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Relationship between Computer Gaming and Aggression of Criminology Students

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ABSTRACT

Playing computer games can be stress-relieving, but for Criminology students tasked to maintain peace and order in the future, too much exposure to computer games can become a source of aggression. This contention has led to this quantitative and descriptive-correlational research using a self-made survey questionnaire to gather data among the 175 Criminal Justice Education students enrolled for the school year 2018-2019 in the selected university in Bacolod City. The data gathering instrument was designed to measure the levels of computer gaming and aggression of the participants. Results showed that the levels of computer gaming and aggression of Criminology students are moderate. As a whole, the participants engaged in computer games moderately, but when grouped according to sex and year level, the females and second-year students played computer games at a low level. On the other hand, the male group; those in the first, third, and fourth-year levels; and those playing for more than six hours, likewise played violent games and engaged heavily in computer gaming. Moreover, the level of aggression of the participants when they are taken as a whole and when grouped according to variables is moderate. Finally, there is no significant relationship between computer gaming and aggression.

Keywords

Criminal Justice Education, correlational study, computer gaming, aggression, Bacolod City

INTRODUCTION

Playing computer games is a means of recreation to many people, but violence and aggression in these games have been a concern of parents and educators and media researchers. According to the Centre for Educational Neuroscience (2016), there is concern among parents, teachers, and society that children who play violent games, particularly for extended periods, might adopt violent behavior or even copy acts of violence experienced on the gameplay.

Asian countries and developed countries like the Czech Republic have been addressing problematic internet or computer use issues. According to the study of Eow et al. (2009), one student in one of the Malaysian secondary schools (75.8 percent) were

gamers. Meanwhile, the European School Survey Project dealt with secondary school students after recognizing a rapid increase in social media usage and involvement in online gaming, which may lead to unhealthy or health risk behaviors. Other predictors and determinants associated with excessive use of social media and excessive online gaming have also been investigated (Spilková et al., 2017).

In the selected university, the counselors have noted through the Problem Checklist Survey (2017) that college students spend more time playing computer games than studying. Recent cases of aggressive behavior of students are believed to be linked with addiction to computer games. Some teachers have also observed students escape classes due to computer engagement. This observation appears alarming not only for schools but also for the parents who are all concerned about the safety and well-being of their children while in school.

Aggression is instinctive; it is an impulse common to all living creatures (Colakoglu & Solak, 2014). It is a behavior pattern emerging in different ways among humans, but it is difficult to separate the reasons that stimulate these behavior patterns. It also arises as aggregate behaviors in the form of various verbal responses and attitudes such as destroying, injuring, suppressing, anger, and hate. When provocation is active, it results in the most powerful, aggressive urges. As Colakoglu & Solak (2014) also mentioned, aggression may be an expression of over-excitement and other responses. Thus, there is nothing much to worry about if these powerful, aggressive urges do not harm oneself. However, in case it does, it should be dealt with accordingly.

Nowadays, aggression is of crucial concern, gaining the attention of those in the mental health field, prevention experts, media, and school authorities, thereby indicating that aggression cases are common in school settings. Aggressive behaviors common to young adults include bullying, hitting, and hurting and being hooked to social media and other computer-related activities such as video games and violently imbibing the characters in the games. As one of the top social media users, the Philippines is prone to both positive and negative effects of computers that may impact each of its youth citizenry. For example, a recent report related an incident of a teenage boy who beat up his grandmother for lecturing him about playing online games excessively, and another who stabbed another teen to death because of a feud over an online game (Garcia, 2015 cited in Talabis & Ocampo, 2017).

Computer gaming and aggression may initially appear as two different constructs explored by various researchers. Computer gaming has been associated with many risk factors in behavior, but aggressive behavior has not always been attributed to engagement in online gaming. However, some observations about the practices and behaviors of Criminal Justice Education students have led to the idea of the possible relationship between the two. Since Criminology is known to be a skilled course for future law enforcers and peacemakers, it is important to effectively address these students' behavior associated with playing computer games and their aggressive tendencies through this study.

