Comparing Cyberbullying Perpetration on Social Media between Primary and Secondary School Students

Abstract – In this study, factors associated with cyberbullying perpetration on social media based on the Theory of Reasoned Action and the Parental Mediation Theory were explored. More specifically, this study investigates the associations of attitude, subjective norms, descriptive norms, injunctive norms, and active and restrictive parental mediation with cyberbullying perpetration on social media. Moreover, age was used as a moderating factor in the relationship between parental mediation and cyberbullying perpetration is examined. Multi-stage cluster sampling was used, in which 607 upper primary school children (i.e., Primary 4 to 6 students) and 782 secondary school adolescents participated in our survey. The results revealed that attitude, subjective norms, and the two parental mediations – active and restrictive mediation – are positively associated with cyberbullying perpetration on social media. Age is a significant moderator of both parental mediation strategies and cyberbullying perpetration. Implications and limitations of this study were mentioned and discussed.

Keywords - Cyberbullying Perpetration, TRA, Parental Mediation, Singapore, Social Media

INTRODUCTION

Of late, information and communication technologies (ICT) – especially social media use – has boomed. The power of social media has been harnessed in many different ways, such as to access a large amount of information and to improve social interactions. However, social media can be a double-edge sword. Its benefits are practically limitless- but so are its costs. Over time, the advancement of social media has inadvertently led to a new form of bullying, one that transcends across physical boundaries of space (Livingstone & Helsper, 2008).

Cyberbullying, defined 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”, occurs over electronic media such as social media (Smith et al., 2008). Through such social media, cyberbullies are able to target their potential victims anonymously using fake usernames and profile pictures, leaving the victims helpless and unable to defend themselves (Slonje & Smith, 2008).

Recently, there has been a rapid increase in the occurrence of cyberbullying incidents worldwide (Görzig & Frumkin, 2013). For instance, the National Crime Prevention Council and Harris Interactive found that over 40% of American adolescents were victims of cyberbullying (Bhat, 2008). Walrave and Heirman (2011) explored cyberbullying among 1318 Belgium students and found that at least one-third of the participants indicated past cyberbullying victimization experience, and approximately one-fifth of the participants reported engaging in past cyberbullying behavior. In Asia, Huang and Chou (2010) found that 34.9% and 20.4% of high school students examined reported having previously experienced cyberbullying victimization, and to having cyberbullied others respectively.

Cyberbullying potentially leads to several serious emotional problems, such as emotional distress, especially among female victims (Bauman & Newman, 2013). Results from a study by Patchin and Hinduja (2006) reported that participants experienced anger, frustration and sadness. Kowalski et al. (2008) indicated that cyberbullying victims generally experience isolation, loneliness, anxiety, depression, and lowered self-esteem. Beran and Li (2005) found that those who have been cyberbullied are more likely to perform antisocial behaviors such as absenteeism. In fact, it has been found that cyberbullying may lead to more severe negative outcomes as compared to traditional bullying. For instance, Hay, Meldrum and Mann (2010) found that cyberbullying had “modestly higher effects” in terms of delinquency, self-harm and suicidal ideation. Thus, it is important to examine the factors influencing cyberbullying perpetration.

Although there exists extensive research in the field of cyberbullying, most of these studies have focused on overwhelmingly empirical angles. Theories guiding cyberbullying research are few. Tokunaga (2010), and Heirman and Walrave (2012) indicated that it is important to examine cyberbullying based on a theoretical framework. Although two studies have employed the theory of planned behavior to explore cyberbullying perpetration (Doane, Pearson & Kelley, 2014; Heirman & Walrave, 2012), these studies only focused on American college students and European adolescents and ignored younger children, especially in the Eastern culture. Besides, some studies have explored the role of parental mediation on cyberbullying victimization (Mesch, 2009). However, studies examining the association between parental mediation and cyberbullying perpetration, especially across different age groups, are limited.

