

---

# TOWARDS UNDERSTANDING THE PERSONAL AND SITUATIONAL FACTORS OF CYBER AGGRESSION: A THEORETICAL REVIEW

**Sarina Yusuf**

Universiti Pendidikan Sultan Idris, Malaysia  
sarinayusuf@fbk.upsi.edu.my

**Muhamad Shamsul Ibrahim**

Universiti Malaya, Malaysia  
mshamsul@um.edu.my

**Stephanie Ann Victor**

Universiti Pendidikan Sultan Idris, Malaysia  
stephylaura13@gmail.com

**Muhammad Zaiamri Zainal Abidin**

Universiti Malaya, Malaysia  
zaiamrizainal@um.edu.my

---

## ABSTRACT

The act of aggression through computer-mediated communication is often coined as cyber aggression. The media reports attracted social scientists to study the phenomenon. Unfortunately, local research is limited; therefore, many policies and practices are being developed and implemented without a solid research foundation. A study is conducted to understand the factors that lead to cyber aggression among youths in Malaysia. The study proposed a contemporary general aggression model as the underpinning theory and the media system dependency for this study. The model explains the situational and aggression factors between parents and peer influences, youth's personality traits, internet exposure and cyber aggression. The proposed model also indicates the essential decision-making process and the possible outcomes (cognitive, affective, behavioural) when a person is exposed to an aggressive situation.

**Keywords:** *computer-mediated-communication, cyber aggression, general aggression model, youth*

## INTRODUCTION

The study on the impact of new media is full of challenges and obstacles, as dealing with human behaviour related to the use of technology is something that is continuously changing

over time. Undeniably, the usage of the internet and other related technologies have never been without any consequences. A new form of abusing someone through computer-mediated communication (CMC), commonly referred to as cyber aggression, has become a new growing problem in today's society; it offers convenient opportunities to humiliate, bully, or harass another person online. In the beginning, this term is widely known as cyberbullying to conveniently label abusive behaviour perpetrated through the use of mobile telephones and computers with Internet access. In other words, it refers to addressing aggressive behaviours online. However, the term is debatable whether to use aggressive behaviours online as cyber aggression, which includes a broader definition or cyberbullying, which is specific in nature. This is due to past research indicating strong evidence of overlap in knowledge between traditional bullying and cyberbullying in relation to prevention and intervention efforts (Corcoran, Mc Guckin, & Prentice, 2015).

This phenomenon becomes insidious when the behaviour develops into a form of psychological cruelty and to the extent involving the loss of someone life (Hinduja & Patchin, 2011). In the study of human aggression through computer-mediated communication, the biggest challenge is determining the concept, labels and definition of the behaviour in order to understand its prevalence and how to prevent the consequences (Tokunaga, 2010; Berne et al., 2013). A better approach to defining and measuring cyber-based aggressive behaviour would support better intervention and prevention efforts intended to reduce the incidence of such harmful behaviours.

Existing definitions of cyberbullying often incorporate the criteria of traditional bullying, such as intent to harm, repetition, and imbalance of power. This is because past research has provided a wealth of evidence that there is an overlap between traditional bullying and cyberbullying (Olweus, 2012). However, due to the unique nature of cyber-based communication, it can be difficult to identify such criteria in relation to cyber-based abuse. In this way, it becomes evident that the traditional bullying definitional criteria do not provide an easy match to the cyber context. The debate to determine an accurate definition of cyberbullying is delineated from the behaviours and actions that can be classified as cyberbullying. There are crucial inclusion and exclusion criteria to limit the definitional stance and to conclude the behaviour as cyberbullying or cyber aggression. Unlike cyber aggression, cyberbullying is underpinned by four important core that is repetition, power imbalance, intention, and aggression (Langos, 2012). While cyber aggression includes a broader concept and emphasis on the person intention. Therefore, cyberaggression refers to any actions carried out using information and communication technologies that are intended to cause harm to a target person or people and that they desire to avert (Langos, 2012; Pyżzalski, 2013).

In the 1990s, several scholars attempted to establish a theoretical framework that would integrate existing theories of violence into a single whole (Kristensen et al., 2003). Thus, Anderson and Bushman (2002 ) proposed the general aggression model to combine the latest aggression theories, such as the theory of cognitive neo-association (Berkowitz, 1989), the theory of social learning (Bandura, 1983; Mischel & Shoda, 1995), script theory (Huesmann, 1998), the theory of excitation transfer (Zillman, 1983) and the theory of social interaction (Tedeschi & Felson, 1994). Each of these hypotheses provides useful insight into the particular reasons why individuals act aggressively. These ideas, however, do not have an overarching basis for understanding human violence. The general aggression model is a more parsimonious aggression model in this sense than other theories that describe this phenomenon, and it provides ways to minimise aggressive actions (DeWall et al., 2011).

The general aggression model presents a mechanism for explaining why individuals behave aggressively. It defines an individual, known as an episode, consisting of one period of ongoing social activity in the situation. This episode is characterised by three levels: (i) inputs from individuals and situations; (ii) affective, cognitive, and arousal mechanisms by which these input variables have their impact; and (iii) outcomes of the underlying processes of assessment and judgement. Personal factors involve all the attributes, such as personality traits, gender and psychological states, that an individual brings to the circumstance. They deal with situational variables and some major characteristics of the circumstance, such as the occurrence of aggression or an offensive indicator of an internal state that affects behaviour. The internal condition is a mixture of cognitions (e.g., negative feelings, offensive scripts), influence (anger, general adverse effect) and arousal (physiological and psychological arousal) that impair judgments and decision-making mechanisms that may or may not contribute to an aggressive reaction.