This research is anchored on Vohs & Baumeister's (2013) Theory on Self-Regulation, a system of conscious personal management that involves guiding one's thoughts, behaviors, and feelings to reach one's goals. According to this theory, impulse control caters to the management of short-term desires. Thus, people with low impulse control are prone to acting on immediate desires. This theory likewise outlines how people decide and what components are involved in such decision-making. It is particularly salient in the context of making a «good» choice when one has a strong desire to do the opposite.

Furthermore, this theory involves four components

that interact to determine the self-regulatory activity at any given moment; these are standards, motivation, monitoring, and willpower. Thus, an individual's behavior is discovered by one's standards of ethical conduct, one's motivation to meet these standards, the degree to which one is consciously aware of his circumstances and his actions, and the extent of one's willpower to resist temptations and choose the right thing. Self-Regulatory Theory (SRT) further describes desirable behavior meeting the standards while being on guard of the situations and thoughts that might break the standard behavior and the internal strength to control strong impulses or urges (Vohs & Baumeister, 2013).

Baumeister & Exline (2000) also emphasized that the human mind's capacity to alter its responses is a natural phenomenon that is vital to support culture, progress, achievement, morality, and individual success. Such reason brings back the Victorian notion of willpower as a limited supply of energy used for control and self-discipline and several other important phenomena, including making decisions. Self-control is what people use to limit their desires and impulses. More precisely, it can understand the capacity to override one response and substitute another. The theory of self-regulation stresses the element of self-control, for it is synonymous with self-regulation, which means changing towards the direction of some standard, some idea about how something could or should be. In other words, it is changing responses based on some rules, values, or ideal.

In connection to this study, engaging or not in computer games is a significant decision any gamer makes—the desire to play may be a short-term desire to be fulfilled immediately or not at all. Somehow, an individual's tendency to indulge in a desirable behavior becomes strong once they have the willpower to do the right thing all the time. They may frequently think about the computer when not using it or continually look forward to the next opportunity to use it (PsychGuides.com, 2018). Aside from that, winning the game or just leveling up is something to look forward to. Others may say that indulging in computer shops could be way much better than being unruly and disruptive in certain circumstances. Since the games are virtual, gamers may release all their tension and undesirable behavior through playing, although violent games, in particular, may curtail someone from doing something right. However, excessive time spent in online activities such as gaming and social networking often leads to overspending and destruction of real-life relationships making people hurt relationships offline and less able to communicate (Savoie, 2018). From this standpoint, both playing computer games and acquiring aggressive behavior are self-regulatory matters since an individual has to enforce the willpower to control the desire to play and resist the influence of computer games over their behavior.

Studies on playing computer games involving the identified variables covered in this study have been conducted. On the positive side, some students use computers and engage in gaming only for fun. For example, Bowers & Berland (2013) had a sample of grade 10 and grade 12 students who indicated using computers for fun; moderate levels of video gaming were positively affecting achievement in the class, and no case of any aggressive tendencies was reported. Furthermore, according to Ferguson & Rueda (2010), playing computer games is an emotional catharsis that is not related to aggression, for computer games, can be used merely as relaxation to cope with stress.

Oppositely, playing computer games has its downsides. Talabis & Ocampo (2017) contend that narcissism is the only risk factor or effect of online gaming since their respondents showed a low level of aggression. They concluded that the time the respondents spend playing online games relates only to their narcissistic behavior. On the other hand, some

studies point that those who choose to spend much time in front of the computer instead of going out and socializing may lose their social skills. For example, adolescents between ages 15 to 17 with more educated mothers socialize by spending more time with the computer and less time watching television and are less likely to eat dinner with parents (Wight et al., 2009). Aside from this, Campit (2015) found that Information Technology students, who play online games, have negative social behavior compared with those who do not engage in computer gaming. Aggressive tendencies were not seen as effects of excessive online gaming. Instead, a negative effect on the level of social skills emerged.

With regards to the nature of the computer games played, Adachi & Willoughby (2011) attributed competitiveness in computer gaming and not just merely playing computer games as the source of violence. The participants of the study played violent and non-violent video games, but after finishing the games, those who played the two competitive games acted significantly more aggressively. In terms of the duration of exposure, a study explains that the longer gamers spend on computer gaming, the more exposed they are to either violent or prosocial or non-violent ones. Regarding age, Entertainment Software Association (2019) stated that most video game players are older than 18. In terms of sex, playing computer games seemed to be more stereotypically a boys' activity, with 91.3 percent of the boys engaged in computer games compared to 54.1 percent among the girls. In addition, they spent an average of 8.47 hours per week playing computer games (Eow & Baki, 2009). Thus, playing digital games has been associated with forms of addictive behavior (Festl et al., 2013).

