OR = 1.66, $p < .05$) with girls being more involved in c-bullying than boys.

T-bullying/t-victimization and Moral Disengagement Total Score

Given that t-bulling and t-victimization scores were moderately correlated ($r = .40$, p

$< .001$), and in order to obtain purer results, two hierarchical regression analyses were

conducted with either t-bullying or t- victimization in the first block, MD total score as the

independent variable in the second block, and t-victimization or t-bullying scores,

respectively, as the dependent variable. MD total score was a significant predictor of bullying

(B(SE) = .01 (.00), $\beta = .44$, $t = 10.06$, $p < .001$) alone explaining 19% of the variance ($\Delta R^2 =$

.19, $p < .001$). The model was significant ($F(2, 334) = 99.69$, $p < .001$ and explained 38% of

the variance. Effect size were calculated as Cohen's f^2, using the formula $f^2 = (R^2_{AB} - R^2_A) /$ 1 - R^2_{AB}, where, in this case, R^2_A is the variance accounted for by the first block and R^2_{AB} is the combined variance accounted for by the first and second block. Cohen's f^2 was .30. f^2 effect sizes of 0.02, 0.15, and 0.35 are considered small, medium, and large, respectively (Cohen, 1988).

Regarding t-victimization, MD total score was also a significant contributor to its explanation independently of t-bullying, but in a negative direction (β = **-.17**, t = **-3.01**, $p = <$ .05), alone explaining 2.2% of the variance (ΔR^2 = .02, $p < .05$). The whole model was significant (F (2, 334) = 43.19, $p < .001$) and explained 20% of the variance. Cohen's f^2 was .03.

T-bullying/t-victimization and Individual Cognitive Mechanisms

Before conducting the regression analyses we checked all predictor variables for multicollinearity. A Pearson's correlation analysis did not reveal any problems (see Table 3).

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Insert Table 3 about here

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Two hierarchical multiple regression analyses were conducted, with the same as before control variables, to examine which justification techniques best predicted t-victimization and t-bullying. The first examined the cognitive predictors of t-bullying. Results produced a significant model which explained 41% of the variance (see Table 4). Important positive predictors were moral justification, euphemistic language, displacement of responsibility, and outcome expectancies, while hostile attribution was an important negative predictor of t-bullying.

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Insert Table 4 about here

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The second model predicting t-victimization was significant and explained 40% of the variance (see Table 5). The important positive predictor of t-victimization was hostile attribution bias and advantageous comparison, while euphemistic language was an important negative predictor.

In both analyses we obtained collinearity statistics. For all predictor variables, tolerance was greater than .40 and the maximum value of VIF was 2.56, indicating no multicollinearity problems.

Insert Table 5 about here

C-bullying/c-victimization and Moral Disengagement Total Score

As in the case of t-bullying and t-victimization, c-bullying and c-victimization were moderately correlated ($\varphi = .40$, $p < .001$). Two hierarchical logistic regression analyses were conducted in order to examine if MD total score is related to c-bullying and c-victimization, controlling for c-victimization and c-bullying, respectively. In the case of c-bullying gender was also controlled for. Results showed that MD total score positively predicted c-bullying (B = .03, Wald = 20.17, OR = 1.04, $p < .001$). The model was significant, χ^2 (3, $N = 325$) = 75.34, $p < .001$, Nagelkerke $R^2 = .29$. MD alone explained 8% of the variance. MD total score did not predict c-victimization (B = .003, Wald = .16, $p = .688$). Higher levels of MD increased the chance of engagement in c-bullying, but only slightly since the odds ratio is very close to unity, while it had no effect on c-victimization.