## **THE GENERAL AGGRESSION MODEL**

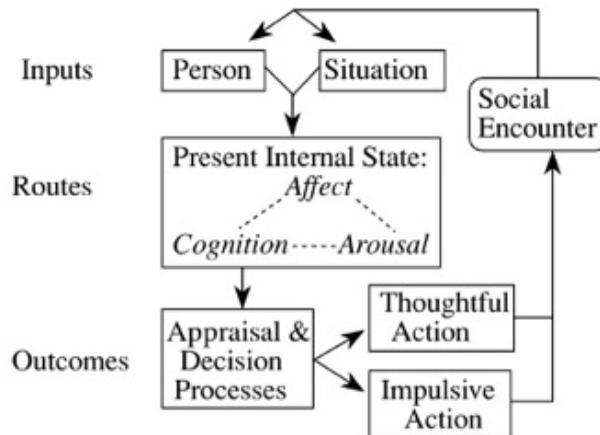
A theoretical basis is important to uncover both influential factors involved in a cyber-aggression incident and to design evaluation initiatives and interventions which effectively target personal and environmental factors involved in the victimisation and perpetration of cyber-aggression. The cyber aggression literature to date has little firm theoretical base, as stated in earlier studies (e.g. Slonje, Smith & Frisé, 2012). This model offers an integral structure integrating domain-specific hypotheses of violence (Anderson & Bushman, 2002; see Figure 1), used in historical studies on violent actions (e.g., Gullone & Robertson, 2008; Vannucci et al . , 2012). The general aggression model is included in this debate to describe reasons relevant to both victimisation and committing, since victims and offenders are frequently the same individual in cases of cyber attack (e.g. attack /victim). The general aggression model relies heavily on cognitive information systems ( i.e., scripts and schemes) and focuses on three priority areas: personal and contextual inputs; cognitive, affective and thrilling routes which influence the current internal state and assessment and decision-making processes leading to actions of the results (Anderson & Bushman, 2002).

## **Knowledge Structures**

Knowledge structures consist of associated information that has been stored in semantic memory. These structures encompass the scripts and schemas one depends on to understand and behaviourally navigate through daily situations. In an overarching sense, knowledge structures can be considered the personality characteristics that an individual brings to any given social situation (Anderson & Bushman, 2002). In a cyber aggression context, the parties involved have a number of different knowledge structures. Specifically, victims, perpetrators, and bystanders enter cyber aggression situations with varying backgrounds, experiences, attitudes, desires, personalities, and motives that intersect to determine the course of the interaction. These knowledge structures define the individual input variable of personality and help to determine situations toward which individuals will be drawn.

**Inputs**

Initially, the general aggression model focuses upon factors associated with the individual and the situation that influence aggressive behaviour. Person factors include personality traits, attitudes, motives, gender, beliefs, values, long-term goals, behavioural scripts, and any other consistent characteristics the individual brings to the situation. Situational factors, on the other hand, are characteristics of the environment and include, but are not limited to, aggressive cues, provocation, frustration, drugs and incentives. Situational factors also include the degree to which the social situation restricts or offers an opportunity to act aggressively. Each of the mentioned factors influences an individual’s cognition, affect, and level of arousal, predisposing to aggressive behaviour (Anderson & Bushman, 2002). In regard to cyber aggression, the technological media through which such actions are perpetrated present numerous situational factors that differ from traditional aggression and are essential to consider. Person and situational factors theorised to be inputs in the perpetration and/or victimisation of the General Aggression Model process for cyber aggression are described below (see Figure 1).



**Figure 1: General Aggression Model (Anderson & Bushman, 2002)**

**Person Factor 1: Gender**

Research on traditional aggression has consistently shown that boys engage in aggression to a greater degree than girls (Olweus & Limber, 2010), and the aggression is more often of a direct nature. Cyberbullying is a form of indirect aggression, which might lead one to conclude that girls would be more likely than boys to experience cyber aggression as both victims and perpetrators. Although some research supports this hypothesis (e.g., Kowalski & Limber, 2007), other research has found no statistically significant difference between girls and boys in rates of cyber aggression perpetration or victimization (e.g., Hinduja & Patchin, 2008; Slonje & Smith, 2008; P. K. Smith et al., 2008; Ybarra & Mitchell, 2004a). Still, other research finds that boys are more likely than girls to perpetrate cyber aggression, but there is no gender difference in victimization rates between males and females (Li, 2006). Other studies have found that boys are more likely than girls to perpetrate cyber aggression, but girls are more likely to be the targets of cyber aggression (Sourander et al., 2010). One final group of investigators suggests that gender differences depend on the venue by which

the cyber aggression is occurring; for example, girls seem to be targeted via e-mail more frequently than boys (Hinduja & Patchin, 2008), whereas boys are aggressed through text messaging more often than girls (Slonje&Smith, 2008; see also Juvonen&Gross, 2008; P. K. Smith et al., 2008).

### ***Person Factor 2: Personality Traits***

Studies have linked low self-esteem to the high victimisation of cyber aggression (Thomaes et al., 2008; You, Lee & Kim, 2015). According to Barry et al. (2007), youth with low self-esteem and high narcissistic personality reported engaging in more cyber aggression behaviour compare to those with high self-esteem. This relationship between particular personality traits and aggressive behaviour is also being explained in the theory of threatened egoism; the theory proposed that narcissism directly contribute to aggression and may be a defence mechanism to protect fragile self-esteem (Bushman and Baumeister, 1998). Furthermore, narcissism has been linked to both traditional aggressive and cyber aggression perpetration (Ang, Tan, & Mansor, 2011; Fanti, Demetriou, & Hawa, 2012). On the cyber aggression victimization side, several personality variables have been identified as possible predictors.

