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Differences in aggression as a relationship between sex and levels of video game playing

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Differences in Aggression as a Relationship between Sex and Levels of Video Game Playing

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Dedication

This thesis is dedicated to Dr. R.K Puri, Sunita Puri and Dipanshu Puri who believed in me and made me the person I am today.

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DIFFERENCES IN AGGRESSION AS A RELATIONSHIP BETWEEN SEX AND LEVELS OF VIDEO GAME PLAYING

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Abstract

Video games have grown into a multibillion-dollar industry over the past 40 years. A number of studies have been carried out to explain the relationship between playing video games and the different levels of aggression it generates. This pilot study examines the differences in aggression present in males and females following video game playing. The purpose of the study is to explore the relationship between the amount of time spent playing video games and the type of video games played by both males and females with the amount of aggression it stimulates across different sex. The study uses theories like Uses and Gratification and the General Aggression model to explain the links between length of violent game play and aggression.

Key words: aggression, violence, sex, video game, addiction, prosocial behavior

Differences in Aggression as a Relationship between Sex and Levels of Video Game Playing

Gaming is active while television viewing is passive. There are at least two reasons why this is the case. First, while television exposure has been conceptualized as somewhat passive, less involving, and requiring little or no physical involvement, playing a video game is just the opposite (Krcmar & Lachlan, 2009). In fact, presence, or the feeling of immersion and involvement in media, has been examined as a critical outcome in video game play (Krcmar & Lachlan, 2009). This level of involvement has often been taken as a sufficient condition for other outcomes, such as increased aggression from exposure to violent video games (Krcmar & Lachlan, 2009). Additionally, in video games, behavior is reinforced since players are frequently rewarded for aggressive play.

Television research has shown repeatedly that rewarded aggression is imitated more than behavior that goes unrewarded (Krcmar & Lachlan, 2009). These two factors namely, a highly involving media experience coupled with rewarded aggression, have led a number of scholars to conclude that violent video game play will inevitably cause increases in aggression (Krcmar & Lachlan, 2009).

Video games were created in the 1970s and have grown into a multibillion-dollar industry (Greitemeyer & Osswald, 2010). They are rapidly gaining popularity not only among children but also among young and middle-aged adults. A previous study reveals that the 25 to 40 year age group is expanding rapidly as video game players (Greitemeyer & Osswald, 2010). A recent large-scale survey showed that 70% of homes with children ages 2 to 17 years have computers and 68% have video game equipment (Greitemeyer & Osswald, 2010). A study by the

Kaiser Family Foundation reports that 83% of 8-18 year olds have at least one game console in their homes (Ogletree & Drake, 2007). Today 87% of children play video games, and those aged 18 to 25 years spend an average of nine hours per week (Greitemeyer & Osswald, 2010).

It has been reported (Weber, Ritterfeld, & Mathiak, 2006) that 53% of games contain violence, and this exposure to violence may lead to negative outcomes including violent behavior in individuals towards the simulated environment. The National Youth Violence Prevention Resource Center (2004) has reported that a 2001 review of the 70 top-selling video games found 49% contained serious violence (Weber, Ritterfeld, & Mathiak, 2006). "Mature" rated games (which contain adult content) are extremely popular with pre-teen and teenage boys who report no trouble buying the games (Weber, Ritterfeld, & Mathiak, 2006).

There is no doubt that violent video games are among the most popular entertainment products for teens and adolescents, especially for boys (Weber, Ritterfeld, & Mathiak, 2006). This is because video game playing is seen as an appropriate play for males, but not for females (Lucas & Sherry, 2004). Young men are more likely to engage in video game playing with their peers, as it will increase their likelihood for inclusion consequently, they are likely to have higher levels of aggression as compared to girls (Lucas & Sherry, 2004).

Virtually theories of human aggression like the General Aggression Model, predict that repeated simulation of antisocial behavior produces an increase in antisocial behavior (e.g., aggression) and a decrease in prosocial behavior (e.g., helping) outside the simulated environment (i.e., in "real life") (Anderson & Bushman, 2002; Sestir & Bartholow, 2010). The General Aggression Model (GAM) helps to explain the effects of violent video games on antisocial behavior (Sestir & Bartholow, 2010). According to this model, the aggressive contents

of violent media instigate aggressive behavior through their impact on the person's internal states namely cognitive, affective, and state of arousal which many times can be misinterpreted as anger when applied to an aggressive situation (Sestir & Bartholow, 2010).