C-bullying/c-victimization and Individual Cognitive Mechanisms

The aim of this analysis was primarily explorative and two stepwise logistic regressions were conducted using the forward LR method, with the same as before control variables. Moral justification (B = .20, SE = .04, Wald = 20.31, OR = 1.22, $p = < .001$) was kept in the model as a predictor of c-bullying. The model was significant, χ^2 (3, $N = 325$) = 75.70, $p < .001$, Nagelkerke R^2 = .29. Regarding c-victimization, only hostile attribution bias was kept in the model (B = .12, SE = .04, Wald = 7.63, OR = 1.13, $p < .05$). The model was significant, χ^2 (2, $N = 325$) = 57.52, $p < .001$, Nagelkerke R^2 = .22. High levels of moral justification increased the odds of engaging in c-bullying, while high levels of hostile attribution bias increased the odds of being a c-victim.

C-bullying and T-bullying

Two hierarchical logistic regressions were conducted in order to examine if levels of t-bullying and t-victimization can predict the roles in c-bullying and c-victimization, controlling for c-victimization and c-bullying, respectively. In the case of c-bullying gender was also controlled for.

T-bullying (B = .24, SE = .03, Wald = 51.42, OR = 1.27, $p < .001$) and t-victimization (B = -.09, SE = .03, Wald = 10.54, OR = .92, $p = .001$) were significant predictors of c-bullying. The model was significant, χ^2 (4, $N = 327$) = 141.69, $p < .001$, Negelkerke R^2 = .49. C-victimization was positively predicted by t-victimization (B = .10, SE = .02, Wald = 25.17, OR = 1.10, $p < .001$). The model was significant, χ^2 (3, $N = 327$) = 81.03, $p < .001$, Negelkerke R^2 = .29. High levels of t-bullying increased the chance of being a c-bully. High levels of t-victimization increased in the chance of being a c-victim but decreased the chance of being a c-bully.

<div align="center">Discussion</div>

The main aim of the present study was to examine the association between cognitive mechanisms applied by people in order to rationalize and justify harmful acts, and traditional and cyber bullying/victimization in secondary school students. The concept of Moral Disengagement (Bandura, 1992, 1999) provided an appropriate theoretical framework for achieving this aim. We wanted to investigate the relationship between the overall level of MD and traditional and cyber bullying/victimization and, furthermore, to disentangle the individual contribution of each MD technique. Additionally, we examined two more cognitive mechanisms, which form part of the social information processing theory (Crick & Dodge, 1994): hostile attribution bias and outcome expectancies. A second aim was to investigate if students' roles in t-bullying/t-victimization are associated with their role in c- bullying/c-victimization.

As predicted, MD related positively with t-bullying. This suggests that students, who engage in more frequent or severe bullying, are characterized by more distorted thought patterns, which support bullying behavior. They make more justifications and rationalisations in order to make a harmful act seem less harmful and to eliminate self-censure. These findings are in line with previous studies, which found high levels of moral disengagement in generally aggressive youngsters and school bullies (e.g. Bandura et al., 1996; Barriga & Gibbs, 1996; Gini, 2006; Hymel et al., 2005; Menesini et al., 2003; Yadava et al., 2001). MD was also a positive predictor of c-bullying, but with smaller contribution to its explanation, compared to t-bullying. One possible explanation is that students might not consider c-bullying as serious or as "real" as t-bullying. It is likely that the anonymity, the distance from the victim and the consequences of the harmful act, do not cause so many negative feelings (e.g. guilt, shame, self-condemnation), and reduce the chance of empathising with the victim. Thus, c-bullying might not demand the same level of rationalisation or justification. Perhaps, those children who prefer to c-bully rather than t-bully are children whose morality would not

normally allow them to engage in t-bullying, but the anonymity and the distance from the victim that c-bullying offers allows them to do it. Furthermore, since students associate the use of technology with entertainment (on-line games, chatting with friends, exchanging photos, etc.) (Smith et al., 2008), they are likely to view this form of bullying as another way of entertainment, as a game, without realising its severity. In the study of Raskauskas & Stoltz (2007) 36% of the 16 Internet bullies, when asked why they believe adolescents commit Internet bullying, replied ''*for fun*''.