### ***Person Factor 3: Media Exposure***

Another personal factor that will be applied in this study is technology use. This variable is being identified in the current study as the media exposure. Studies using the general aggression model have shown that this model is well suited to explain the effects of media exposure on aggressive behaviour (Adachi and Willoughby, 2011; Anderson and Bushman, 2001). Early theorist such as social cognitive and the social learning have also focused on youth changing behaviour after they have frequently been exposed to the violent media content (Ko et al., 2009). For example, it has repeatedly been reported that violent video games will increase the level of aggression compared playing normal video games (Hollingdale and Greitemeyer, 2014). Based on previous studies, engagement with human opponents may strengthen gaming experiences and therefore, in accordance with the general aggression model, heighten their effects on players' thoughts, feelings and behaviour. Sherry (2001) identified that video games that portray human violence were associated with increases in levels of aggression, potentially due to higher rates of action, and subsequent heightened nonspecific arousal. More specifically, increases in the experience of perceived difficulty, enjoyment and action have yielded significant game effects on aggressive thoughts (Anderson et al., 2004). Nowadays, however, the rapid development of new technologies has turned the media from passive viewed to more interactive and active participation of the users, as in online games and social networking, for example (Soh, 2010). Thus, it is imperatives for the current study to explore the roles of media exposure towards cyber aggression as this behaviour has been identified to be more horrific compared to the conventional aggression.

### ***Situational Factor 1: Peer's Support***

This study will apply peers support and parental involvement variables from the situational factors of the general aggression model to explain the cyber aggression among youth. Perceived support from peers and others may reduce aggressive behaviours, as Fanti et al. (2012) found that ratings of social support from friends were associated with a decreased

likelihood of engaging in cyber aggression and sex-based bullying (Ybarra et al., 2007). Hence, these variable plays a buffering role on the victimisation side, as several studies have found that perceptions of support from peers are negatively related to reports of cyber victimisation (Ubertini, 2011). Perceived support from peers and others may be negatively associated with cyber aggression perpetration and victimisation. Fanti et al. (2012) found that ratings of social support from friends were associated with a decreased likelihood of engaging in cyber aggression (see also Calvete, Orue, Estévez, Villardón, & Padilla, 2010). Support may also play a buffering role on the victimisation side, as several studies have found that perceptions of support from peers are negatively related to reports of cybervictimisation (Ubertini, 2011; Williams & Guerra, 2007).

### **Situational Factor 2: Parental involvement**

The second variable of situational factors is parental involvement; compared to those not involved in online harassment, youth who engaged in cyber aggression reported weaker emotional bonds with their parents, less frequent parental monitoring of online activities and more frequent discipline by their parents (Ybarra & Mitchell, 2004a). Compared to those not involved in Internet harassment, people who engaged in Internet harassment reported weaker emotional bonds with their parents (defined as how well they get along, caregiver trust, discussing problems with the caregiver when they are sad or in trouble, and frequency of having fun together), more frequent discipline by their parents, and less frequent parental monitoring of online activities (Ybarra & Mitchell, 2004a). Similar findings were reported by Wang et al. (2009), who found an inverse relationship between levels of parental support and involvement in cyber aggression as a perpetrator. Conversely, the prospect of punishment from parents acts as a deterrent to cyber aggression perpetration (Hinduja & Patchin, 2013). On the cybervictimisation side, researchers have identified a negative relationship between parental control of technology and cybervictimisation (Aoyama, Utsumi, & Hasegawa, 2012). Additionally, others have found that parental discussions about online behaviour and knowledge of the general whereabouts of their children are associated with less frequent cybervictimisation (Taiariol, 2010; Wade & Beran, 2011)

### **Proximal Processes**

As stated by Anderson and Bushman (2002), *“Results from the inputs enter into the appraisal and decision processes through their effects on cognition, affect, and arousal.”* These processes can be either short-term (i.e., proximal) or long-term (i.e., distal). The proximal processes stage in the general aggression model focuses on appraisal and decision-making processes within a cyber aggression situation and differs from the long-term negative outcomes researchers typically think of when the word outcome is used (e.g., depression, anxiety, behavioural problems). These longer-term negative behavioural and psychological outcomes may occur if an individual is exposed to cyber aggression repeatedly encounters as a victim or perpetrator. The proximal processes included here consist of appraisal and decision-making processes, both automatic and controlled, that influence behavioural decisions. After undergoing an appraisal process, individuals engage in either thoughtful or impulsive responses. For instance, if a cyber-aggressive encounter is perceived as stressful on the basis of the internal state of the victim, and an individual does not have sufficient resources (cognitive, emotional, or otherwise) to deal with the situation, he or she may then engage in an impulsive (i.e.,

automatic) response to the situation, such as sending a cyber aggression message back to the perpetrator. If, on the other hand, the individual feels there are sufficient resources available, he or she may give a more thoughtful (i.e., controlled) behavioural response. That is, it may help explain why some individuals do nothing or call for help when a person cyber aggressors them, whereas others respond by engaging in cyber aggression in response to victimisation. The same appraisal and decision-making stages also apply to the cyber aggression perpetration general aggression model. Noteworthy, the original general aggression model posited by Anderson and Bushman (2002) does not consider more introspective actions and ways of coping with the situation, as well as more distal outcomes of the cyber aggression encounter. Obtaining a broader understanding of the appraisal process may provide insight into additional outcomes that may be associated with a cyber aggression encounter.

