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An Empirical Investigation of Factors Instigating, Impelling and Inhibiting Cyber-Bullying Behavior

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ABSTRACT

The Internet has provided a fertile ground for cyber-bullying, defined as bullying through the use of electronic media (such as computers, cell phones, and other electronic devices). Rising incidents of and tragedies from cyber-bullying have alerted researchers, educators, government officials, and parents to the severe consequence of this new form of bullying. Adopting the I³ Theory as the theoretical lens, this study aims to examine the driving and suppressing forces of bullying behavior in the cyber-space. Results from a survey of university students show that while impelling forces can increase individuals' tendency to perpetrate cyber-bullying behavior when they are instigated, inhibiting forces will represses their aggressive urge and lower their propensity to cyber-bully. Our findings not only validate the I³ Theory in the context of cyber-bullying but also provide valuable insights to educators, government officials, and parents in their effort to tackle cyber-bullying.

Keywords

Cyber-bullying, I³ Theory, Impellance/Inhibition Model, Cyber victimization

INTRODUCTION

Providing an online platform for people to communicate without the concern of physical proximity (Hampton, 2007), the Internet plays an increasingly important role in people's daily activities. However, the Internet is a double edged sword -- while it brings unprecedented convenience, it has also provided a breeding ground for various types of undesirable behaviors, such as cyber-bullying, a type of bullying that occurs in cyberspace (Li, 2006). Whereas traditional bullying is often caused by physical, verbal, psychological attack or intimidation (Farrington, 1993), cyber-bullying is an act that inflicts verbal and psychological torment on individuals via electronic media with aggressive intent (Smith, et al., 2008). The fundamental difference between traditional bullying and cyber-bullying is the pervasiveness and persistence of the bullying behavior, which extends from schoolyard to home, and from school hours to practically any time of the day (Patchin & Hinduja, 2006). Although cyber-bullying is a relatively recent phenomenon, its prevalence and the adverse consequences it can lead to have been documented extensively (e.g., Li, 2008; Vandebosch & Van Cleemput, 2009). For instance, Raskauskas and Stoltz (2007) reported that close to half of the adolescents surveyed had been victims of cyber-bullying and about one fourth of the them had cyber-bullied others. Likewise, Aricak et al. (2008) found that thirty-five percent of the teenagers surveyed had experience with cyber-bullying, with twenty percent of them being both perpetrators and victims of such behavior. Victims of cyber-bullying often suffer depression, distress, emotional instability, and social anxiety (Dempsey, Sulkowski, Nichols, & Storch, 2009; Raskauskas & Stoltz, 2007). In the most extreme cases, cyber-bullying can lead to suicide or physical harm (Hinduja & Patchin, 2010). The widely publicized suicides of Megan Taylor Meier, Phoebe Prince, and Tyler Clementi have truly underscored the serious consequences of cyber-bullying and called attention to this new form of bullying behavior.

Despite the rising interests among academic researchers on the phenomenon of cyber-bullying, extant research mainly focuses on investigating cyber-bullying qualitatively to uncover the motives behind such behaviors (Hinduja & Patchin, 2008; Jones, Manstead, & Livingstone, 2011), identifying the similarities and differences between traditional bullying and cyber-bullying behaviors (Beran & Li, 2007; Hinduja & Patchin, 2010), and examining the characteristics/profiles of cyber-bullies and cyber-victims (Katzner, Fetschenauer, & Belschak, 2009; Raskauskas & Stoltz, 2007). There have been relatively few published studies exploring factors (e.g., low self-control, prior bullying experience, and perceived anonymity in online platform) (Hoff & Mitchell, 2009; Ybarra & Mitchell, 2004) driving individuals to perpetrate cyber-bullying behavior. Most

importantly, existing research on cyber-bullying is often conducted without theoretical anchor (a notable exception being Zhang, Land, & Dick, 2010), a deficiency that hinders the scientific analysis of the cyber-bullying phenomenon (Tokunaga, 2010). Given this apparent gap in existing literature, this study aims to conduct a rigorous investigation into factors determining the likelihood of cyber-bullying behavior from the perspective of the I³ theory (pronounced as “I-cubed theory” and named after the first letter in *Instigating*, *Inhibiting*, and *Impelling*) (Slotter & Finkel, 2011).