MD was weakly and negatively related to t-victimization. However, the analysis of the individual MD cognitive mechanisms revealed that only euphemistic language had a significant negative correlation with t-victimization (discussed below). This negative relationship with MD was probably driven by the negative direction of all the other MD mechanisms, which alone, did not reach significance. This could imply that children who are frequently or severely victimized, due to their own negative experience, do not rationalize or justify harmful behavior and are characterized by better moral reasoning compared to t-bullies.

Fifty five per cent of all students reported having been c-victimized at least once in the past six months and 37.4% more frequently, while 31 % reported having c-bullied others at least once and 17.1% more frequently. These rates are higher than those previously found in UK (NCH, 2002; 2005; Oliver & Candappa, 2003; Smith, Mahdavi, Carvalho, & Tippett, 2005). However, findings are not directly comparable mainly because the age range of the sample in previous studies is wide, while we focused on children 12-14 years old, and because of methodological limitations and differences; e.g. some studies did not specify a time frame for measuring c-bullying or were confined to examining just one aspect of it. It could be that c-bullying is more popular among children of this age and less popular between younger and older children. Since physical bullying declines as children grow older,

c-bullying may serve as an alternative. The prevalence rates that we found show that c-bullying is not rare and is probably becoming increasingly popular as technological advances offer new ways to socially interact. Internet and mobile technology advances very rapidly. Low cost mobile devices now have a camera which allows the user to take photos and videos, and companies offer Internet access from the mobile phone at very cheap rates. Therefore, a student who wants to attack a peer on-line, does not need to have access to a computer or carry a camera with him/her. Everything is done much easier now. Social networks such as Facebook and Hi5 have become extremely popular and provide a convenient "playground" for bullies, who can just create an account using a fake name and attack or spread rumors about their "victims". The anonymity and lack of parental control makes c-bullying easy. Consequently, it needs to be considered during the development of anti-bullying interventions.

The finding that girls are more likely than boys to commit c-bullying is not surprising. Research has consistently found that girls tend to engage in more indirect forms of bullying (e.g. Crick, 1996; Crick & Grotpeter, 1995) and technology via the Internet and mobile phones provides an ideal medium for engaging in indirect forms of bullying (e.g. rumors spreading through Internet blogs, circulation of photos/videos). It is reported that girls prefer this type of bullying (Nelson, 2003 cited in Li, 2006). Engagement in c-bullying could also be a way for girls to compensate for the lack of physical strength, which may inhibit them from physically attacking peers.

We also explored the independent contribution of the mechanisms of MD to t-bullying and c-bullying, along with hostile attribution bias and outcome expectancies. There was a positive association between t-bullying, and moral justification and euphemistic language. This finding is consistent with previous research. Moral justification and euphemistic language have been found to correlate with aggressive and delinquent behavior

in elementary school children (Bandura et al., 1996) and with bullying in junior secondary school students (Hymel et al., 2005). What differentiates them from the other mechanisms of MD is that they both (along with advantageous comparison) operate on the construal of the injurious behavior itself (Bandura et al.). With moral justification the harmful act is viewed as serving a moral or social purpose. A person who sees an injurious act as the means to fulfill a higher moral or social goal, apart from being more likely to engage in this behavior, is also likely to experience positive feelings for doing so (e.g. pride, self-approval) which, in turn, further facilitates harmful behavior e.g. violence to protect a gang's honor or terrorism in the name of religious belief. Attaching a sanitized label to an injurious behavior makes it look less reprehensible or even benevolent. Even if bullying is highlighted via school policies or interventions as an unacceptable form of behavior, if children consider that bullying a peer serves a worthy purpose (e.g. protecting a friend or the parents' reputation), or if they use sanitized descriptions for their behavior (e.g. "I didn't hit him, I taught him a lesson") they may neatly sidestep the bullying issue altogether and view their own behavior as completely different from bullying.