Playing computer games can give the players the feeling that they are part of the community, which may not happen in real life (PsychGuides.com, 2018). The players' dissatisfaction with their game may result from possessing some aggressive behavior due to their chosen desire. In the light of the theory of social learning, aggressive responses are exposed through the experience or the observation of the behaviors of others in real life and the media (Anderson & Bushman, 2002). Accordingly, staying on guard of unremarkable acts must be regulated for people to continue doing something considered of value.

As to the total aggression scores, girls use indirect aggression more than boys do who use physical aggression more. Both genders use direct verbal aggression equally much (Björkqvist, 2018). However, the level of aggression between the sexes may vary. Women's perspective views their aggression as often coming from excessive stress and a loss of self-control. Men, however, seem to have often observed aggressive acts as an exercise in control over others, brought about by the challenge to their self-esteem or sincerity. Men are more inclined to view their aggressive actions as positive or instrumental aggression; thus, playing computer games and imbibing the aggressive acts might be deemed necessary to boost their integrity or self-esteem. On the other hand, women tend to integrate and regulate their brains more than men do—their reason and emotions blend, resulting in logic. The emotions of women, like aggression, are reasonably controlled, and women are driven to process these emotions first, then releasing them right away.

The link between playing computer games and aggression has been investigated by previous researchers. Festl et al. (2013) claimed that high gaming addiction short-scale scores are associated with aggression. A meta-analysis by Anderson et al.(2010) looked into the effect of video game use on aggression in Western countries and Japan. These researchers found out that there was a significant causal effect, affirming that playing violent video games increases aggressive behavior, cognition, and affect but decreases empathy and prosocial behavior.

These results remained the same when selection bias was controlled. Such a study gave rise to some studies focused on how prosocial or non-violent games increase prosocial thoughts since previous research has shown that playing aggressive video games increased aggressive thoughts as well as aggressive behavior. Results also showed that repeated access to the prosocial game might create prosocial thoughts as hypothesized. Thus, it was proven that the repeated access of aggressive or violent video games resulted in the strengthening of aggressive thoughts, suggesting that prosocial behavior may suppress aggressive responses.

In addition, the claims on the relationship between aggression and violent video games pushed Willoughby et al. (2012) to measure more severe aggression in playing violent video games. The study asked the participants to indicate whether they played different game categories and the frequency of playing. In eight high schools, those students who sustained violent game playing had the steepest increase in aggressive behavior. It was found out that the effect of violent video games on aggression is not only short-term, especially if the use is consistent and continuous. Anderson & Dill (2000) also found out that participants who played violent games acted more aggressively in the reaction time task required of them. Right after playing the violent and neutral games, the participants were asked to push a button faster than their opponent, and those who were faster chose a thunderous noise blast, implying a more aggressive behavior.

Moreover, toddlers and children increase their aggressive tendencies easily when exposed to violent games. Kirsh (1998) measured an aggression-attribution bias from third and fourth-grade children. In a survey of 278 children (aged 10-14) in the Netherlands, Wiegman & Schie (1998) found that boys have a high preference for violent games. Similarly, college students who played violent games had predicted delinquent behaviors, including aggression (Anderson & Dill, 2000; Lee & Peng, 2006).

Playing computer games has also been linked with addictive behavior and aggression (Festl et al., 2013). Studies from the University of Iowa show that computer addiction is quite common among males aged 20 to 30, especially among those suffering from depression. It has been taken into account since certain people are predisposed to having computer addiction, and they regard computer gaming to fill the need for emotional and social support (PsychGuides.com, 2018). These people might think of engaging in computer games as comforting and good for them and is by no means of acquiring questionable behaviors like aggressive tendencies. However, the good that can be derived from playing may rekindle the tendency to stay on the gaming track unless he decides to do good in something else.