Cognition in this study refers to the ability of a person to access aggressive constructs in his mind (Williams, 2011). Affect refers to the emotional state of mind of the person or how they feel when the situation occurs (Williams, 2011). Arousal possesses the ability to enhance dominant aggressive tendency even from an irrelevant source (Williams, 2011). As per Zillman's excitation transfer theory (Zillman, 1971), it may be noted that prior arousal many times can be misinterpreted as anger when introduced to an aggressive situation (Williams, 2011, p. 6).

Although the GAM does not specify the internal states that are affected by a particular aggression-enhancing stimulus, prior research (Anderson & Carnagey, 2009) suggests that violent video games can differentially increase both aggressive cognition and aggressive affect even when physiological arousal is controlled (Anderson & Carnagey, 2009; Chory, Goodboy, Hixson, & Baker, 2007). In addition to the input variables, the GAM holds the assumption that the three internal states are interrelated and affected by each other (Chory, Goodboy, Hixson, & Baker, 2007). Therefore, exposure to violent video games evokes associations with aggressive cognitions, arousal, and affect related to violence, and instigates aggressive behavior in the video game players (Greitemeyer & Osswald, 2010).

Research Questions

RQ1: What differences are there in levels of aggression in relation to sex? (In the context of video game playing)

RQ2: What differences are there in levels of aggression and type of video games played?

RQ3: Are aggression and length of video game playing related?

Rationale

Scholarly

The present study investigates levels of aggression generated via playing video games in relation to sex, type of video games played (violent or nonviolent) and the duration of video game playing. This research will add to the scholarly literature because findings in human psychology, marketing and gender studies will be broadened. The video game producers will have a better view of the likes, dislikes, and playing habits of their valued customers. This study can also benefit the marketers in understanding the unique selling points of the video games sold or yet to be sold in the market.

Social

The current study will help the consumers to know the various video games that stimulate different aggression levels which may have desirable or undesirable effects. This will also serve to determine whether there is a significant difference between the video game habits of males and females. Finally, the present study will contribute additional findings regarding current concerns of video game and aggressive behavior.

Purpose of the Study

This particular study has employed one variable of the video game playing experience, aggression, and seeks to investigate its relation to gender, types of video game played (violent versus nonviolent), and the length of video game playing. Thus violent games will be compared to nonviolent games to determine what affect content has on feelings of aggression. The current

study will also use the Buss Perry Aggression Questionnaire (BPAQ) along with additional sets of questions (as part of the survey) to seek out answers for questions raised above.

Review of Related Literature

Video games are present in 80% of U.S. homes with children and the sale of video games generated $6 billion in 2000 and $11 billion by 2003 (Wagner, 2004). Wagner (2004) reports that the effects of exposure to violent video games have not been studied as extensively as the effects of exposure to TV or movie violence. However, on the whole, the results reported for video games to date are very similar to those obtained in the investigations of TV and movie violence (Wagner, 2004).

Video games that contain human violence appear to cause greater aggressive outcomes than fantasy or sports games with violence (Krcmar & Lachlan, 2009). One finding that has been stable throughout several decades of research is that video games are liked more and played more by males than by females. In 2004, Lucas and Sherry's study of sex differences and video game play showed that there is a difference between type (violent or non-violent) and time period for video games played by boys and girls. In addition to playing more than girls, boys report a preference for more violent games than girls (Yelland & Lloyd, 2001) while 10-13-year old girls described games they liked as challenging or intellectually stimulating. Boys tended to describe their favorite games as exciting and having good graphics. Wagner (2004) reports that males tend to prefer action-oriented video games involving shooting, fighting, sports, action adventure, fantasy role-playing, and strategy, whereas females prefer classic board games, trivia quizzes, puzzles, and arcade games. One explanation is that these opportunities accrue to boys more often than girls because they spend more time working with electronic games and

computers (Wagner, 2004). This difference may be partially due to access. In a recent survey on family media use, 76% of homes, with at least one male child, own video games as compared to 58% of homes with at least one female child (Lucas & Sherry, 2004).

Theoretical Explanations

Uses and Gratifications Theory (Berelson, 1949; Blumer, 1933; Herzog, 1944) holds that people make use of media either to meet needs they have or desires they want to fulfill. It can be theorized that playing video games provides a motivational cycle related to flow and success fueled by confidence. Thus it may be correct to say that the males are entering into this motivational cycle and the females are not (Hamlen, 2010). If media consumption does not meet female needs in the same way as men's this may explain gender differences in video game playing.