T-bullying was also positively associated with displacement of responsibility. It seems that obscuring or minimising the agentive role of one's harmful act, by attributing responsibility to factors or people outside the self, facilitates engagement in t-bullying. This can be explained in terms of external locus of control (Rotter, 1966), which associates with elementary school bullying (Andreou, 2000), and with bullying and aggression in adolescents (Österman et al., 1999; Young, 1992). If children who engage in bullying believe that their harmful behavior was a result of external factors or other people's pressure, they do not accept responsibility for their act. And if they overlook personal responsibility they are less likely to feel guilt or remorse. Consequently bullying is very likely to reoccur.

The negative association between t-bullying and hostile attribution bias supports the notion that bullying is a type of proactive aggression, an unprovoked, dominant, coercive, goal-oriented form of aggression, committed independently of the intent of the victim, real or perceived (Polman et al., 2007). In line with previous research (Toblin, Schwartz, Gorman, & Abou-ezzeddine, 2005), we found that t-bullying also related to children's expectations that they would gain positive results from behaving aggressively, which is associated with proactive aggression in youngsters (Smithmyer, et al., 2000) and reflects a deficit in the latter stages of the social information processing (Crick & Dodge, 1994). Our results support the suggestion of Sutton, Smith, & Swettenham (1999), that bullies do not have deficits in interpreting social cues, but in the latter stages of social information processing, during goal and response selection, where the expectancy of positive outcomes from a harmful act increases the likelihood of an aggressive response. In other words, the bullies in our study behave aggressively because of what they expect to gain. On the other hand, hostile attribution bias was positively related to t-victimization. This is consistent with studies showing that victims are reactively aggressive. In our study, only 9.1% of the children were pure victims, (the rest reported at least one bullying incident) which suggests that many children may be involved in some form of bullying as retaliation, driven by anger and frustration to a perceived hostile and untrustworthy world (Camodeca, Goossens, Terwogt, & Schuengel, 2002; Crick & Dodge, 1999; Salmivalli & Nieminen, 2002).

T-victimization was also associated with the MD mechanism of advantageous comparison, the tendency to minimize the consequences of a harmful conduct by taking into consideration more reprehensible behavior. This suggests that victimized students in our study may employ this cognitive mechanism in order to minimize/justify their own victimization, and, therefore, alleviate negative emotions, which supports the findings of Hara (2002). For example, a student who gets verbally bullied may accept his/her

victimization by comparing it to other students who get beaten up. While euphemistic language was positively related to t-bullying, this relationship was negative for t-victimization. This was the only MD mechanism that differentiated t-bullying from t-victimization. This could imply that students who suffer more frequent or harsh victimization, because of their personal experience with victimization, do not use palliative language when referring to harmful acts. They do not try to sanitize harmful behavior and have a realistic view of its nature and consequences.

Similarly to t-bullying, c-bullying was predicted by moral justification. Furthermore, alike t-victimization, hostile attribution bias was positively related to c-victimization. It seems that the belief that harmful behavior is justified under certain circumstances, when serving a worthy purpose, like protecting or supporting a friend or one's honor, facilitates engagement in both types of bullying. It also seems that victimization, regardless of the form of bullying, is associated with a view of a hostile and unfriendly world. The present findings indicate that these are common factors in both t-bullying and c-bullying and victimization, and so warrant closer attention in future research.

As expected, high levels of t-bullying and t-victimization increased the likelihood of engaging in c-bullying and being a c-victim, respectively. The hypothesis that t-victims, protected by the anonymity provided by technology, would engage in c-bullying in order to take revenge was not supported and so provides support for previous work (e.g. Raskauskas & Stoltz, 2007; Slonje & Smith, 2008). Our findings imply that children are either bullies or victims inside and outside school and that anonymity, while perhaps facilitating indirect bullying does not incline people who are not bullying orientated into bullying activity even if they have the prospect of revenge.

Several potential limitations should be considered when interpreting the results of this study. The sample consisted mainly of one ethnic group and was taken from just one

secondary modern school, thus limiting the control of confounding factors (e.g. the school's ethos and climate) and the generalisability of the findings. Furthermore, even though we did not use the word "bully" at any time, the voluntary nature of the study inevitably runs the risk of sample representation bias. Indeed, a number of students decided not to participate after reading the questionnaires and since few students reported very high levels of bullying it is possible that those students who were most involved in bullying were underrepresented in this sample. Future research should try to replicate this study with larger, more representative and heterogeneous samples.

