The Relationship Between Digital Gaming and Behaviors, Thoughts, and Feelings among Saudi College Students

By
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Abstract

This study is investigating the relationships between playing video games and aggressive behaviors, thoughts, and feelings. The participants are Male and female Saudi college students at Taibah University. The study conducted for two main purposes. Examining correlations between the amount of violence in video games played and aggressive behaviors, thoughts, and feelings is the first purpose. While the other purpose is examining the relationship between the amount of time playing video games in childhood and in current time with aggressive behaviors, thoughts, and feelings.

The theoretical framework was drawn for this study consists of two theories: social learning theory and catharsis. Social learning theory relies on observation and imitating lead to copy that actions in reality. Regarding video games impact, the players might imitate the violence and copy that behaviors in real life. Catharsis has the opposite viewpoint of observing violence in social learning theory. Catharsis suggests that observing and experiencing violence in video games help in getting out of negative emotions such anger in real life.

A self- report questionnaire is used in collecting data. The present study used the same research design for Anderson and Dill Study 1 (2000). Adapted questionnaire in their study and two items from video game index they created are used in this study. SPSS used in all statistical analysis. Correlations and regression are run in order to answer all research questions.

The major findings suggested that there are no relationships in general between the amount of violence in video games and the amount of time playing video games and aggressive behaviors, thoughts, and feelings. However, there is a positive moderate correlation between the amount of time playing video games in childhood and verbally aggressive behaviors among only female Saudi college students.

The present study suggests to consider culture aspect in measuring video games impact by using GCAM criteria which they are working on to improve and make them more clear. There are other factors might effect the relationship also beside violence level in video games such as competitiveness in games, pace of action, and difficulty.

Dedication

I dedicate this work to

Each member in my lovely family

My father,

Who gave me peace, love, and support.

My mother,

Who supports me and loves me more than everybody else.

My husband,

Who pushes me to achieve my goals.

My lovely kids,

Who encourage me to face the challenges.

Fahad Alamri,

My beloved brother, who taught me about the right direction of success.

My all brothers and sisters,

Who surround me with their prayers and best wishes.

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In the name of Allah the Merciful

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Chapter 1 Introduction

Background

Computer and video games have been popular since their conception. They have become the most pervasive, influential, and profitable form of entertainment across the world. Players spend time, effort, and money in gaming. It is worth mentioning that the number of players increases when they become older until 35 years of age, and at that point, the number decreases (Kumparak, 2011).

Online and video games have become parts of human's lives. Thus, they are worth examining to see if they help humans in development or they harm human's lives. One aspect that has scholarly attention is the impact of video games on human's behavior. According to Worth and Book (2015), personality traits that shape human behaviors are not different from player's behaviors in video games. In other words, players behave the same way in real life as they behave in video games. However, Worth and Book's study (2015) is not the only study that investigates the impact of video games on human behaviors. Many studies have used different methods to investigate the influence of video games on player's behaviors, and they have conflicting results. In the present study, the researcher focuses on the relationship between video games and aggressive behaviors, thoughts, and feelings.

History of Video Games. The history of video games use considers issues such as studies, consoles, and games. Video game consoles and video game development was mentioned in detail by Wolf (2008). According to Wolf (2008), the first video game was the Tennis for Two experiment that was shown as an on-screen game play in 1958. However, other researchers do not consider this game the first video game or the beginning of video games. In 1962, the written

finished version of the mainframe computer game Spacewar was done at Massachusetts Institute of Technology. The first coin-operated arcade video games then appeared in 1971. In 1972, Magnavox Odyssey was created by Ralph Baer, which was the first video game console. In 1973, Atari and other companies produced many video games. In 1977, Nintendo produced its first video game. In 1987, CD-ROM was used in video games industry and Cyans's. The Manhole was the first video game that published on CD-ROM. The Sony PlayStation appeared in 1995, and it was developed to produce PlayStation 2 in 2000. In 2001, Microsoft's Xbox appeared. Sony produced portable PlayStation in 2004. In 2006, PlayStation 3 was released.

Violent Video Games

Several characteristics distinguish violent video games from other types of games. To categorize the game according to their violence content or graphics, Anderson, Gentile, and Buckley (2006) provide a list of questions that should be discussed about the nature of the game. If two or more questions are answered with yes, that means there are negative messages that are being sent through the games to the players. Anderson, Gentile, and Buckley (2006) list the following steps to determine the message of a game:

1. Play the game or have someone else demonstrate it for you.
2. Ask yourself the following six questions:
    - Does the game involve some characters trying to harm others?
    - Does this happen frequently, more than once or twice in 30 minutes?
    - Is the harm rewarded in any way?
    - Is the harm portrayed as humorous?
    - Are nonviolent solutions absent or less "fun" than the violent ones?
    - Are realistic consequences of violence absent from the game?

3. If two or more answers are "yes," think very carefully about the lessons being taught before allowing your child access to the game."

Positive and Negative Impacts of Video Games. Video games continue to be the most popular kind of entertainment. They rapidly have taken a place in daily lives, especially among children and adolescents. The popularity of video games affects different aspects in life such as game industries, medical implications, and education.

Games industries. Many studies have investigated the reasons behind the passion for gaming. The study found that 48% of the participants are playing video games for fun and 35% are playing because it is something to do. Thus, players do not realize the negative impact of video games because they enjoy gaming. Having this immersion in gaming contributes in games industries.

Medical implications. Health issues have been investigated in relation to gaming contexts, including sleep deprivation, depression, and weight issues. In other words, video game use is considered one of many factors that leads to health issues. One specific issue is depression, female video-game players reported greater depression and lower health status than female nonplayers (Weaver et al., 2009). Tremblay and Willms (2003) overweight linked positively with video game use among Canadian children (as cited in Al-Hazzaa 2007). On the other hand, playing interactive video game exercises is considered a solution to help with overweight issues (Warburton et al., 2007).

Education. Many studies discuss academic achievement and video game use. Brunborg, Mentzoni, and Frøyland (2014) found that video game addiction was positively related to poorer academic achievement.

Theoretical Framework

The frame chosen by the researcher for the present study relies on two theories: catharsis and social learning theory. This study clarifies the relationship between aggression and playing video games, and this relationship should be logically in one direction of three: positive relationship, negative relationship, or no relationship at all between playing video games and aggression. Social learning theory describes the negative impact, while catharsis explains the positive impact.

Social learning theory was proposed by Bandura (1978). Modeling was used in Bandura's work to explain how quickly humans learn behaviors from each other and apply those behaviors in their lives. Bandura thinks this learning process can sometimes occur indirectly. Aggressive behaviors can be obtained or acquired by observing and imitating aggression of others (Bandura, 1978). There are four processes of social learning: attention, retention, motivation, and reproduction. Bandura (1978) describes each one as follows:

- Attention: On the model (someone similar in age or sex or in a position of power such as a parent, teacher or celebrity) showing the behavior
- Retention: Remembering the behavior of the model
- Motivation: Having a good reason for copying the behavior
- Reproduction: Copying the behavior

There are two factors that play a large role in imitating aggression in real life: self-efficacy and a model. The model is discussed in social learning theory as the most important factor in this process. Status and power draw observer's attention to the model and guide them to copy model's behaviors. It is worth mentioning, besides status and power, that shared specifications between the observer and the model increase the chance of imitating the model's

behaviors such as gender. Self-efficacy is demanded in copying behaviors as Bandura proposes. In other words, if the observers believe in themselves and they believe that the observed behaviors can lead them to what they want to achieve the desired results, they will copy the observed behaviors.

In the present study, one possible finding could be that playing violent video game may lead to aggressive behaviors, thoughts, and feelings. Simply put, observing aggression leads to aggression according to social learning theory. Thus, the relationship between playing violent video games and aggression is in a positive direction.

The positive relationship might be affected by the players' self-efficacy. If the players' self-efficacy is low, the relationship would no longer be positive. That can explain the differentiation between the players' answers in the questionnaire or variations between answers. That difference in the data provides different levels of the relationship for those cases. In addition, the positive relationship between aggression and violent video game can be influenced by the model in the game. If the players' attentions are drawn by the models power or similarities to the characters in the game, they will imitate the aggressive behaviors presented in that game.

Another possibility of the relationship between aggression and playing video games is negative relationship. The frame that was drawn for this side of the present study is catharsis theory. Catharsis is defined in different ways. For example, catharsis in medicine, spirituality, and psychology have a different definition in each field. Catharsis in psychology will be used as a part of theoretical framework in the present study.

The basic concept of catharsis was proposed by Aristotle as cleansing. He viewed catharsis as purification and purgation of latent negative emotions that humans suffer from, and it can be done by art or extreme changes in emotions. More recently it has been defined as "The

verbal or non-verbal expression of intense affect associated with a coherent narrative of experience that provides relief of chronic anxiety states" (Chefetz, 1997).

From the catharsis perspective, playing violent video games can help players to relax and free them from anger. Adolescent boys reported that playing violent video games let them to discharge aggression (Kestenbaum & Weinstein, 1985). Scholars argue that the nature of video games encourages players to experience aggression as mentioned in Sherry (2001). The safety in playing video games where there is no real harm to any real people provides a useful environment for the players to release aggression. Thus, gamers prefer playing violent video games because of catharsis. Bushman and Whitaker (2010) discuss this point, and their results showed that catharsis encourages players to play violent video games (2010). In brief, gamers prefer playing violent video games to release anger in a safe manner.