The remainder of paper is organized as follows. In the next section, we introduce the theoretical foundation of this study and present the research model and related hypotheses. Then, we discuss the research methodology and present the results of data analysis. Finally, we conclude with discussion, and implications for both research and practice.

THEORETICAL FOUNDATION

I³ Theory

I³ Theory, advanced by Slotter and Finkel (2011), is an integrative theory that seeks to provide an organizing framework for categorizing risk factors promoting, aggravating, or mitigating aggressive behaviors (Finkel, 2007; Finkel, et al., 2012; Slotter & Finkel, 2011). The three key constructs or components of the I³ Theory are instigating triggers (i.e., situational events or circumstances that induce tendencies toward aggression), impelling forces (i.e., dispositional or situational factors that increase the likelihood that individuals will act upon aggressive impulse in response to instigating triggers), and inhibiting forces (i.e., dispositional or situational factors that increase the likelihood that individuals will override their urge to aggress). The three components interrelate to explain and predict aggressive behavior (Slotter & Finkel, 2011).

To illustrate the explanatory power of the I³ Theory, Slotter and Finkel (2011) reviewed key findings in aggression literature through the lens of this theory, providing examples for the main effects of instigating triggers, impelling forces, and inhibiting forces, as well as the interactions among the three categories of variables. Slotter et al. (2012) validated the I³ Theory by empirically evidencing the impact of relationship commitment (i.e., an *inhibiting* force) in inhibiting the aggressive retaliation of individuals when they were provoked by their partners (i.e., an *instigation* trigger) in romantic relationships. Finkel et al. (2012) further demonstrated the interplay of partner provocation (i.e., *instigation*), dispositional aggressiveness (i.e., *impellance*), and self-regulatory strength depletion (i.e., *dis-inhibition*) in predicting the perpetration of intimate partner violence (IPV). Instigation, impellance, and inhibition have also been incorporated into theoretical and empirical analyses of aggression behavior by other researchers (e.g., Boivin, Lavoie, Hébert, & Gagné, 2011; Davidovic, Bell, Ferguson, Gorski, & Campbell, 2011).

Cyber-bullying is an aggressive act carried out via electronic means (Smith et al., 2008). Prior research on cyber-bullying has applied the general aggression model (Vannucci, Nocentini, Mazzoni, & Menesini, 2012), to explore the nature of online bullying. Adopting the theoretical lens of I³ Theory, this study aims to explore factors instigating, impelling, and inhibiting cyber-bullying behavior. Based on a comprehensive review of prior research on traditional bullying and cyber-bullying, we have identified *cyber-victimization experience* as an instigating trigger, *perceived online disinhibition* and *motivating desires* as impelling forces that promote individuals' urge to perpetrate cyber-bullying behaviors, and *self-control* and *subjective norm* as inhibiting forces that increase the likelihood that individuals override their urge to cyber-bully rather than acting upon such urge. Figure 1 depicts the research model for this study.