Bullying and victimization was assessed with a self-report measure. Although it has been suggested that in the area of bullying, self-report measures are the most reliable and valid (Smith & Sharp, 1994), it would be advisable for future research to obtain data from multiple informants (peers, parents, teachers), while bearing in mind the limitations regarding each source of information (Griffin & Gross, 2004). We also did not administer a social desirability scale and so cannot rule out the possibility that the modest levels of self-reported bullying reflected some impression management, even though we made it clear that responses would remain confidential.

Furthermore, only three different aspects of c-bullying/c-victimization were assessed. This was due to the fact that the aim of the present study, to identify if traditional and cyber bullying share contributing factors, was mainly explorative. This study provides a first step to this aim and future research should assess more aspects of c-bullying. Since the focus of the present study was bullying in general, no distinction was made between direct and indirect bullying, or between different roles in bullying. This would be a very interesting research focus and could provide insight into the differential contribution of various justification/rationalisation mechanisms in different modes and roles in bullying. However, it was beyond the scope of the present study.

Finally, the cross-sectional design of this study cannot establish causality. It is not possible to determine whether these cognitions are antecedents of bullying/victimization, or their consequence. Longitudinal and experimental study designs would help to address this issue.

The aim of the present study was to identify the relationship between bullying, in secondary school students and cognitive mechanisms which help to rationalize and justify harmful behavior. We investigated how MD as a whole, each MD mechanism individually, hostile attribution bias and outcome expectancies associate with t-bullying and c-bullying.

Our findings offer a first step into the exploration of cognitions underlying c-bullying and the identification of shared cognitive factors with t-bullying. The results suggest that both types of bullying associate with overall levels of MD and share the mechanism of moral justification. They also highlight the need for future large-scale studies to examine each technique separately. More research will offer valuable knowledge regarding the contribution of cognitions which facilitate traditional and cyber school bullying. Advances in knowledge can inform existing and shape future antibullying school interventions. According to Bandura (2002), MD is a gradual process "Initially individuals perform mildly harmful acts they can tolerate with some discomfort. After their self-reproof has been diminished through repeated enactments, the level of ruthlessness increases, until eventually acts originally regarded as abhorrent can be performed with little anguish or self-censure" (p. 110). Our findings, along with previous research described earlier, show that MD is already operating in school age children. The same applies for hostile attribution bias and outcome expectancies. It is, therefore, important to tackle such rationalisations and justification at this early stage. We suggest that school anti-bullying intervention programs should help students identify and alter any dysfunctional and maladaptive thinking styles related to harmful behavior in general and bullying in specific. They should help them realize the objective nature of harmful

behavior, acknowledge responsibility for their acts, realize the direct connection between their own behavior and the negative outcomes of this behavior to others and themselves, and encourage prosocial behavior for conflicts resolution. They should focus on enhancing children's empathy for others, and moral emotions, especially guilt (for doing something harmful to others), and pride (for behaving prosocially). Moral emotions and cognitions are not independent from one another. Quoting Bandura et al. (1996), ''people have little reason to be troubled by guilt or to feel any need to make amends for inhuman conduct if they reconstrue it as serving worthy purposes or if they disown personal agency for it'' (p. 366). Moral emotions motivate people to behave in a good way and deter them from immoral behavior (Kroll & Egan, 2004; Tangney, Stuewig, & Mashek, 2007), and research has shown that low levels of moral emotions are associated with school bullying (Menesini & Camodeca, 2008; Menessini et al., 2003; Ttofi & Farrington, 2008). Finally, the high prevalence of c-bullying and c-victimization and the association between c-bullying and MD indicates the need for this form of bullying to be taken into consideration when designing antibullying school intervention programs.

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