Therefore, this present study explores cyberbullying perpetration from a theoretical angle, with a focus on the extended theory of reasoned action (TRA; Ajzen & Fishbein, 1980) and the parental mediation theory (PMT). This study intends to focus on cyberbullying on social media, because while many scholars have indicated cyberbullying to be most rampant on social
media (Chen, Ho, & Lwin, 2016; Whittaker & Kowalski, 2015), limited studies have examined social media bullying. Specifically, this study will examine the direct effects of attitude, subjective norms, descriptive norms, injunctive norms and active mediation and restrictive mediation on cyberbullying perpetration on social media among primary and secondary school students in Singapore. Furthermore, age was used as a moderating factor on the relationship between parental mediation and cyberbullying perpetration on social media will be investigated.

LITERATURE REVIEW

Theory of Reasoned Action

The theory of reasoned action (TRA) can be used to forecast the behavioral intention of a person and hence predict his likelihood of engaging in that behavior (Ajzen & Fishbein, 1980). TRA includes two types of beliefs: behavioral and normative beliefs. First, behavioral beliefs are dependent on individuals’ attitude toward the behavior – a more positive attitude will lead to higher behavioral intention. Indeed, attitude toward cyberbullying was found to be positively associated with cyberbullying perpetration (Perren & Gutzwiller-Helfenfinger, 2012).

Second, normative beliefs focus on how subjective norms influence behavioral intention (Madden, Ellen & Ajzen, 1992). The formation of a subjective norm is dependent on expected social expectation from “important others” upon engaging in the behavior. This includes expectations of individuals’ friends and family, which is positively associated with behaviors (Cialdini & Trost, 1998). Several studies have established the significance on the subjective norms induced by important others onto one’s behavior. For instance, Heinemann et al. (1981) found a strong positive correlation between subjective norms and subsequent treatment of physically handicapped individuals and homosexuals. Furthermore, since subjective norms are formed via the perceptions of one’s important others, these norms may be observed by an individual’s behavior toward in-groups and out-groups. For example, group bias is commonly observed among children- especially those with higher levels of group identification (Abrams et al., 2008).

When individuals have high belief that the behavior will elicit social understanding, they will be more likely to perform the behavior (Espada, Griffin, González & Orgilés, 2015). Ojala and Nesarale’s (2004) study found that the frequency of bullying behaviors increases when aggressiveness and bullying attains “legitimacy and validity” by being considered as a norm in the in-group. Furthermore, Doane, Pearson and Kelley (2014) explored cyberbullying perpetration among American college students and found strong positive correlations between attitude, subjective norms and cyberbullying perpetration. Based on the abovementioned considerations, we advanced the following hypotheses:

H1: Attitude will be positively associated with cyberbullying perpetration on social media.

H2: Subjective norms will be positively associated with cyberbullying perpetration on social media.

Descriptive Norms

In general, social norms are “rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of laws” (Cialdini & Trost, 1998). In addition to subjective norms, the social norms theory postulates the existence of two other norms - descriptive and injunctive norms - that are also associated with behavior. These three norms could lead individuals into constructing a wrong standard of behavior upon misinterpreting the attitude and/or behaviors of family members and peers (Berkowitz, 2002).

Descriptive norms are formed by observing actions of others. Credibility of particular behaviors are boosted when many people engage in them, thus making the behaviors more acceptable and correct. “Perceived social support” helps individuals formulate social heuristics, which is a general guideline that leads to correct behavior most of the time (Cialdini & Trost, 1998). In the case of traditional bullying in a classroom environment, descriptive norms can come from “the estimates of the frequency of behavior in the group,” where when more students are engaging in bullying behavior, the behavior will be more likely to be deemed as the “correct” behavior, hence increasing the students’ behavioral intentions (Mercer, McMillen, & DeRosier, 2009). While there is much evidence that descriptive norms are positively associated with traditional bullying, studies examining the relationship between descriptive norms and cyberbullying are relatively scarce. Moreover, traditional bullying and cyberbullying take place in different environments. Therefore, we cannot simply assume the same relationship between descriptive norms and cyberbullying. Hence, we proposed a research question instead –

RQ1: How will descriptive norms be associated with cyberbullying perpetration on social media?