Moreover, computer gaming competitiveness fosters aggression more than the type of game does (Adachi & Willoughby, 2011). In support of this claim, Anderson & Carnagey (2009) found aggressive cognition as the effect of a violent game because of the competitive nature and not related to aggressive behavior. Also, the longitudinal study pursued by Ferguson et al. (2012) where the middle school or high school participants took a survey three times over three years included questions about violent gameplay, adverse life events, and depression. It was revealed that violent video game was not related to aggression. Instead, the best predictors of aggression were peer influence, depression, family violence, and antisocial personality traits.

In the Philippines, video games are a common craze; statistics by Newzoo (2017) shows that there are 29.9 million Filipino gamers (Albina et al., 2017). Supporting Ferguson et al. (2012), Campit (2015) found negative social behavior among college online gamers while such behavior was not observed among the non-gamers. It was thus shown that

excessive online gaming had a negative effect on the social skills of college students. Ferguson and Rueda (2010) claimed that since aggression is inherent in all people, it can be displaced in healthy or unhealthy ways. Through computer games, the players can have emotional catharsis and relaxation as ways to cope with stress. They found no relation between playing violent video games and aggression; instead, playing video games did decrease depression and hostile feelings. Furthermore, those who played the violent game acted less aggressively than those who played the neutral ones. For Talabis and Ocampo (2017), the only effect of online gaming is self-pride or narcissism. Additionally, Albina et al.'s (2017) survey results revealed that the aggression level of gamers is significant though there is no difference between those who play violent games and those who play non-violent ones.

In consideration of how playing computer games can be linked with aggression among Criminology students of the selected university, this study sought to determine the levels of computer gaming and aggression among Criminology students when taken as a whole and when grouped according to age, sex, year level, time spent playing, and type of game played. Furthermore, looking into their relationship through the Criminology students whose future profession deals with aggressive behavior. The study results may serve as baseline data for the guidance office and the college dean to formulate an intervention program that may prevent computer addiction and high aggression.

METHODOLOGY

This study employed a quantitative, descriptive research design with the use survey questionnaire method since it focused on determining the level of computer gaming that refers to the measure to which the students played computer games and the level of aggression that refers to the students' measure of aggressive behavior.

According to Babbie (2010), quantitative research focuses on gathering numerical data, generalizing it across people, or explaining a particular phenomenon. The study also used the correlational research design to determine the relationship between computer gaming and aggression. According to Questionpro.com (2018), correlational research is a non-experimental research method in which a researcher measures two variables, understands and assesses the statistical relationship between them with no influence from any extraneous variable. These designs are suited for this study.

The participants were the Criminology students of the university enrolled for the academic year 2018-2019. However, out of the total number of Criminology students, only 175 were identified to be part of the study since not all students play or engage in computer gaming. Thus, purposive sampling was adopted. Purposive sampling is widely used in identifying and selecting information-rich cases related to the phenomenon of interest (Palinkas et al., 2015). In this study, students who answered no engagement in computer gaming during the pre-survey were disregarded to take part in the study.

To gather data, the researchers designed a self-made questionnaire aimed to measure the levels of computer gaming and the aggression of the participants. The first part of the instrument contains the demographic profile of the participants, such as the name (optional), age, sex, year level, time spent playing, and type of game played. The second part contains the questionnaire proper that presents the level of computer gaming and the level of aggression. The level of computer gaming consists of 15 items, and the level of aggression consists of 20 items. Each item is answerable on a five-point scale ranging from strongly agree (very high) as the highest and strongly disagree (very low) as the lowest.

For the psychometric property of the questionnaire, three experts were identified to validate the questionnaire using the Good and Scates rating form. Each of them read the questionnaire and gave their comments and suggestions. Two of them made some corrections, gave suggestions, and rephrased some items in the questionnaire to make them more understandable and suit the study's problem. The instrument's validity scored 4.85 that led to an interpretation that the questionnaire is valid. The questionnaire at the same time underwent a test of reliability through a pilot testing among 30 respondents at a nearby city college. Data were treated using Cronbach Alpha. The reliability index of 0.911 revealed that the instrument is reliable.