Players of violent video games are more likely to identify with a violent character than players of non-violent video games (Bushman & Whitaker, 2009). Violent games reward violent behavior, such as by awarding points or allowing players to advance to the next game level (Bushman & Whitaker, 2009). It is well known that rewarding behavior increases its frequency (Bushman & Whitaker, 2009; Bandura, 1973, 1983). In some games, players are rewarded through verbal praise, such as hearing the words "Nice shot!" after killing an enemy with a gun (Bushman & Whitaker, 2009).

The effects of violent game playing also include increases in physiological arousal and physically aggressive behavior, such as hitting, kicking, and pulling clothes or hair (Bushman & Whitaker, 2009). In addition to increasing aggressive behaviors, playing violent video games can also increase aggressive thoughts (Bushman & Whitaker, 2009). After playing a violent

game, people self-report aggressive thoughts and interpret ambiguous stories in a more hostile manner (Bushman & Whitaker, 2009). In fact, exposure to violent video games may lead players to interpret many different situations in more aggressive ways—an effect known as the "hostile attribution bias" (Bushman & Whitaker, 2009).

Violent video games contain substantial amounts of increasingly realistic portrayals of violence. Content analyses have revealed that the favored narrative is, "a human perpetrator engaging in repeated acts of justified violence involving weapons that result in some blood shed to the victim" (Weber, Ritterfeld, & Mathiak, 2006, p. 40). Bushman and Whitaker (2009) argue that "One of the primary public concerns about violent video games is fear over the kind of behaviors the players will assume as a result of their exposure to the games" (p. 1036). The evidence points out that an increase in aggressive behaviors is present both in the short and long run (Bushman & Whitaker, 2009). The authors conclude that a causal relationship between aggression and violent video games has already been established. They use experimental methods typically exposing participants to violent games for relatively short amounts of time (usually about 15 to 30 minutes) before measuring their aggression (Bushman & Whitaker, 2009).

Early theories used notions of aggressive instinct, catharsis, and frustration to explain potential origins of human aggression (Weber, Ritterfeld, & Mathiak, 2006). However, recent theorizing explains the long-term effects of media violence on aggression as originating from observational learning related to aggressive behavior (Weber, Ritterfeld, & Mathiak, 2006). Aggression was typically measured by allowing participants to shout out with loud noise through headphones. People who play violent video games give longer and louder noise blasts to their

opponents (via headphones) than those who play nonviolent video games (Bushman & Whitaker, 2009).

Sherry (2007) found that games containing human or fantasy violence produce more aggressive outcomes than games containing sports violence in the observed behavior of the study participants. Sherry (2007) also suggested that playing video games longer may be associated with less aggression. Therefore the present study seeks to determine the validity of the latter findings along with differences in aggression levels related to sex and types of video game played by males and females.

In the video game literature it has been suggested that longer game play of an aggressive video game results in greater verbal and physical aggression, since the aggressive primes become strengthened during the game play experience. Priming refers to the process by which a mental cue or association serve as a component to trigger related thoughts and behaviors (Krcmar & Lachlan, 2009). Prior research (Krcmar & Lachlan, 2009) produced some important findings regarding the length of play and differences in the levels of aggression. The Krcmar & Lachlan's (2009) study used undergraduate students who played the game Mortal Kombat and subsequently took the Buss Durkee Hostility Inventory (Krcmar & Lachlan, 2009). Taken together this study suggests that video game play may increase aggression but that this increase in aggression may occur during shorter, not longer, game play (Krcmar & Lachlan, 2009).

The levels of aggression related to playing video games may be explained by applying the theoretical rationale borrowed from the "excitation transfer theory" developed by Zillmann (1971). This theory argues that it is the arousal resulting from exposure to video games that accounts for any subsequent increases in aggression by the viewer (Krcmar & Lachlan, 2009).

As per Zillmann, excitation transfer is most likely to occur when the video game player is angry due to something in relation to the game and perhaps has an opportunity to retaliate (Krcmar & Lachlan, 2009). The prime reason for choosing Zillman's excitation transfer theory for the present research is that "time" is a crucial element in both Zillman's theory and the present research (i.e. length of play).

