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KILLING FOR FUN: A STUDY OF THE EFFECT VIOLENT VIDEOGAMES HAVE ON THE PLAYER

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Many studies have been done to see if there are aggressive effects on people that play violent videogames. Even in the early 80s, there was concern that games like *Pac Man* were too violent for youth. Most studies have concluded that violent games have a negative effect on young people. Yet, I believe that many of these studies had flaws in the research methods. Therefore, I based my study on a previous study done by Bushman and Anderson (2002). My study consisted of a sample of 10 male Minnesota State University (MSU) students who listened to a scenario that would gage aggressive responses, then they were to write how they would react in that specific situation. Next, I had the participants play a violent videogame for 20 minutes. They completed a different scenario by writing how they would react to that specific situation. I compared the number of aggressive responses recorded in the two scenarios before and after playing the videogame. I wanted to see if there was a correlation between violent videogame playing and aggressive behavior/responses. Results from this study concluded that there is, in fact, an increase in aggressive behavior/responses after playing violent videogames.

The Videogame Blame Game

It seems that whenever a troubled child's behavior does harm to others or to self, the media immediately is blamed. Interestingly, one specific facet of the media, videogames, takes most of the blame. We are told that the reasons for the child's negative behaviors are not because they had no friends in school and were mocked everyday; not because the child lacked attention at home; not because the child listened to Marilyn Manson; and not because the child watched R-rated movies, but the result of the child playing too many violent videogames for too long. The purpose of this study was to see if there was a relationship between playing violent videogames and increased aggressive behavior.

Videogames have been the target of blame for some time. Anderson and Dill (2002) blame *Doom* for Eric Harris and Dylan Klebold killing 13 people in Columbine High School. In Newport, Tennessee, *GTA 3 (Grand Theft Auto)* is the reason William and Joshua Buckner gave in their defense after killing a man and wounding a woman. They "Told investigators they got the rifles from a locked room in their home and decided to randomly shoot at tractor-trailer rigs, just like in the video game '*Grand Theft Auto III*,'" (CNN, 2003). *Wired News (2004)* blames "*Doom*, notorious as a favorite of the Columbine killers; *Mortal Kombat*, with its calls for a player to 'finish' opponents in myriad gruesome ways; and *Grand Theft Auto*, which exhorted players in its latest iteration to start a Cuban-Haitian race war," for the violence, citing the violence provoking nature of the content).

But what is deemed violent? The problem with defining "violent" is that there are many different definitions for many different people. Some people in the early 80s claimed, "The players performed acts that are violent in nature... in '*Pac Man*' and '*Ms. Pac Man*,' players 'eat' monsters and, in turn, avoid being eaten," (Dominick, 137). People in the 90s claimed that *Mortal Kombat* was a violent game. Anderson and Dill claim that *Mortal Kombat* is very similar to an 80s favorite, *Super Mario Brothers*, which is traditionally considered innocuous, stating, "*Super Mario Brothers* and *Mortal Kombat* both involve considerable violence in the sense that the player typically spends a considerable amount of time destroying other creatures." However, Anderson and Dill do not acknowledge that you can practically beat *Super Mario Brothers* without ever killing an enemy. In fact, the player has a choice to squish their opponents by jumping on them or simply jump over them. This lack of continuity in the definition of violence demonstrates the importance of a clear and measurable definition. For the rest of this document, when the term violence is used it means the act of intentionally harming a person, an animal, or anything that can feel pain (this term is a collaboration of different dictionaries' definitions and different studies' definitions).

This paper summarizes what is currently known in the field of videogame research and expands that knowledge further. The current experiment investigates the correlation between violent videogames and aggression by comparing aggressive responses before and after playing violent videogames. This study is different from others in that each participant serves as his own control. The results of this study indicate that violent videogames significantly

increase aggressive behavior. These findings hold important implications for this field of research, the videogame industry, and society as a whole.

Previous Studies

Today's children are "exposed to a massive dose of violent media," (Anderson and Bushman, 477). The news, movies, TV, music, videogames, and so on are all examples of media that portray violence. There is much concern that these media are creating a generation of angry and violent youth. Many studies have been done to try and find an answer to the question of exactly how much influence videogames can have on behavior. I find that many of the studies have used methods lacking the appropriate design and/or controls, leading to conclusions that range from ambiguous to inaccurate. Basically, these studies have left more questions than answers. For instance, Mahood and McGrath used a methodology in which their participants watched videogames rather than having played videogames. Having a participant watch videogames rather than play videogames becomes more of a study of watching a violent movie or TV show. This methodological shortcoming of having a participant watch something they would usually interact with provides room for a questionable conclusion because their results may have changed greatly if the participants would have actually played the games like they would in real life. In fact, this study does not directly measure the effect that videogame playing has on individuals.

Some studies have done an excellent job of providing logical methodology and concluding accurately from the findings. For example, Haninger and Thompson's study "Frequently Asked Questions about 'Violence in E-Rated Video Games,'" included looking at 55 E-Rated games and counting how many violent acts per minute occurred. This means that they actually looked at games that children regularly play and games that are made specifically for children. Their findings showed that just because a game was rated E for everyone, doesn't mean that it is suitable for everyone. In severe contrast to Haninger and Thompson's well-designed study, other studies, in an effort to demonstrate the harmful effect of videogame playing, have looked at 8 year olds playing *Mortal Kombat*, which although possible, is a highly unlikely scenario.

