

THE NEXUS BETWEEN VIOLENT VIDEO GAME PLAYING AND AGGRESSION AMONG EMERGING ADULTS AT UNIVERSITI UTARA MALAYSIA

Tariro Maraire¹

Master's Student of Science Correctional,
Psychology & Counseling Programme,
School of Applied Psychology, Social Work and Policy, College of Arts and Sciences,
University Utara Malaysia.
(Email: tarimaraire@gmail.com)

Saralah Devi Mariamdaram Chethiyar²

Senior Lecturer,
Psychology & Counseling Programme,
School of Applied Psychology, Social Work and Policy, College of Arts and Sciences,
University Utara Malaysia.
(Email: devi@uum.edu.my)

Received date: 23-12-2019

Revised date: 26-12-2019

Accepted date: 30-12-2019

Published date: 31-12-2019

To cite this document: Maraire, T., & Chethiyar, S. D. M. (2019). The Nexus between Violent Video Game Playing and Aggression among Emerging Adults at Universiti Utara Malaysia. *International Journal of Education, Psychology and Counseling*, 4 (33), 298-308.

DOI: 10.35631/IJEPC.4330023

Abstract: The study explored the relationship between violent video game playing and aggression among emerging adults (18 to 25 years) at University Utara Malaysia. There is still discourse in academia on asserting whether there is a connection between playing violent video games and aggression or not. The main objective of the study was to establish if a link exists between violent video games play and aggression. It was also in the interest of the study to establish gender differences in aggression levels, time spent playing violent video games and type of violent video game preference. A quantitative research design was adopted for the study and inferential and descriptive statistics were used to analyse the data. Aggression level was measured using the Bryant and Smith (2001) Aggression Questionnaire and exposure to violent video games was obtained using the Habitual Video Game Violence (HVG) exposure score. The sample size was 377 (236 males and 121 females). Of importance, the study substantiated the existence of a link between violent video games and aggression in emerging adults at Universiti Utara Malaysia and also important to note is that the study showed there are no gender differences in violent video game play and aggression levels. Future studies can replicate the same study in various tertiary institutions within Malaysia to assertion the findings of the current study.

Keywords: Emerging Adults, Aggression, Violent Video Games

Introduction

With the increase in the spread of information technology globally, more emerging adults have access and prioritise acquiring various gadgets such as monitors and consoles that enable them to play video games at their convenience (Costa & Veloso, 2016). Emerging adults are a group that is no longer dependent as children and adolescents but however have not yet assumed the responsibilities in normative adulthood, age range 18- 25 years (Arnett, 2010). These emerging adults are adventurous as they are explorative and try out different life possibilities (Grusser et al., 2006) hence the thrill in playing video games. In the United States of America (USA), surveys have shown that 84% of American emerging adults (roughly 90% of males and 75% of females) now play video games regularly (Bartholow & Anderson, 2002, p. 283-290) and at least 45 million households possess at least two video game consoles. A worrying development is that the majority of the video games that these emerging adults play are of an extreme violent nature and involve graphic violent actions such as beating monsters, brutal mass killings, and shooting on enemies as the formula strategy to win the game (Anderson et al., 2017).

Due to the influence of globalisation, Malaysia has not been spared from the increased preference in playing video games by emerging adults and teens (Kong et al., 2010) some of these emerging adults and teens are registered professional gamers who compete on social platforms like the gamers' websites like Gematsu, Destructoid and PC Gamer. It has been noted that 75.8 percent of Malaysian teens are video gamers (Eow et al., 2008) of which 91.3 percent are males and 54.1 percent are females and spent an average of 8.47 hours per week playing video games.

Video games come in different types, of major concern for this study are specifically violent video games because they have been noted to be preferred by most video game players as they are claimed to give more thrill than non-violent video games (Zendle, 2018). It has been established that at least 89% of video games preferred by emerging adults throughout the world contain violence which is designed to cause injury or even death to an opponent (Gomez, 2009) and also that 90% of all games appropriate for 10 year children and above contain violence because violent games are said to be more appealing than non-violence video games. Violent video games can be described as games that involve physical force intended to hurt, damage, or kill someone or something (Grossman & DeGaetano, 2014). In playing violent video games, one finds satisfaction and is considered to be a winner when he or she successfully kills or fatally injures an opponent (Kepes, 2017).