### **Distal Outcomes**

The experience of traditional aggressive and cyber aggression is associated with some negative outcomes for victims and perpetrators in regard to psychological and physical health, social functioning, and behaviour. Studies have linked cyber aggression involvement as victim and/or perpetrator to tobacco, alcohol, and drug use (Ybarra & Mitchell, 2004a); mental health symptomatology of anxiety and depression (Didden et al., 2009; Perren, Dooley, Shaw, & Cross, 2010; Ybarra & Mitchell, 2004a); decreased self-esteem and self-worth (Didden et al., 2009); low self-control (Vazsonyi, Machackova, Ševčíková, Šmahel, & Cerna, 2012); suicidal ideation (Hinduja & Patchin, 2010; Schenk & Fremouw, 2012); poor physical health (Kowalski & Limber, 2013); increased likelihood of self-injury (Kessel Schneider et al., 2012); and loneliness (Sahin, 2012). Finally, the effect of the internal states influences outcomes as the last stage of the general aggression model framework, which is identified as appraisals and decision processes (Anderson & Bushman, 2002). Depending on how these internal states are affected, appraisals of the situation may induce a decision process resulting in aggressive behaviour. Based on these arguments, youth who have low self-esteem, lack of support from parents and peers, and exposure to problematic media content will be addicted to the internet severely, and this behaviour, according to scholars, will lead to various online consequences including pornography, and cyber-based abuse activities including stalking, bullying and solicitation (Byrne et al., 2014; Jean Katz et al., 2014; Park et al., 2014; Soh, 2010). Nevertheless, there is no report focusing on the association between Internet addiction and cyber aggression among youth, especially those who live in the urban area.

## **INTEGRATING MEDIA SYSTEM DEPENDENCY AS THE MEDIATING THEORY**

### **Media System Dependency Theory**

In the context of new media studies, few theories have been used to explain the impacts of the internet on users, among which is consistently applied are the uses and gratification theory (U&G) and media system dependency (MSD). The media dependency theory has also been explored as an extension to the uses and gratifications approach to media, though there is a subtle difference between the two theories. Media dependency theory focuses on audiences' goals for media consumption as the source of their dependency, while uses and gratification theory focuses on the audience's needs as drivers for media consumption (Grant et al., 1998). However, the U&G is widely used to investigate the positive effects of media, compared to

the media system dependency that mostly examines the negative effects of media towards the users. Still, both theories agree that media use can lead to media dependency (Rubin, 1982).

The Media System Dependency theory is developed by Ball-Rokeach and Melvin (1967). This theory combines the interaction of the social system, media system and individual changes that form the full effects of too much media dependency. Figure 2 represents the framework of the Media System Dependency Theory. This theory consists of two independent systems which influence the audiences' degree of dependency (high or low) on specific media. The degree of dependency varies due to the interacting two systems, the social system and media system, which will later produce three types of outcomes; cognitive, affective and behavioural changes in the audience.

According to Ball-Rokeach (1985), there are two levels of media dependency, i.e., structural dependency and individual media system dependency. Structural dependency in macroscopic views deals with the relationship among the media system, economic system, political system and other societal systems. In contrast, individual media system dependency is microscopic and focuses on the relationship between personal goals and media resources. This study focuses on both levels of media dependency as internet addiction outcomes may result from various changes in several systems (social, media and personality). However, the current study will focus on the media system alone as the other factors are already being discussed at the person and situational factors in the general aggression model framework. As to date, there is no current study that integrated these two theories into a single framework to identify the factors and outcomes of cyber aggression. This study is presenting the media exposure predictor as the independent variable for cyber aggression and internet addiction as the mediator by borrowing the Media System Dependency lens. In other words, the Media System Dependency theory acts as the mediating component for the general aggression model framework in order to elucidate the cyber aggression phenomenon.

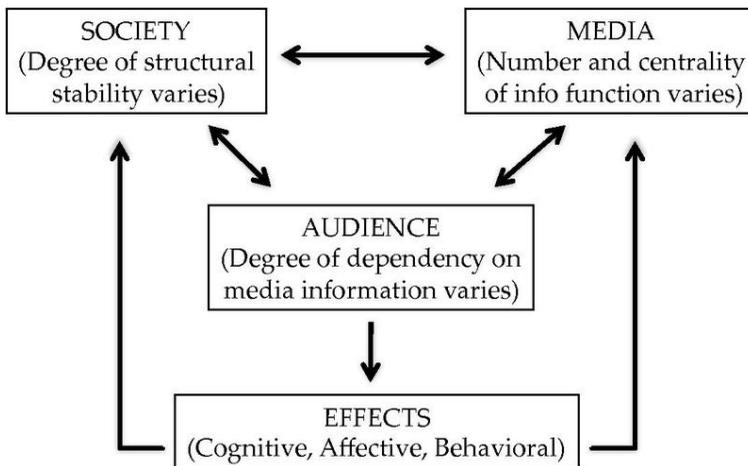


Figure 2: Media System Dependency (Ball-Rokeach and Defleur, 1976)

## **Media System**

According to Foster (2004), the media system is a network that provides the individual with one-way information through three resources. The first resource is information gathering, the second resource is information processing, and the final resource are information dissemination. The Youth's ability to manipulate lots of information from the Internet, such as news, current issues, entertainment and other sources, will then process as a new source of information. Then, in the later stage, they will disseminate the selected information through multiple social media channels (e.g., tweeting, face booking or chatting) which are extensively offered in cyberspace. By depending on these media, it is being postulated by den Hamer and Konijn (2015) that youth will create an antisocial behaviour that may harm themselves and others if the behaviour is uncontrolled. In this case, it is the aggressive cyber behaviour.