I based my experiment on Bushman and Anderson's 2001 study, "Violent Video Games and Hostile Expectations: A Test of the General Aggression Model." In their study they had half of the participants play non-violent games and the other half play violent games. They then had the subjects read some scenarios and respond. In my experiment, instead of comparing a group playing non-violent games to a group playing violent games, I will be comparing a person's responses before playing a violent game and after playing a violent game. I hypothesize that having subjects serve as their own control provides internal validity to this method and will demonstrate if there is an effect of increased aggressive responses on individuals who play violent videogames.

The Best Blood and Gore Money Can Buy

I chose the videogame *F.E.A.R.* (First Encounter Assault Recon) for the participants to play. It was released on October 18, 2005. I purchased it that day at Best Buy and played it for two weeks to get a grasp of the game before I had

the participants play. This game was not widely known at the time of this study. This is an important component of the study because if a participant is already familiar with a specific game, they will not respond the same as if it is their first time playing the game. The advertising for it was very limited because the company wanted to keep the contents of the game a secret to increase curiosity, in hopes of driving up sales upon its release. The game received a rating of "M", for mature or 17+, by the Entertainment Software Association. The reasons for this rating are, "Blood and Gore, Intense Violence, and Strong Language."

The F.E.A.R. System

The game was played on a 17-inch Samsung LCD monitor. The system was an Intel Pentium 4 with Hyper-Threading 3.4Ghz processor, 1 GB of DDR2 RAM, and an ATI X700 256 MB PCI-Express graphics card. The keyboard was a Logitech Media Keyboard Elite and the mouse was a Logitech MX518 Gaming Optical Mouse. The sound was played through an EV Sonic XS 4.1 sound system.

The Participants

The demographics of the participants are shown in Figure 4. The participants were 10 male students from Minnesota State University, Mankato between the ages of 18 and 22. I used only male students to avoid confounding variables associated with gender differences. None of the participants had played *F.E.A.R.* prior to participating in this experiment. They all had played a first person shooter game before, so they could easily adapt to the logistics of the game. Nine of ten subjects said they play videogames on a regular basis. None of the participants were allowed to use any substances that would impair their actions.

The Analysis

I analyzed all the responses using Bushman and Anderson's examples of "aggressive" responses. Bushman and Anderson used three outside people to rate the responses as "aggressive" or not. In their appendix, they list the "aggressive" responses (*See Appendix C and D.*) they received from their participants. I used this list and compared it to my own participants' responses to calculate the number of aggressive responses as objectively as possible.

Statistics comparing subjects' scores before and after playing the game were performed using a paired, one-tailed t-test, excluding outliers (Participants 4 and 7). Statistics comparing the two different scenarios at baseline were performed using an unpaired, two-tailed t-test. These statistics were conducted using InStat v3.0 (using a Macintosh system). Significance was determined by a p value of $p < 0.05$.

The Experiment

The experiment began when the participants entered my apartment. I immediately had them sit down at a table in my home, where in front of them was a single piece of loose-leaf paper and a pen. I then introduced myself to the participants and gave them a brief overview of what they were about to do. After the explanation, I read them a brief scenario from Bushman and Anderson's

study, "Violent Video Games and Hostile Expectations: A Test of the General Aggression Model." These scenarios are, "... ambiguous story stems about potential interpersonal conflicts," and "... have been successfully used in previous research (Anderson and Bushman 2002, 1679, 1681; Dill et al., 1997; Rule, Taylor, and Dobbs, 1987). The scenarios were used to calculate an aggressive response. Since the scenarios were used before, I was able to rate aggressive responses in an objective manner based on the previous responses found in Anderson and Bushman's 2002 appendix. The first group was read a scenario about a car accident (*See Figure 1.*) first and a restaurant incident (*See Figure 2.*) after playing the game. The second group was read the scenario about the restaurant first and the car accident after playing the game. The only difference in the two groups is that they did the scenarios in reverse order because I wanted to make sure that one scenario did not provoke more aggressive responses than the other scenario. After I read the first scenario, the participants had to provide ten to twenty responses of how the story would continue. (I originally asked for 20 responses like Bushman and Anderson, but some initial participants had a difficult time producing that many.) I then counted the number of aggressive responses to the first scenario for each participant; this score is the subjects' baseline score for themselves before playing the game. This score is the control and will be compared to the second scenario responses. The results in Figure 3 demonstrate a slight difference in the baseline number of aggressive responses between scenarios. However, this difference was not significant ($p>0.05$), signifying that there is no difference in the aggression provoked by the two scenarios.

The Car Accident

Todd was on his way home from work one evening when he had to brake quickly for a yellow light. The person in the car behind him must have thought Todd was going to run the light because he crashed into the back of Todd's car, causing a lot of damage to both vehicles. Fortunately, there were no injuries. Todd got out of his car and surveyed the damage. He then walked over to the other car. What happens next? List 20 things that Todd will do or say, think, and feel as the story continues.