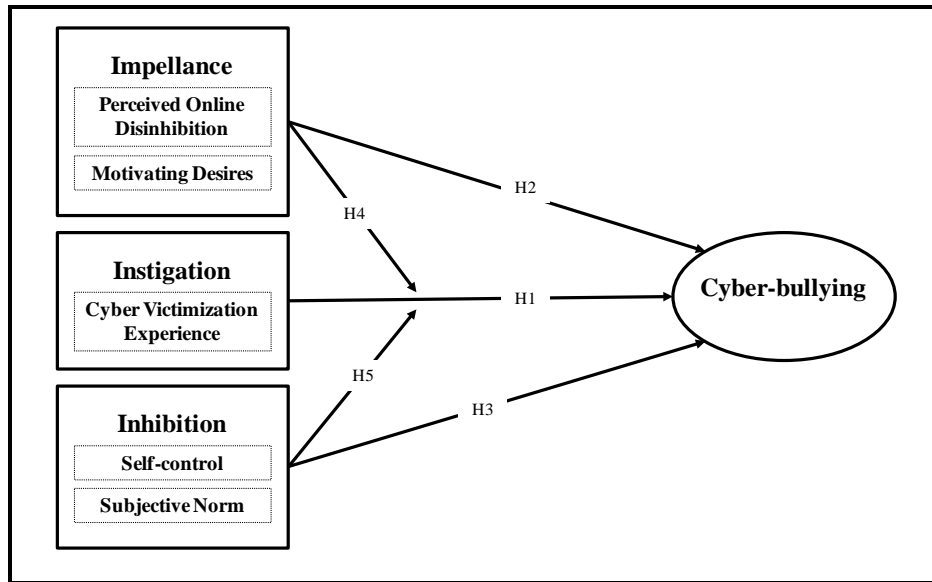


Figure 1. Research Model

Instigation -- Cyber Victimization

People tend to unfold their aggression instinct and perform aggressive acts when they are being provoked, rejected or insulted (Buss & Shackelford, 1997). I³ Theory posits that events or circumstances (originated in the target of aggression or in someone other than the target) may trigger individual's preliminary urge to aggress against the target (Slotter & Finkel, 2011). This study adopts *cyber victimization* (i.e., an individual's prior experience being a victim of cyber-bullying) as the trigger that instigates the individual to perpetrate *cyber-bullying* behavior.

Prior research on cyber-bullying has revealed a positive relationship between of *cyber-victimization experience* and cyber-bullying behavior (Li, 2007; Walrave, 2009). Victims of bullying or aggression often suffer negative consequences (Bollmer, Harris, & Milich, 2006), including humiliation, damaged reputation, ruined status, and sometimes injuries, which may arouse the victims' innate defensive mechanism, motivating them to use aggression or bullying as an effectual way to guard against the attack as well as to ease their pain (Buss & Shackelford, 1997). Moreover, aggressive behaviors can be learnt through observational learning and enactive learning (Bandura, 1978). Victims of cyber-bullying may observe the perpetrators' behaviors and reproduce the same actions, and thus continuing the cycle of violence (Burgess, Hartman, & McCormack, 1987; McCord, 1988). Thus, we hypothesize that individuals who have experience being victims of cyber bullying are more likely to perpetrate cyber-bullying behavior, via the process of instigation.

H1: Cyber victimization experience will positively influence the likelihood of cyber-bullying

Impellance – Motivating Desires and Perceived Online Disinhibition

Prior cyber-bullying research has revealed a number of impelling forces (personal, relational, or situational) that can strengthen individuals' urge to aggress. This paper focuses on two particular impellers, *motivating desires* and *perceived online disinhibition*.

Motivating desires are desires held by individuals for fulfilling a manifest or latent need (Goldin, Epstein, Schorr, & Warner, 2011) and they have been found to provide impetus for human behavior (Bagozzi, 1992). In this study, we focus on four motivating desires, namely *power*, *attention*, *acceptance*, and *retaliation* based on Reiss' work on basic desires guiding human behavior (Reiss, 2004) and Dreikr's classification of desires motivating misbehavior (1968). *Power* is the desire to control or influence others (Reiss, 2004). Since the role of authority and power is generally emphasized in societies and organizations alike, people would attempt aggressive acts, such as cyber-bullying, to establish authority and demonstrate

coercive power over others (Felson, 1984) as well as to build self-worth that ultimately leads to self-development (Tedeschi & Felson, 1994). Desire for *attention* has been found to be a major driving force for performing harmful behaviors such as alcohol abuse, delinquency, and domestic violence (Ganesh, 2011; Scholer, Brokish, Mukherjee, & Gigante, 2008). Attention-getting has also been confirmed as an impetus for bullying (Cunningham, Cunningham, Ratcliffe, & Vaillancourt, 2010). *Acceptance* is the desire for social approval (Reiss, 2004). Bullies may not have specific target to conduct cyber-bullying; they may have perpetrated such behavior to gain peer approval (Varjas, Talley, Meyers, Parris, & Cutts, 2010). Self-confidence can then be developed through endeavoring other's approval (Twenge & Campbell, 2001). Finally, *retaliation* is the desire to let perpetrators pay back for the harms done (Vidmar, 2000) and has been a reported motivation for perpetrating both bullying and cyber-bullying behavior (Shariff, 2008). In sum, desires for *power*, *attention*, *acceptance*, or *retaliation* serve as impelling forces that drive individuals to engage in cyber-bullying behavior. Thus, we hypothesize:

H2a: Motivating desires (i.e., power, attention, acceptance, and retaliation) will positively influence the likelihood of cyber-bullying.