The more the numbers of killings one makes, the more the scores and points one gets (Grossman & DeGaetano, 2014). The essence of these violent video games then seems to be to acquaint players on forming strategies and develop skills on how to attack an opponent (Markey & Ferguson, 2017). The pervasiveness of violent video game playing has raised a keen interest globally including in Malaysia. The negative effects of playing violent video games by juveniles and emerging adults have become a debatable topic by mental health, psychological and criminology schools of thought (Roberts, 2007) and aggressiveness has emerged as one of the major likely effects of playing these games., 80% are involved in playing violent video games (Roberts, 2007). One could then insinuate that there could be a link between playing these violent video games and aggressive behaviour. It is critical to trace the causes of aggressive behaviour as it has been linked to crime as recent works to understand adult criminality have linked aggressive behaviour as to having a direct bearing to violent related crimes (Christakis & Zimmerman, 2007). Aggressive tendencies are considered 'red flag' predictors of violent criminal behaviours (Loeber & Hay, 1997).

Established Link Between Violent Video Game Playing and Aggression

The academia has not been short of literature on the link between aggression and violent video games (Martinez, 2017). Indeed, there has been a plethora of studies that concur that there is a direct link between aggression and violent video game playing (Ferguson, 2018). However, there is also an increasing body of literature that contests the existence of any correlation between violent video game playing and aggression (Sanger 2019). Preliminary indications seem to suggest that despite the extensive academic focus on the relationship between playing violent video games and aggression, there is little or no consensus amongst scholars that have delved into this subject matter in Malaysia and beyond.

One study that was found to be of relevance to this current research was Baki et al., (2008) which looked at the potential benefits and harmful effects of violent video game playing. The study recognised aggression as one of the potential harmful effects of playing video games among youths in Malaysia. Though aggression was mentioned amongst other potential negative effects of playing video games, the link between specifically violent video games and aggressive behaviour was not investigated and fully established by Baki et al., (2008). Therefore, this current research intends to narrow down and establish if there is a specific link between playing violent video games and aggression. You et al., (2015) in a more similar research looked into the topic titled Impact of violent video games on the social behaviours of adolescents: The mediating role of emotional competence. The study was conducted on 8th and 9th graders in Korea. Of importance to the current study is that the research singled out violence as one of the results of the negative impacts on pro-social behaviour caused by playing violent video games. The current research intends to go a step further and try to establish if there is indeed a link between violent video games and aggression. The study by You et al., (2015) was conducted in the Korean context. There is need therefore to conduct the study in Malaysian context. A study by Kumarasuriar et al., (2010) established a link between violent video games and aggression among school going adolescence in Klang Valley, Malaysia. The study recommended that since there is scarce availability of research work in the topic in Asia, future studies could replicate the study to establish stronger confirmations of the position of the relationship between violent video game playing and aggression in the Malaysian context.

Unestablished Link Between Violent Video Game Playing and Aggression

A dissenting voice that disputes the existence of a relationship between playing violent video games and aggression has also been prominent in previous literature on the subject. One such study is Tear & Nielsen (2013) conducted a research on playing classic violent video games on pro-social behaviour on Malaysian juveniles and they failed to substantiate conjecture that playing classical video games affects behaviour. The study recommended that the shrinking of pro-social behaviour through exposure to playing violent video games be intensively tested using any other means of research besides the experimental method that was used in the study in order to ascertain the position of the speculation that playing violent video games causes anti-social behaviour. This study therefore intends to use a different approach as it is taking a quantitative approach using a survey technique to establish the link between aggressive behaviour and playing violent video games.

