

Elizabeth Summers is majoring in Sociology and has a minor in Justice Studies. After her graduation in December of 2007 she plans to intern. Her following submission was written for Professor Catherine Moran in her Methods of Social Research class. Elizabeth presented this research at the 2007 Undergraduate Research Conference at the University of New Hampshire and hopes to further her research on this topic.

Violent and Aggressive Behavior: Are Violent Video Games Really a Cause?

Abstract: *The purpose of this study was to see if violent video games cause game player's reactions to be more violent. A sample of 24 University of New Hampshire students (18 males, 6 females) were observed anywhere from 40 to 130 minutes playing the video game of their choice, in an attempt to get at their natural reactions to these games. The affect of the number of people in the room and number of people playing the game was explored as well. No significant connections could be made between violent video games and violent and/or aggressive behavior. However, it was noted in observations that the competitive nature of video games may be a potential cause of the violent/aggressive behavior associated with video games.*

Introduction

In the past, children and adults have entertained themselves by watching television, listening to music, or going outside to get some exercise and fresh air. More recently, children and adults alike have more often than not been keeping themselves occupied with the unbelievably and increasingly popular world of video gaming. It is estimated that over 90% of children and adolescents in the United States play video games, for approximately 30 minutes a day (Weber et. al. 2006). This total saturation of the market lends itself to many parent's worries about their children. The fear that many parents hold is that the incredible violence some of these games promote is desensitizing their children to violence in everyday life. Certain games allow the player to shoot and kill whomever they please, and in any fashion they like. Realistically, any child could

pick up a controller and, within the gaming world, shoot another character point blank in the face. Would these children be affected by the violence they were ‘involved’ in? More to the point, are college-aged Americans prone to more violent and aggressive behavior while playing these video games?

According to the popular gaming website GameSpot, of the top-rated games in the past six months, eleven of the fifteen games listed are outright violent (2007). The top-rated game, Gears of War, is among the most violent games ever created. To illustrate, players are encouraged to shoot anything that moves. If the player is ‘lucky’ enough to sneak up upon an alien adversary, the player is encouraged to use the very powerful chainsaw that is attached to the bottom of an extraordinarily large submachine gun and literally cut the alien in half. To add to the effect, blood is splattered all over the screen and continues to drip down off of it for about thirty seconds. Furthermore, while the chainsaw is viciously tearing through the chest of the ten-foot tall alien, the controller shakes in the hands of the player. A parent happening to watch their child horrifically murder a character onscreen is bad enough; if the child gets points, wins the game, and celebrates this kill, a parent will likely take issue with their children playing these games at all. Therefore, it’s critical for us to understand whether these games are actually *causing* violence and aggression in reality. The purpose of this study is to determine whether certain types of video games promote actual violence and aggression towards other people.

Review of the Literature

Video Games Today

The current video game systems (and their commonly-used abbreviations) include the XBOX 360, the Sony PlayStation 2 (PS2), the Sony PlayStation 3 (PS3), the Nintendo Wii, the Nintendo DS (DS), the Nintendo GameCube (GC), the Sony PlayStation Palm (PSP), and the Nintendo Game Boy Advance (GBA) (www.gamespot.com). In December of 2006, the PS2 sold a staggering 1.4 million units even after having been on the market for six years. In the same month, the Nintendo DS sold 1.6 million units, while the XBOX360 sold 1.1 million units. 2006 was a record-breaking year for the industry, as its sales topped \$12.5 billion (www.msnbc.com).

There are many different types of video games that can be played on each of these video game systems. The games focused upon in this study are first-person shooters (FPS), third-person shooters, role playing games (RPGs), massively multiplayer online role playing games (MMORPGs), sports games, survival horror, and real-time strategy games (RTS) (www.ihobo.com). First-person and third-person shooters are a sub-genre of the general role-playing genre. These first-person and third person shooters are also among the most violent of the genres. These games put the weapons in the hands of the character that the gamer is directly controlling. First-person shooters are played through the eyes of the main character; in other words, it is as if *you* are the main character. Third person shooters are similar, however the point of view is generally from behind the main character. The gamer still directly controls this character. Many games that will be observed are specifically first-person shooters, survival horror, and sports games.