Perceived online disinhibition refers to a psychological state in which individuals feel less constrained, and thus exhibiting greater willingness to express themselves in online platforms (Schouten, Valkenburg, & Peter, 2007). The anonymous virtual platform of the Internet reduces contextual cues (such as facial expression and pace of speed, which may lead to deindividuation (Reicher, Spears, & Postmes, 1995; Spears, Postmes, Lea, & Wolbert, 2002)) and enables the greater self-presentation (e.g., being less restraint in online discussion), which in turn induce individuals' perception of online disinhibition (Werner, Bumpus, & Rock, 2010). Brandtzæg and colleagues (2009) found that highly anonymous platforms might elevate people's disinhibition, which might increase their likelihood in engaging in cyber-bullying behavior. Armstrong and Forde (2003) also showed a strong relationship between Internet disinhibition and Internet criminal intent. Thus,

H2b: Perceived online disinhibition will positively influence the likelihood of cyber-bullying

Inhibition – Self Control and Subjective Norm

According to ³ Theory, inhibiting forces can be personal, relational, or situational (Slotter & Finkel, 2011). This study focuses on two personal inhibiting forces, *self-control* and *subjective norm*, can over-ride individuals' urge to engage in cyber-bullying behavior.

Self-control, also called self-regulation, refers to an individual's power or ability to exercise control over his/her actions. Research in criminology has noted the negative relationship between *self-control* and likelihood of criminal acts (Gottfredson & Hirschi, 1990; Vazsonyi & Belliston, 2007). Lack of *self-control* has been found to be a pivotal predictor of aggression toward strangers and romantic partners (DeWall, Finkel, & Denson, 2011). In online context, low *self-control* has also been consistently associated with cyber deviance, cyber crime, digital piracy, cyber-trespassing (Holt, Bossler, & May, 2011), and Internet pornography (Buzzell, Foss, & Middleton, 2006). With the Internet providing a virtual platform having minimum legislative, parental and social supervision (Mesch, 2009; Ybarra & Mitchell, 2004), individuals are likely to relinquish their *self-control* and engage in antisocial behavior such as cyber-bullying (Teo, 2010). Therefore,

H3a: Self-control will negatively influence the likelihood of cyber-bullying.

Subjective norms refers to an individual's perception that people who are important to him or her think that he or she should or should not perform certain behavior (Fishbein & Ajzen, 1975). It is an important and strong information source of "verbal persuasion" for individual to judge whether to perform particular behavior or not (Bandura, 1986). Individuals are easily affected by others, especially those they consider important (such as family and peers) (Aarts & Dijksterhuis, 2003). As such, they will be less likely to engage in cyber-bullying if influential parties strongly discourage them from perpetrating such behavior. Thus, we hypothesize:

H3b: Subjective norm will negatively influence the likelihood of cyber-bullying.

Moderating role of Impellance and Inhibition

I³ Theory places great importance on the interactions among *instigation*, *impellance*, and *inhibition* in predicting aggressive behavior (Slotter & Finkel, 2011). Whereas *impellance* is a push force that strengthens individuals' tendency to act upon their aggressive urge, *inhibition* is a suppressing force that elevates individuals' likelihood to revoke their aggressive urges and intents (Slotter & Finkel, 2011). Individuals experiencing strong instigating triggers will be more likely to aggress when impelling forces are strong and inhibiting forces are weak. Thus, we posit that *impellance* and *inhibition* factors moderate the effects of *cyber victimization experience* on *cyber-bullying*.

H4-H5: Impellance will strengthen the positive relationship between cyber victimization and cyber-bullying (H4), while inhibition will attenuate such relationship (H5).

RESEARCH METHODOLOGY

A total of 288 university students from Hong Kong participated in this study. The questionnaire consists of three different parts to collect respondents' demographic and background information, to probe their knowledge of and their experience with cyber-bullying and cyber-victimization, and to explore factors contributing to cyber-bullying behavior.

The measurement items for the potential predictors of cyber-bullying behavior were borrowed from prior research with modifications of the question wording to fit the specific context of cyber-bullying. Multi-item measures were used for each construct to ensure construct validity and reliability. *Perceived online disinhibition* was measured by five items, adapted from Ledbetter (2009). *Subjective norm* was measured by three items borrowed from Venkatesh and colleagues (2003). Four types of *motivating desires* (i.e., power, acceptance, attention, and retaliation) were borrowed from Reiss (2004). *Self-control* was measured by four items borrowed from Giancola and colleagues (1996). All the above-mentioned measurements were phrased as questions on seven-point Likert scales, from *strongly disagree* (1) to *strongly agree* (7).