This study employs the Internet as its media format, which is categorised as online media, to examine the determining factor, media system. The most commonly discussed online media nowadays is social media. Here, the social media of social networking sites (SNS) such as Facebook and Twitter are selected as the medium in determining internet addiction. Of the hundreds of SNS available on the Internet, Facebook has become the number one social networking site in Malaysia, with over 5.1 million Facebook users (as of March 1, 2010) in Malaysia and over 6.2 million unique visitors per month (MCMC, 2011). In addition, the number of unique worldwide visitors to Twitter catapulted from 19 million in March 2009 to 32 million in April 2009 each day, with updates generating roughly around 18 million (Alexa and Google Ad Planner, 2012). Therefore, these SNS are being studied due to their high frequency of use among Malaysian probably in enhancing their social networking skill. According to Kwan and Scoric (2013), the intensity of Facebook use and engagement in risky Facebook behaviours were related to cyber aggression.

## **Audience**

According to Byun et al. (2009), the internet addiction is similar to the addiction towards conventional mass media such as television but potentially more serious (McIlwraith, 1998; Kubey and Csikszentmihalyi, 2002). While television usually being occupied at home, for instance, access to the internet, however can be engaged anywhere as long as it has appropriate tools (e.g. the internet connection, ICT devices). With the rapid development of information communication technology (ICT) and the popularity of the Internet, the addiction towards the internet among youth is becoming more critical. It affects various aspects of youth's well-being, including psychological and emotional (Wang and Li, 2012). Kapahi, Choo, Ramadass, and Nibras (2013) opined that internet addiction might surface as a crucial problem in Malaysia, particularly among the younger generation of youth. Although there are numerous variables linked to the internet addiction, few studies have found the internet addiction is a mediating factor that affects cyber-based abuse behaviours among youth. For instance, a study conducted through path analysis has found that the personality trait predicts cyberbullying directly. However, the link becomes significant with the presence of internet addiction as the mediating factor (Eksi, 2013). Additionally, several studies suggested that this mediator factor also significantly influences the relationships between parents and peers attachment and risky online behaviours (Soh, 2010) as well as exposure to harmful media content and cyberbullying (den Hamer and Konijn, 2015).

### **Effect (Behavioural)**

Although numerous studies have been conducted to explain the intensity of Internet usage or the effects of the new media, few studies have applied this theory as a framework to examine how the Internet has become a necessity in people lives, especially among youth. Therefore, it can be concluded that the more youths are addicted to the Internet, the more exposed they are to being aggressed online. Consistent with this theoretical framework, a few studies have demonstrated that positive associations with internet addiction also emerged as a significant factor on alcohol use (Yen et al., 2009) and drug abuse (Nemati and Metlabi, 2017). Thereby, the current study is an attempt to integrate the Media System Dependency as the mediating factor theory between all the proposed predictor factors, internet addiction and cyber aggression among youth in a modified general aggression model theoretical framework.

### **CONCLUSION**

The general aggression model is used to understand human aggressive behaviour to harm the target, but the target refuses to engage in such behaviour. The result of aggression can be seen via social, cognitive, personality, developmental, and biological. The Media System Dependency Theory is a systematic approach used to study the effects of mass media on audiences and the interactions between media, audiences, and social systems. The greater the audience's dependency on the media, the greater the effect will be on users cognitive, affective and behavioural. The irony of both theories indicates different purposes, yet the outcome for both theories is similar. Therefore, the theories can be combined to develop a model that can be used to understand cyber aggression occurrence. Hence, the combination of the general aggression model with the media dependency theory sheds light on understanding possible factors in the occurrences of cyber aggression.

In conclusion, based on the suggested theories, the occurrence of cyber aggression in this context depends on the input (personal and situation), as stated in the general aggression model. When a person is highly dependent and exposed to the cyber aggression situation either for the short or the long term, the input from media exposure will affect the person's thoughts (thoughts to hurt others), feelings (i.e. anger, stress, depression, vengeance, etc) and arousal levels (the mental and physiological reactions). The outcome on user cognitive, affective and behavioural also varies depending on how long the person is exposed to cyber aggression situations. In addition, the individual response, either thoughtful or impulsive action, is highly subject to user appraisal and decision-making process. For example, a person who received hateful comments for a certain period will assess the situation and make a decision based on the current situation. The appraisal and decision-making process will be influenced by his or her present internal state. If the hateful comments affect the person's present internal state, such as initiating negative thoughts, or/and hurt him or her feelings and make him or her feel angry or/and causing physiological reactions like rapid heartbeat, sweating, numbness, teeth grinding, etc, the person appraisal and decision towards the aggressive situation will be reflected on the outcomes (cognitive, affective and behavioural). When the person decides the situation needs to be escalated using impulsive action, he or she will engage in the negative situation by sending back an aggressive message to the perpetrator. However, if he or she finds the situation is not worth getting their attention, or their present internal state is not affected, a different decision will be made. Moreover, the decision will be reflected in the outcome as a thoughtful action. He or she shall not engage

in an aggressive situation. The person will avoid it. Hence, the proposed theories help to explain the process of the occurrence of cyber aggression.