Figure 1: Car Accident Scenario from Bushman and Anderson 2002 study.

Going To A Restaurant

Jane had worked hard all day long cleaning her apartment. She was tired but decided to reward herself with a meal in one of the restaurants down the street. Upon entering the restaurant, Jane decided upon a Caesar salad, French onion soup, and filet mignon. Some 15 minutes later, a waiter came around to take her order. Time slowly passed and Jane was getting hungrier and hungrier. Finally, about 45 minutes after her order had been taken, Jane was about to leave when she saw the waiter approaching with her food. What happens next? List 20 things that Jane will do or say, think and feel as the story continues.

Figure 2: Restaurant Incident Scenario from Bushman and Anderson 2002 study.

	Car Scenario	VS	Restaurant Scenario
Total # of Aggressive Responses (Baseline)	19		21
Average # of Aggressive Responses (Baseline)	3.8		4.2

Figure 3: Difference between the number of responses from the Car Scenario and the Restaurant Scenario (at baseline).

Following the baseline scenario, I asked the participants three additional questions about videogames:

- 1) Have you ever played *F.E.A.R.* before?
- 2) Have you ever played a FPS (first person shooter) before?
- 3) Do you play videogames on a regular basis?

See Figure 4 for results to these questions.

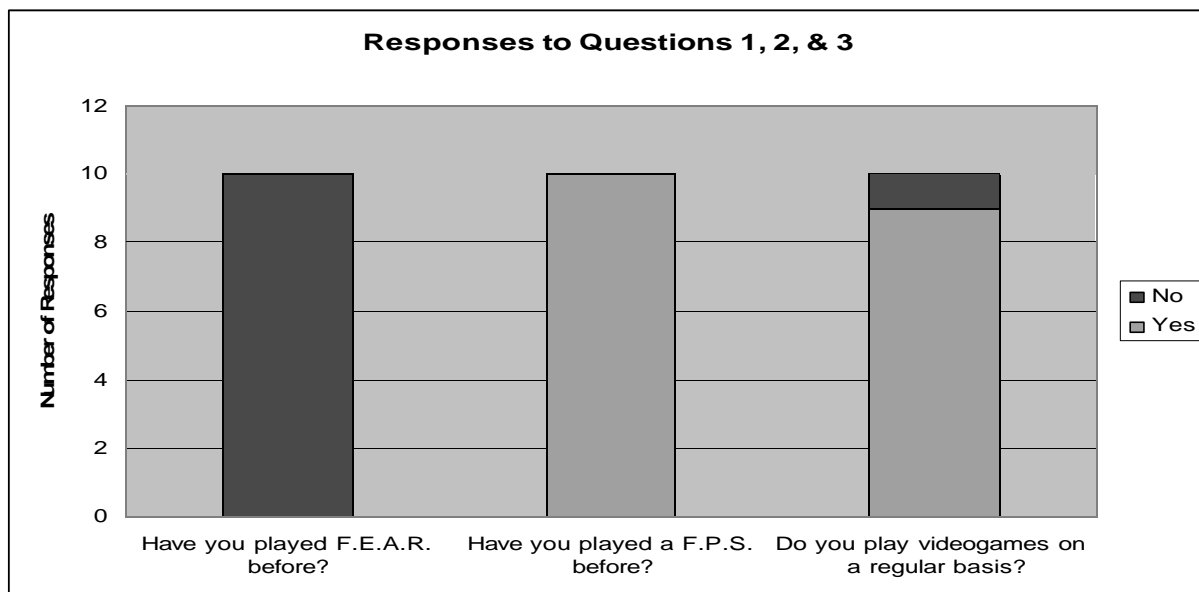


Figure 4: Responses to the three questions asked after the participant had finished their first scenario.

** F.P.S. stands for First Person Shooter**

Before I allowed the participants to play the game, I gave them a brief overview of the game and read them a paragraph from the game box.

A mysterious paramilitary force infiltrates a multi-billion dollar aerospace compound, taking hostages but issuing no demands. The government responds by sending in a Special Forces team only to have them obliterated. Live footage of the massacre shows an inexplicable wave of destruction tearing the soldiers apart. With no other recourse, the elite F.E.A.R. (First Encounter Assault Recon) team is assembled to deal with the extraordinary circumstances. They are given one simple mission: Evaluate the treat and eliminate the intruders at any cost. (Sierra & Monolith)

I also informed them that they would not be starting the game from the beginning. I wanted them to get into the heart of the game and not have to listen to the story evolving, which takes about ten minutes in itself. I led the participants into the room where they would be playing the videogame. As they sat in front of the computer, I explained the controls of the game. I told them that if any questions about controls arose during the game, they could ask. The participant then began to play the game for exactly twenty minutes. While participants were playing the game, I sat behind them and recorded exact quotes that were said

aloud by the participant, except quotes relating to game controls. I then shut the game off as soon as the timer went off whether the participant had finished an objective or not. I then led the participant back to the table they initially sat at and read them the second scenario from Bushman and Anderson's study. They then had to write another ten to twenty responses of how to finish the story. After they had finished their responses, they left. I then analyzed their responses by comparing them to Bushman and Anderson's findings.