Purpose of the Study

The purpose of this study is to investigate if playing video games is related to aggressive behaviors, thoughts, and feelings. To investigate aggressive behaviors, the researcher considers irritability, verbal aggression, and physical aggression scores as indicators for aggressive behaviors. To investigate aggressive thoughts, the researcher considered crime likelihood. Finally, aggressive feelings are investigated through the use of a safety questionnaire.

Exposure to video games violence is the first half of the study, and in this portion, the researcher interprets aggressive behaviors, thoughts, and feelings among gamers. Thus, the researcher focuses on the type of video game that is played the most often. Aggressive behaviors, thoughts, and feelings will all be reported, and the result will be compared with the type of games that are played the most often to see if there is a relationship between them or not.

The other aim of the study is to investigate the relationship between time spent playing video games and aggressive behaviors, thoughts, and feelings. Both current and childhood periods in gamers' lives are studied. Reported time will be compared to all items that measure different aggression forms to determine if there is any relationship between them and in which direction the relationship is directed.

Research Questions

The researcher developed ten questions that need to be answered for a better understanding of the relationship between the amount of violence in video games and the amount of time playing video games with aggressive behaviors, thoughts, and feelings.

1) Is there a relationship between the amount of violent video games played and reported physically aggressive behavior? (Aggression Traits Survey 1-9)

2) Is there a relationship between the amount of violent video games played and reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

3) Is there a relationship between the amount of violent video games played and reported irritability? (Irritability Survey 30)

4) Is there a relationship between the amount of violent video games played and the likelihood of crimes? (World View Crime Likelihood 1-4)

5) Is there a relationship between the amount of violent video games played and the perception of safety? (World View Safety 5-6)

6) Is there a relationship between the amount of time playing video games and reported physically aggressive behavior? (Aggression Traits Survey 1-9)

7) Is there a relationship between the amount of time playing video games and reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

8) Is there a relationship between the amount of time playing video games and irritability? (Irritability Survey 30)

9) Is there a relationship between the amount of time playing video games and the likelihood of crimes? (World View Crime Likelihood 1-4)

10) Is there a relationship between the amount of time playing video games and the perception of safety? (World View Safety 5-6)

Research Hypotheses

The researcher derived ten hypotheses from the previous questions:

1) There is a positive relationship between the amount of violent video games played and reported physically aggressive behavior. (Aggression Traits Survey 1-9)

2) There is a positive relationship between the amount of violent video games played and reported verbally aggressive behavior. (Aggression Traits Survey 10-14)

3) There is a positive relationship between the amount of violent video games played and irritability. (Irritability Survey 30)

4) There is a positive relationship between the amount of violent video games played and the perceptions of likelihood of crimes. (World View Crime Likelihood 1-4)

5) There is a negative relationship between the amount of violent video games played and the perception of safety. (World View Safety 5-6)

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8) There is a positive relationship between the amount of time playing video games and irritability. (Irritability Survey 30)

9) There is a positive relationship between the amount of time playing video games and the perception of likelihood of crimes. (World View Crime Likelihood 1-10)

10) There is a negative relationship between the amount of time playing video games and the perception of safety. (World View Safety 5-6)

The Significance of the Study

Many researchers from different countries believe that video games and online games influence all aspects of humans' lives, including health, behaviors, values, social life, school performance, and occupation decisions. Thus, video game use has a far-reaching impact on human life. This study sheds light on the relationship between aggression and violent video games. Violent video games, that are the key point of the present study, are the most popular type of games among players. According to Dietz (1998), nearly 80% of video games have violent content.

Video Games and the Saudi Community

In Saudi Arabia, playing video games is becoming more and more popular. Northwestern University in Qatar reported statistics related to video games use among seven Arabian countries, which are Egypt, Lebanon, Qatar, Tunisia, United Arab Emirates, and the Kingdom of Saudi Arabia (2014). Interestingly, Saudi Arabia has the highest number of players of video games among those countries. In general, 65% of Saudi people play video games (see figure 1). Over two-thirds of Saudi men (69%) play video games while 59% of Saudi female play video games (see figure 2). Men, younger individuals, non-Arab expatriates, and those who have achieved a higher level of education and income are more likely to play than others. A 25% of Arabs players

choose to play war games (see figure 3). According to Ibahrine (2015), 50% of Arabs are under 25 years (p.211).

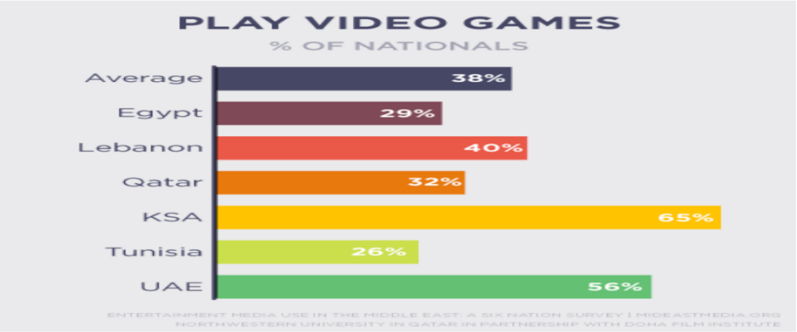

Figure 1. Percent of Middle Eastern nationals playing video games (2014)

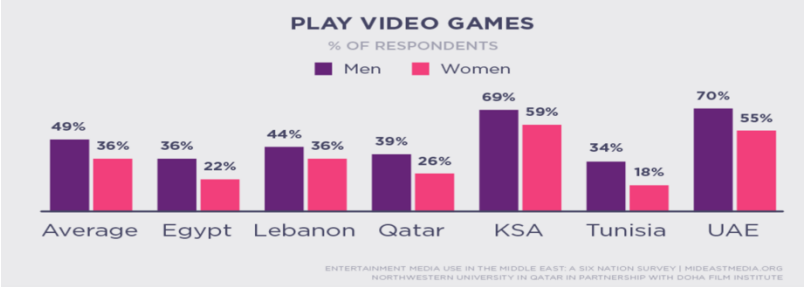

Figure 2. Percent of male and female players (2014)

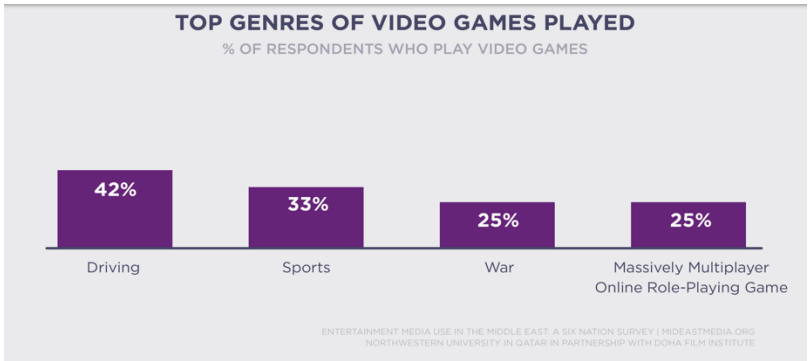

Figure 3. Top genres of video games played (2014)

Video Games and College Students

The researcher for the present study focuses on college student because playing video games is a popular activity among college students that can be done during leisure time. In general, one study shows that 98.7% of adolescents play video games at different levels

(Ferguson, 2007). According to the Northwestern University in Qatar (2016), most Saudi players spend five hours weekly playing video games; however, 22% of gamers in Saudi Arabia play more than ten hours weekly. Age is an important factor that influences the amount of time playing video games (Griffiths, 1999). Older people play less than younger ones. Thus, younger gamers spend more time playing comparing with the other gamers. Thirty-eight percent of gamers who are under 25 spend ten hours weekly gaming (the Northwestern University in Qatar, 2016). Thus, based on the previous statistics, college students spend lots of time playing video game. The researcher for the present study is focusing on college students because they are the ones who help in developing their society and if they spend their time in something that can harm them or do nothing for them the society will lose those people and it is not getting developed anymore.

Video Games Classification in Saudi Arabia

Recently, video games are classified in Saudi Arabia by General Commission Audiovisual Media (GCAM). The commission banned 63 video games. In addition, it set criteria that built on suitable content and graphics to players' ages. There are twenty criteria considered in classification. Furthermore, there are three categories for games rating; 6 years and above, 12 years and above, and 19 years and above (General Commission for Audiovisual Media, 2016).

Operational Definitions

Games. According to Mitchell (2012), games consist of four factors that attract players and make games more interesting and that might cause addiction. The factors are activity, goals, challenge, and individual or multiplayers. Thus, games are activities that are controlled by rules where the players need to reach goals with lots of challenges. Individual or multiplayers can play them, and games have free form.

Video games. According to Crawford (1984), a computer game is a computer-controlled game that players engage in and interact with displayed objects for entertainment. A video game is not just played on a personal computer, but it also run by a console, handhelds, arcade machine, or large mainframe computer. There are four common factors in computer games that make them more interesting and workable: representation, interaction, conflict, and safety.

Representation means that the game should be clear and complete in its structure. Interaction mean producing interesting games, interactive elements in their appeal among lots of static games. The third factor, conflict, puts challenges in the games to make them more interesting. Finally, safety provides a safe environment for players to enjoy their games with no barriers or fear.