In collecting the data, the researchers secured permission from the dean of the College of Criminal Justice Education. Upon approval, the researchers prepared the instrument to be utilized in the conduct of the study. After which, the researchers requested from the College the list of class schedules of all the students who were identified to play online games in order to set a testing date for the administration of the survey. As soon as the communication came across to the participants, the researchers personally administered the questionnaire in the classroom on a scheduled basis. They conducted an orientation regarding the purpose of the study, the ethical protocols on handling important data, volunteerism in participating, confidentiality and recording keeping, and the utilization of the research output. Then, they clearly instructed and carefully gave the directions to ensure a clear understanding of the items before choosing an answer. Along with the administration, the researchers also secured an ethics clearance to adhere to the protocols or principles of research. After the retrieval of the accomplished research questionnaires, they sought the services of the statistician for the encoding and preparation of the data for statistical treatment.

After data gathering, descriptive analysis was used to determine the level of computer gaming and the level of aggression of Criminology students when taken as a whole and when grouped according to age, sex, year level, time spent playing, and type of game played. On the other hand, inferential, specifically correlational, analysis was used to determine if there is a significant relationship between the level of computer gaming and the level of aggression among Criminology students.

Appropriate statistical tools were used in the analysis. For problems 1 and 2, which determined the level of computer gaming and aggression of Criminology students when taken as a whole and when classified according to age, sex, year level, time spent playing, and type of game played, the mean was utilized. For problem 3, which determined the significant relationship between the levels of computer gaming and aggression of criminology students, Pearson Product Moment of Correlation (Pearson r) was utilized.

RESULTS AND DISCUSSION

Table 1 shows that the level of computer gaming is moderate (M=2.76, SD=0.87) when the participants were taken all together and mostly when they are grouped according to variables of the study.

In terms of age, both groups had a moderate level of computer gaming, with the older group obtaining a higher mean score over the younger group. This result finds support in the surveys of the Entertainment Software Association (2019) that revealed most video game players to be older than 18 and the University of Iowa that showed similar level in terms of age (PsychGuides.com, 2018). However, it is interesting to note that the University of Iowa's study also revealed that older males with ages 20 to 30 years engage in computer gaming for emotional and social support (PsychGuides.com, 2018).

In terms of sex, the findings of the study showed that males are more engaged in computer games than females. As Jones (2003) mentioned, males engage in computer games to have fun, unlike females who only engage in computer games to overcome boredom. Interview with the participants confirmed the male students play computer games to bond with their friends; thus, they reported that the activity had improved their friendship with others. PyschGuides (2018) has indeed claimed that those who engage in computer games find this activity comforting and good for them.

The analysis of the level of computer gaming of the participants when they are grouped according to year level revealed that the most engaged participants are the 3rd year and the last are the 2nd year. The first year, third year, and fourth year students comprise the majority of the Criminology students. More than half of the total participants claimed that 70 percent of college students play video games at least «once in a while,» showing that they are avid gamers (Weaver, 2003). Since they are teenagers who exceptionally bond with others as adolescents, engaging in computer games can also be a form of socialization for them. A study investigating the dimensions of why students stay in cyber cafés in Manila showed that the reasons included responsibilities, health, relaxation, and socialization (Bringula et al., 2013).

Further analysis revealed that among the

Table 1
Level of Computer Gaming

Age	n	Mean	SD	Interpretation
Younger	99	2.71	0.89	Moderate
Older	76	2.84	0.85	Moderate
Sex				
Male	141	2.85	0.87	Moderate
Female	34	2.41	0.83	Low
Year Level				
1st year	52	2.69	0.85	Moderate
2nd year	24	2.49	0.86	Low
3rd year	32	2.98	1.03	Moderate
4th year	67	2.81	0.80	Moderate
Time Hours Spent				
1 to 3 hours	124	2.53	0.79	Moderate
4 to 6 hours	34	3.14	0.76	Moderate
More than 6 hours	17	3.72	0.78	High
Time of Game Played				
Violent	121	2.92	0.89	Moderate
Non-Violent	54	2.41	0.72	Low
Taken as a whole	175	2.76	0.87	Moderate