The First Scenario Results

The first scenario for the first group (participants 1-5) was about getting into a car accident. After I read the scenario to the participants, I asked them to finish the story and what they would do/say, think, and feel. I found that the average "aggressive" number of responses to the initial scenario was 3.8 (See Figure 6.) out of their 10-20 responses. The responses ranged from feeling "pissed" to punching the driver in the stomach to thinking the other driver is an "idiot," (See Appendix A, participants 1-5.). There were many responses that used the terms "pissed" and "angry." One thing I found very peculiar was the fact that some of the participants used the terms "pissed" or "angry" on one response, then the terms "happy" or "glad" in the response immediately after the aggressive response, demonstrating a wide range of emotions.

The first scenario for the second group (participants 6-10) was about ordering food at a restaurant. After I read the scenario to group 2, I asked them to finish the story and what would they do/say, think, and feel. I found that the average "aggressive" number was 4.2 (See Figure 7.). Two of the participants had 1 or fewer "aggressive" responses. This variability was expected because of the small sample size. The responses were very similar to the responses found in the first groups' first scenario. The term, "angry" was used. The peculiar finding of aggressive responses followed immediately by non-aggressive responses was replicated in this group. The "aggressive" responses ranged from feeling "frustrated," killing the waiter, to throwing/spilling food/liquids on the waiter (See Appendix B, participants 6-10.).

Overall, these initial scenarios demonstrate the importance of using subjects as their own controls (before game playing). This allows the variation in subjects' natural aggression levels to be factored into consideration of the results.

Quotes and Observations

(Note: Although I did not analyze this observational data as part of this study, it was an unexpected finding that I thought may be of interest to the reader, as it may be an additional measure of aggression for future studies. See Appendix E.)

A lot of things happen when people play videogames. They sit differently in the chair. They lean toward the screen more. One participant actually "dodged" in his chair while taking heavy fire. While observing the participants playing, I concentrated on things they said and their actions in the game. Five of the ten participants seemed frustrated after taking heavy fire and upon finally overcoming the enemy; they would proceed to hit or shoot the already dead opponent several times (See Figure 5.). This jumped out as being extremely aggressive because that is not an objective in the game.

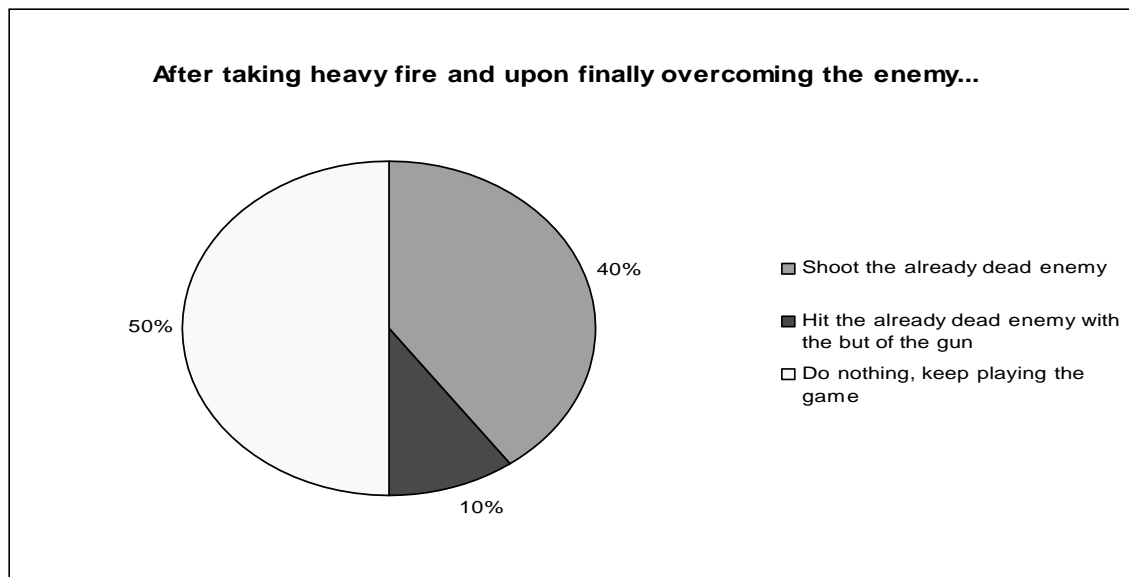


Figure 5: Examples of nonverbal aggressive responses while playing the game.
 Do nothing, keep playing the game- is not considered aggressive

Another thing I found aggressive was the language that was used. Some of the quotes included:

Participant 1- "Give me your guns!"

Participant 2- "Son of a b****!"

Participant 3- "F***in' ... s***!"

Participant 5- "This is bad a**!"

Participant 6- "Die you stupid...!" (something not spoken clearly)

Participant 9- "Just shooting those guys was so fun." (immediately after 20 minutes was up).

This game not only has a rating of "M" for the intense violence, but also has some surprising/scary things that happen as well. These instances along with the violent nature of the game also provoked some other responses:

Participant 1- "Jesus, I don't want to go out there!"

Participant 2- "God d*** it that is creepy!" & "Yeahhh (nervous laugh) holy s***!"

Participant 3- "What the f***?"