With a similar finding, Wei (2007) researched on the effects of exposure to violent video game playing on Chinese adolescence. Wei (2007) used triangulation method, the first method used in the study was hierarchical regression and he failed to substantiate a link between violent video game playing and aggression among adolescence in China. The second method used in the study was the bivariate analysis and it established an association between violent video game playing and aggressive behaviour. These conflicting results from the same study provide

evidence that the debate on the relationship between playing violent video games and aggression remains inconclusive. Therefore, there is need for further studies to be carried out in order to reach an assertion as to whether playing violent video games causes aggression emerging adults or not something that this current study intends to do. Decamp & Ferguson (2015) in their study examined the aspect of violence in the connection between exposure to violent video games, family background and other factors on youth violence. Their study was titled the impact of degree of exposure to violent video games, family background, and other factors on youth violence. The study looked at several causal factors of violence in youths including the input of family. Of importance to the current study, the study by Decamp & Ferguson (2015) highlights that despite years of study, there is still no scholarly consensus that has been reached regarding whether violent video games contribute to youth aggression hence the need to replicate the study in different settings in order to get a true position regarding violent video games and aggression. In the same vein, Decamp & Ferguson (2015) failed to substantiate a relationship between violent video games playing and aggression as it was established that violent video games are not a significant predictor of youth violence. Family and social variables were said to be more influential in causing aggression in youths than violent video games. The study went on to recommend that the study be replicated in other multi-racial communities. Therefore, the current study will replicate the study in the Malaysian context which is a multi-racial community to establish whether or not there is a relationship between violent video game playing and aggression in juveniles.

Theoretical Framework

The study is guided by the social cognitive theory which posits that people learn new behaviours through observation, imitation and modelling and that behaviour is maintained through reinforcement contingencies and punishment (Bandura, 1986). The social cognitive theory provides that imitation of behaviour involves the actual reproduction of observed motor activity (Bandura, 1986) and that cognitions play a role in social learning as it encompasses attention, storing and motivation to act on a learnt behaviour. In defining the social cognitive theory (Kassin et al., 2008) defines it as behaviour that can be learnt through observing others and also through rewards and punishments. This study acknowledges that some behaviours can be learnt through observation and imitation of undesirable content. As such there is need to establish if social learning could transpire in emerging adults in the form of playing violent video games and result in acting aggressively as the viewed content. Below is the illustration of the Social Cognitive Theory in relation to the current study:

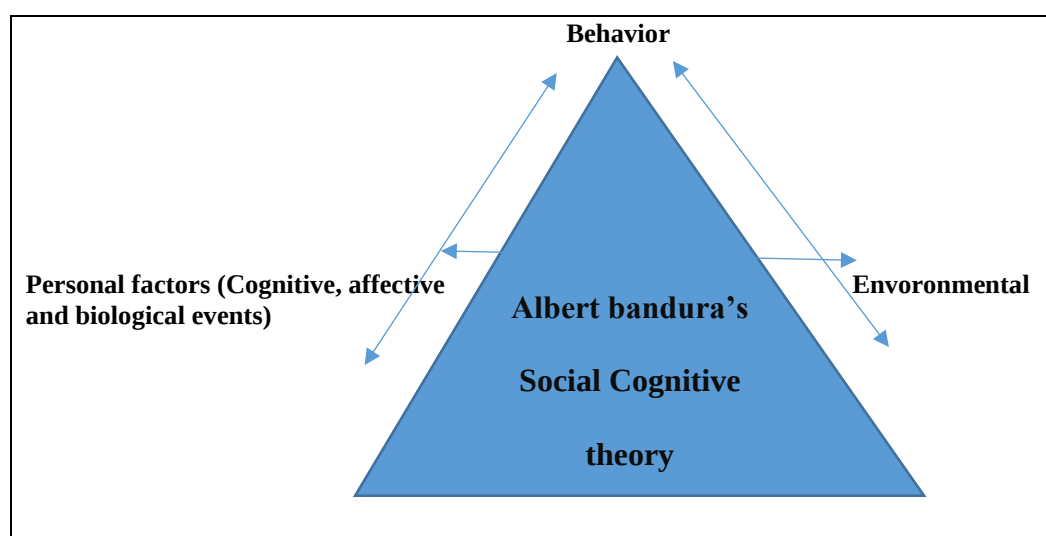


Figure 1. Theoretical Framework Diagram

Methodology

A quantitative research method approach was deemed to be the appropriate method to be used in the study of establishing the link between violent video playing and aggression. The study used a survey research technique since it has room for inclusion of a large number of sample (respondents) while considering several intervening variables (Kahneman, 2004) and also allow the researcher to obtain quantitative data and analyse it using both descriptive and inferential statistics. The study was carried out at Universiti Utara Malaysia. This location was selected because a study of this nature has little if any been previously carried out in the targeted population hence the need to carry out the study in the University Utara Malaysia context. The population for the study constituted all the emerging adults at Universiti Utara Malaysia. These are all the students between the ages of 18 and 25 and they are 22 923 in total. The sample size for the population was guided by the Krejcie and Morgan (1970) sampling method as tabulated in Sekaran (2000). For a population of 22 932, the sample size is subsequently 377.

Stratified random sampling method was used where the population was divided into 15 strata. The population of students is divided into three respective colleges within the university which are College of business (COB), College of arts and sciences (CAS) and College of law, government and international studies (COLGIS). The Colleges are then broken down into 15 schools. Samples for the study are drawn from the 15 schools. Respondents were randomly picked from the undergraduate classes where from each of the 13 schools 25 respondents were picked and the remaining two schools 26 respondents each. The number of males and females selected for respondents was proportional to the size of each stratum.

The study used the Bryant and Smith, 2001 Aggression Questionnaire which is a shortened version of the Buss and Perry Aggression Questionnaire (1992). In this questionnaire respondents firstly answer demographical questions which include their age, gender and race. After that the respondents answer a 12-item, 5-point Buss–Perry Scale, (1 = uncharacteristic of me, 5 = very characteristic of me). The instrument measures trait aggressiveness which is categorised in four dimensions which each have three items which are physical aggression, verbal aggression, anger and hostility (Buss and Perry, 1992). Scores for each category; anger, hostility, verbal aggression and physical aggression are obtained. The scores from the four categories then are then consolidated to form a single aggressive personality score. This is score is obtained by averaging all items of the Buss–Perry Scale (Anderson, Gentle and Buckley, 2007) and then used to obtain the level of aggression in the participants.

The study is also used the Habitual Video Game Violence exposure scores (HVGTV) to establish the violent video game score (Anderson, 2002). In this method, 3 favourite video games are noted down by each respondent and the noted games are then rated according to amount of violent content in each game and also on how frequent one played each of the 3 games. HVGTV scores are then computed by multiplying the obtained violent content rating by the frequency of playing each noted game, then the three scores are averaged (Ramadge and Connelly, 2011).

Evaluation

Before any test was run, the appropriateness of the research instruments was tested using the Cronbach's Coefficient Alpha Reliability Test. The Cronbach's Coefficient Alpha test outlines that a reliability which is below 0.6 is weak, a correlation that is 0.7 is moderate and above 0.8 reliability is good. The reliability of the whole study population size is tested. Verbal abuse was reliable at 0.82, physical abuse is reliable at 0.88, anger is reliable at 0.79, hostility is reliable at 0.88 and complete aggression is reliable at 0.95. Table 1.1 shows the reliability test results for the study.

Table 1.1: Study Reliability Test

Variables	Number of items	Reliability scores
Verbal abuse	3	0.82
Physical abuse	3	0.88
Anger	3	0.79
Hostility	3	0.88
Complete aggression	3	0.95

Test for normality is considered a must do prior to run any statistical test as purported by (Hair et al., 2013). Skewness value is supposed to be below 3 and kurtosis value below 8 according to Gouws and Tarp (2016). Therefore, the values of skewness and kurtosis in this study are below the designated threshold level of <2 and <7 respectively according to Gouws and Tarp (2016). Table 1.2 shows the test for normalcy results for the study.