Table 2
Level of Aggression of Criminology Students

Age	n	Mean	SD	Interpretation
Younger	99	3.05	0.99	Moderate
Older	76	2.82	0.93	Moderate
Sex				
Male	141	2.95	0.94	Moderate
Female	34	2.93	1.09	Moderate
Year Level				
1st year	52	2.91	0.92	Moderate
2nd year	24	2.96	1.12	Moderate
3rd year	32	2.95	1.12	Moderate
4th year	67	2.98	0.88	Moderate
Time Hours Spent				
1 to 3 hours	124	2.93	0.94	Moderate
4 to 6 hours	34	3.04	1.01	Moderate
More than 6 hours	17	2.90	1.13	Moderate
Type of Game Played				
Violent	121	3.01	0.98	Moderate
Non-Violent	54	2.80	0.93	Moderate
Taken as a whole	175	2.95	0.97	Moderate

Criminology students, the second year might have the internal strength to control strong impulses or urges when computer gaming is concerned. They seemed to be on guard with the situations and with their thoughts while meeting the urge to play with a computer (Vohs & Baumeister, 2016).

When hours spent was considered, the participants who spent at least 6 hours in computer gaming had a higher level of engagement compared to those who spent less than 6 hours. PsychGuides.com (2018) stated that those who excessively spend time playing computer games feel that they are naturally part of a community, thereby, making them frequently think about a computer when not using it or continuously looking forward to the next opportunity to use it.

The level of computer gaming of the participants when they were categorized according to the type of game played showed that those who played violent computer games had a higher level of engagement compared to those who played non-violent ones. This proves that violent computer games are more appealing to students compared to non-violent games. Greitemeyer (2018) explained that one of the possibilities why individuals engage in violent computer games is the varied roles that storytelling plays.

On the other hand, Table 2 presents the level of aggression among Criminology students that as a whole and according to the variables was moderate. The level of aggression of the participants when they were classified according to the variables showed no difference. As Björkqvist (2018) stressed, both genders

possess aggressive behaviors. It is just that the males use physical aggression more to exercise control over others and boost self-esteem, and females use indirect aggression, often coming from excessive stress and loss of self-control.

The result does not seem to agree with the findings of Albina et al. (2017) about the higher aggression level of players who engage more in violent games compared to those who play non-violent games. The present study revealed similar aggression levels whether they played violent or non-violent games.

Table 3 contains the results of the computation of Pearson r, between the level of computer gaming and level of aggression of the participants. The p-value of 0.157 that is greater than the 0.05 level of significance indicates no significant relationship between the levels of computer gaming and aggression. Thus, the null hypothesis was not rejected.

Willoughby et al. (2012) have measured a different claim, that there is severe aggression shown in respondents playing violent games. Also, an article by the American Psychological Association confirms that there is a link between playing video games to a player's aggressive behavior. Their extensive review of researches from 2005 to 2013 shows that there is a pattern of results that leads them to be confident in their conclusions that violent video games are a positive risk factor for aggression (Albina et al., 2017). These findings are inconsistent with the present study.

The result on the level of computer gaming implies that Criminology students seemed to have discipline, which makes them play computer games in a more balanced way. If based on Self-Regulation Theory, this gives the impression that Criminology students have competent individual management skills and have the firm impulse control of short-term desires like engaging in computer games. Moreover, this implies that the variables mentioned in the study do not matter regarding engaging in computer games. Whether young or old, male or female, at any year level, how long or short the hours spent in playing, or whether games played are violent or not, the Criminology students likely know how to set boundaries or limits when using the computer to play games.

The 2nd year students may have lower engagement result due to a lesser number of respondents. The researcher observed too that the ages of the second-year students seemed older than what is of the average age at their level. So maybe, they spent less time playing computer to concentrate on their studies and take school seriously.

The result of aggression denies the tendency of the young to be more aggressive than the old likewise, males are more aggressive than the females because regardless of variables, aggressive tendencies were shown on a moderate level. Thus, the students are in control of their aggressive behavior. At some point, they may happen to be triggered by circumstances, but they know how to take control.

Table 3
Relationship of Computer Gaming and Aggression

		Engagement	Aggression
Engagement	Pearson Correlation	1	.108
	Sig. (2-tailed)		.157
	N	175	175
Aggression	Pearson Correlation	.108	1
	Sig. (2-tailed)	.157	
	N	175	175

CONCLUSION AND RECOMMENDATIONS

The results of the present study indicate that the level of computer gaming does not relate to the level of aggression. How extensive the students engage in computer games does not share any relationship with their tendency to possess aggressive behaviors.