Thoughts. There are essential three elements can describe what thoughts are. First of all, thoughts related to mind or occur in mind. Secondly, thoughts can not be seen, smelled, or heard. Finally, no evidence needed in all situations to draw thoughts, so thoughts sometimes are supported by evidence and sometimes are not (Dewey, 1997).

Feelings. Many people mix between emotions and feelings and how each one can be defined. They are very related to each other, but they are not the same. Thus, in order to understand what feelings are, we need to know about emotions. Emotions are the results of changes in the nervous system, these emotions create mental images or thoughts and that produce feelings (Izard, 1991). Thus, simply, emotions linked to body and feelings linked to the mind.

Behaviors. Behaviors mostly defined as actions, however scholars and phycologists arguing about the factors influences humans' behaviors. Simply, behavior is the way that humans

act especially toward others (Edobor & Ebiye, 2017). Elizabeth defines behavior with broader elements and she says (2014):

> It involves a range actions and mannerism made by individuals, organism, systems or artificial entities in conjunction with themselves and their environment which may include other systems or organism around as well as the inanimate physical environment.

Factors Enhancing Aggression Besides Playing Violent Video Games

Several factors can control and enhance aggression levels besides violent video games: video games nature, gender, competitiveness, and player's age.

Video games nature. As discussed in theoretical framework section, catharsis theory can explain the impact of violent video games on player's moods or behaviors as well as social learning theory. According to social learning theory (Bandura, 1986), playing violent video games stimulates aggression, so children imitate what they see on the screen (as cited in Griffiths, 1999). However, catharsis theory (Feshbach & Singer, 1971) means that a relaxing effect and being free from anger can be a positive effect caused by playing violent video game (as cited in Griffiths, 1999).

Gender. A player's gender has a significant role in the amount of time that players spend playing video games. Time spent playing video games can enhance the impact of this activity and make it more obvious to the researchers. (Paraskeva, Mysirlaki, & Papagianni, 2010) Males tend to play online or video games more often than females. Thus, considering players' gender can give researchers hints about how much time those players spending gaming. Lightdale and Prentice (1994) investigated the effect of gender role on video game use, and they found that there were no differences between males and females in playing video games; however, males

are more aggressive than females, as cited in Griffiths (1999).

Competitiveness. Competitiveness in video games can be considered a factor that enhances aggression. Anderson and Morrow (1995) tested Deutsch's (1993) theory about competition effects using video games. They found that people who were exposed to competitive situations are more aggressive than other who were not. Simply, the findings of Anderson and Morrow (1995) suggest that competitiveness increases aggression (as cited in Griffiths, 1999).

Age. Player's age is a factor that enhances the impact of playing violent video games. According to Griffiths (1999), younger players are more influenced by violent video games. In other words, children become more aggressive than older children after playing violent video games.

Chapter 2 Literature Review

Introduction

Doug Lowenstein, president of the Interactive Digital Software Association, complained on May 12, 2000, in a CNN interview on *The World Today:* "I think the issue has been vastly overblown and overstated, often by politicians and others who don't fully understand, frankly, this industry. There is absolutely no evidence, none, that playing a violent video game leads to aggressive behavior" (Anderson & Bushman, p353, 2001). CNN aired this interview while many scholars were trying to find the reasons behind the school shootings at that time that were committed in the same way and the same time frame. Those crimes brought scholars' attention to violent video games effects because the shooters already created their own games with blood, guns, and victims in a similar manner to which the actual crime was committed. However, the leaders in video game industry denied that there was any negative effect from their products, even though the research on the effect of video games started in the mid-1980s, and the impact of video games were taken into account in a scholarly manner after the school shootings (Anderson & Bushman, 2001).

In the present study, the researcher is investigating the impact of violent video games on Saudi male and female college students. In particular, the researcher is trying to determine if there is any correlation between playing violent video games and aggressive thoughts, feelings, and behaviors. This chapter is clarifying the concepts related to this topic as well as providing statistics for better understanding.

Aggression

Aggression is discussed in different ways. Among many people, aggression is related to harmfulness and is mostly concerned with actions that can cause pain or harm to another.

Anderson et al. (2003) asserts that aggression term only used for a behavior that harm others. Anderson et al. (2003) stated the following:

> Some studies have focused on the impact of media violence on aggressive thinking, including beliefs and attitudes that promote aggression. Other studies have focused on the influence of media violence on aggressive emotions that is, on emotional reactions, such as anger, that are related to aggressive behavior. It is important to keep these three types of outcome variables (behavior, thoughts, emotions) separate, and to reserve the labels "aggression" and "violence" for behaviors intended to harm another person.

However, many psychologists and researchers believe in the existence of different forms of aggression. In addition, the definition of aggression depends on other factors that shape aggression or might cause it.

Aggression is not a simple word that can be defined with few words because it is a multidimensional topic (Geen, 1990, p.1). Aggression as Geen notes can be very simple actions or very complex ones. Thus, Geen suggests when defining aggression to consider its previous circumstances, current processes, and its outcomes. The most used definition of aggression is Buss's definition. Buss (1961) defines aggression as "A response that delivers noxious stimuli to another organism" (p.2). After discussing points that should be covered in defining aggression, Geen (1990) concludes that "aggression is the delivery of an aversive stimulus from one person to another, with intent to harm and with an expectation of causing such harm, when the other person is motivated to escape or avoid the stimulus" (p.3).

Aggressive Thoughts. Aggressive personalities lead people to act aggressively because they expect that all humans are aggressive and hostile, and they will face aggression in interpersonal interactions (Anderson, Anderson, & Dill, 1998).

Aggressive Thoughts and Video Games. In many studies, gamers who play violent games think more aggressively than gamers who play non-violent video games. In Bushman and Anderson's (2002) experiment, gamers who play violent video games conclude a story that is given them to complete with more aggressive outcomes than gamers who play non-violent video games (Ivory & Kalyanaraman, 2007). Another study (Anderson & Dill, 2000) measured the relationship between aggressive cognition and playing violent video games by measuring the pace of reading aggressive words after playing violent video games (as cited in Gentile, & Anderson, 2003). They found that playing violent video games is positively related to aggressive thoughts. Regarding the present study, the researcher uses crime likelihood questionnaire to measure aggressive thoughts.

Aggressive Feelings. Salmivalli (2001) thinks negative feelings such as fear would lead to aggression in some way. Salmivalli (2001) suggests that "the experience of threat, as well as feelings of fear and anger, are associated with reactive but not so much with proactive aggression.". This philosophical viewpoint provides the term aggressive feelings. In other words, there is no aggressive emotion itself, but there is a negative emotion such as fear that causes aggressive emotions as a response to it.

Aggressive Feelings and Video Games. Even though research examining the effect of exposure to media is limited, evidence shows that children's fears and anxieties are related to exposure to media and the strength of that relationship influenced by children's age (Wilson, 2008). For video games in particular, many studies find that aggressive feelings are positively correlated with playing violent video games compared to feelings that occur when playing nonviolent video games (Gentile & Anderson, 2003).

Aggressive Behaviors. Different forms of aggressive behaviors exist. Buss (1961) discusses those types based on their basis. The first type is based on an organ system which is obvious and clear to be seen, and the other is based on interpersonal relationships. Physical aggression and verbal aggression are examples of the first type. Regarding the present study, physical and verbal aggression are being discussed and investigated. Physical aggression is defined as "an assault against an organism by means of body parts (limb, teeth) or weapons (knife, club, gun)" (Buss, 1961). While, Verbal aggression is defined as "a vocal response that delivers noxious stimuli to another organism" (Buss, 1961). Comparison between aggression kinds takes into consideration causing pain or injury in order to classify that behavior under aggression behavior. Buss (1961) says even though verbal aggression does not cause real injury, many psychologists consider it a type of aggression based on an organ system because it causes psychic injury.

Aggressive behaviors (physical and verbal) and video games. Playing violent video games promote aggressive behaviors among players. For example, young adolescents who play violent video games are involved in more physical fights and get into arguments in school more than non-gamers or players who play nonviolent video games (Gentile et al., 2004). In addition, there are many studies that show playing violent video games increases aggressive behaviors (Anderson & Dill, 2000; Cooper & Mackie, 1986; Gentile & Anderson, 2003; Irwin & Gross, 1995; Lynch et al., 2001; Schutte, Malouff, Post-Gorden, & Rodasta, 1988; Silvern & Williamson, 1987). All those studies came up with the same results for children and adults, males and females, and in experimental and non-experimental studies.

Video Games

Arab video games. A few rare sources provide information about video games in Arab world; however, there is data that shows the approximate number of gamers in that area. The Middle East has a great number of gamers. There are 200 million Arabs who own phones, and 80% of them play games using their phones, plus 8.5 million consoles were sold in the Arab world. In particular, Saudi Arabia has the highest number of gamers in Arab world. Video game is the most searched word among twenty-four searches each month. There are three million gamers who play social games using Facebook in Saudi Arabia (Ibahrine, 2015, p. 211- 212).

Violent Games Are Preferred. Olson et al. (2008) shows that boys tend to play violent video games for three reasons: first, they like the freedom that comes from engaging in the activities and they can practice power and glory roles without any barriers. Second, and closely related, is that the games are exciting for them. Finally, they play violent video games to help them relax and release their anger and stress.