Table 1.2: Study Test For Normalcy

Variables	Skewness	Kurtosis
Aggression	1.92	3.92
HVG	2.01	4.11
Time on VVG	1.85	4.56

Descriptive statistics brought about results that the average time spent playing violent video games by the emerging adults is 4 hours and the standard deviation is 5.43. The maximum time spent on playing the violent video games is 15 hours per week and the minimum hours spent playing violent video games is 1 hour. Table 1.3 shows the descriptive statistics of time spent playing violent video games.

Table 1.3: Descriptive Statistics On Time

N	Mean	Std. Deviation	Maximum	Minimum
357	4	5.43	15	1

The study results show the average level of aggression by the emerging adults as categorised in physical abuse, verbal abuse, anger, hostility and total aggression. Verbal abuse is the highest form of abuse with an average of 6.6 followed by hostility with an average of 5.6 then anger with 5.5 and the lowest being physical abuse with an average of 5.2. For total aggression, the mean is 22.9. Table 1.4 shows the descriptive statistics of aggression level in emerging adults.

Table 1.4: Descriptive Statistics On Aggression Level

Type of aggression	Mean	Standard Deviation
Verbal abuse	6.6	1.5
Physical abuse	5.2	1.49
Anger	5.5	1.61
Hostility	5.6	1.67
Total aggression	22.9	4.24

The HVGv score was calculated for the study. This is the amount of violence exposed to an individual through playing video games in relation to the time they spent playing that game. The exposure score highlighted that the average score of exposure to violent video games is 32.4 with a standard deviation of 9.9. The amount of violent content in a movie and the time that one spends in playing a particular violent video game distinguishes one's exposure score from the other. Table 1.5 shows the descriptive statistics on HVGv score.

Table 1.5: Descriptive Statistics On HVGv Score

N	Mean	Std. Deviation
357	32.4	9.9

Pearson correlation was conducted to establish the relationship between violent video game play and aggression. The findings showed that there is a positive weak relationship between violent video game play and aggression $r(0.191) = 355, p < 0.05$. Table 1.6 shows the correlation between violent video games and aggression.

Table 1.6: Correlation Between Variables Aggression And HVGv

	HVGv	Total aggression
HVGv		
Pearson Correlation		0.191
Sig. (2- tailed)		0.000
N		357
Total Aggression		
Pearson Correlation	0.191	
Sig. (2- tailed)	0.000	
N	357	

*Correlation is significant at the 0.05 level (2-tailed).

The study results also show that there is no mean difference in time spent playing violent video games between males and females. Independent t-test was conducted to compare if there is a mean difference in time spent playing violent video games between male and female emerging adults at UUM. Results of the study show that there is no mean difference in time spent playing violent video games between males ($M = 4.1, SD = 3.76$) and females ($M = 4.33, SD = 3.95$); $t(355) = 0.298, p > 0.05$.

The study results also show that there is no mean difference in type of violent video game preference between males and females. Independent t-test was conducted to compare if there is a mean difference in type of violent video games preference between male and female emerging adults at UUM. Results of the study show that there is no mean difference in type of violent video games preference between males ($M = 31.5, SD = 8.65$) and females ($M = 30.1, SD = 9.34$); $t(355) = 1.471, p > 0.05$.

The study results show that there is no mean difference in aggression level between males and females. Independent t-test was conducted to compare if there is a mean difference in level of aggression between male and female emerging adults at UUM. Results of the study show that there is no mean difference in level of aggression between males ($M = 22.8, SD = 3.97$) and females ($M = 23.06, SD = 4.04$); $t(355) = -0.496, p > 0.05$. Table 1.7 shows the result of independent t-test on comparison on time spent playing violent video games, violent video game preference and levels of aggression between males and females.