Another important insight that contributes towards aggression in relation to video game playing is the competitive situations that stimulate aggressiveness (Anderson & Carnagey, 2009). Links have been found between violent video games and aggression, not because of the violent content but because the games mostly involve competition, whereas nonviolent video games are frequently noncompetitive (Anderson & Carnagey, 2009). The competitive aspect of the game might contribute towards increasing aggression by increasing arousal (Zillman's excitation of transfer) or by increasing aggressive thoughts or affect (Anderson & Carnagey, 2009). One can argue that the mark of a good video game is the challenge it poses to the player, and today frustration is an inherent quality of most violent video games (Williams, 2011).

Several theories, namely arousal theory, social cognitive theory, and excitation transfer, have attempted to explain human aggression (Eastin, Griffiths, & Lerch, 2009). But the General Aggression Model provides a framework for understanding violent media effects through the "activation and application of aggression-related knowledge structures stored in the human memory (e.g., scripts, schemas)" (Anderson & Bushman, 2002, p. 1680). The single episode aggression model (Anderson & Bushman, 2002) indicates that inputs such as personal and situational variables influence internal states of cognition, affect, and arousal through interrelated routes (Eastin, Griffiths, & Lerch, 2009). Personal inputs include traits, gender, beliefs,

attitudes, values, and long-term goals, while situational inputs include video game play (violent or nonviolent) (Eastin, Griffiths, & Lerch, 2009). During violent video game play these inputs combine to prime aggressive cognition (e.g., hostile thoughts, scripts, and schemas), aggressive affect (e.g., anger), and arousal (Eastin, Griffiths, & Lerch, 2009).

Video Games as a Learning Process

Video games enhance learning into the consumers (male or female) and are considered a reasonably fast technique for education or imitation in this era of digital divide. The active involvement and constant attention to playing video games may enhance the learning of aggression (Williams, 2011). Learning occurs in both the mediated and unmediated settings and it can be transposed into real life (Eastin, Griffiths, & Lerch, 2009). Additionally, behaviors learned in an unmediated environment can be accessed and used in a mediated context (Eastin, Griffiths, & Lerch, 2009). In other words aggressive ideas found during video game play can combine with other related ideas, increasing the possibility of game players experiencing aggressive thoughts even outside the game environment (Eastin, Griffiths, & Lerch, 2009). Since video games are easily accessible and possess a cyclical learning behavior, the GAM can produce long term effects via repeated exposures (length of play) resulting in developing an overall consequence that is difficult to change (Eastin, Griffiths, & Lerch, 2009).

Since the average effect of video games on one's aggression seems to be rather small in size, it is important to consider the amount of video game playing as a factor in increasing the overall levels of aggression present (Weber, Ritterfeld, & Mathiak, 2006). Abelson (1985), Prentice and Miller (1992), and Rosenthal (1986) demonstrated that even small effects can result

in high societal costs or damage under high exposure conditions (Weber, Ritterfeld, & Mathiak, 2006).

Besides the methodological questions, one explanation of the relationship between playing violent video games and different aggression levels it stimulates is that the players understand and interpret the same games differently (Weber, Ritterfeld, & Mathiak, 2006). "Depending on how players internalize a game, and its violent content, playing might have a lesser or greater impact on the player's attitudes, emotions, and behaviors" (Weber, Ritterfeld, & Mathiak, 2006, p. 41).

Method

The study will rely on a non-probability method, i.e., a convenience sample of undergraduate and graduate students (both male and female) enrolled in Rochester Institute of Technology located in upstate New York Rochester in United States of America. A convenience sample is also chosen to obtain a gross estimate of the results, without incurring the cost or time required to select a random sample.

A survey will be distributed electronically via the RIT clipboard to the Communication Department of the College of Liberal Arts and College of Computing and Information Sciences because as per the researcher this group of students appears to be more closely related to playing video games (see Appendix A).

Part one of the survey begins by eliminating non-players from the survey. It then determines the types of video games the subject plays and classifies the participants into categories and calculates the participants' aggression levels. This also helps in finding out whether there is a behavioral change by playing different video games or not.

Part two contains the Buss Perry Aggression Questionnaire, a widely used self-reported measure of aggression. A number of researchers have investigated the reliability and validity of this instrument (Tremblay & Ewart, 2005; Bernstein & Gesn, 1996). It is a 27-item, 7-point scale instrument ranging from 1 (extremely uncharacteristic of me) to 7 (extremely characteristic of me). The aggression presumably measures four aggression-related dimensions: physical aggression, verbal aggression, hostility, and anger (Bernstein & Gesn, 1996).