Participant 5- "That's so wrong!"

Participant 7- "Oh s***!"

Participant 10- "Can I shoot that b****?" (after seeing a female ghost and firing shots at the nearby wall)

The Second Scenario Results

The second scenario for the first group was about ordering food at a restaurant. After the participants had played the game, I read the scenario to the participants, I asked them again to finish the story and what would they do/say, think, and feel. All of the participants' "aggressive" number of responses rose or stayed the same except for one. The one participant (participant 4) whose response did not increase actually decreased, but his interpretation of the scenario was self-reportedly different than all of the other participants¹. Based

Outliers:

upon the confusion about the scenario, this participant's scores represent outlier data. The average "aggressive" number of responses to the second scenario was 7.2 (See Figure 6.), meaning there was a 3.4 "aggressive" response increase in group 1 after playing the game. Responses ranging from feeling "pissed," yelling at the waiter, yelling at the manager, to pushing/throwing food, etc... at the waiter (See Appendix B, participants 1-5.). There were also common responses of not leaving a tip or getting up and leaving/storming out of the restaurant. There were also a few "happy" or "glad" responses again, but they were much less in frequency.

The second scenario for the second group was about getting into a car accident. After the participants had played the game, I read the scenario to them and asked them to finish how the scenario would end. All of the participants' "aggressive" number of responses increased except for one participant². The average "aggressive" number of responses to the second scenario was 5.8 (See Figure 7.), meaning there was a 1.6 "aggressive" response increase in group 2 after playing the game for 20 minutes. I think this was lower than group 1 because of the small sample size. I believe that a larger sample size would reduce the difference between groups. Also, another reason for group 2 having a smaller increase may have been that participant 7 represents outlier data. Due to participant 7's self-reported experience with violent videogames, desensitization may have played a role. Participants' responses for this scenario ranged from feeling "angry," urinating on the other person's car, to committing suicide, and so on (See Appendix A, participants 6-10.).

Group 1		
Number of Aggressive Responses		
Participant #	Scenario 1 (Car)	Scenario 2 (Restaurant)
1	4	4
2	3	10
3	2	8
4 ¹	7	1
5	3	13
Average	3.8	7.2

Figure 6: Number of aggressive responses per participant in group 1..

Group 2		
Number of Aggressive Responses		
Participant #	Scenario 1 (Restaurant)	Scenario 2 (Car)
6	1	3
7 ²	0	0
8	4	5
9	8	12
10	8	9
Average	4.2	5.8

Figure 7: Number of aggressive responses per participant in group 2.

When comparing scenario 2 to scenario 1 (baseline), both groups (See Figure 6 & 7) exhibited statistically significant increases in aggressive responses ($p < 0.05$).

¹ The participant (participant 4) concentrated on things he would say, think, and feel all about the food.

² This participant (participant 7) had 0 "aggressive" responses for both scenarios.

These data demonstrate that playing violent videogames increases aggressive responses compared to baseline (*Scenario 1*). Because there is a significant increase in both group 1 and group 2, these data support that there is an effect of violent videogames on aggression regardless of the scenarios presented (because switching the scenarios had no effect on baseline scores).

Conclusion and Further Research

My findings, which I have displayed in Figure 8 as the total number of aggressive responses, demonstrate that videogames do have an effect on aggressive behaviors/responses. There is an average increase of 2.5 in the number of “aggressive” responses per person after they played *F.E.A.R.* (significant difference $p < 0.05$), demonstrating a relationship between violent videogames and aggression. One factor to consider is that this game has “Strong Language.” The speakers were very loud and the computer opponent would yell at the participants using curse words. It is possible that the music and language could be responsible for this relationship (independent of playing the game itself). Also, the relationship may be a factor of age. It would be interesting to test both of these variables, as well as varying the intensity of the violence to look for differences.

	Scenario 1 (Before Playing)	VS	Scenario 2 (After Playing)
Total # of Aggressive Responses	40		65
Average # of Aggressive Responses	4		6.5

Figure 8: The aggressive response difference between before playing the game and after playing the game.

For further research, I would like to perform the research with a larger sample size and stagger the time interval between playing the game and people giving their responses to see if after time the “effect” wears off. Also, making a ranking system as far as aggressive responses are concerned would be interesting, such as having a small group look over the responses and rate them on an aggression level. A “1” would be not very aggressive and a “3” would be extremely aggressive. In this way I could see if not only the frequency of aggression increases, as shown in my study, but also if the aggression level increases after playing a violent videogame. Overall, my experiment shows that a relationship does exist between violent videogames and aggression.

In conclusion, the current experiment demonstrates that violent videogames increase aggressive responses to neutral scenarios, regardless of the order of those scenarios. These findings are important because they support findings by others in the field and expand those findings further to control for internal variability in aggression between individual subjects. This study demonstrates the importance of using appropriate controls (subject as their own control when appropriate) to tease apart variability in individuals and increases in aggression. Finally, this experiment points to the need and importance for additional research in this field to determine any harmful effects of some of the forms of entertainment society considers “fun.”

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Appendix A

The Car Accident (See Figure 1.) **Note:** A * is considered an "aggressive response".