Overall, the study believes that research endeavours delving into further understanding cyber aggression perpetration has both theoretical and practical implications. The first step toward reducing aggression and violence is understanding the underlying processes. Continuous research into the theoretical developments should help scholars better understand the media system dependency as a mediator to predict cyber aggression perpetration. The suggested concept is necessary to evaluate possible factors to internet users' aggressive demeanour. It is imperative to evaluate the effect of the media dependency on aggressive behaviour based on the general aggression model theoretical framework, as the theory has shown a holistic approach in explaining that aggressive behaviour begins with the combination of personality (e.g., trait hostility) and situational (e.g., violent media) input variables, and sometimes it happens interactively between each factor in order to influence the aggressive behaviour by manoeuvring the present internal state (i.e., cognition, affect, and arousal) and subsequent appraisal and decision processes which in turn may be linked to aggressive behaviour experiences. In the context of the current study, the applied theoretical framework could also shed light on the influence of the Internet as the new form of aggression by integrating the media system dependency theory into the general aggression model framework.

As far as the researcher is concerned, this study is the first work to understand youth behaviour by combining two lines of work, which is the impact of new media and psychological behaviour. Concisely, the theoretical framework was assessed, and favourable evidence was found. It may be concluded that the general aggression model is a useful framework for understanding the phenomenon of a new form of aggression that occurs in cyberspace. If future scholars choose to use the general aggression model and media system dependency theory, there are several possibilities for the general aggression model expansion. For instance, cyberbullying and traditional bullying differ in many ways—not just anonymity perceptions but will need empirical investigation.

## REFERENCES

- Adachi, P. J. C., & Willoughby, T. (2011). The effect of violent video games on aggression: Is it more than just the violence? *Aggression and Violent Behavior, 16*(1), 55-62. <http://dx.doi.org/10.1016/j.avb.2010.12.002>
- Anderson, C. A., & Bushman, B. J. (2002). Human aggression (The GAM theory). *Annual Review of Psychology, 53*(1), 27-51. <https://doi.org/10.1146/annurev.psych.53.100901.135231>
- Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology, 53*, 27-51. doi: 10.1146/annurev.psych.53.100901.135231
- Anderson, C. A., Berkowitz, L., Donnerstain, E., Huesmann, R. L., Johnson, J. D., & Linz, D. (2003). The influence of media violence on youth. *Psychological Science in the Public Interest, 4*(3), 81-110.
- Ang, R. P., Tan, K., & Mansor, T. A. (2011). Normative beliefs about aggression as a mediator of narcissistic exploitativeness and cyberbullying. *Journal of Interpersonal Violence, 26*, 2619-2634. doi:10.1177/0886260510388286

- Ball-Rokeach, S., & DeFleur, M. L. (1976). A dependency model of mass-media effects. *Communication Research*, 3(1), 3–21.
- Ball-Rokeach, S. J. 1985. The origins of individual media system dependency: a sociological framework. *Communication Research*, 12(4): 485-510.
- Bandura, A. (1986). *Social learning theory*. Englewood Cliffs: Prentice-Hall.
- Barry, C., Grafeman, S., Adler, K., & Pickard, J. (2007). The relations among narcissism, self-esteem, and delinquency in a sample of at-risk adolescents. *J. Adolesc.*, 30, 933–942. doi: 10.1016/j.adolescence.2006. 12.003
- Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A cognitive neoassociationistic analysis. *American Psychologists*, 45, 494-503.
- Berne, S., Frisén, A., Schultze-krumholz, A., Scheithauer, H., Naruskov, K., Luik, P., Katzer, C., Erentaite, R., & Zukauskienė, R. (2013). Aggression and violent behaviour cyberbullying assessment instruments: A systematic review. *Aggression and Violent Behaviour*. 18, 320-334.
- Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology*, 75, 219–229.
- Byrne, S., Jean Katz, S., Lee, T., Linz, D., & McIlrath, M. (2014). Peers, predators, and porn: Predicting parental underestimation of children’s risky online experiences. *Journal of Computer-Mediated Communication*, 19(2), 215-231.
- Byun, S., Ruffini, C., Mills, J. E., Douglas, A. C., Niang, M., Stepchenkova, S., Lee, S. K., Loutfi, J., Lee, J.-K., Atallah, M., & Blanton, M. (2009). Internet addiction: Metasynthesis of 1996-2006. Quantitative Research. *Cyberpsychology and Behaviour*, 12, 203-207.
- Calvete, E., Orue, I., Estevez, A., Villardon, L., & Padilla, P. (2010). Cyberbullying in adolescents: Modalities and aggressors’ profile. *Computers in Human Behaviour*, 26, 1128-1135.
- Corcoran, L., Mc Guckin, C., & Prentice, G. (2015). Cyberbullying or cyber aggression? A review of existing definitions of cyber-based peer-to-peer aggression. *Societies*, 5(2), 245-255.
- denHamer, A. H., & Konjin, E. A. (2015). Adolescents’ media exposure may increase their cyberbullying behaviour: A longitudinal study. *Journal of Adolescent Health*, 56(2), 203-208.
- DeWall, C. N., Anderson, C. A., & Bushman, B. J. (2011). The general aggression model: Theoretical extensions to violence. *L(3)*, 245–258.
- Didden, R., Scholte, R. H., Korzilius, H., De Moor, J. M., Vermeulen, A., O’Reilly, M., ... & Lancioni, G. E. (2009). Cyberbullying among students with intellectual and developmental disability in special education settings. *Developmental neurorehabilitation*, 12(3), 146-151.
- Eksi, F. (2012). Examination of narcissistic personality traits’ predicting level of Internet addiction and cyber bullying through path analysis. *Educational Sciences: Theory and Practice*, 12(3), 1694–1706.
- Fishkin, R. (2012, January 10). Testing the accuracy of visitor data from Alexa, compete, Google Trends, Doubleclick & Quantcast. Moz. Retrieved December 19, 2022, from <https://moz.com/blog/testing-accuracy-visitor-data-alexa-compete-google-trends-quantcast>
- Foster, B. (2004). *Understanding media system dependency in the information age: The digital ripple effect*. University of Missouri-Columbia.