Results

A total of 175 completed responses were received and analyzed. Of these, 133 (76%) were males and 42 (24%) were females. Respondents ranged from 18 to 40 years of age with 95% being 18-25. Respondents were from the College of Liberal Arts and the School of Interactive Games and Media at the Rochester Institute of Technology.

The participants were provided with a set of categories of video games: action, action role playing, action adventure, adventure, fighting, role playing, shooter, sports, and other. The most common type of video game among with respondents was action role playing (82.8%) with role playing (80%) and action adventure (78.8%) not far behind in popularity.

To determine whether there was a significant difference in levels of aggression in relation to sex, the study employed an independent sample *t*-test. No significant difference was found between men and women ($t = .731$, $df = 173$, $p = .602$). Thus there was no support for the hypothesis.

Levels of aggression were compared between playing and non-playing respondents regarding types of video games. Significant differences were found with both the action role playing ($t = -1.485$, $df = 175$, $p = .01$) and the role playing video games ($t = -1.244$, $df = 175$, $p =$

.02). Players had lower levels of aggression than non-players. Other types of video games were tested but no significant differences were found. Even though action adventure, adventure, fighting, shooter, sports, and other types of video games did not report significant differences, sports (sports, t = .595, df = 175, p = 0.59) and shooter (t = -1.420, df = 175, p = .063) video games approached significance. However, sports video games players had higher levels of aggression than non-players while shooter video games players had lower levels of aggression. This finding suggests that these differences could become statistically significant if there were a larger sample of respondents. Future research should test these relationships.

And finally, a Pearson correlation test was employed to determine whether aggression and length of video game playing are related. The Pearson correlation was most suitable because the length of video games played by respondents was interval data and their answers were not confined to a particular range of hours, but rather they had the freedom to report their playing hours. No statistically significant relationship was found between aggression and length of video game playing.

Discussion

More than 75% of the respondents were males. A large number of them played action role playing and role playing video games (82% & 79%) respectively. This study revealed that the respondents spend an average of 7 hours per week playing video games. There were no significant differences in the levels of aggression found in males to females, counter to what was previously reported (Lucas & Sherry, 2004). These findings are important because they show that despite the males being heavier users of video games there are no significant differences in their levels of aggression when compared to females.

The most popular game listed by the respondents was Halo (17.7%) followed by Call of Duty (14.2%) and World of War Craft (12%). All of these video games fall in the action role playing and role playing category, and they involve violent activities in the sense that the player typically spends a considerable amount of time destroying other creatures. Overall, participants reported playing video games progressively less from 9th & 10th grades to their current playing habits in the past month. The respondents reported playing video games on average of 11.82 hours per week while in the 9^{th} and 10^{th} grade, 11.85 hours per week in 11^{th} and 12^{th} grade, and 7.03 hours per week in the recent month.

With regard to the difference in levels of aggression and type of video games played, the only significant findings concerned action role playing ($p = .01$) and role playing ($p = .02$) video games. In both cases, players had lower levels of aggression than non-players suggesting either a cathartic effect of playing or that these types of games attract less aggressive players.

Sherry (2007) suggested that playing video games longer may be associated with less aggression. Similarly Krcmar & Lachlan (2009) suggested that video game play may increase aggression but that this increase in aggression may occur during shorter game play. The results of the present study do not support either of these claims. There is no relationship between video game playing and aggression. This finding is an important contribution to the video game literature as well as to the video game marketers and players.

Limitations

This study relies on a convenience sample; therefore the findings cannot be generalized to the population as a whole. The respondents were all part of one university although from two

separate colleges. Since they decided to take part in the survey, they were self-selected rather than randomly chosen.

The study also relies on self-reported data. These are always a limitation since they cannot be verified and may be exaggerated or inaccurate. Individuals may also differ with regard to how they depict violence and violent activities.

The sample size is relatively small, so the results could be skewed. It may be correct to assume that a larger number of participants may produce different and more accurate results. Future researchers can also replicate the same study, but perhaps a different method would serve to validate the results.

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Appendix A

Survey

Part One

1. Do you play video games? (Check one answer).

    - ☐ Yes
    - ☐ No (if no, thank you for your time, your survey is complete).