Prior to the study, we identified five types of cyber-bullying behavior (summarized in Table 2 in the next section) from a comprehensive review the prior literature. In the questionnaire, both cyber-bullying and cyber-victimization were measured on five-point scales, ranging from *Never* (1) to *11 or more* (5), reflecting the frequency in performing cyber-bullying behavior or suffering from cyber-victimization.

DATA ANALYSIS AND RESULTS

Descriptive Statistics

Our respondents consisted of 100 males (34.7%) and 188 females (65.3%). Over 94% of them were aged between 18 and 25. Among the five types of cyber-bullying behavior, "deliberately ignoring or excluding someone from an online activity" was the one most frequently perpetrated by respondents (80.7%), whereas the greatest proportion of the respondents (63.0%) reported that they had been victims of the behavior "disseminating private information/messages or posting images/videos without permission". Table 1 shows the details.

Consistent with prior research on bullying and cyber-bullying, our results show that half of the respondents were both bullies and victims in the cyberspace, with 59.4% having engaged in cyber-bullying behavior and 69.4% have been cyber-victims.

Assessment of Measurement and Structural Models

The Partial Least Squares (PLS, as implemented in SmartPLS 2.0.M3) was employed to assess both the measurement model and the structural model (Hair, Anderson, Tatham, & Black, 1998).

Measurement Model

All the constructs, except *cyber-victimization experience* and *cyber-bullying*, are modeled as reflective ones. We will first present the validation of the two formative constructs and then assess the reliability and validity of the reflective constructs.

Validation of Formative Constructs. We assessed the validity of *cyber-victimization experience* and *cyber-bullying* in accordance with established guidelines (Cenfetelli & Bassellier, 2009; Petter, Straub, & Rai, 2008). First, we tested multi-collinearity among the indicators by computing the Variance Inflation Factor (VIF) of each indicator. The results show that all the VIFs ranged from 1.089 to 1.276 for *cyber-victimization experience* and 1.075 to 1.194 for *cyber-bullying*, both below the 3.33 and thus indicating the absence of multi-collinearity.

Second, we assessed the weight of the indicators and found that the weights of all paths (i.e., the relative contribution) towards cyber-victimization (except that of *spreading rumors*) are significant (see Table 2). For cyber-bullying, the weights of all the indicators are significant. Although one indicator (*spreading rumors*) has a relatively small contribution to constructs, its absolute contribution (i.e., zero-order bivariate loadings) is quite strong (at 0.551). Since we want to explore the potential relationship between the likelihood of performing cyber-bullying and the different types of cyber-victimization experience, we decide to keep both indicators in our study, in accordance with the suggestion of Cenfetelli and Bassellier (2009).

Types of Cyber-bullying Behavior	Cyber Victims (%)	Cyber Bullies (%)
Send threatening, harassing, humiliating, insulting and teasing messages, images or videos	122 (61.0)	23 (13.5)
Disseminate private information/messages or post images/videos without permission	126 (63.0)	71 (41.5)
Spread rumors or gossips	41 (20.5)	20 (11.7)
Deliberately ignore or exclude from an online activity	86 (43.0)	138 (80.7)
Pretend to be someone to send or post messages in someone's name	34 (17.0)	21 (12.3)

Table 1: Number and Percentage of Respondents Reporting Cyber-Bullying Victimization/Behavior

Formative Items	Cyber Victimization			Cyber Bullying		
	T-statistic	Weight	Loading	T-statistic	Weight	Loading
Send threatening, harassing, humiliating, insulting and teasing messages, images or videos	3.140***	0.271	0.603	4.938***	0.398	0.672
Disseminate private information/messages or post images/videos without permission	3.362***	0.457	0.744	3.031***	0.273	0.632
Spread rumors or gossips	1.240	0.176	0.551	4.478***	0.330	0.550
Deliberately ignore or exclude from an online activity	3.997***	0.455	0.734	4.207***	0.271	0.639
Pretend to be someone to send or post messages in someone's name	1.728*	0.174	0.388	4.046***	0.254	0.464

Note: * $p < 0.100$, ** $p < 0.050$, *** $p < 0.010$,

Table 2: T-value, item weights and loadings of Formative Measures

Validation of Reflective Constructs. Individual item reliability was examined by the loadings of measures with their corresponding construct (see Table 3). All of the loadings (except one) exceed 0.7, indicating good item reliability.