Studies in violent video games field. According to Adachi and Willoughby (2011), most studies that investigate the effects of violence in video games do not use equivalent games in competitiveness, pace of action, and difficulty. For example, the level of competitiveness, not the violent content itself, might lead to aggression in violent video games. The findings from almost all the studies in this field are that aggression is enhanced by violent video games; they also found that there might be other factors that support aggression such as the nature of the game, players' age, and gender.

Video Game and Time. The popularity of playing video games has expanded over its recent history. Each generation of players spends more time playing video games than the previous generations. According to Harris and Williams (1985) in the mid-1980s, children

played video games for four hours' weekly in average (as cited in Gentile & Anderson, 2003), while the amount of playing video game increased in late 1990s (Gentile & Walsh, 2002; Woodard & Gridina, 2000); the average time spent playing video games in the late 1990s was seven hours weekly (as cited in Gentile & Anderson, 2003). In the early 2000s, the average amount of time spent playing video games was nine hours weekly (Gentile, Lynch, Linder, & Walsh, 2004). Thus, players have spent more time playing video games over the passage of years.

The impact of the increasing amount of playing video game has been investigated; Gentile, Lynch, Linder, and Walsh (2004) found that greater time of playing violent video games was associated with poorer school performance, hostility, and physical aggression.

For the present study, the researcher is considering time as an independent variable. Times spend playing video games in childhood and currently are compared to aggression items in the questionnaire for this study to find if any correlations exist.

Video Game Compared to T.V. At least six reasons have been found that state aggression in video games has a greater impact on users compared to aggression on television (Anderson & Dill, 2000; Gentile & Walsh, 2002) (as cited in Gentile, & Anderson, 2003). The six reasons are identification with an aggressor, active participation, practicing an entire behavioral sequence, continuous violence, repetition, and rewards.

First of all, identification with an aggressor makes the impact of playing video game more influential. Video games enhance identification with the characters in different ways. For example, in some video games, especially in "first-shooter games," players can see what the characters see as if they were inside the game. In another kind of video games, players can

replace the characters' face with their faces. Thus, the games design can increase identification with the characters (Gentile & Anderson, 2003).

Another reason that makes the video game impact is greater than television is active participation. In playing video games, players put forth more effort in playing than do people who are passively watching television. From a learning viewpoint, learners absorb more information the more they are involved in the learning environment. This viewpoint can be applied in many contexts such as watching television and playing video game. Players get involved more than observers who are watching television (Gentile & Anderson, 2003).

Practicing an entire behavioral sequence is the third reason that enhances video game impact. Playing video games is a fertile environment for teaching. Players are learning many sequences that are required for the skills that they are practicing in the game. This environment of learning does not exist in television or movies (Gentile & Anderson, 2003).

In video games, violence is continuous, and that means it has a greater impact than the violence on television. In other words, violent television shows can be interrupted by commercials or moving to another scene, while players video games need to be alert to any sudden danger, so the violence is continuous in video games (Gentile & Anderson, 2003).

The fifth reason that video games have a greater impact on players than television viewers is the repetition of violence in video games. Players are exposed to violent content and graphics more than television viewers are. In other words, players spend a greater amount of time doing the same aggressive behaviors while television viewers do not (Gentile & Anderson, 2003).

The reason that violence in video games has a greater impact than violence in television is rewards. Rewards can enhance aggression in different ways. Players enact aggressive

behaviors more frequently than other actions with no rewards. In addition, regarding rewards, players learn that using aggression can solve problems. Finally, rewards encourage the players to spend more time playing, which increases its impact (Gentile & Anderson, 2003).

Short-Term Versus Long-Term Effects

Short-term and long-term effects both can be measured in the video games field; however, they are different in certain points. Short-term effects are mostly measured on those participants who have played video games in the prior 15 minutes or so before the suitable measure is obtained. This contrasts with long-term effects that are measured in cross-sectional or longitudinal studies that have continued for months or years.

The same topics may be being measured for long-term or short-term and have different results (Anderson et al., 2010). In the video game field, measuring video game violence for long-term effects might give different results from measuring video game violence for short-term effects. For example, comparing the use of video games with sanitized violence with more graphic versions in a study for short-term effects may lead to different results from a study measuring long-term effects that used the same games. The graphic version may have greater effects than the sanitized version in the second study but not in the first because of repetition. Other factors might influence the results of measuring short-term effects and long-term effects. For example, in the video game field, personal factors such as beliefs and attitudes could make a difference between results in measuring long-term and short-term effects even though the same measures are used for both (Anderson et al., 2010).

In the present study, the researcher is measuring the long-term effects of playing violent video games. The instrument used in this study is a self-reporting questionnaire. The participants will not be investigated after this is completed as would be the case in cross-sectional studies.

Chapter 3: Methodology

Introduction

The study is designed to investigate the impact of video games on Saudi male and female college students' aggression. The chapter covers the following topics:

- Research Design
- Research Questions
- Research Hypotheses
- Study Setting
- Data Collection Procedure
- Description of the Variables: DV+IV
- Participants
- Instrumentation
- Validity and Reliability
- Data Analysis

Research Design

The present study relies on quantitative method to investigate the relationship between video game use and Saudi male and female college students' aggression. The questionnaire is a self-report, electronic survey. All the participants are Saudi college students in Taibah University in AL Medina city in western Saudi Arabia. The survey was conveyed to the participants through their accounts in Taibah University. The researcher used coding to transfer data that has names such as games.

Research Questions

The researcher created ten research questions that had to be answered in order to find the relationship between playing video games and aggressive thoughts, feelings, and behaviors. Those questions are as follows:

1) Is there a relationship between the amount of violent video games played and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

2) Is there a relationship between the amount of violent video games played and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

3) Is there a relationship between the amount of violent video games played and reports of irritability? (Irritability Survey 30)

4) Is there a relationship between the amount of violent video games played and the likelihood of crimes? (World View Crime Likelihood 1-4)?

5) Is there a relationship between the amount of violent video games played and the perception of safety? (World View Safety 5-6)

6) Is there a relationship between the amount of time playing video games and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

7) Is there a relationship between the amount of time playing video games and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

8) Is there a relationship between the amount of time playing video games and irritability? (Irritability Survey 30)

9) Is there a relationship between the amount of time playing video games and the likelihood of crimes? (World View Crime Likelihood 1-4)

10) Is there a relationship between the amount of time playing video games and the perception of safety? (World View Safety 5-6)

Research Hypotheses

1) There is a positive relationship between the amount of violent video games played and reported physically aggressive behavior. (Aggression Traits Survey 1-9)

2) There is a positive relationship between the amount of violent video games played and reported verbally aggressive behavior. (Aggression Traits Survey 10-14)

3) There is a positive relationship between the amount of violent video games played and irritability. (Irritability Survey 30)

4) There is a positive relationship between the amount of violent video games played and the perception of likelihood of crimes. (World View Crime Likelihood 1-4)

5) There is a negative relationship between the amount of violent video games played and the perception of safety. (World View Safety 5-6)

6) There is a positive relationship between the amount of time playing video games and reported physically aggressive behavior (Aggression Traits Survey 1-9)

7) There is a positive relationship between the amount of time playing video games and reported verbally aggressive behavior. (Aggression Traits Survey 10-14)

8) There is a positive relationship between the amount of time playing video games and irritability. (Irritability Survey 30)

9) There is a positive relationship between the amount of time playing video games and the perceptions of likelihood of crimes. (World View crime likelihood 1-4)

10) There is a negative relationship between the amount of time playing video games and the perception of safety. (World View Safety 5-6) (see figure 4)

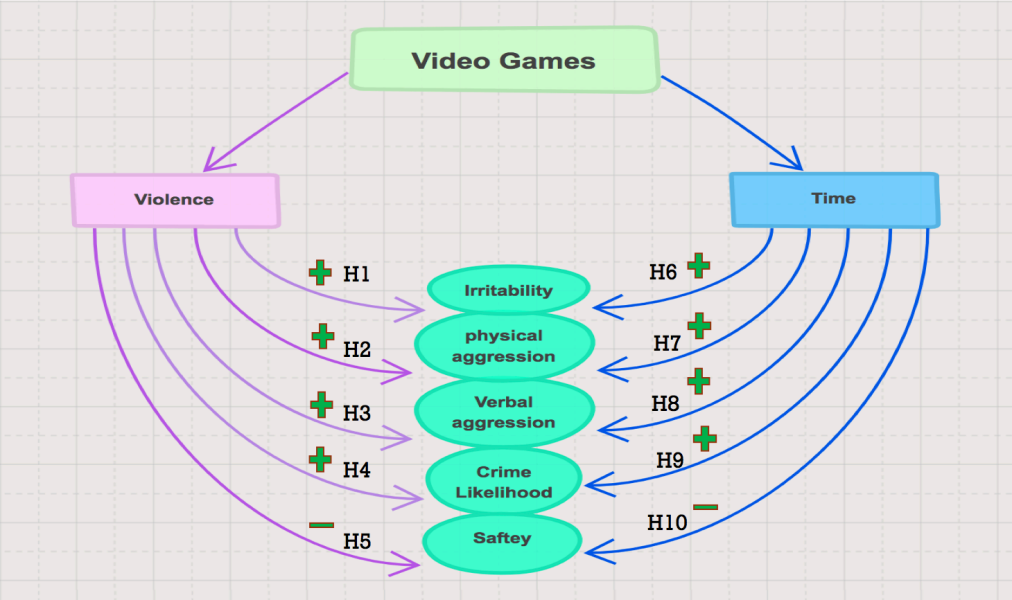

Figure 4. Research Hypotheses

Source: Created by the researcher.