2. What type of video games do you play? (Please check all that apply).

    - ☐ Action
    - ☐ Action role playing game
    - ☐ Action adventure
    - ☐ Adventure
    - ☐ Fighting
    - ☐ Role playing games
    - ☐ Shooter
    - ☐ Sports
    - ☐ Other

3. Instructions: Please think of three video games that you have played for the greatest amount of time from when you were in 10th grade until the present. Include computer, console/TV, and arcade games. Please write down the titles of these games on the blank lines below.

    a) Title of your "most played" game: _____

    b) Title of your "2nd most played" game: _____

    c) Title of your "3rd most played" game: _____

Now please rate each game by answering the questions that follow.

I. For the following items, rate the game you listed as your "most played" game:

a) In recent months how many hours per week did you play this game? ____

b) During 11th and 12th grades, how many hours per week did you play this game? ___

c) During 9th and 10th grades, how many hours per week did you play this game? ___

d) How violent is the content of this game? (Please circle one number)

1 2 3 4 5 6 7

Little or no violent content Extremely violent content

e) How bloody/gore are the graphics of the game? (Please circle one number)

1 2 3 4 5 6 7

Little or No Blood & Gore Extremely Bloody & Gore

f) Which of the following best describes this game? Check all that apply.

__Education __Sports __Fantasy __Fighting with hands/feet __Fighting with weapons __Skill __Stress releaser

II. For the following items, rate the game you listed as your "2nd most played" game:

a) In the last month how many hours per week did you play this game? ___

b) During 11th and 12th grades, how many hours per week did you play this game? ___

c) During 9th and 10th grades, how many hours per week did you play this game? ___

d) How violent is the content of this game? (Please circle one number)

1 2 3 4 5 6 7

Little or no violent content Extremely violent content

e) How bloody/gore are the graphics of the game? (Please circle one number)

1 2 3 4 5 6 7

Little or No Blood & Gore Extremely Bloody & Gore

f) Which of the following best describes this game? Check all that apply.

__Education __Sports __Fantasy __Fighting with hands/feet __Fighting with weapons __Skill __Stress releaser

III. For the following items, rate the game you listed as your "3rd most played" game:

a) In the last month how many hours per week did you play this game? ___

b) During 11th and 12th grades, how many hours per week did you play this game? ___

c) During 9th and 10th grades, how many hours per week did you play this game? ___

d) How violent is the content of this game? (Please circle one number)

1 2 3 4 5 6 7

Little or no violent content Extremely violent content

e) How bloody/gore are the graphics of the game? (Please circle one number)

1 2 3 4 5 6 7

Little or No Blood & Gore Extremely Bloody & Gore

f) Which of the following best describes this game? Check all that apply.

__Education __Sports __Fantasy __Fighting with hands/feet __Fighting with weapons __Skill __Stress releaser

Part Two

Please answer all questions that apply to you.

Please rate each of the following items in terms of how characteristic they are of you. Use the following scale for answering these items.

1	2	3	4	5	6	7
extremely uncharacteristic of me						extremely characteristic of me

1) Once in a while I can't control the urge to strike another person.
2) Given enough provocation, I may hit another person.
3) If somebody hits me, I hit back.
4) I get into fights a little more than the average person.
5) If I have to resort to violence to protect my rights, I will.
6) There are people who pushed me so far that we came to blows.
7) I can think of no good reason for ever hitting a person.
8) I have threatened people I know.
9) I have become so mad that I have broken things.
10) I tell my friends openly when I disagree with them.
11) I often find myself disagreeing with people.
12) When people annoy me, I may tell them what I think of them.
13) I can't help getting into arguments when people disagree with me.
14) My friends say that I'm somewhat argumentative.
15) I flare up quickly but get over it quickly.
16) When frustrated, I let my irritation show.
17) I am an even-tempered person.
18) Some of my friends think I'm a hothead.
19) Sometimes I fly off the handle for no good reason.
20) I have trouble controlling my temper.
21) At times I feel I have gotten a raw deal out of life.
22) Other people always seem to get the breaks.
23) I wonder why sometimes I feel so bitter about things.
24) I know that "friends" talk about me behind my back.
25) I am suspicious of overly friendly strangers.
26) I sometimes feel that people are laughing at me behind me back.
27) When people are especially nice, I wonder what they want.