In addition, internal consistency was assessed by examining composite reliability and Cronbach's alpha. The benchmark for acceptable reliability is 0.7. The reliability of all constructs meet the criterion (> 0.7) (see Table 4), indicating that the measures have good internal consistency.

Further, the square root of AVE of every construct in the measurement model was found to be greater than the correlations of the construct with other constructs (see Table 4). There is no item load higher on a construct than on the one it intends to measure (shown in Table 3). The measurements thus provide strong evidence of convergent validity and discriminate validity.

	Perceived Online Disinhibition	Self-control	Subjective Norm	Motivating Desires
Perceived Online Disinhibition 1	0.835	-0.063	-0.131	0.185
Perceived Online Disinhibition 2	0.808	-0.080	-0.148	0.156
Perceived Online Disinhibition 3	0.787	-0.069	-0.195	0.217
Perceived Online Disinhibition 4	0.725	-0.108	-0.131	0.102
Perceived Online Disinhibition 5	0.781	-0.095	-0.211	0.120
Self-control 1	-0.035	0.772	0.078	-0.199
Self-control 2	-0.030	0.751	0.026	-0.142
Self-control 3	-0.135	0.727	0.259	-0.223
Self-control 4	-0.104	0.676	0.106	-0.123
Subjective Norm 1	-0.172	0.175	0.911	-0.309
Subjective Norm 2	-0.189	0.211	0.927	-0.261
Subjective Norm 3	-0.188	0.108	0.790	-0.233
Motivating Desires 1	0.192	-0.231	-0.292	0.979
Motivating Desires 2	0.199	-0.208	-0.275	0.971
Motivating Desires 3	0.172	-0.222	-0.324	0.938
Motivating Desires 4	0.217	-0.223	-0.286	0.958

Table 3: Loading and Cross Loading of Measures

	Composite Reliability	Cronbach's Alpha	Average Variance Extracted	POD	SC	SN	MD
Perceived Online Disinhibition (POD)	0.891	0.848	0.621	0.386			
Self-control (SC)	0.855	0.788	0.542	-0.103	0.294		
Subjective Norm (SN)	0.910	0.850	0.771	-0.207	0.192	0.595	
Motivating Desires (MD)	0.980	0.973	0.925	0.203	-0.230	-0.306	0.856

Note: Bolded diagonal elements are the square root of AVE for each construct.
Off-diagonal elements are the correlations between constructs

Table 4: Internal Consistency and Discriminant Validity of Constructs

Structural Model

In testing the hypothesized effects, two second order constructs (i.e., impellance and inhibition) are created, aggregating the measurement items of their respective first-order constructs.

Results of Direct Effects: The results of data analysis show that both *cyber-victimization experience* ($\beta = 0.397$; $p < 0.001$) and *impellance* ($\beta = 0.479$; $p < 0.001$) have significant positive effect on the likelihood of performing cyber-bullying. However, *inhibition* is not significant. In addition, all the *impellance* and *inhibition* are statistically significant: *perceived online disinhibition* ($\beta = 0.598$; $p < 0.001$), *motivating desires* ($\beta = 0.906$; $p < 0.001$), *self-control* ($\beta = 0.816$; $p < 0.001$), and *subjective norm* ($\beta = 0.726$; $p < 0.001$). The results of the structural model from PLS, including path coefficients, explained variances, and significance levels, are illustrated in Figure 2.