Injunctive Norms

Injunctive norms indicate the extent of general consensus for socially acceptable behaviors. Injunctive norms differ from subjective norms in the notion that it considers the perception held by society in general, while subjective norms focuses on perceptions held by one’s important others.

In forming a perceived injunctive norm, individuals will consider expected levels of approval and/or punishment
from the general public. Approval can come in the form of popularity, while punishment can come in the form of ostracization (Cialdini & Trost, 1998). Previous research has found that injunctive norms affected both “normative beliefs of aggression” and “had direct effects on aggressive behavior over time” (Salmivalli & Voeten, 2004). This implies a relationship between injunctive norms and traditional bullying. However, extant cyberbullying research understudied the association of injunctive norms with cyberbullying perpetration. We will not formally hypothesize the differences, but simply develop a research question instead:

**RQ2:** How will injunctive norms be associated with cyberbullying perpetration on social media?

**Parental Mediation Theory**

According to the parental mediation theory (PMT), various “interpersonal communication strategies” are employed by parents to reduce the harmful consequences of their children’s media usage (Clark, 2011). The PMT encompasses two types of mediation – active mediation and restrictive mediation.

Active mediation addresses the fact that children are “active users” of cyberspace and actively engage in activities such as seeking others with the aim of communication (Clark, 2011). For instance, parents may discuss issues and provide information about the Internet to their children and guide them how to use the Internet safely (Livingstone & Helsper, 2008), and regular tracking of the child’s Internet usage (Lwin et al., 2008). Such parental communication has been found to be effective in equipping children with the skills and knowledge on responding to dangerous situations while on the Internet (Liu, Ang & Lwin, 2013). On the other hand, restrictive mediation serves as a subtler way of influencing the child’s Internet usage, such as by setting rules, limiting time and restricting websites (Nathanson, 2001a). Studies have found a strong negative correlation between the implementation of restrictive mediation and following: duration of the child’s Internet usage and the amount of dangers that the child experiences online (Lee, 2012).

In general, numerous studies have found that parental mediation as a whole is considered to be one of the most effective methods in addressing the risks that children face on the Internet (Buijzen & Valkenburg, 2005; Livingstone & Helsper, 2008). There are multiple studies examining the association between parental mediation and cyberbullying victimization (Mesch, 2009; Navarro et al., 2013). Also, parental mediation strategies were found to be aimed toward protecting children from being bullied (i.e., cyberbullying victimization), rather than lowering the level of cyberbullying behavior (Dehue et al., 2008).

However, there is still relatively scant studies in the case of parental mediation of social media and cyberbullying perpetration. Hence, we aim to bridge this existing research gap by examining the association between active and restrictive mediation and children’s cyberbullying perpetration. As such, we advanced the following hypotheses:

**H3:** Active mediation will be negatively associated with cyberbullying perpetration on social media.

**H4:** Restrictive mediation will be negatively associated with cyberbullying perpetration on social media.

**Age as Moderator**

Maccoby (2007) indicated that the significance of the parents’ influence in socializing their children generally decreases as the child’s age increases. In general, parents exert more influence onto the growth of children when the children are at a younger age. However in the case of adolescents, the proportion of time spent with other agents such as peers and teachers increases, while the time spent with family members decreases (Bukowski, Brendgen & Vitaro, 2007). This indicates that as compared to younger children, the norms, values and beliefs possessed by adolescents are likely to be more influenced by these ‘external’ characters.