Table 1.7: Independent t-test Results

Variable	Mean (Male)	Mean (Female)	SD (Male)	SD (Female)	t	df	Sig. (2 tailed)
Time	4.1	4.33	3.76	3.95	0.298	355	0.71
Game preferenc	31.5	30.1	8.65	9.34	1.471	355	0.123
Aggressi on level	22.8	23.06	3.97	4.04	0.496	355	0.62

$p > 0.05$

Conclusion

The low positive relationship indicates that whilst each of these two variables goes up in reaction to one another, if violent video game play is increased, the level of aggression also increases. However, the relationship between these two variables is weak. It is not strong as such this weak relationship between violent video game play and aggression entails that as one of the variables increases or decreases the probability of having a relationship with the other variable is lower. This study can be said to be in line with a study by Scharrer (2018) on violent video game play and aggression on students at Massachusetts University in the United States of America. The study by Scharrer (2018) used an experimental method design on the emerging adults at the university. Results of the study indicated a lower positive relationship between violent video game play and aggression. The study being replicated in the same age group with a different research design, the current study used a quantitative approach in the form of a survey and produced the same results. This could indicate towards an affirmed position on violent video game play and aggression that there is an existence indeed of a relationship between the two, but the relationship is positive and weak. This is such that on the increasing or reduction of one of the variables there is no strong likelihood that the other variable will follow suit.

The study revealed that there is no mean difference in time spent playing violent video games between males and females. This shows that male and female emerging adults at UUM award similar allocation of time to playing violent video games. This finding is consistent to the argument by Hamlen (2010) that there is really no difference and notable distinction on gender regarding the time spent playing violent video games as well as the feeling of victory and fulfilment after winning a game in young adults. Similarly, Howe et al. (2015) highlight also that the amount of time spent playing video games has no distinction between males and females young adults. The current study together with Hamlen (2010) and Howe et al. (2015) all used a survey method and Independent test to get to this assertion. Contrary to the findings of this study and other researchers, Eow & Baki (2009) in a study of Malaysian youths established that there is a difference in the time spent playing violent video games between males and females. Similar to this study, Eow & Baki (2009) conducted their study in Malaysia but however, there is a difference in the age group as they focused on children and the current study focuses on emerging adults.

Results from the study showed that there is no mean difference in violent video game preference according to gender. The results show that the male and female students at UUM who emerging adults are have similar preferences on the type of violent video games that they want. This is consistent with the findings by Funk et al. (2000) who revealed that there is no difference in violent video game preference between males and female young adults.

The results of the study also revealed that there is no mean difference in aggression level according to gender. This means that there is no difference in levels of physical abuse, verbal abuse, anger and hostility between male and female emerging adults. They have similar levels of aggression. The result of this objective is consistent with the findings in this study that both males and females have the same preference in the choice of violent video games they play and also that there is no difference in the time they spent playing violent video games. It then showed that the playing of violent video games also has the same effect which is the same level of aggression between males and females. With a similar finding, Griffiths (1997) revealed that there are no differences in levels of aggression for both males and females.

Implications and Recommendations for Future Studies

The study recommends that the Royal Malaysian Police Department factor in teaching the effects of violent video game play to emerging adults as it conducts its community reach out programs. The study has revealed that there is a relationship between violent video game play and aggression among emerging adults. Aggressive behaviour in the form of anger, hostility, physical abuse and verbal abuse can lead one to aggression related crimes like domestic violence, assault and malicious damage to property (Stancu, 2017). However, most emerging adults do not know the effects of playing violent video games (Ferguson & Kilburn, 2010) a worrisome fact being that they are now adults and are no longer age restricted on games. Hence, there is need for awareness to be raised in the emerging adults on the effects of the now common pass time activity of playing violent video games.

The study also recommends that the Film Censorship Board of Malaysia be an active key player in highlighting the effects of playing violent video games. The board could enforce that all video games to be sold within the country as well as advertisements be included a statement that these violent video games have a relationship with anger, hostility, physical and verbal abuse as revealed by the study. One will then play these violent video games with the full knowledge of its effects. The notion of putting warning signs on products was proven to be effective on smokers risk warning have been introduced on all cigarettes and advertisements for cigarettes to smokers (Grana, 2014). Findings from the International Tobacco Control showed that there is a significant reduction in the number of smokers since the warnings were introduced (Hammond et al, 2006). The current research in the same vein encourages that Film Censorship Board of Malaysia to introduce such warnings on violent video games.