Study Setting

This study was conducted at Taibah University in the city of Al-Madinah Al-Munawarah that is in western Saudi Arabia. According to the Ministry of Education, the university has its main campus in Al-Madinah city and six branches more in different governorates: Yanbu, Ula, Hinakiyah, Khyber, Almahd, and Badr. The university has twenty-eight colleges, with sixteen colleges at the main campus in Al-Madinah city and the remainder in the six branches. In addition, the university has two separate campuses, one for male students and the other for female students. There were only 7,761 students when it was founded in 2003, but in 2013, there were 60,055 students enrolled in different programs (2018).

According to the Ministry of Education, Taibah offers seven degrees for its students: Diploma, Associate, Bachelor's, General Diploma, Higher Diploma, Master's, and Doctorate. There are 156 programs in the university, 94 programs of which are for graduate students (2018).

The researcher contacted Taibah University to get permission to conduct the study. After getting permission, the researcher emailed the link to the survey that includes the consent letter

on the first page to the Department of Information Technology (which has all students accounts). Then, Information Technology distributed the survey among male and female college students. Thus, the participants in the present study are college students who are studying for a bachelor's degree at Taibah University regardless of the programs they are in or their gender.

Data Collection Procedure

The instrument is a self-reporting questionnaire. The questionnaire was distributed electronically via emails among all Taibah University students in a bachelor's degree program. The researcher sought help from instructors in the university, too. In addition, the researcher used social media such as WhatsApp and Twitter in distributing the link to the questionnaire. From time to time, a reminder to take the survey was sent by social media in order to increase the number of participants.

The first page of the survey is the consent letter. The participants are not allowed to move on to the survey items if they do not agree with the consent. On the first page, the researcher clarifies that participation is voluntary and participants can quit any time they want while they are taking the survey without any harm. In addition, the participants are told their responses will be anonymous for everyone.

Human Subjects' Committee Approval. The researcher sought out the approval from the Human Subjects Center at the University of Kansas through the Institutional Review Board (IRB). After reviewing the application, the IRB issued the approval. (See Appendix A)

Research Field Study Approval. The researcher communicated with Taibah University to get their permission to conduct the study using its students as the participants. The researcher received that permission.

Back-translation Technique. Back translation technique is a well-known approach across culture research to keep the instruments that are used valid. The instruments go through many steps in this technique. Triandis and Brislin (1984) explain the technique:

This approach requires several independent bilingual translators. A bilingual translator blindly translates an instrument from the original language to the target language; a second bilingual translator independently back-translates the instrument from the target language to the original language. Next, the two versions of the instrument (original language and back-translated version) are compared for concept equivalence. When an error is found in the back-translated version, another translator attempts to retranslate the item. This procedure continues until a team of bilingual translators agree that the two versions of the instruments are identical and have no errors in meaning. (as cited in Cha, Kim, & Erlen, 2007).

For the present study, the original version of the instrument is in English and it was translated to Arabic using backward translation techniques because all the participants in the present study are Arabic native speakers. After the questionnaire was approved by the Human Subject Committee and the Ph.D. Committee members, the researcher translated the instruments to Arabic. As the first step, the questionnaire was translated to Arabic by an Arabic native speaker who is fluent in both languages: Arabic and English; Dr. Saad Aldossary, who is a faculty member in the English Department at The Imam University in Riyadh, helped the researcher in this step of the technique and translated all items from English to Arabic. Then, the Arabic version was reviewed by the researcher and a group of Ph.D. students who are studying in the United States at different universities. After that, the Arabic version was given to an Arabic native speaker who is fluent in both languages to translate it back to English; this person was Alzahrani, Turkey, who is majoring in Special Education at the University of Kansas. Alzahrani

gave the last version of English to an English native speaker to review, and after she made small changes, it was then reviewed by the researcher. Finally, the original version of the questionnaire and the last version was given to an English native speaker to examine any significant differences between these two versions. In this step, Reem Alsimmiry who is a Ph.D. student in TESL at the University of Kansas, compared the two English versions of the questionnaire. She did not find any significant differences between the English versions. Then, the researcher distributed the Arabic version of the survey among the college students at Taibah University.

Description of the Study Variables: DV+IV

The independent variables for this study includes two variables: video games violence and time. Video games violence is calculated using ESRB (Entertainment Software Rating board), and the researcher uses ten items in calculation: five items asking about the most five favorite games, how often playing these five games. The time will be two items "how often do you play video game in your childhood?" and "Currently, how often do you play video game?"

The dependent variables are physical aggression (Aggression Traits Survey 1-9), verbal aggression (Aggression Traits Survey 10-14), irritability (Irritability Survey 30), crime likelihood (World View **C**rime **L**ikelihood 1-4), and safety feelings (World View Safety 5-6).

Participants

Saudi male and female college students in Taibah University are the participants in the present study. The participants are between the ages of 18 to 30 years, and they are studying in different departments in Taibah University.

Instrumentation

The instrument for the present study was adapted from Anderson and Dill (2000). The tool is a self-report questionnaire. The researcher for the present study decided to use the same

research design with small changes that Anderson and Dill (2000) used in Study 1for several reasons. First of all, the focus of the research design is related directly to the topic of negative consequences of long-term exposure to video games violence. In addition, it measures what the researcher wants to measure (video games and aggression). Furthermore, most studies that discuss video games impact do either experiments or observations. Some of them use methodologies (questionnaire and observations or experiments), and they use the questionnaire to interpret the observations. However, the Anderson and Dill study (2000) has two separate methodologies: self-report questionnaire and an experiment. Each has a different focus. Study 2, which relies on experiments, focuses on the short-term effects of video game violence. However, the researcher used Study 1 (self-report questionnaire) only, which measures the negative consequences of long-term exposure to video game violence. The researcher also wanted to use this instrument because it is a valid questionnaire, so there will be no concern about validity and reliability issues. Items adapted from Anderson and Dill's study (2000) were valid in both studies. Finally, Anderson and Dill (2000) had a strong study. It is used as a reference in most articles that discuss violent video games, and it is cited by 1797 articles.

In Study 1, Anderson and Dill use a self-reporting questionnaire. The total number of questionnaires is six questionnaires: Irritability, Aggression Traits, Delinquency, Video Game, World View, and GPA. Some of them were adapted from other studies such as Irritability (Caprara,1985), Aggression Traits (Buss-Perry, 1992), and Delinquency (Elliot, Huizinga, & Ageton, 1985). However, the rest of questionnaires were created by Anderson and Dill (2000), including World View, Video Game, and GPA.

Irritability consists of 30 items. Ten items are reverse scored because they are "friendliness" items, and the other 20 items are irritability items. The participants respond on 7-

points scale ranging from 1, “extremely uncharacteristic of me,” to 7, “extremely characteristic of me.” Dill and Anderson (2000) used all items in their study. The researcher for the present study also uses all 30 items because they are suitable for the study’s purpose.

Regarding the present study, this questionnaire is used to answer the third and the eighth research questions: is there a relationship between the amount of violent video games played and reported irritability, and is there a relationship between the amount of time playing video games and the irritability? (Irritability Survey 30). For the present study, the participants respond on 4-points scale ranging from 1, “strongly disagree” to 4, “strongly agree.” Items number 3, 4, 6, 11, 12, 14, 17, 19, 21, and 27 should be reversed (See Appendices C & J).

The Aggression Traits (AQ) (Buss-Perry, 1992) consists of 29 items and four subscales: physical aggression, verbal aggression, anger, and hostility. The participants respond on a 7-point scale ranging from 1, “extremely uncharacteristic of me” to 7, “extremely characteristic of me.” For the present study, the researcher uses only the first two subscales, physical aggression and verbal aggression. First, the researcher considered that this questionnaire contains sufficient information about aggression behaviors which the researcher focuses on. In addition, the researcher wanted to reduce the total number of items to encourage participants completing the survey with more energy and focus. Finally, the researcher dropped anger and hostility subscales because of their coefficient alpha scores that were reported in another study.

Regarding the present study, this questionnaire is used to answer the first, second, sixth, and seventh research questions: is there a relationship between the amount of violent video games played and the reported physically aggressive behavior? (Aggression Traits Survey 1-9); is there a relationship between the amount of violent video games played and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14); is there a relationship

between the amount of time playing video games and the reported physically aggressive behavior? (Aggression Traits Survey 1-9); and is there a relationship between the amount of time playing video games and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14). The participants respond on 4-points scale ranging from 1, “strongly disagree” to 4, “strongly agree.” Item number 7 should be reversed (See Appendices D & K).

Anderson and Dill (2000) divided the delinquency questionnaire into two subscales: aggressive behavior and nonaggressive delinquency. They all consist of 45 items. Anderson and Dill dropped four items because they were scored at zero by all participants.

In the present study, the researcher dropped the whole questionnaire items for the following reasons. First, the questionnaire has strong or rough language that might affect participants’ honesty, which is important since the questionnaire has self-reporting items. In addition, the questionnaire measures aggression behavior, and the researcher thought other items already measure this construct, which are the irritability questionnaire (CIS) and aggression traits questionnaire (AQ). Furthermore, because of culture consideration, the researcher dropped this index as it has certain concepts that do not fit with Saudi culture. Finally, the researcher wants to reduce the total number of items to encourage participants to complete the questionnaire without affecting the results and the purpose of the research.