In addition, it has been found that children of different ages generally have differing reactions to parental mediation strategies. For instance, younger children tend to be more responsive and accepting of parental mediation as compared to adolescents. Also, results from some studies showed that parental mediation may be ineffective in protecting adolescents from media-related risks (Chen, Ho, & Lwin, 2016; Lwin et al., 2008; Nikken & Jansz, 2011). Hence, we expect that different parental mediation strategies could result in different effects on the cyberbullying perpetration in children and adolescents. In light of the abovementioned age differences, we posit the following research questions:

**RQ3:** How do active parental mediation strategies differ in preventing cyberbullying perpetration on social media between children and adolescents?

**RQ4:** How do restrictive parental mediation strategies differ in preventing cyberbullying perpetration on social media between children and adolescents?

**METHOD**

**Sample and procedure**

We conducted a self-administered paper-and-pencil survey at four primary schools and four secondary schools. Multi-stage cluster sampling was used to ensure that schools from the four Singapore regions (North, South, East and West) were equally represented.
in this survey. The survey was conducted over a 12-month period from June to December in 2015. Out of the initial fifteen primary schools and twelve secondary schools invited to participate in the survey, four primary schools and four secondary schools eventually participated. The response rates were 26.7% for primary schools, and 33.3% for secondary schools.

A total of 1391 students participated in the survey. Specifically, 607 were upper primary school children (primary four to six; nine to twelve years old) and 782 were secondary school adolescents (secondary one to secondary five; thirteen to seventeen years old). The total average response rates were 69.6% for student participation (60.7% for primary schools, 78.4% for secondary schools). The margin of error was approximately +/- 3% at the 95% confidence level.

Measures

Demographic variables. Demographic variables of students specified in this study included the participants’ race, current education level, age \( (M = 12.5, SD = 1.72) \), and gender \( (1 = \text{male}, 2 = \text{female}, 52.4\% \text{male}) \).

Attitude. Attitude was measured on four dimensions adopted from Heirman and Walrave (2012). Participants rated their attitude toward cyberbullying via the following dimensions: (a) disadvantageous/advantageous, (b) unpleasant/pleasant, (c) bad/good, and (d) harmful/beneficial, on a seven-point Likert scale. A higher score obtained indicates a more positive attitude toward cyberbullying perpetration \( (M = 1.83; SD = 1.20, \text{Cranach’s } \alpha = .82) \).

Subjective norms. Subjective norms was measured using six items adopted from Ajzen (1988), where students rated on a scale of 1 (strongly disagree) to 7 (strongly agree) for the following statements: (a) “Most of my friends would not expect me to make rude or mean comments to someone on social media;” (b) “Most of my friends would not expect me to spread rumours about someone on social media, whether they are true or not;” (c) “Most of my friends do not make rude or mean comments to someone on social media;” (d) “My family members do not make rude or mean comments to someone on social media;” (e) “My family members do not make aggressive or threatening comments to someone on social media;” and (f) “My family members do not make aggressive or threatening comments to someone on social media”. This measure was then reversed, in which a higher score obtained indicates a higher level of descriptive norms \( (M = 1.56; SD = 1.59, \text{Cranach’s } \alpha = .93) \).

Injunctive norms. Injunctive norms was measured using six items adopted from Ajzen and Fishbein (2005), where students rated on a scale of 1 (strongly disagree) to 7 (strongly agree) for the following statements: (a) “Most of my friends would not approve of me making rude or mean comments to someone on social media;” (b) “Most of my friends would not approve of me spreading rumours about someone on social media, whether they are true or not;” (c) “Most of my friends would not approve of me making aggressive or threatening comments to someone on social media;” (d) “My family members would not approve of me making rude or mean comments to someone on social media;” (e) “My family members would not approve of me making rude or mean comments to someone on social media;” and (f) “My family members would not approve of me making aggressive or threatening comments to someone on social media”. This measure was then reversed, in which a higher score obtained indicates a higher level of injunctive norms \( (M = 1.39; SD = 1.71, \text{Cranach’s } \alpha = .93) \).