The study recommends for the continual testing of the level of relationship between violent video games and aggression. The advancement of violent video games and increase in violent video game content affects the levels of aggression in the players (Hollingdale & Greitemeyer, 2014). The current research provided a position that there is a positive weak relationship between violent video games and aggression. The research however appreciates the evolving and daily advancement in technology like the introduction of the 6d Orbital violent video games where one can literally beat up an opponent or fill a blow from the opponent (Jin, 2012). Therefore, there is need for future researchers to take into account the advancement in violent video game technology and establish how it affects the level of aggression in violent video game players.

References

- Anderson, C.A., (2002). Effects of violent video games on aggressive behaviour: Potential sex differences. *Journal of Experimental Social Psychology*, 38: 283-290.
- Anderson, D.A., Gentile & K. E. Buckley. (2007) *Violent Video Game Effects on Children and Adolescents*. Oxford University Press, 2007.

- Bryant, F. B., & Smith, B. D. (2001). Refining the architecture of aggression: A measurement model for the Buss–Perry Aggression Questionnaire. *Journal of Research in Personality*, 35(2), 38-167.
- Baki, R., & Leng, Y. (2008). The Perspective of Six Malaysian Students on Playing Video Games: Beneficial or Detrimental? *Online Submission*, 5(11), 11-21.
- Breuer, J., Vogelgesang, J., Quandt, T., & Festl, R. (2015). Violent video games and physical aggression: Evidence for a selection effect among adolescents. *Psychology of Popular Media Culture*, 4(4), 305.
- Calvert, S. L., Appelbaum, M., Dodge, K. A., Graham, S., Nagayama Hall, G. C., Hamby, S., ... & Hedges, L. V. (2017). The American Psychological Association Task Force assessment of violent video games: Science in the service of public interest. *American Psychologist*, 72(2), 126.
- Costa, L., & Veloso, A. (2016). Being (grand) players: review of digital games and their potential to enhance intergenerational interactions. *Journal of Intergenerational Relationships*, 14(1), 43-59.
- DeCamp, W., & Ferguson, C. J. (2017). The impact of degree of exposure to violent video games, family background, and other factors on youth violence. *Journal of youth and adolescence*, 46(2), 388-400.
- Eck, D. L. (2002). *A new religious America*. HarperCollins World.
- Elmer-DeWitt, P., Dickerson, J.F. and Jackson, D.S. (1993). The amazing video game boom. *Tim Magazine*, 66–73.
- 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.
- Exelmans, L., Custers, K., & Van den Bulck, J. (2015). Violent video games and delinquent behaviour in adolescents: a risk factor perspective. *Aggressive behaviour*, 41(3), 267-279.
- Ferguson, C. J. (2018). Violent Video Games, Sexist Video Games, and the Law: Why Can't We Find Effects? *Annual Review of Law and Social Science*, 14, 411-426.
- Gouws, H., & Tarp, S. (2016). "Information overload and data overload in lexicography". *International Journal of Lexicography*. pp. 1-30. Netherlands.
- Graham, J., & Haidt, J. (2010). Beyond beliefs: Religions bind individuals into moral communities. *Personality and social psychology review*, 14(1), 140-150.
- Grana, R., Benowitz, N., & Glantz, S. A. (2014). E-cigarettes: a scientific review. *Circulation*, 129(19), 1972-1986.
- Green, R.G. (2001). *Human aggression* (2nd Ed.). Buckingham: Open University Press.
- Griffiths, M. (1997). Video games and aggression. *PSYCHOLOGIST-LEICESTER*-, 10, 397-402.
- Grossman, D., & DeGaetano, G. (2014). *Stop teaching our kids to kill: A call to action against TV, movie and video game violence*. Harmony.
- Hartmann, T., Möller, I., & Krause, C. (2015). Factors underlying male and female use of violent video games. *New Media & Society*, 17(11), 1777-1794.
- Hassan, M. S., Osman, M. N., & Azarian, Z. S. (2009). Effects of watching violence movies on the attitudes concerning aggression among middle schoolboys (13-17 years old) at International Schools in Kuala Lumpur, Malaysia. *European Journal of Scientific Research*, 38(1), 141-156.
- Hollingdale, J., & Greitemeyer, T. (2014). The effect of online violent video games on levels of aggression. *PLoS one*, 9(11), e111790.