The fourth questionnaire used in Anderson and Dill (2000) is the Video Game Questionnaire. They created this and divided it into two indexes: video game violence and time spent on video games. The first index focuses on exposure to video games violence and the second index focuses on the amount of exposure to video game violence.

The first index consists of four items: naming five favorite games, how often playing these video games, how violent the content, and the graphics of these games. After naming their

games, the participants respond on scales of 1 to 7. Responses of 1 were labeled rarely, little or no violent content, or little or no violent graphics, while responses of 7 were labeled often, extremely violent content and extremely violent graphics. Video games violence exposure was calculated by summing the violent content and the violent graphics rating for each game and multiplying that by the how-often-rating for the same game. Then, they found the average.

For the present study, the researcher used only two first questions. The participants are asked if they play video games or not in the beginning. Then, the participants are asked to name their top five favorite games and how often they paly each one of them. How-often questions have a Likert scale of 1 to 10. Responses of 1 are labeled rarely and 10 are labeled extremely. The researcher used the ESRB (Entertainment Software Rating board) to evaluate the level of violence of each game. (See Appendices E & M).

In Anderson and Dill (2000), the other index, which is time spent playing video games, consists of one question with different time frame. The question is estimate the number of hours per week you have played video games in "recent months,", "during 11th &12th grades," "during 9th &10th grades," and "during 7th & 8th" grades. This means the participants were asked about their behaviors that occurred approximately five to six years ago. In Anderson and Dill (2000), the time was calculated by averaging the amount of time across all periods.

For the present study, the researcher asks participants two questions, which are how often did you play video games in your childhood? and currently, how often do you play video games? How-often questions have a Likert scale of 1 to 10. Responses of 1 are labeled rarely and 10 are labeled extremely. (See Appendices F & N).

Anderson and Dill (2000) created the World View questionnaire that consists of two indexes: crime likelihood and safety feelings. In crime likelihood, participants were asked about

estimating the percentage of occurring four different crimes. Anderson and Dill use these items to measure aggressive thoughts because they think the comparison can be easily made between people who are exposed to violent media and who are not exposed to it in order to find how violent media affects people's thoughts. In safety feelings, the participants are asked to estimate how safe they feel in two different circumstances.

For the present study, this questionnaire with two indexes was used as Anderson and Dill (2000) did; it was used to answer the fourth, fifth, ninth and tenth research questions: is there a relationship between the amount of violent video games played and the likelihood of crimes? (World View Crime Likelihood 1-4); is there a relationship between the amount of violent video games played and the perception of safety? (World View Safety 5-6); and is there a relationship between the amount of time playing video games and the likelihood of crimes? (World View crime likelihood 1-4); is there a relationship between the amount of time playing video games and the perception of safety? (World View Safety 5-6). (See Appendices G & L).

The last index in Anderson and Dill (2000) contains only one variable: the cumulative college GPA for each student. Anderson and Dill obtained student GPAs from the university's register and discussed academic achievement and linked that to exposure to video games violence; however, the researcher for the present study asked participants to write their GPA, gender, age, major and college level, and used this information only for additional findings, so they are not essential variables in the present study (See Appendix O).

Validity and Reliability

Reliability. Joppe (2000) defines reliability as follows:

> The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be

reproduced under a similar methodology, then the research instrument is considered to be reliable. (as cited in Golafshani, 2003, p. 1)

For the present study, the researcher considers the Cronbach's alpha for all items that adapted. Regarding irritability, Carpara (1985) reported coefficient alpha at .81 and a test retest reliability of .83 as cited in Anderson and Dill (2000), while Buss and Perry (1992) reported the total coefficient alpha of all categories in aggression trait questionnaire at .89 and a test-retest reliability at .80. In details, the Cronbach's alpha for physical aggression was .78, verbal aggression was .69, anger was .40, and hostility was .55 (as cited in Scelsa, 2014). Thus, the physical aggression and verbal subscales are reliable, but not the other subscales. Anderson and Dill (2000) used all items in all four subscales because the Cronbach's alpha for all items together was high which was .89. In Anderson and Dill (2000), safety was reported at .82 and the coefficient alpha for crime likelihood was .86. Finally, the video game violence exposure Coefficient alpha was reported at .86. in Anderson and Dill (2000). The researcher for the present study will find Cronbach's alpha for all items using SPSS in analyzing data.

Validity. Joppe (2000) defines validity as follows:

> Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object? Researchers generally determine validity by asking a series of questions, and will often look for the answers in the research of others. (1, as cited in Golafshani, 2003).

Regarding adapted survey, the data that was collected through the questionnaire in the Anderson and Dill study (2000) was used as a reference citation by 2071 studies. For validation of the present study, the researcher dropped certain items that do not fit with Saudi culture such

as the delinquency questionnaire. In addition, the researcher reviewed the translation of the survey with people fluent in both Arabic and English. Some items were developed with the faculty member in the Educational Technology and Psychology and Research Departments at the University of Kansas. Finally, for a more accurate evaluation of the violence in video games in accordance with advice from Dr. Young Jinn Lee, who is an associate professor in the Educational Technology Department at the University of Kansas, the researcher used ESRB in rating violent games instead of letting the participants evaluate as Anderson and Dill (2000) do in their study.

Data Analysis

Hypotheses of the Study

1) There is a positive relationship between the amount of violent video games played and reported physically aggressive behavior. (Aggression Traits Survey 1-9)

2) There is a positive relationship between the amount of violent video games played and reported verbally aggressive behavior. (Aggression Traits Survey 10-14)

3) There is a positive relationship between the amount of violent video games played and irritability. (Irritability Survey 30)

4) There is a positive relationship between the amount of violent video games played and the perception of likelihood of crimes. (World View crime likelihood 1-4)

5) There is a negative relationship between the amount of violent video games played and the perception of safety. (World View Safety 5-6)

6) There is a positive relationship between the amount of time playing video games and the reported physical aggressive behavior. (Aggression Traits Survey 1-9)

7) There is a positive relationship between the amount of time playing video games and the reported verbally aggressive behavior. (Aggression Traits Survey 10-14)

8) There is a positive relationship between the amount of time playing video games and irritability. (Irritability Survey 30)

9) There is a positive relationship between the amount of time playing video games and the perception of likelihood of crimes. (World View crime likelihood 1-4)

10) There is a negative relationship between the amount of time playing video games and the perception of safety. (World View Safety 5-6)

After collecting data, the researcher used SPSS for analysis. To find out if exposure to video games violence and spending more time gaming are related to aggression in different ways, such as aggressive behavior, thoughts, and feelings, the researcher conducted correlations. In addition, the researcher found frequencies for certain variables. Regarding statistical significance, $p < .05$ is the level of the statistical significance for all analysis in this study.

Video Game Violence. Regarding computing variables, the researcher first needed to calculate video game violence. The researcher uses three categories in assessing the games violence: violence, blood, and language. The violence in video games has six levels according to ESRB: fantasy violence, cartoon violence, violent references, violence, mild violence, and intense violence. The researcher ranged them, using their definitions in ESRB website, from 1 to 6 to indicate increasing violence (see figure 5).

Violence

1. Fantasy Violence - Violent actions of a fantasy nature, involving human or non-human characters in situations easily distinguishable from real life.
2. Cartoon Violence - Violent actions involving cartoon-like situations and characters. May include violence where a character is unharmed after.

3. Violent References - References to violent acts.
4. Violence - Scenes involving aggressive conflict. May contain bloodless dismemberment
5. Mild Violence – not mentioned but it considered in rating.
6. Intense Violence - Graphic and realistic-looking depictions of physical conflict. May involve extreme and/or realistic blood, gore, weapons and depictions of human injury and death

The blood category has four levels; animated blood, blood, mild blood, and blood and gore), and they ranged from 1 to 4 based on their definitions in the ESRB website (see figure 5).

Blood

1. Animated Blood - Discolored and/or unrealistic depictions of blood
2. Blood - Depictions of blood
3. Mild Blood- not mentioned but it considered in rating.
4. Blood and Gore - Depictions of blood or the mutilation of body parts

In addition, the researcher considered language and ranged them in three levels based on their definitions in ESRB: 1, language; 2, mild language; and 3, strong language (See figure 5).

Language

1. Language - Mild to moderate use of profanity (aggressive vocab)
2. Mild Language – not mentioned but it considered in rating games.
3. Strong Language - Explicit and/or frequent use of profanity

Video games violence is calculated by adding these levels together if they are found in games rating on the ESRB website. As the final step in calculating video game violence, the researcher used rating categories that consider the appropriateness for players' ages. They range as follows: 1, early childhood; 2, everyone; 3, everyone +10; 4, teen; 5, mature +17; 6, adults only; 7, rating pending (See figure 6).