Instances of Increased Violence Due to Violent Video Games

Upon reviewing the literature, it is clear that there are differences in opinion on whether or not violence and aggression stem from video games. In a recent study conducted by Brushman & Anderson (2002), the results of their studies showed an increased level of aggression in three categories they were studying: thoughts, feelings, and behaviors. By giving them vignettes in which the patience of the main character was tested and then asking them what kind of responses they'd have, the researchers demonstrated that people were far more inclined to have an aggressive response to a situation if the person being asked had played any one of the violent video games for 20 minutes or more.

Some studies have come to similar conclusions, with far more specific results. In some instances, researchers have found that while there is a mild connection between video game violence and aggressive behavior, it has more to do with the *type* of violence found in the game. As an example, Sherry's 2001 study on aggressive behavior associated with video games demonstrated that violence associated with sports was less likely to produce an aggressive reaction than human or fantasy violence. This concept was furthered by Anderson and Ford's 1986 study of college-aged students who had higher levels of anxiety, hostility, and even depression after playing violent video games. Some studies go so far as to say that, seen in a cognitive learning light, an extensive exposure to violent video games could very well change a person's personality and how they approach situations (Anderson & Dill, 2000).

Behavior Modeling

A large number of these studies are based on previous research looking at behavior modeling. This appears to be a critical point in understanding the possible connections between video game violence and violence in reality. Behavior modeling has been said to be the reason people act certain ways; they are simply recreating what a ‘model’ had shown them (Bandura, Ross & Ross 1961, Bandura 1973). Among the major effects of modeling influences, the fact that observers can begin acting in a completely new manner is among them. Also, the inhibitions of certain behaviors can be weakened or strengthened by simply seeing a person model behavior (Bandura 68). In the case of video games, this could potentially be associated with aggression in reality. According to the behavior modeling theory, if a person was watching a very realistic character in a realistic setting, they could acquire this behavior and begin to use it in their everyday lives.

Furthermore, Bandura also suggests that certain characteristics of the behavior model could encourage even more behavior modeling. If the behavior model possesses characteristics such as high levels of “prestige, power, and competence”, the actions of this model are likely to be emulated by people who are observing their behavior and its consequences (Bandura 70). In certain games, such as *Gears of War*, the main character of the game is massively over-muscled, part of the military, and wrongly accused of crimes. These models, according to Bandura, are actively sought out. They’re generally considered to be cool or dangerous, and many people use video games as a means of escaping their not-so-cool and minimally dangerous lives. With a near saturation of the market with violent video games, it’s clear that these models are in the faces of those who

would be more than willing to model behavior of people who are considered to be more interesting than they are.

What people generally fear is not how violent a person is *while* they play the game; they fear how violent a person is every day, *outside* of game play. The behavior modeling theory expands to situations in which the model is no longer present and demonstrating behaviors. Despite the fact that the model is not longer present, the model can be represented in the memory of the person symbolically (Bandura 72). It would follow that events that are symbolically similar to video game play would trigger behavior modeling of the character in the game.

Positive incentives also play a significant role in behavior modeling and, ultimately, could possibly play a role in aggressive and violent behavior associated with video games. Bandura stated in his book that positive incentives were reinforcement for modeling any type of behavior, aggressive or otherwise (72). This could easily be associated with the violent video games today. The violent video game Grand Theft Auto: San Andreas models behaviors that could potentially be carried out in real life. To illustrate, points are awarded to characters for killing cops, for stealing cars, and you can even win money to buy more guns if you kill the right pedestrians. While it is unlikely that a player will stop playing the game to go outside to kill a cop and steal a car, it is not outside the realm of possibility for that to happen. In the same game, one of the objectives is to have as many girlfriends as possible. Being with these women is positively reinforced by increased health points. While immediate exposure to this is unlikely to push a person to go out and immediately get a girlfriend, the repeat exposure to this type of video game might end up affecting a person in a more long-term way.

However, in an attempt to restrict the literature to the research question, the literature discussed here will remain strictly about more immediate responses.

Summary of the Literature

While there are only a few specific studies mentioned here, the overwhelming amount of published studies and dissertations found some sort of statistically significant relationship between violent video games and violent/aggressive behavior stemming from it. Elevated levels of anger, hostility, and depression have been documented in people who play violent video games, and these people have been found to have more hostile reactions to situations that someone who had not been playing violent video games may have handled more calmly. Whether these increased levels of hostility come from modeling behavior after a certain character in the game or from some other source is unseen at this point.