Based on the outcomes of the study, the researchers recommend that the students must be encouraged to participate in other hobbies such as sports, reading books, going to the library, hiking, traveling, drawing, and the like and must spend more time studying and bonding with friends and family instead of engaging in computer games where no strong social relationships are formed.

The parents need to talk about their children's engagement in computer games and aggressive tendencies. They must take the role of guiding their children properly and spend more time with them to stay on guard.

Teachers of the students must also take the lead in motivating them to be in school and attend classes regularly through designing exciting activities inside the classroom, giving quizzes to catch up with the class standing, and providing reminders about their status in school in order to monitor their academic progress. Teachers must also realize that students may have aggressive tendencies because of their engagement in a computer game, so they should be more cautious of their words and actions that may trigger the students more to shy away from class.

The results of the study could provide the guidance office the baseline data or reference in designing an intervention program for computer addiction and high aggression. Students who have high computer engagement and high aggression levels must be identified for proper guidance.

REFERENCES

Adachi, P. J., & 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.

Albina, A., Abella, C., Salvador, A., Alvior, F., & Bato, R. (2017). The Level of Aggression Among Players of Non-violent and Violent Video Games. *Academia*. shorturl.at/hjlKP

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, *53*(1), 27–51. https://doi.org/10.1146/annurev.psych.53.100901.135231

Anderson, C. A., & Carnagey, N. L. (2009). Causal effects of violent sports video games on aggression: Is it competitiveness or violent content? *Journal of Experimental Social Psychology*, *45*(4), 731–739. https://doi.org/10.1016/j.jesp.2009.04.019

Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, *78*(4), 772–790. https://doi.org/10.1037/0022-3514.78.4.772

Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., Rothstein, H. R., & Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin*, *136*(2), 151–173. https://doi.org/10.1037/a0018251

Babbie, E. (2010). *The Practice of Social Research*. Cengage Learning.

Baumeister, R. F., & Exline, J. J. (2000). Self-control, morality, and human strength. *Journal of Social and Clinical Psychology*, *19*(1), 29–42.

Björkqvist, K. (2018). Gender differences in aggression. *Current Opinion in Psychology*, *19*, 39–42. https://doi.org/10.1016/j.copsyc.2017.03.030

Bowers, A. J., & Berland, M. (2013). Does recreational computer use affect high school achievement? *Educational Technology Research and Development*,

61(1), 51–69.

Bringula, R., Basa, R., Enriquez, J., Bonificio, J. P., Manuel, M. D., & Natanauan, A. C. (2013). Development of Scales on the Effects of Gaming in Cyber Cafes in Manila. *The Asian Conference on Society, Education and Technology*. http://papers.iafor.org/wp-content/uploads/papers/acset2013/ACSET2013_0177.pdf

Campit, J. B. (2015). Differences on the Level of Social Skills between Freshman Computer Gamers and Non-Gamers. *Asia Pacific Journal of Multidisciplinary Research*, *3*(1). http://www.apjmr.com/wp-content/uploads/2015/02/APJMR-2015-3-182-Differences-on-the-Level-of-Social-Skills-between-Freshman.pdf

Centre for Educational Neuroscience. (2016). Violent video games make children more violent [Education]. *Centre for Educational Neuroscience*. http://www.educationalneuroscience.org.uk/resources/neuromyth-or-neurofact/violent-video-games-make-children-more-violent/

Colakoglu, F. F., & Solak, N. (2014). Examination of aggression levels and empathic tendency levels of secondary school students who involve or not involve in sports. *Procedia-Social and Behavioral Sciences*, *152*, 415–420.

Entertainment Software Association. (2019). *2019 Essential Facts About the Computer and Video Game Industry* [Tech]. Entertainment Software Association. https://www.theesa.com/wp-content/uploads/2019/05/2019-Essential-Facts-About-the-Computer-and-Video-Game-Industry.pdf

Eow, Y. L., & Baki, R. (2009). Form one students' engagement with computer games and its effect on their academic achievement in a Malaysian secondary school. *Computers & Education*, *53*(4), 1082–1091.