Participant 1 (Group 1)

- 1) Guy gets out of car and asks if Todd is ok.
- 2) Guy questions him why he hit the breaks.
- 3) Todd explains why he stopped.
- 4) Guy gets pissed because Todd

could have gone through the light and nothing would have happened.* 5) Todd would feel like “what just happened?” 6) The guy would be mad because he stopped.* 7) It would be the guys fault because he hit Todd.* 8) Todd called the cops and reports the accident. 9) Cops arrive and info is exchanged. 10) Todd drives away frustrated that he needs to get his car fixed and the guy drives off mad because it is his fault that it happened.*

Participant 2 (Group 1)

1) Be mad.* 2) Get his insurance card. 3) Scream and blame the other guy.* 4) Make sure he’s ok. 5) Think of insurance fraud. 6) Think of ways to get out of it. 7) Take control of the situation and set up a plan. 8) Call police. 9) Punch him.* 10) Cry. 11) Laugh. 12) “I can’t afford this.”

Participant 3 (Group 1)

1) Thinks about cost of damage. 2) Upset that the car is wrecked.* 3) Wonders if he is truly liable. 4) Need to call someone and tell them you’ll be late. 5) What he’s going to do for a ride tomorrow. 6) Pissed off.* 7) Sad. 8) Worried. 9) How much will this cost? 10) When is everything going to be okay? 11) How long will this take? 12) Am I going to be in any trouble?

Participant 4 (Group 1)

1) Hits him with a bat.* 2) Asks him why he didn’t stop. 3) Get mad.* 4) Get happy. 5) Fight the guy.* 6) Stab him with a pen.* 7) Speed away. 8) Ram the other guy.* 9) Punch him in the stomach.* 10) Buy him a soda. 11) Realize that its his friend. 12) Get his license number. 13) Get his ID. 14) Call the police. 15) Say hi. 16) Look at the damage. 17) Call an ambulance. 18) Lay down. 19) Look at the guy’s car. 20) He gets angry.*

Participant 5 (Group 1)

1) Todd is angry.* 2) Todd fights the guy.* 3) Todd calls police. 4) Todd tells the guy he is an idiot.* 5) Todd asks the guy what happened. 6) Todd is injured and lies down. 7) Todd assesses the damage. 8) Todd swaps insurance info. 9) Todd thinks he should have run through the light. 10) Todd calls his mom. 11) Todd tries to move his car. 12) Todd realizes he is bleeding and sits down. 13) Todd tells the man that he is sorry. 14) Todd wants to just go home. 15) Todd is embarrassed. 16) Todd passed out from exhaustion. 17) Todd runs after the man who hit him. 18) Todd puts his keys in his pocket. 19) Todd can’t believe its happing to him. 20) Todd wants to see his wife.

Participant 6 (Group 2)

1) Yay! I have just been rear-ended by some idiot.* 2) Well I better go look over the damage. 3) Anger.* 4) Stress.* 5) Was this guy paying attention when the light changed? 6) I had better call the police. 7) Oh crap, I forgot to grab my license and insurance. 8) Why of all people did this have to happen to me? 9) Will I be at blame for this accident or will the other guy? 10) Did I leave the toilet seat up? 11) Will my insurance go up for this and by how much? 12) Is the guy that hit me sober? 13) Is anyone hurt? 14) Were there any witnesses to the accident?

Participant 7 (Group 2)

1) Todd will ask the other guy if he’s ok. 2) Todd will call the police. 3) Todd will take down the other guys information. 4) Todd will call his insurance company. 5) Todd will take pictures of the accident. 6) Todd will tell the officer what happened. 7) Todd will call a tow truck. 8) Todd will go with the tow truck driver to

the shop. 9) Todd will call his family for a ride home. 10) Todd will go home and take a nap.

Participant 8 (Group 2)

1) He yells at the guy and walks away.* 2) He trades numbers with the guy and moves on. 3) He feels angry and not in control.* 4) He thinks that today isn't his day. 5) He burns the car.* 6) He makes friends with the guy. 7) He says that he will end the guy's life.* 8) He feels sorry and walks away. 9) He hates the way he feels and kills himself.* 10) He walks away and doesn't think about what happened again.

Participant 9 (Group 2)

1) Did you see me? 2) What the h***? 3) Are you retarded? 4) Always a woman.* 5) Get into a verbal fight.* 6) Swear at them.* 7) Hit them.* 8) Angry.* 9) Nervious. 10) Shaken up. 11) Stiff. 12) Sore. 13) Piss on his car.* 14) Spit on him.* 15) Spit on his car.* 16) Kick his car.* 17) Think about hurting him.* 18) Call police. 19) Call your spouse. 20) Get something to eat, Jimmy Johns.

Participant 10 (Group 2)

1) Ask if they are ok. 2) Be pissed off.* 3) Angrily yell at the person.* 4) Try and sue them.* 5) Check out damage and blame person immediately.* 6) Drive off.* 7) Slam into the care (reverse it).* 8) Call the police. 9) Assess damage. 10) Start a fight with the driver.* 11) Tell them it was his fault.* 12) Apologize. 13) Exchange info, deal with the situation nicely. 14) Try and get revenge somehow.*

Appendix B

Going To A Restaurant (See Figure 2.) **Note:** A * is considered an "aggressive response".