This study was designed to be a continuation of the previous literature, to be a positive reinforcement of all that had been documented in the past. This study will attempt to document violent and aggressive behavior stemming from violent video games as the subject as playing the game. Do the violent video games promote violence in the player? What types of violent and aggressive behavior can be seen in a gamer while they're playing the game? By finding out more about the effects of violent video games, decisions can be made about possible regulations on creating and purchasing violent video games. Furthermore, understanding the effects that this particular media outlet has on those who view it could lend itself to greater knowledge about the impact of mass media on the general public.

Methods

After viewing males and females on the campus of the University of New Hampshire, I expect to find an increase in violent and aggressive behavior in subjects who are playing overtly violent video games (H_1). Furthermore, I expect to find that first-person shooters will produce the most violent and aggressive behavior out of all of the games I will be observing (H_2). Lastly, I expect I will be finding that the number of people in the room will directly affect the violent and aggressive behavior of the subject (H_3). I am basing these hypotheses on previous studies of similar situations. Applying the behavior modeling theory to the current study would lead to results showing elevated levels of violence and aggression while playing a violent video game. The player would be seeing the attractive and powerful attributes that the heroic main characters of these games possess. The behaviors, violent or otherwise, are commonly rewarded with points or bonuses in the game. These reinforcements would further encourage violent and aggressive behavior in reality. I expect to find similar results in my own observations.

Participant observations were used as the method of gathering data. This methodology was chosen as it was the most efficient way to gather accurate data regarding violent behavior *as it was occurring*. It was assumed that if people were presented with a paper survey, it would be unlikely that they would be able to accurately describe their own behavior stemming from video games. In the past, people have reporting not even knowing they were exhibiting certain behaviors associated with their game play. Interviews would likely produce the inaccurate results that surveys would report. Participant observations were the only option that didn't actually involve the subject reporting on their own behaviors.

Having the subjects play the game of their choice in the setting of their choice was a deliberate decision, not one based to simplification. By letting the subject act as they normally would be while playing video games, it would follow that the observations being made would likely be as close to accurate as possible. Furthermore, by having as little possible input from the subject when it comes to their behaviors is a benefit to participant observation. To illustrate, many people do not realize they are swearing at someone they are playing with. Or they won't realize they gasp and hit the controller every time their character is killed. These types of behavior are important to this particular study. The researcher needs to be in the room taking note of these behaviors in order to get the most complete and accurate data possible.

Unfortunately, having the researcher present could potentially affect how the subjects act. They may not feel comfortable to act as they would if they were by themselves or with friends. By introducing a stranger into a group of friends, the whole dynamic of the group could potentially be changed by the stranger's presence. They may be too embarrassed to yell or overreact as they normally would. In contrast, it is possible that a person would exaggerate this behavior because they are being observed. Similarly, subjects could exaggerate certain behaviors because they feel that is what the observer is looking for in his or her study. Despite this flaw in participant observations, it still is the most effective way of gathering data about subject's behaviors during game play.

My sample consisted of 18 males and 6 females for a total of 24 subjects. The 24 subjects were observed in one of nine sessions that ranged from 130 minutes to 40 minutes in length. The small sample size proved to be the biggest limitation upon the sample. Another limitation of the sample was the difficulty at seeing a wide variety of

games being played, with the majority as the first-person shooters. In this study, only four of the nine titles observed were any sort of RPG. Furthermore, the groups observed usually lead to observations of other groups. The limitations of this became obvious when analysis of the data took place. Ultimately, only one session of observation had a subject playing a game all alone. Having more data from single players would have made the sample slightly more accurate, as there are plenty of people who prefer playing games by themselves rather than in a group. Along the same vein, groups playing video games lend themselves to a more festive and light atmosphere. Playing a video game by oneself likely would make the gaming atmosphere more serious.