Active mediation. Active mediation was measured using four items adopted from Lwin, Stanaland and Miyazaki (2008), where parents rated on a scale of 1 (not at all) to 7 (very frequently) for the following statements: (a) “Tell your child about the information they can disclose on social media;” (b) “Remind your child not to give out any personal information on social media”, (c) “Tell your child to stop any experience on social media if they feel uncomfortable or scared”, and (d) “Explain to your child about the dangers of social media”. A higher score obtained indicates a higher level of active mediation \( (M = 4.40; SD = 1.73, \text{Cranach’s } \alpha = .85) \).

Restrictive mediation. Restrictive mediation was measured using five items adopted from Lwin, Stanaland and Miyazaki (2008), where parents rated on a scale of 1 (not at all) to 7 (very frequently) for the
following statements: (e) “Restrict the amount of time your child can use social media;” (f) “Set rules regarding your child’s access to social media, such as Facebook, Twitter, Youtube, Instagram, Whatsapp, etc;” (g) “Limit the kinds of activities your child can do on social media;” (h) “Restrict the type of social media platforms your child can visit;” and (i) “Limit your child to using social media only for school work”. A higher score obtained indicates a higher level of active mediation (M = 3.63; SD = 1.76, Cranach’s alpha = .87).

Cyberbullying perpetration. Cyberbullying perpetration was measured using three items where students had to rate their frequency of cyberbullying behavior in the last 12 months from 1 (not at all) to 7 (very frequently) for the following statements: (a) “Made rude or mean comments to someone on social media;” (b) “Spread rumors about someone on social media, whether they are true or not;” and (c) “Made aggressive or threatening comments to someone on social media”. A higher score obtained indicates a higher frequency of cyberbullying perpetration (M = 1.85; SD = 1.24, Cranach’s alpha = .73).

RESULTS

An ordinary least squares (OLS) hierarchical regression analysis was conducted to test our hypotheses and research questions. The variables were entered into the regression model according to their assumed causal order. The first block included control variables, such as demographic variables (gender and education level). TRA-related variables (attitude, subjective norms, descriptive norms, and injunctive norms) were entered in the second block. Next, parental mediation variables (active and restrictive mediation) were included in the third block. The last block included the two interaction terms. The main effect variables were centered and standardized before the creation of interaction terms to prevent multicollinearity problems between the interaction term and its components.

Table 1. OLS Hierarchical Regression Analysis Predicting Cyberbullying Perpetration.
following section) showed that the negative relationship was greater for children than adolescents. More interestingly, age was a significant moderator of restrictive mediation and cyberbullying perpetration ($\beta = 0.14, p < .001$). Figure 2 (in the following section) revealed that children in high restrictive mediation were less likely to perform cyberbullying behaviors, while adolescents in high restrictive mediation are more likely to be engaged in cyberbullying perpetration. The interaction block explained 1.10% of the variance in cyberbullying perpetration ($p < .001$).

**DISCUSSION**

The aim of this study is to explore the factors associated with cyberbullying perpetration, and the moderating role of age on the relationship between parental mediation and cyberbullying perpetration based on TRA and PMT.

First, this study showed that attitude toward cyberbullying was positively associated with cyberbullying perpetration. In other words, children with a more positive attitude had a higher likelihood to engage in cyberbullying behavior. This is consistent with extant research, where a positive correlation was found between attitude and cyberbullying perpetration (Perren & Gutzwiller-Helfenfinger, 2012). In fact, Heirman and Walrave (2012) found attitude to be the most crucial predictor of perpetration.