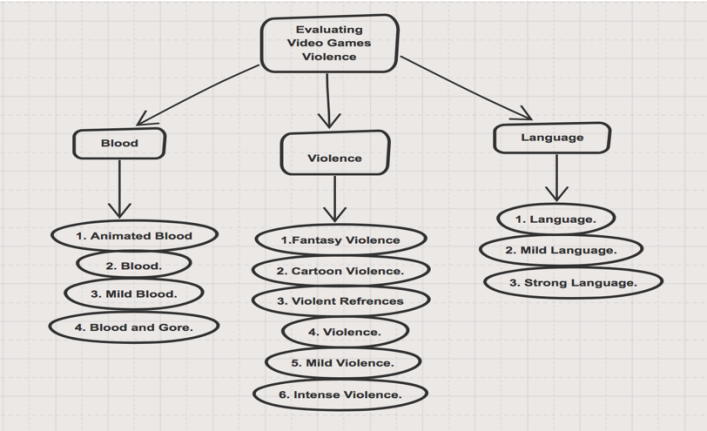

Figure 5. Rating violent video games categories

Source: Created by the researcher (2018)

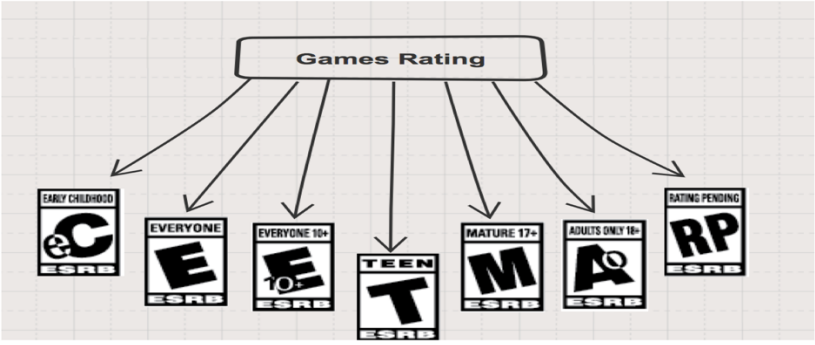

Figure 6. Games Rating based on Age

Source: Created by the researcher (2018)

After adding video games violence levels together, the researcher multiplied the results by the rating categories of each game. For example, Grand Theft Auto got 65 points based on this equation (4+6+3) * 5= 65: 4 for blood and gore, 6 for intense violence, and 3 for strong language. They were added together and multiplied by rating category M+17, which equals 5 in this case. Thus, Grand Theft Auto got 65 points, which indicates the highest level of violence in this research (see Table 1). After finding the level of violence, the researcher multiplied how-often rating for each game by the level of violence of the same game for each player, and then find the average. The final equation is as follows: [(violence+ blood+ language) * (games rating "players' age") * (how-often-rate)]. This is used to find the average. To compute and create these

new variables, the researcher used the compute variables function in SPSS. In addition, the researcher used the same function for reversing scores.

Table 1: Calculating Violence in Video Game

Name	Game Rating	Content Descriptors	Blood	Violence	Language	Game Rating	Total	Equation
battlefield		Blood, Strong Language, Violence	2	4	3	5	45	battlefield1= (2+4+3)*5=45
Uncharted		Blood, Language, Use of Alcohol and Tobacco, Violence	2	4	1	4	28	Uncharted= (2+4+1) *4= 28
Minecraft		Fantasy Violence	-	1	-	3		Minecraft= 1*3= 3

Descriptive Statistics. To indicate the favorite games among college students, the researcher will use descriptive statistic. With descriptive statistic, the researcher will be given the most popular games and determine the percentage of students who prefer that games. This analysis of this section is similar to what Anderson and Dill did in their 2000 study.

Correlations. Regarding the relationship between video games violence and aggression in different types: behaviors, thoughts, and feelings, the researcher will take the following steps. First, the researcher will conduct Zero-Order Correlation to have information about the correlation between variables. The researcher will conduct Zero-Order Correlation between video game violence and each of the following: physical aggression, verbal aggression, irritability, crime likelihood, and safety feelings. Then, the researcher will make the calculation between the amount of playing time in childhood and current playing time with the following: physical aggression, verbal aggression, irritability, crime likelihood, and safety feelings (See figure 3). Finally, the researcher will discuss the correlation between exposure to video games violence and time of exposure, with each on aggression concepts separately: physical aggression, verbal aggression, irritability, crime likelihood, and safety feelings (see figure 7).

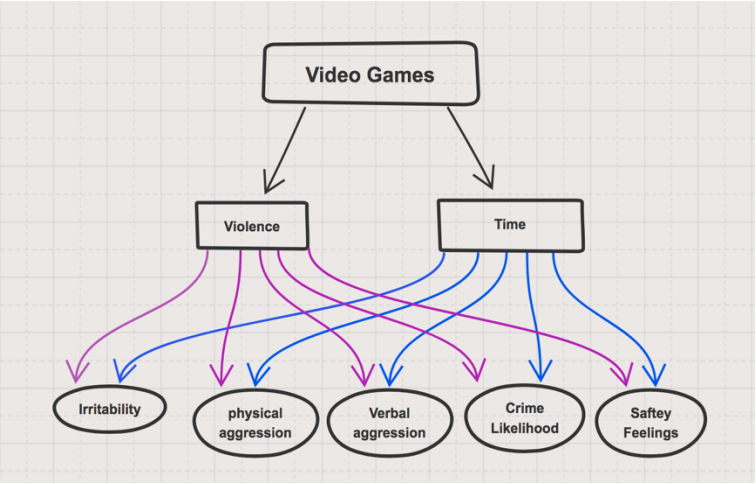

Figure 7: Correlations Between Variables

Source: Created by the researcher (2018)

Chapter 4 Results

Introduction

The present study discusses the relationship between the amount of violence in video games played and time spent playing violent video games with aggressive behaviors, feelings, thoughts among males and female Saudi college students at Taibah University in Al-Medina Al-Munawarah. This chapter provides a description for all related statistical analysis for collected data for the present study. In particular, this chapter details a description of the population and sampling, descriptive statistics, reliability results, correlations between variables that answering the research questions, and additional findings.

Description of Population and Sampling

The participants of this study are Saudi male and female college students at Taibah University in Medina. The data was collected between the beginning of September 2017 and December 2017. The email that includes the survey link and consent letter was sent to all students who actively use their email accounts. In addition, the researcher used social media such as Twitter and WhatsApp to encourage Tiabah students to participate. The total number of students at Tiabah was 60,055 in 2013 (Ministry of Education, 2018). However, recently the number reached 69,110 students according to Tiabah University (2018).

The sample size was 221 (see Table 2). There were 85 cases excluded because their ages were over 30 and they were non-gamers. Therefore, the actual size was 136 (N=136). After excluding 85 cases, there were 70 female and 52 male college students who participated, and 14 who were missing (see Table 3).

Table 2

Sample Size before Exclusion

N	Valid	196
	Missing	25
Mean		.32

Table 3 Number of Participants Based on Gender

Number of Participants Based on Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	70	51.5	57.4	57.4
	male	52	38.2	42.6	100.0
	Total	122	89.7	100.0	
Missing	System	14	10.3		
Total		136	100.0		

Overview of Analysis

The study investigated the impact of the amount of violence in video games played and the amount of time playing video games on Saudi college students' behaviors, thoughts, and feelings. Thus, the main findings are discussing the relationships between aggressive thoughts, feelings, and behaviors with two variables: the amount of violence in video games played and the amount of time playing video games.

The tool used for this study was an adopted questionnaire from the Dill and Anderson study (2000) and time items created by the researcher. It was translated to Arabic because the participants are Arabic native speakers. The researcher used back-translation techniques. Qualtrics.com was used to create the survey and set up the link, and it was distributed electronically among college students at Taibah University via students' email-accounts and

social media such as Twitter and WhatsApp as well. The total number of participants was 221; however, the researcher excluded 85 cases who were over 30 and non-gamers.

P<.05 was the level of statistical significance used in all data analysis for the present study. The Statistical Package for Social Science version 23 (SPSS) was used to analyze collected data. The researcher used different functions in SPSS in the analysis. The type of data determines which function can give clear information and understanding.

In analyzing the demographic information, the researcher used descriptive statistics to have sufficient information about the participants. In addition, the researcher used the same function in SPSS to determine the most popular games and the level of violence in video games played among the participants. Computing variables, run correlations, and other analysis was done using SPSS to answer these research questions:

1) Is there a relationship between the amount of violent video games played and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

2) Is there a relationship between the amount of violent video games played and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

3) Is there a relationship between the amount of violent video games played and the reported irritability? (Irritability Survey 30)

4) Is there a relationship between the amount of violent video games played and the likelihood of crimes? (World View Crime Likelihood 1-4)?

5) Is there a relationship between the amount of violent video games played and the perception of safety? (World View Safety 5-6)

6) Is there a relationship between the amount of time playing video games and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

7) Is there a relationship between the amount of time playing video games and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

8) Is there a relationship between the amount of time playing video games and irritability? (Irritability Survey 30)

9) Is there a relationship between the amount of time playing video games and the likelihood of crimes? (World View crime likelihood 1-4)

10) Is there a relationship between the amount of time playing video games and the perception of safety? (World View Safety 5-6)

Reliability Analysis

The internal consistency coefficient (Cronbach's Alpha) was calculated to prove that the instrument in the present study is reliable. Cronbach's Alpha was calculated for five indexes: irritability, physical aggression, verbal aggression, crime likelihood, and safety items. The irritability subscale consisted of 30 items (α= .72), the physical aggression subscale consisted of 9 items (α= .78), the verbal aggression subscale consisted of 5 items (α= .66), the crime likelihood subscale consisted of 4 items (α= .77), and the safety subscale consisted of 2 items (α=.70) (See Tables 4, 5, 6, 7, and 8).