This study was more qualitative than quantitative, therefore there were no obvious dependent or independent variables. I did, however, tally certain things I expected to see based upon the literature reviews. These include, but are not limited to, the number of people in the room, the number of frustration words, the number of instances of non-contact violent actions, the number of non-verbal frustration noises, etc (see Appendix A). A few of the coded actions need to be elaborated on. “Frustration Words” were words that were said out of frustration. This mostly constituted yelling about the current situation. A perfect example of frustration words can be found in session two, case ID 66666. This subject said things out of frustration such as “You have to be kidding”, “Are you blind?”, “What is going *on*?!” , and “Get your head in the game”. These were coded differently than “Frustration Swears”, as swearing is generally seen as an inherently aggressive behavior. “Non-Contact Violence/Aggression” includes any sort of lashing out stemming from the video game. This includes hitting/punching/kicking at the air, shaking, etc. of the like. “Number of times physical violence against game/game system”

was an action that was noted as fairly frequent in pre-testing. This proved to be far less frequent in documented observations. However, it was meant to cover instances of aggression aimed at the actual game console or the computer itself, as was “Number of times frustration with controller”.

There are a number of overall limitations that potentially hampered the entire study. The small sample size (only 24 subjects) severely limits options in terms of data analysis and making accurate connections. Second of all, a shortage of FPS and Third Person Shooter games made general connections and conclusions difficult to come by, as these were the whole basis of the study’s hypotheses. Third and finally, the overall system of tallying the observations is a strong limitation. Although participant observation allows the observer to get a better sense of actions and the atmosphere, tallying (particularly when it is two coding sheets at a time) is not the most accurate way of going about recording data.

Results

After running the tallied numbers through Small Stata 9, virtually zero potential correlations were made. Even when a small amount of statistically significant numbers came out of regressions and ANOVAs, these were found to be statistically significant after controlling for a few other variables. Each hypothesis will be addressed individually.

H₁: an increase in violent and aggressive behavior will be seen in subjects who are playing overtly violent video games.

This thesis was not supported by the gathered data. The following table illustrates the means of all of the different genres according to the tally of instances of non-contact violence or aggression, along with their standard deviations.

Genre	# of Observations this Genre	Mean	S.D.
Fantasy RPG	3	0	0
Sports	2	3	4.242641
MMORPG	1	2	-
Party Game	4	6	3.366502
Third Person Shooter	3	3	2.645751
Rhythm/Music	4	2.5	1.290994
Action Adventure	4	3.5	3
First Person Shooter	1	2	-
Driving	2	4	5.656854

As seen here, the means ranged from 0 to 6, with the lowest mean associated with the Fantasy RPG game and the highest mean associated with the Party Game. This statement is enough to reject the first hypothesis. The RPG title was “Crash Bandicoot”, which involves fantasy violence. The Party Game title was “Mario Party”, which is very similar to a board game full of competitive mini-games. There was no outright violence in the Party game. A factor that could have affected “Crash Bandicoot’s” numbers is the use of marijuana by all three of the subjects. This could potentially have reduced the reactions of all three of the subjects, which in turn would misrepresent the actual level of violence or aggression that could stem from a Fantasy RPG. Factors that may have affected the mean of the Party Game could be the length of time these subjects were observed. Instead of the standard approximate hour most other subjects were observed for, this

large group was observed for 130 minutes. This allowed more time for the subjects to react, increasing the overall tally number. The mean in the table is potentially deceptive, as the Party Game genre could have an equal number if the length of observation variable was controlled for.

These numbers were far lower than were expected for averages of non-contact violence or aggression. The initial hypothesis reflects the expectation based on previous literature that violent video games would spawn violent or aggressive behavior in the person exposed to it. Although there was a relatively significant range of means between the different genres, there was not a significant range of means between *violent* video games and simply *competitive* games. In summation, the first hypothesis could be rejected on the simple data seen in this chart. While a few more data analyses were done to find any sort of significance, including regression tables and ANOVA trials, the chart printed above most clearly demonstrates the lack of conclusive evidence supporting hypothesis one.

H₂: First-person shooters will produce the most violent and aggressive behavior out of all of the games being observed.