4. How old are you? (Check the box next to the corresponding answer).

    - ☐ 18-25
    - ☐ 26-30
    - ☐ 31-40
    - ☐ 41 or over

5. Please indicate your gender? (Check the box next to the corresponding answer).

    - ☐ Male
    - ☐ Female

Appendix B

Cover Letter

Introduction

My name is Kunal Puri and I am a graduate student in RIT's Communication and Media Technologies. In this research study, I'm examining the varied aggression levels between males and females as per the type of video games they play and also the time they spend on playing video games. Some communication scholars believe that the aggression levels in video game players differ by the types of video games they play, while some support the notion that aggression is caused by the experience in level of playing these video games.

This study will be most productive if you are accurate in your description of what type of video games you play and during the course of the survey please answer the questions based on your first thought.

Answering the questions on the survey is completely voluntary and you can stop taking the survey at any point in time. Should you experience any discomfort as a result of taking this survey, contact the counseling center at 585-475-2261, second floor of the August Center (Bldg. 23A).

Should you have any questions, I would be happy to answer them, so please email me (kxp4220@rit.edu).

Thank you for your assistance.

Sincerely,

Kunal Puri

Project Director

Appendix C

Tables

Table 1C

Showing aggression with relation to sex

Group Statistics

	gender	N	Mean	Std. Deviation	Std. Error Mean
Aggression	1	133	2.940380	.8425474	.0730581
	2	42	2.831061	.8543554	.1318299

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Aggression	Equal variances assumed	.274	.602	.731	173	.466	.1093187
	Equal variances not assumed			.725	68.057	.471	.1093187

Table 2C

Significant findings in relation to action role playing and role playing types of video games

Group Statistics

	Action role playing	N	Mean	Std. Deviation	Std. Error Mean
Aggression	1	145	2.870972	.7870068	.0653574
	0	32	3.115130	1.0603512	.1874454

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Aggression	Equal variances assumed	6.623	.011	-1.485	175	.139	-.2441584
	Equal variances not assumed			-1.230	38.872	.226	-.2441584

Group Statistics

	Role playing	N	Mean	Std. Deviation	Std. Error Mean
Aggression	1	140	2.874565	.7741786	.0654300
	0	37	3.068541	1.0697472	.1758654

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Aggression	Equal variances assumed	9.667	.002	-1.244	175	.215	-.1939763
	Equal variances not assumed			-1.034	46.425	.307	-.1939763

Table 3C

Correlation – Aggression and length of video game play

Correlations			
		Aggression	hours per week
Aggression	Pearson Correlation	1	-.036
	Sig. (2-tailed)		.638
	N	177	173
hours per week	Pearson Correlation	-.036	1
	Sig. (2-tailed)	.638	
	N	173	173

Correlations			
		Aggression	Hours 11th and 12th
Aggression	Pearson Correlation	1	.101
	Sig. (2-tailed)		.193
	N	177	168
Hours 11th and 12th	Pearson Correlation	.101	1
	Sig. (2-tailed)	.193	
	N	168	168

Correlations

		Aggression	Hours 9th and 10th grades
Aggression	Pearson Correlation	1	.122
	Sig. (2-tailed)		.113
	N	177	170
Hours 9th and 10th grades	Pearson Correlation	.122	1
	Sig. (2-tailed)	.113	
	N	170	170

Table 4C

Information Collection Procedure

The procedure of how the information was collected for the research proposal.

Website	Database	Database by subject	Keyword	Journals
www.library.rit.edu	Communication and Mass Media complete	Communication	Video games and children. Video games aggression sex.	• Behavior research and therapy. • Mass Media affects research: • Advances through Meta analysis. • Hein Online.
	ComAbstracts	Psychology and school psychology	Video game violence. Gender differences in video games.	• Information Technology in Childhood Education Annual. • Radio research. • Aggression: Theoretical and Empirical reviews.
	Linguistics and Language	Public Policy and Urban	Video game playing and	• Journal of

	Behavior abstracts	Planning	aggression violence	personality and social psychology. • Theory research and public policy.
	Sociological abstracts	Women and Gender studies	Aggression. Violent video games. TV and video game violence.	• Computers and human behavior. • Issues in mental health nursing.
	Psyc INFO (EBSCO)	Disabilities Studies	Video games addiction. Prosocial behavior by games.	• Media psychology. • Journal of Experimental Psychology. • Journal of computing research.
www.google.com	Scholarly articles		Video game playing, violence in	• Personality and individual

			video games.	differences. • Communication research. • Sex Roles. • Psychological science. • Advances in experimental social psychology.