- Fanti, K. A., Demetriou, A. G., & Hawa, V. V. (2012). A longitudinal study of cyberbullying: Examining risk and protective factors. *European Journal of Developmental Psychology, 9*(2), 168–181. doi:10.1080/17405629.2011.643169
- Grant, A. E., Zhu, Y., Van Tuyll, D., Teeter, J., Molleda, J. C., Mohammad, Y., & Bollinger, L. (1998). *Dependency and control*. Paper presented at the Annual Convention of the Association of Educators in Journalism and Mass Communications, Baltimore, Maryland.
- Gullone, E., & Robertson, N. (2008). The relationship between bullying and animal abuse behaviours in adolescents: The importance of witnessing animal abuse. *Journal of Applied Developmental Psychology, 29*, 371–379. doi: 10.1016/j.appdev.2008.06.004
- Hinduja, S., & Patchin, J. W. (2008). Cyberbullying: An exploratory analysis of factors related to offending and victimization. *Deviant Behaviour, 29*, 129–156.
- Hinduja, S., & Patchin, J. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research, 14*(3), 206-221.
- Hinduja, S., & Patchin, J. W. (2013). Social influences on cyberbullying behaviors among middle and high school students. *Journal of youth and adolescence, 42*(5), 711-722.
- Hollingdale, J., & Greitemeyer, T. (2014). The effect of online violent video games on levels of aggression. *PLoS ONE, 9*(11), 111–790.
- Huesmann, L. R. (1998). The role of social information processing and cognitive schema in the acquisition and maintenance of habitual aggressive behavior. *Human Aggression, 73*–109.
- Juvonen, J., & Gross, E. F. (2008). Extending the school experiences in cyberspace. *Journal of School Health, 78*(9), 496-505.
- Kapahi, A., Choo, S. L., Ramadass, S., & Nibras, A. (2013). Internet addiction in Malaysia: Causes and effects. *iBusiness, 5*, 72-76.
- Ko, C. H., Yen, J. Y., S. C., Huang, C. F., & Yen, C. F. (2009). The associations between aggressive behaviours and Internet addiction and online activities in adolescents. *J. Adolesc. Health, 44*(6), 598–605.
- Kowalski, R. M., Limber, S. P., & Agatston, P. W. (2008). *Cyber bullying: Bullying in the digital age*. London: Blackwell Publishing.
- Kowalski, R. M., & Limber, S. P. (2013). Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *Journal of adolescent health, 53*(1), S13-S20.
- Kristensen, C. H., Lima, J. S., Ferlin, M., Flores, R. Z., & Hackmann, P. H. (2003). Fatores etiológicos da agressão física: uma revisão teórica. *Estudos de Psicologia (Natal), 8*, 175-184.
- Kwan, G. C. E., & Skoric, M. M. (2013). Facebook bullying: An extension of battles in school. *Computers in human behavior, 29*(1), 16-25.
- Kubey, R., & Csikszentmihalyi, M. (2002). Television addiction. *Scientific American, 286*, 74–81.
- Langos, C. (2012). Cyberbullying: The challenge to define. *Cyberpsychology, behavior, and social networking, 15*(6), 285-289.
- Li Lei, Y., & M. A., Wu. (2007). Adolescents' paternal attachment and Internet use. *Cyberpsychology & Behavior, 10*, 633–639.
- McIlwraith, R. D. (1998). "I'm addicted to television": Personality, imagination, and TV watching patterns of self-identified TV addicts. *Journal of Broadcasting and Electronic Media, 42*, 371-386.