Eow, Y. L., Wan Ali, W. Z. bte, Mahmud, R. bt., & Baki, R. (2009). Form one students' engagement with computer games and its effect on their academic achievement in a Malaysian secondary school. *Computers & Education*, *53*(4), 1082–1091. https://doi.org/10.1016/j.compedu.2009.05.013

Ferguson, C. J., & Rueda, S. M. (2010). The Hitman Study: Violent Video Game Exposure Effects on Aggressive Behavior, Hostile Feelings, and Depression. *European Psychologist*, *15*(2), 99–108. https://doi.org/10.1027/1016-9040/a000010

Ferguson, C. J., San Miguel, C., Garza, A., & Jerabeck, J. M. (2012). A longitudinal test of video game violence influences on dating and aggression: A 3-year longitudinal study of adolescents. *Journal of Psychiatric Research*, *46*(2), 141–146. https://doi.org/10.1016/j.jpsychires.2011.10.014

Festl, R., Scharkow, M., & Quandt, T. (2013). Problematic computer game use among adolescents, younger and older adults. *Addiction*, *108*(3), 592–599.

Greitemeyer, T. (2018). The spreading impact of playing violent video games on aggression. *Computers in Human Behavior*, *80*, 216–219. https://doi.org/10.1016/j.chb.2017.11.022

Jones, S. (2003). *Gaming Comes of Age*. Pew Research Center. https://www.pewresearch.org/internet/2003/07/06/gaming-comes-of-age/

Kirsh, S. J. (1998). Seeing the World Through Mortal Kombat-colored Glasses: Violent Video Games and the Development of a Short-term Hostile Attribution Bias. *Childhood*, *5*(2), 177–184. https://doi.org/10.1177/0907568298005002005

Lee, K. M., & Peng, W. (2006). What Do We Know About Social and Psychological Effects of Computer Games? A Comprehensive Review of the Current Literature. In *Playing video games: Motives, responses, and consequences* (pp. 327–345). Lawrence Erlbaum Associates Publishers. https://psycnet.apa.org/record/2006-05034-022

Newzoo. (2017). The Filipino Gamer | 2017. *Newzoo*. https://newzoo.com/insights/infographics/the-filipino-gamer/

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health and Mental Health Services Research*, *42*(5), 533–544. https://doi.org/10.1007/s10488-013-0528-y

PsychGuides.com. (2018). *Internet/Computer Archives*. PsychGuides.Com. https://www.psychguides.com/category/internetcomputer/

Questionpro.com. (2018, June 7). What Is a Correlational Study? – Definition with Examples of correlational research. *QuestionPro*. https://www.questionpro.com/blog/correlational-research/

Savoie, G. (2018). A Relationship Expert Explains How Social Media Affects Your Love Life. *Brides*. https://www.brides.com/how-social-media-affects-relationships-5105350

Spilková, J., Chomynová, P., & Csémy, L. (2017). Predictors of excessive use of social media and excessive online gaming in Czech teenagers. *Journal of Behavioral Addictions*, *6*(4), 611–619. https://doi.org/10.1556/2006.6.2017.064

Talabis, D. L., & Ocampo, R. (2017). Risk Factors as Predictors of Time Spent in Online Games among Filipino Females. *The Bedan Journal of Psychology 2017*. https://www.coursehero.com/file/43958954/BJP2017v1-166pdf/

Vohs, K. D., & Baumeister, R. F. (2013). *Handbook of Self-Regulation, Second Edition: Research, Theory, and Applications*. Guilford Press.

Weaver, J. (2003). College students are avid gamers. *NBC News*. https://www.nbcnews.com/id/wbna3078424

Wiegman, O., & Schie, E. G. M. (1998). Video game playing and its relations with aggressive and prosocial behaviour. *British Journal of Social Psychology*, *37*(3), 367–378. https://doi.org/10.1111/j.2044-8309.1998.tb01177.x

Wight, V. R., Price, J., Bianchi, S. M., & Hunt, B. R. (2009). The time use of teenagers. *Social Science Research*, *38*(4), 792–809. https://doi.org/10.1016/j.ssresearch.2009.05.009

Willoughby, T., Adachi, P. J., & Good, M. (2012). A longitudinal study of the association between violent video game play and aggression among adolescents. *Developmental Psychology*, *48*(4), 1044.