This hypothesis cannot be accurately addressed, as it was only possible to observe one session with one subject playing a first-person shooter. No real comparative data analyses could be made, let alone generalizations about the population. Because part of the method of observation was to let people play games exactly as they would in their normal setting (and because they didn't know exactly what was being observed), the subjects were allowed to pick the games they'd normally play. As the large majority of

sessions involved two or more players, these subjects tended to pick games that would be fun for everyone. First-person shooter games tend to have more difficult controls, making the social gamer less likely to want to play it. The likelihood of having a group of people who know all of the controls to the same game is not high. Therefore, it became clear after data collection began that it would be difficult to isolate a number of subjects that regularly play games by themselves. These gamers would have been considered the serious gamers, and likely would have changed the results of this study drastically. However, since only one FPS was observed, it is impossible to make a conclusive statement about whether or not an FPS produces more or less violent and aggressive behavior in subjects

H₃: The number of people in the room will directly affect the violent and aggressive behavior of the subject.

Despite the fact that the first and second hypothesis did not have anticipated results whatsoever, it became clear after some data analysis that the wording of this hypothesis allowed for some leeway. While the previously shown data indicates no direct correlation between violent video games and violence and/or aggression, it was possible that the number of people in the room could affect the level of response from subjects. The following is an analysis of the data relevant to this hypothesis

number of people in room	Summary of number of times swearing out of frustration			Freq.	
	Mean	Std. Dev.			
2	10	2.8284271		2	
3	15.5	17.67767		2	
4	9	9.1433036		6	
5	13.9	7.936554		10	
7	13.25	4.0311289		4	
Total	12.375	8.0206933		24	
Analysis of Variance					
Source	SS	df	MS	F	Prob > F

Between groups	125.475	4	31.36875	0.44	0.7781
Within groups	1354.15	19	71.2710526		

Total	1479.625	23	64.3315217		

Bartlett's test for equal variances: chi2(4) = 4.4887 Prob>chi2 = 0.344					

This one way ANOVA analysis had the number of people in the room as the independent variable, and the number of swears stemming from frustration as the dependant variable. As seen in the .7781 p-value, this is nowhere near significant (not even at the .05 level). A further regression analysis using frustration words as the dependent variable and the number of people in the room as the independent variable proved to be statistically insignificant as well.

Discussion

Upon reading all of the literature, I expected to find absolutely nothing new deviating from previous studies. I anticipated seeing more violent and aggressive behavior in subjects playing violent and aggressive video games. According to Brushman and Anderson (2002), the results of their study showed an increase in aggression in thoughts, feelings, and behaviors. In no way did my study reflect their findings. This may or may not have had to do with the differences in the method of observation. Brushman and Anderson started out with a personality test, then had subjects play either a violent video game or a nonviolent video game, and ended their study with having the subjects react to vignettes that could potentially prompt violent or aggressive reactions. In the study overviewed and discussed here, the method was simply to observe the violent and aggressive behavior stemming from video games, particularly the violent ones, *while* the subject was playing the game. There were no personality tests, no set games designated with ‘violent’ or ‘nonviolent’ labels, and no post-exposure vignettes. The time constraints of the semester strained my ability to get even up to 24

subjects. It would have been virtually impossible to conduct such an expansive study, get a usable number of subjects, and effectively run the data in the amount of time I left for myself. Furthermore, my level of experience in conducting a survey wouldn't have lent itself to such an in-depth study. I would have had to deal with large amounts of both quantitative and qualitative data, which would likely have been extremely difficult for an undergraduate Sociology student to handle.

The behavior modeling theories put forth by Bandura also were not supported by my research. I anticipated seeing people model the violent behavior that was being portrayed in the video game the subject was playing. When the expected results were not obtained, it forced me to think about the potential reasons why I did not see the behavior modeling I expected. After reading the literature on behavior modeling, it was clear that it would be logical to expect that the main character of a video game would have characteristics that players (particularly male players) would want to emulate. Take, for example, the M-rated third-person shooter title "Gears of War". The main character, Marcus Fenix, has many qualities that Bandura would likely say a person would want to emulate. To illustrate, according to GameSpot.com, Marcus Fenix and his fellow soldiers "...wear ridiculously huge, bulky armor, but can't be bothered to wear helmets. They're just that tough. Or stupid." (www.gamespot.com). The reckless, dangerous, and masculine nature of Marcus Fenix is something that young boys around the world would more than likely try to emulate. Fenix was also wrongly accused of being a traitor, and was thrown into jail. He's broken free at the beginning of the game to help save the world. This gives him a certain level of prestige, which is one of the things that make a model have desirable characteristics. Unfortunately, the results of my observation

showed almost no behavior modeling, despite the positive reinforcements and the prestige traits of many of the main characters in the games played. The most extreme extent of behavior modeling in this study was a few cases of emulation of speech and actions.