- Jin, S. A. A. (2012). "Toward integrative models of flow": Effects of performance, skill, challenge, playfulness, and presence on flow in video games. *Journal of Broadcasting & Electronic Media*, 56(2), 169-186.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004). A survey method for characterizing daily life experience: The day reconstruction method. *Science*, 306(5702), 1776-1780.
- Kassim, A. W. (2006). Juveniles on remand: Trends and practices in Malaysia. *Resource material series/United Nations Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders*, 68, 196-208. <https://www.dosm.gov.my>.
- Kepes, S., Bushman, B. J., & Anderson, C. A. (2017). Violent video game effects remain a societal concern: Reply to Hilgard, Engelhardt, and Rouder (2017).
- Kumarasuriar, V., Pangiras, G., Sinnapan, S., & Koran, S. (2011). A study of the relationship between violent video game playing and aggression among adolescents in the Klang valley, Malaysia. *International Proceedings of Economics Development & Research*, 20.
- Markey, P. M., & Ferguson, C. J. (2017). *Moral combat: Why the war on violent video games is wrong*. BenBella Books, Inc.
- Martinez, K. (2017). Aggression and Violent Video Games.
- McGloin, R., Farrar, K. M., Krcmar, M., Park, S., & Fishlock, J. (2016). Modelling outcomes of violent video game play: Applying mental models and model matching to explain the relationship between user differences, game characteristics, enjoyment, and aggressive intentions. *Computers in Human Behaviour*, 62, 442-451.
- Morley, R. H. (2015). Violent criminality and self-compassion. *Aggression and violent behaviour*, 24, 226-240.
- Miyamoto, S., & Aonuma, E. (2016). *U.S. Patent No. 9,327,191*. Washington, DC: U.S. Patent and Trademark Office.
- Ramadge, A. and Connelly, C. (2011, March 2). *It took 18 years, but Mortal Kombat's finally banned*. News.com Australia. Retrieved 27 September 2012, from <http://www.news.com.au/technology/gaming/it-took-18-years-but-mortal-kombat-is-finally-banned/story-e6frfrt9-1226014699735>.
- Rankin, Y. A., Gold, R., & Gooch, B. (2006, September). 3D role-playing games as language learning tools. In *Eurographics (Education Papers)* (pp. 33-38).
- Sanger, J., Wilson, J., Davies, B., & Whittaker, R. (2019). *Young children, videos and computer games: Issues for teachers and parents*. Routledge.
- Scharpf, F. W. (2018). *Games real actors play: Actor-centred institutionalism in policy research*. Routledge.
- Shah, S. (2013). The Malaysian dilemma: negotiating sexual diversity in a Muslim-majority Commonwealth state. *Human rights, sexual orientation and gender identity in the commonwealth: Struggles for decriminalisation and change*, 261-286.
- Stancu, I. G. (2017). Defining the Crime of Aggression or Redefining Aggression? In *The International Criminal Court and the Crime of Aggression* (pp. 87-91). Routledge.
- Straus, Murray. Physical violence in American families. Routledge, 2017. Tavinor, Grant. *The art of videogames*. John Wiley & Sons, 2009.
- Tear, M. J., & Nielsen, M. (2013). Failure to demonstrate that playing violent video games diminishes prosocial behaviour. *PloS one*, 8(7), e68382.
- You, S., Kim, E., & No, U. (2015). Impact of violent video games on the social behaviours of adolescents: The mediating role of emotional competence. *School psychology international*, 36(1), 94-111.
- Zendle, D., Kudenko, D., & Cairns, P. (2018). Behavioural realism and the activation of aggressive concepts in violent video games. *Entertainment computing*, 24, 21-29.