Participant 1 (Group 1)

1) Jane will be mad because her food has taken so long.* 2) Since she is hungry she will stay and eat. 3) The tip will be low because of the poor service.* 4) She will yell at the waiter for taking so long.* 5) She should talk to the manager. 6) She should be mad at first but then be fine with it.* 1/2 7) It shouldn't be that big of deal. 8) She doesn't leave a tip.* 1/2 9) If the food's good then she should leave happy. 10) She should eat the food and be happy.

Participant 2 (Group 1)

1) Demand a refund.* 2) Refuse to pay.* 3) What took so long? 4) Can I speak to a manager? 5) Get up and leave.* 6) Bad service.* 7) You should loose your job!* 8) I don't deserve this.* 9) You suck.* 10) Hungry. 11) Mad.* 12) Disrespected.* 13) I'm never coming back again.*

Participant 3 (Group 1)

1) I've been waiting 45 minutes for my food, I'm most disappointed and I'm not leaving.* 2) I just want to push this food in the guys face.* 3) I'm so hungry and really crabby.* 4) I'm pissed off.* 5) Disappointed.* 6) Kind of want to stand up and walk out in front of waiter. 7) What the h***took you so long?* 8) I want a gift certificate if I come back again.* 9) I want to see your manager. 10) Where were you and what took so d*** long?*

Participant 4 (Group 1)

1) Yesss. 2) Man I'm hungry. 3) God I love meat. 4) Oh yeah. 5) I hope theirs no spit. 6) Yeah food. 7) Smells good. 8) I love steak. 9) Salads are for girls.

10) How fast can I eat this. 11) I wonder if it will be good. 12) Hopefully I don't vomit. 13) Hopefully I don't see the ring girl. 14) Yeah croutons. 15) I'm not tipping.* 16) Should I have gotten pasta? 17) What is that! 18) Can I eat it all? 19) Man-o-man. 20) I better get my steak knife ready.

Participant 5 (Group 1)

1) Jane is upset.* 2) Jane asks the waiter what took so long. 3) Jane demands to see the manager. 4) Jane does nothing. 5) Jane wants her meal to be on the house. 6) Jane tells the waiter she wants to leave and that the service was terrible.* 7) Jane decides to throw her steak at the waiter.* 8) Jane eats her meal and doesn't pay.* 9) Jane eats her meal and doesn't leave a tip.* 10) Jane intentionally spills red wine on the white carpet.* 11) Jane flings an ice cube at the waiter.* 12) Jane threatens to never come here again.* 13) Jane isn't bothered by it. 14) Jane mumbles under her breath to the waiter.* 15) Jane complains.* 16) Jan wants to speak to the chef. 17) Jane makes a scene.* 18) Jane gets arrested for refusing to pay.* 19) Jane cusses out the waiter.* 20) Jane eats her meal.

Participant 6 (Group 2)

1) Anger.* 2) Hunger. 3) Why didn't I just walk out? 4) I wonder how they will compensate me. 5) Do I tip and how much? 6) The food better have been worth the wait. 7) I wonder if I should talk to the manager. 8) Will complaining about the service get me anywhere? 9) It isn't busy, so why did it take so long to get my food. 10) I think I may have ordered too much food. 11) What ever happened to the beverage I ordered?

Participant 7 (Group 2)

1) Jane will thank the waiter. 2) Jane will eat her food. 3) Jane will drink her beverage. 4) Jane will request a refill. 5) Jane will request a doggy bag. 6) Jane will pack her leftover food up. 7) Jane will ask for the bill. 8) Jane will thank the waiter and leave a tip. 9) Jane will go to her car and drive home. 10) Jane will take a nap. 11) Jane will watch TV.

Participant 8 (Group 2)

1) She says "Give me my food dang it."* 2) She eats her food and goes on her way. 3) She thinks that the waiter is hot stuff. 4) She feels cold and wants to leave. 5) She gets up and goes to the bathroom. 6) She says "I hate everyone here."* 7) She feels threatened and pulls a gun on the waiter.* 8) She calls her boy friend and yells at him for being late.* 9) She starts fidgeting because she hates being in public. 10) She feels like there is no hope and starts crying.

Participant 9 (Group 2)

1) Angry.* 2) Frustrated.* 3) What took so long? 4) Disappointed. 5) Can I speak to your manager? 6) This is ridiculous.* 7)Get up and leave.* 8) Sigh. 9) Fiddle with her hands. 10) Glare.* 11) Roll her eyes.* 12) Smile. 13) Gladly eat. 14) Ask for a discount. 15) Pay full price. 16) Yell at the waiter.* 17) Send it back and ask for a new entrée. 18) Punch the waiter.* 19) Ask for a drink. 20) Hit on the waiter.

Participant 10 (Group 2)

1) She says she doesn't want the food and leaves.* 2) She stays and eats the food. 3) She flips out on the waiter and talks to the manager.* 4) She politely asks what took so long for the food. 5) She causes a scene.* 6) She goes somewhere else. 7) She eats the steak and spills the soup on the waiter.* 8) She realizes how hungry she is and calms herself to eat. 9) She kills the waiter and

runs.* 10) She kills everyone in the restaurant and eats their food.* 11) She refuses to eat the food and demand a refund.* 12) She totally eats normally but freaks out after the meal.* 13) She ignores the waiter and orders a bunch of wine and gets drunk.