In terms of social norms, findings revealed that descriptive norms and injunctive norms were not significantly associated with cyberbullying perpetration. First, it is possible that children and adolescents are not mature and are less aware of others’ cyberbullying behaviors. According to the third-person effect theory (Davison, 1983), they may hence perceive that others are more likely to be involved in cyberbullying on social media than themselves. The personal biases might lead to non-significant association between descriptive and cyberbullying perpetration. Besides, in the case of injunctive norms, one explanation for the obtained findings as proposed by Cialdini (2003) is that since salience is a crucial pre-existing factor for normative influence on behavior, children may not be aware of injunctive norms, which are formed based on social approval of important others (Rinker & Neighbors, 2013). Furthermore, as compared to descriptive norms, injunctive norms generally require more cognitive analyses via indirect inferences on behavior (Cialdini, 2003). In contrast, subjective norms had a significant positive association on cyberbullying perpetration. Some previous studies also showed consistent results (Heinemann et al., 1981; Espada, Griffin, González & Orgilés, 2015; Ojala & Nesdale, 2004; Doane, Pearson & Kelley, 2014).

Next, results showed that active mediation strategies (e.g., directly teaching children about dangers of the Internet) and restrictive mediation strategies (e.g.,

![Figure 1. Active mediation, Age, and Cyberbullying perpetration](image)

Finally, referring to Figure 1, age was found to be a significant moderator of parental mediation – both active and restrictive mediation – and cyberbullying perpetration. Consistent with extant findings, the effectiveness of active mediation was greater in reducing cyberbullying perpetration for children than adolescents. Indeed, non-significant effects of active mediation on older children have been found in several other studies as well (Nathanson, 2002; Austin, Pinkleton & Fujiioka, 2000). One plausible explanation for such findings is that adolescents are more mature and emphatic than younger children (Eisenberg, Spinrad & Morris, 2014). Hence, even without enough guidance from their parents (i.e., low active mediation), adolescents may still possess an understanding of the negative consequences and psychological harm induced by cyberbullying and thus, display lower levels of cyberbullying. On the other hand, younger children may not have attained such levels of emotional maturity, and therefore, their cyberbullying behaviors are largely affected by active guidance from their parents.
factors associated with cyberbullying perpetration were examined as a whole instead. It is possible that different variable associations may be present for different social media platforms. Third, this study did not investigate the influence of social media consumption as well as the impact of psychological factors on cyberbullying, which might be also crucial factors of cyberbullying (Chen, Ho & Lwin, 2016). Fourth, the self-rating measure used in this study may be subjected to biases due to the tendency to provide socially desirable answers. Hence, the rates of cyberbullying perpetration may be underreported.

Our study has several theoretical and practical implications. As mentioned in the introduction, majority of extant studies investigate cyberbullying from an empirical angle, while studies using a theoretical angle are largely limited. Hence, the findings from attitude and social norms on cyberbullying perpetration highlight TRA to be a promising theoretical framework to examine cyberbullying. Also, limited studies explored the association between parental mediation and cyberbullying, with majority of existing studies focusing on cyberbullying victimization rather than perpetration. This study hence contributes to the relatively scant research in this field. Findings that parental mediation may have differing effectiveness based on the children’s age brings about several practical implications that may benefit educators and parents when addressing their children’s online risk. For example, active mediation strategies such as direct teachings and guidance would be more appropriate for younger children. Similarly, for restrictive strategies, educators and parents must direct more attention and care when applying such strategies to older children. Restrictive strategies, such as site and time restrictions, should be set in such a way that the older child does not perceive an infringement on their freedom and autonomy. Overly restrictive mediation strategies may backfire and lead to an increase in cyberbullying perpetration; thereby defeating the purpose of the mediation. Educators and parents should be aware that there is no one size fits all solution. Mediation and intervention strategies should instead be tailored to children of different age groups and specific perceptions. For instance, mediation and intervention strategies targeted toward children should include elements of both active and restrictive mediation. On the other hand, due to the possibility of restrictive mediation unintentionally increasing cyberbullying perpetration, mediation and intervention strategies for adolescents should include lesser focus on both active and restriction mediation.

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REFERENCES


Tokunaga, R. S. (2010). Following you home from school: A critical review and synthesis of research on