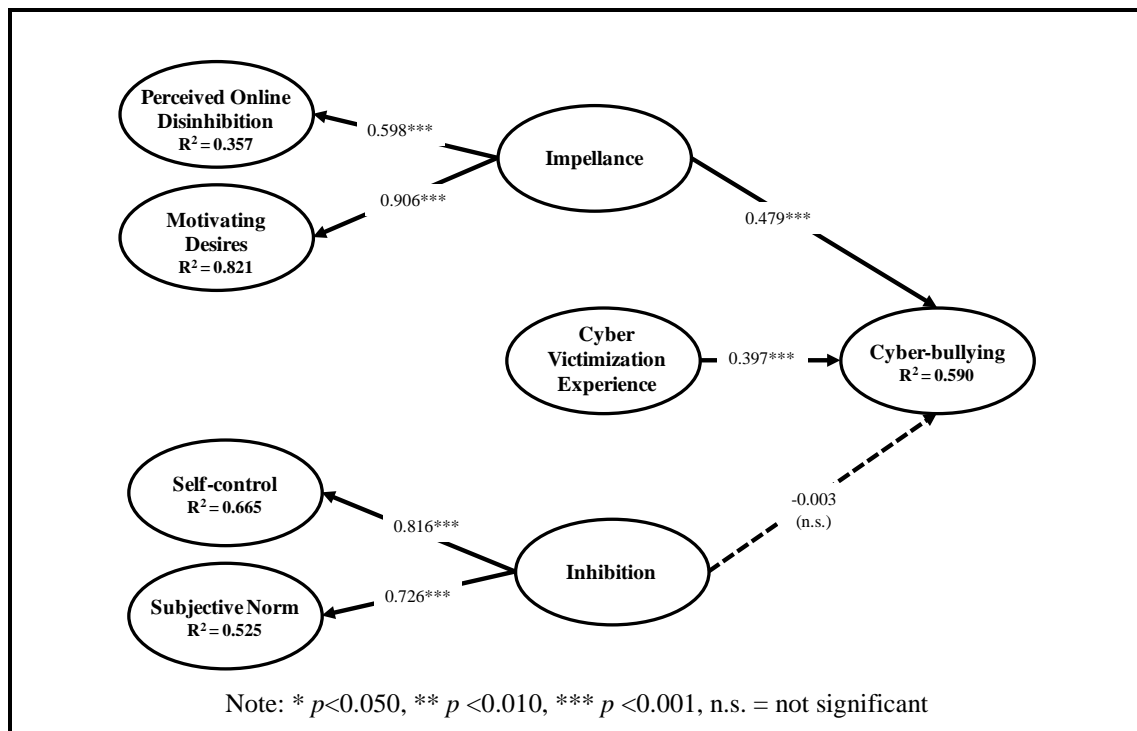


Figure 2: Result of the research model

Results of Moderating Effects: Three separate tests were run to assess the moderating effect of *Impellance* and *Inhibition* on the relationship between *cyber victimization experience* and cyber-bullying (see Table 5). Results showed that, when impellance and inhibition were added to the model as moderators separately, *impellance* ($\beta = 0.342$; $p < 0.001$) exerts significant positive moderating effect, whereas *inhibition* ($\beta = -0.372$; $p < 0.001$) negatively moderates the relationship between *cyber victimization experience* and *cyber-bullying*. When both *impellance* and *inhibition* are included as moderators (i.e., the full model), only *impellance* has significant moderating effect. Moreover, the inclusion of the moderating effect causes a notable increase in R squared, which can improve the variance explained for cyber-bullying.

	Standardized Beta		
	Full Model	Impellance only Model	Inhibition Only
Cyber Victimization Experience	0.142*	0.174***	0.362***
Impellance	0.448***	0.451***	
Inhibition	-0.025		-0.135***
Perceived Online Disinhibition	0.6***	0.6***	
Motivating Desires	0.905***	0.905***	
Self-control	0.816***		0.817***
Subjective Norm	0.724***		0.723***
CVE x Impellance	0.243**	0.342***	
CVE x Inhibition	-0.14		-0.372***
R ²	0.648	0.643	0.498

Table 5: Interaction Model

DISCUSSION AND CONCLUSION

In this study, we empirically investigate the driving/suppressing forces affecting cyber-bullying behavior from the perspective of the I³ Theory. The results of the study demonstrate *perceived online disinhibition* and *motivating desires* as important impellers whereas *perceived self-control* and *subjective norm* as significant inhibitors. This study provides strong evidence that in addition to having direct impact on likelihood of cyber-bullying, impelling/inhibition forces strengthen/mitigate individuals' urges to engage in cyber-bully behavior, when they are instigated by their prior experience as victims of cyber-bullying. The results are consistent with Finkel's study (2012), and can further enhance the understanding of the factors determining cyber-bullying behavior. Practitioners can also take active role in enhancing inhibiting forces and diminishing the impellance forces of cyber-bullying through education as well as the establishment of relevant policies and regulations.

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