Appendix C

Anderson and Bushman's "aggressive" responses for the Car Accident Scenario:

Do/Say:

- Say "s***," then call the guy an "idiot." • "What the h*** were you thinking?" • Kick the other driver's car. • Kick the other guy's butt. • "Think!!!! You're paying for this!" • "Are you smokin' crack?" • Todd starts throwing punches. • Start yelling and swearing at the guy. • "Are you blind?" • "What the h*** is wrong with you?" • "I can't believe you have a license." • Kick out a window. • Beat his head in. • Todd shot or stabbed the other driver.

Think:

- "This guy's dead meat!" • "This guy is dead." • "I'm gonna kill him." • "What a dumbass!" • "What an asshole!" • "Where did this idiot learn how to drive?" • "What the h***?" • "That bastard!" • "I really want to punch this driver's lights out!" • "Stupid! Idiot! Moron!" • "I should drive a knife through your eye!" • "If I had a hammer I'd beat him with it!"

Feel:

- Irritated • Furious • Vicious • Cruel • Pissed off! • Ready to hit him! • Aggressive • Hate for that guy • Angry • Violent • Like kicking the guy's ass who hit him. • Angry because he *didn't* get hurt!

Appendix D

Anderson and Bushman's "aggressive" responses for the Restaurant Scenario:

Do/Say:

- Eat and refuse to pay. • Punch the waiter. • "I hope this isn't your real job!" • "What did you have to do, butcher a cow?" • Steal the silverware. • "Keep the food. I'm gone!" • Dump the food on the waiter's head. • Swear at the manager. • "I wish I had him as my waiter" (points to another waiter)! • "Did you have to go to France to get the French onion?" • I was contemplating whether this floral centerpiece was edible. • She calls the restaurant and orders four steaks to pick up by a different name.

Think:

- "D*** this service is s***ty." • Hit the waiter. • "This guy needs to be fired." • "WHAT IDIOTS!!!" • "I hate this waiter!" • "This place sucks!" • "No tip here." • "They better not charge me for this food." • "What took so d*** long?" • "I should set this table cloth on fire!" • "I'm going to tell everyone how lousy it is here." • "I should write to the newspaper about this place."

Feel:

- Mad • Hostile • Offended • Irritated • Pissed off • Cranky • Frustrated with the service • Angry • Cruel • Cranky • Pushed to the limit • B****y

Appendix E

Quotes

***Any and all audible utterances made by the participants including laughs and coughs. Excluding comments related to the game controls. ***

Participant 1 (Group 1)

1) (yell) 2) Give me your guns! 3) Jesus, I don't want to go out there! 4) I don't want to I'm scared. 5) I do not like that! 6) Do I have a gun? 7) I have goose bumps.

Participant 2 (Group 1)

1) (nervous laugh) 2) Son of a b****! 3) Jesus! 4) What was that? Scared the h*** out of me! 5) Holy s***! 6) God d*** it that was creepy! 7) That shadow creeps me out. 8) Yeahh... (nervous laugh) holy s***! 9) (After playing) Don't let little kids play that game.

Participant 3 (Group 1)

1) How the f*** do you use this? 2) Holy s***, holy s***! 3) (nervous laugh) 4) F***in'... s***! 5) What the f***? 6) Son of a b****!

Participant 4 (Group 1)

1) S***! 2) That's scary. 3) (nervous laugh) Oh my god! 4) That was pretty intense

Participant 5 (Group 1)

1) (nervous laugh) This is bad a**! 2) This is so wrong. 3) This game is wrong.

Participants 6 (Group 2)

1) Tight. 2) Yummy. (said while looking at a corpse) 3) Die you stupid... (something not spoken clearly). 4) Oh s****! 5) Whoa! 6) What the f***?

Participant 7 (Group 2)

1) Holy s***! 2) (laughter) 3) Oh s***! 4) What the f***?

Participant 8 (Group 2)

1) (laughter) 2) Ooppsss. 3) What the h***? 4) Crap. 5) (laughter while shooting) 6) (laughter) 7) Do do do do (tune of a song). 8) Dang it! 9) Whoa that was crazy!

Participant 9 (Group 2)

1) Killer graphics. 2) That's freaky man. 3) He's still alive after that? (after shooting opponent several times) 4) Oh look at this thing (while switching guns). 5) God! 6) You gotta be kidding me! 7) What the f***? What was that? 8) Jesus are you kidding me? 9) Just shooting those guys was so fun (immediately after 20 minutes was up).

Participant 10 (Group 2)

1) That's scared the s*** out of me right there. 2) Oh man. 3) S***! 4) Holy! 5) God d***! 6) S***! 7) Man. 8) Oh man (laughter). 9) (shot an opponent who was already dead) A** hole! 10) (shot at a shadow) (laughter) 11) F***! 12) Oh wow! 13) Can I shoot that b****? 14) Oh holy s***! 15) Oh my god.... Whoa! 16) (long sigh)