- MCMC. (2011). *Statistical brief number thirteen: household use of the internet survey*. Retrieved January 6, 2015 from [http://www.skmm.gov.my/skmmgovmy/media/General/pdf/Household-Use-of-The-Internet-Survey-2011\\_051212.pdf](http://www.skmm.gov.my/skmmgovmy/media/General/pdf/Household-Use-of-The-Internet-Survey-2011_051212.pdf)
- Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualising situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, *102*, 246–268.
- Modecki, K. L., Barber, B. L., & Vernon, L. (2013). Mapping developmental precursors of cyber-aggression: Trajectories of risk predict perpetration and victimization. *Journal of Youth and Adolescence*, *42*(5), 651–661.
- Nemati Z, & Matlabi H. (2017). Assessing behavioural patterns of Internet addiction and drug abuse among high school students. *Psychol Res Behav Manage.*, *25*, 39–45.
- Olweus, D., & Limber, S. P. (2010). Bullying in school: evaluation and dissemination of the Olweus Bullying Prevention Program. *American journal of Orthopsychiatry*, *80*(1), 124.
- Olweus, D. (2012). Cyberbullying: An overrated phenomenon? *European Journal of Developmental Psychology*, *9*(5), 520–538.
- Park, S., Na, E.-Y. & Kim, E. (2014). The relationship between online activities, netiquette and cyberbullying. *Children and Youth Services Review*, *42*, 74–81. doi. 10.1016/j.childyouth.2014.04.002
- Perren, S., J. Dooley, T. Shaw, & D. Cross (2010). Bullying in school and cyberspace: Associations with depressive symptoms in Swiss and Australian adolescents. *Child and Adolescent Psychiatry and Mental Health*, *4*(28), <https://doi.org/10.1186/1753-2000-4-28>
- Pyzzalski, J. (2013). From cyberbullying to electronic aggression: Typology of the phenomenon. In *Emotional and Behavioural Difficulties Associated with Bullying and Cyberbullying* (pp. 79–91). Routledge.
- Rubin, A. M., & Windahl, S. (1982). *Mass media uses and dependency: A social systems approach to uses and gratifications*. Paper presented to the meeting of the International Communication Association, Boston, MA.
- Şahin, M. (2012). The relationship between the cyberbullying/cybervictimization and loneliness among adolescents. *Children and Youth Services Review*, *34*(4), 834–837.
- Schenk, A. M., & Fremouw, W. J. (2012). Prevalence, psychological impact, and coping of cyberbully victims among college students. *Journal of school violence*, *11*(1), 21–37.
- Schneider, S. K., O'donnell, L., Stueve, A., & Coulter, R. W. (2012). Cyberbullying, school bullying, and psychological distress: A regional census of high school students. *American journal of public health*, *102*(1), 171–177.
- Sherry, J. L. (2001). The effects of violent video games on aggression: A meta-analysis. *Human Communication Research*, *27*, 409–431.
- Slonje, R., & Smith, P. K. (2008). Cyberbullying: Another main type of bullying?. *Scandinavian journal of psychology*, *49*(2), 147–154.
- Slonje, R., Smith, P. K., & Frisén, A. (2012). Processes of cyberbullying, and feelings of remorse by bullies: A pilot study. *European Journal of Developmental Psychology*, *9*(2), 244–259.
- Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., & Russell, S. (2008). Cyberbullying: Its nature and impact in secondary school students. *Journal of Child Psychology and Psychiatry*, *49*, 376–385.

- Soh, C., H. (2010). *Influence of parents and peers on Internet usage and addiction amongst school-going youths in Malaysia*. Multimedia University Malaysia. PhD dissertation.
- Sourander, A., Klomek, A. B., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M., ... & Helenius, H. (2010). Psychosocial risk factors associated with cyberbullying among adolescents: A population-based study. *Archives of general psychiatry*, 67(7), 720-728.
- Taiariol, J. (2010). *Cyberbullying: The role of family and school*. Wayne State University.
- Tedeschi, J. T., & Felson, R. B. (1994). *Violence, aggression, and coercive actions*. Washington, DC: American Psychological Association.
- Thomaes, S., Bushman, B. J., Stegge, H., & Olthof, T. (2008). Trumping shame by blasts of noise: Narcissism, self-esteem, shame, and aggression in young adolescents. *Child Development*, 79, 1792-1801.
- Tokunaga, R. S. (2010). Following you home from school: A critical review and synthesis of research on cyberbullying victimization. *Computers in Human Behaviour*, 26, 277-287.
- Ubertini, M. (2011). *Cyberbullying may reduce adolescent's well-being: Can life satisfaction and social support protect them?* Doctoral dissertation. Available from Dissertation Abstracts International
- Vannucci, M., Nocentini, A., Mazzoni, G., & Menesini, E. (2012). Re-calling unrepresented hostile words: False memories predictors of traditional and cyberbullying. *European Journal of Developmental Psychology*, 9, 182-194. doi:10.1080/17405629.2011.646459
- Vazsonyi, A. T., Machackova, H., Sevcikova, A., Smahel, D., & Cerna, A. (2012). Cyberbullying in context: Direct and indirect effects by low self-control across 25 European countries. *European Journal of Developmental Psychology*, 9, 210-227. doi: 10.1080/17405629.2011.644919
- Walden, L. M., & Beran, T. N. (2010). Attachment quality and bullying behaviour in school-aged youth. *Canadian Journal of School Psychology*, 25, 5-18.
- Wang, J., Iannotti, R. J., & Nansel, T. R. (2009). School bullying among adolescents in the united states: Physical, verbal, relational, and cyber. *Journal of Adolescent Health*, 45(4), 368-375. doi: 10.1016/j.jadohealth.2009.03.021
- Wang, J., & Li, M. (2012). Moderating and mediating effect of motives on the relation between online games playing and mental health in adolescents. *Psychological Exploration*, 32(3), 282-286.
- Williams, K. R., & Guerra, N. G. (2007). Prevalence and predictors of Internet bullying. *Journal of Adolescent Health*, 41, S14-S21. doi: 10.1016/j.jadohealth.2007.08.018
- Ybarra, M. L., & Mitchell, K. J. (2004a). Youth engaging in online harassment: Associations with caregiver-child relationships, Internet use, and personal characteristics. *Journal of Adolescence*, 27, 319-336.
- Ybarra, M. L., Diener-West, M., & Leaf, P. J. (2007). Examining the overlap in Internet harassment and school bullying: Implications for school intervention. *Journal of Adolescent Health*, 41, S42-S50.
- Yen, J.Y, Ko, C.H, Yen, C.F, Chen, C.S, & Chen CC. (2009). The association between harmful alcohol use and Internet addiction among college students: Comparison of personality. *Psychiatry Clin Neurosci.*, 63, 218-224.
- Zillmann, D. (1983). Arousal and aggression. In R. G., Geen & E., Donnerstein (Eds.), *Aggression: Theoretical and empirical reviews* (Vol. 1, pp. 75-102). New York: Academic Press.