I believe there are two explanations for why my study had highly different results from those of previous literature. The first is that my study is nowhere near as in-depth and well-developed as the other studies on this subject. My 'variables' were things I had simply assumed I'd see, or things I had seen in many of the previous studies. They were not based on any solid data I had collected in true pre-testing. These studies also had extensive pre-testing done to determine what exactly they were looking for, and whether or not there was a solid base for these hypotheses and data collection. My pre-testing was simply watching a group of my friends to see if my research question was something I could hope to expand into a whole study. The previous studies had a wide-range of data collection that simply would not have been possible for this study. Brushman and Anderson's study involving a personality test and post-exposure vignette testing would be a much more effective way of testing how video game violence truly affects the subject. What Brushman and Anderson got to that this study did not were post-exposure effects. While Brushman and Anderson made sure they could gauge violent behavior outside of the gaming situation, this study simply looked at aggression and violence *during* game play. While this is relevant, parents and the general public are more concerned about the long-term effects of this exposure. Perhaps, if I were to do this again, I would try a longitudinal study. A longitudinal study would enable me to see the changes in overall behavior after long-term exposure to violent video games. This would

likely produce much more accurate results in reference to my research questions and hypotheses. These are all things I would change now having gone through the methods process.

The second reason I believe my results were so different is that there may actually be some truth to some of my results. Not in the numbers, but in the things I saw and the feelings in the room. After having observed all different types of video games, I found myself wondering about Brushman and Anderson's study. How had they found such clear-cut results? In observing people, the fact that struck me almost immediately is that everyone is different. For certain people, video games are very much an alternate reality that reflect their skill and intelligence level. When a game required the subject to be more aggressive and violent, they rose to the challenge to beat the game. When another game set a subject up with challenges to beat other players or beat a particular level, the subject generally did his or her best to get involved in the game and win. It is especially important to note that, though it could not be tallied, people's reactions to winning and losing were a very interesting thing. In the larger groups, there always appeared to be one person who really knew how to play the game because it was *their* game and *their* gaming console. These people were the most relaxed of the bunch when they were winning the game, which was often. However, when they were losing, they reacted violently and displayed by far the most aggressive and violent behavior, *no matter what genre the game was*. I believe this lends itself more to the competitive nature of video games than the violence presented in these games. Furthermore, the aggressive and violent behavior associated with every genre played stemmed from incidences when a subject lost the game, "died", or did something wrong. This is further evidence that

perhaps the correlations between violent video games and violent/aggressive behavior are not strong as previous literature lead me to believe.

In summation, video games are exactly what their names imply: games. The whole point of a game is to occupy your time, have fun, and win. There is an inherent competitiveness in each game you play. Whether you're playing by yourself or playing with other people, the goal is still to win. When this goal is blocked, whether it is by attacking aliens, friends you're playing against, or simply a puzzle you can't solve, the level of frustration will likely rise. This frustration can be expressed in words and in actions, whether directed at a person, a character, or the gaming system itself. It would be futile to try and assert that video games do not cause a person to be violent or aggressive. However, it is important to try and pinpoint exactly what causes these types of behaviors. While certain video games may have more graphic, gory and violent content than others, it is all too easy to say that violent video games *will* cause a player to be inherently a more violent person. If this study has done anything, it has shown that there are potentially some alternative reasons as to why a person becomes more aggressive and/or violent while playing video games. While my study does not conclusively say what these alternatives may be, some of my observations pointed towards competitiveness rather than violent content as the basis of this behavior. However, as seen, nothing was linked in this particular study. This lends itself directly to what I have learned. I have learned that despite the fact that nothing in my study was statistically significant, I gleaned plenty of important information from simply observing. I have hopes in the future that, with a number of changes to my methods and my ideas, it would be possible to get data that would be more applicable to the hypothesis that

perhaps competitiveness is more of a cause of violence and aggression than violent content in relation to violent video game exposure.

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