Table 4
Cronbach's Alpha of Irritability

Cronbach's Alpha	N of Items
.726	30

Table 5
Cronbach's Alpha of Physical Aggression

Cronbach's Alpha	N of Items
.787	8

Table 6
Cronbach's Alpha of Verbal Aggression

Cronbach's Alpha	N of Items
.655	5

Table 7
Cronbach's Alpha of Crime Likelihood

Reliability Statistics

Cronbach's Alpha	N of Items
.779	4

Table 8

Cronbach's Alpha of Safety

Reliability Statistics

Cronbach's Alpha	N of Items
.706	2

Four-Likert scale items were used in this questionnaire for irritability, physical aggression, and verbal aggression. The participants respond on 4-points scale ranging from 1 "strongly disagree" to 4 "strongly agree." In addition, frequency questions have a Likert scale of 1 to 10. Responses of 1 are labeled rarely and 10 are labeled extremely.

Cronbach's Alpha for all items were calculated after reversing scores that needed to be reversed. Item number 7 in physical aggression, and items number 3, 4, 6, 11, 12, 14, 17, 19, 21,

and 27 in irritability are all reversed. The researcher used Recode into Different Variables function in SPSS doing reversing scores. No items were deleted in calculating Cronbach's Alpha except item number 7 in calculating reliability for physical aggression. Before deleting reversed items, the Cronbach's Alpha for physical aggression was .69 (see Table 9) and it jumped to .78 after deleting that item; therefore, it was deleted based on SPSS suggestion (see Table 10).

Table 9
Cronbach's Alpha of Physical Aggression

Cronbach's Alpha	N of Items
.690	9

Table 10

Improving Cronbach's Alpha of Physical Aggression

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Aggress1	18.9921	17.103	.485	.637
Aggress2	19.0079	17.294	.590	.622
Aggress3	18.0945	19.102	.321	.672
Aggress4	19.4252	17.532	.520	.634
Aggress5	18.3780	17.745	.428	.650
Aggress6	19.0079	16.595	.602	.614
Aggress8	19.1417	17.694	.461	.644
Aggress9	19.0315	17.840	.357	.666
Raggress7	18.6220	23.793	-.252	.787

Demographic Description

In the demographic section of the questionnaire, the participants were asked about their gender, age, major, GPA, and their college level for only additional findings. The participants are male and female Saudi college students at Taibah University in Al-Madinah Al-Munawarah.

There were 70 females and 52 males who participated in this study, but 14 were missing, so the actual sample size is 136 (see Table 11).

Table 11

Frequencies Based on Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	70	51.5	57.4	57.4
	male	52	38.2	42.6	100.0
	Total	122	89.7	100.0	
Missing	System	14	10.3		
Total		136	100.0		

The participants were between ages18 and 30, and the mean age is 22.42 (See Table 12).

Table 12

Mean Age

N	Valid	119
	Missing	17
Mean		22.42

Regarding GPA, the Mean of the participants' GPA is 3.4. The participants were from different departments, and they were studying in more than 22 different majors. All participants are gamers, as the researcher deleted all non-gamers responses (see Table 13).

Table 13

GPA

N	Valid	96
	Missing	40
Mean		3.4331
Median		3.5500

Research Questions Findings

Computing Violence Level in Video Games. The researcher computed the violence level for each game by hand to give each game a number that indicate the violence level of that game. The more points a game got, the more violent it is. The highest value given was 65 points. Several games received 65: The Last of Us, Red Dead, Grand Theft Auto, Call of Duty, Ninja, The Witcher 3, The Evil Within, Tomb Raider, Metal Gear, Black Ops 3, Assassin's Creed, Zumpi, Outlast 2, and The Walking Dead. The following rate was 55, which was given to Watch Dogs, The Division, Hitman, Sniper, Crash Bash, The Witcher, Just Couse, and Silent Hill. A score of 50 was given to only one game, which was Skyrim. Battlefield1, Metal Gear Solid 4, Resident Evil, and Mass Effect 2 each received 45 points. Seven games were given 40 points: Dark Souls 2, Nioh, BloodBorne, World of Craft, Counter Strike, Battle Grand, and Elder Scrolls. Dark Souls 3 received 30 points. Uncharted, Tekken Tag Tournament 2, The End of the Thief, Crusaders Know Kings 2, Europa Universalis 4, and WWE each received 28 points. Six games received 24 points: Little Nightmares, Overwatch, Need for Speed, The Ward, Over Watch, and Ark. The Driver Game was the only game that received 20 points. Stardew Valley received18 points. Connected Night Race, Rome, Dynasty Warriors, Fortnight, and Praghon received 16 points. Final Fantasy 12, LOL, and Justice all received 12 points. Destiny and Kingdom Hearts received 8 points. Sly Soope, Rayman, Mario Odessey, Cars 3, and Spy Spy received 6 points. Sonic, Forza Horizon, and Donkey received 4 points. Finally, two points were given to Fifa, Rocker League, Tennis, Clash, Garden, Farm Frenzy, Zuma, Game Food, and Tetris.

After finding the violence level for each game, the researcher multiplied these values by frequency ratings for each game, so it ended with five variables. Next, the researcher found the

average for the resulting five variables, which is called video games violence. Compute Variable function in SPSS is used to calculate this step.

Correlation. To answer all research questions, the researcher conducted correlations between Irritability Mean, Physical Aggression Mean, Verbal Aggression Mean, Crime Likelihood Mean, and Safety Mean with each one of the following: violence level of games, current time of playing, and time spent playing video games in childhood.

Research Questions

1) Is there a relationship between the amount of violent video games played and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

2) Is there a relationship between the amount of violent video games played and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

3) Is there a relationship between the amount of violent video games played and the reported irritability? (Irritability Survey 30)

4) Is there a relationship between the amount of violent video games played and the likelihood of crimes? (World View Crime Likelihood 1-4)

5) Is there a relationship between the amount of violent video games played and the perception of safety? (World View Safety 5-6)

6) Is there a relationship between the amount of time playing video games and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

7) Is there a relationship between the amount of time playing video games and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

8) Is there a relationship between the amount of time playing video games and irritability? (Irritability Survey 30)

9) Is there a relationship between the amount of time playing video games and the likelihood of crimes? (World View crime likelihood 1-4)

10) Is there a relationship between the amount of time playing video games and the perception of safety? (World View Safety 5-6)

Questions 1-5. To answer research questions 1-5, the researcher ran correlations between the amount of violence in video games played and the following: irritability, physical aggression, verbal aggression, crime likelihood, and safety. There were negative weak correlations between the amount of violence in video games played and the following: irritability, physical aggression, and crime likelihood, [r= –.077, n= 102, p = .443], [r= –.038, n= 101, p = .707], and [r= –.013, n= 95, p = .903], respectively. There were positive weak correlations between the amount of violence in video games played and verbal aggression and safety, [r= .046, n= 101, p = .649], [r= .041, n= 95 p = .695], respectively (see Table 14).

Questions 6-1. To answer research questions 6-10, the researcher ran correlations between the amount of time spent in video games played and the following: irritability, physical aggression, verbal aggression, crime likelihood, and safety. The amount of time consists of two periods: childhood and current time. There were negative weak correlations between time playing video games in childhood and the following: irritability, physical aggression, and crime likelihood, [r= –.025, n= 126, p = .784], [r= –.026, n= 123, p = .779], and [r= –.041, n= 119, p = .658], respectively. There were positive weak correlations between the time playing video games in childhood and verbal aggression, and safety, [r= .095, n= 123, p = .295], [r= .169, n= 120, p = .066], respectively (see Table 15).

There were positive weak correlations between time playing video games in current time and the following: irritability, physical aggression, verbal aggression, crime likelihood, and safety [*r*= .020, n= 128, *p* = .823], [*r*= .080, n= 125, *p* = .375], [*r*= .035, n= 125, *p* = .699], [*r*= .058, n= 121, *p* = .525], and [*r*= .120, n= 122, *p* = .188], respectively (see Table 15).

Table 14
Correlation between Times and Aggression Variables

Correlations

		MeanIrritability	Meanaggress	Meanaggress verbal	Meancrime	Meansafe	Meangames
MeanIrritability	Pearson Correlation	1	.499**	.340**	.167	-.030	-.077
	Sig. (2-tailed)		.000	.000	.061	.739	.443
	N	136	132	132	126	127	102
Meanaggress	Pearson Correlation	.499**	1	.467**	.268**	.134	-.038
	Sig. (2-tailed)	.000		.000	.003	.138	.707
	N	132	132	132	123	124	101
Meanaggressverbal	Pearson Correlation	.340**	.467**	1	.280**	.097	.046
	Sig. (2-tailed)	.000	.000		.002	.286	.649
	N	132	132	132	123	124	101
Meancrime	Pearson Correlation	.167	.268**	.280**	1	-.087	-.013
	Sig. (2-tailed)	.061	.003	.002		.333	.903
	N	126	123	123	126	126	95
Meansafe	Pearson Correlation	-.030	.134	.097	-.087	1	.041
	Sig. (2-tailed)	.739	.138	.286	.333		.695
	N	127	124	124	126	127	95
Meangames	Pearson Correlation	-.077	-.038	.046	-.013	.041	1
	Sig. (2-tailed)	.443	.707	.649	.903	.695	
	N	102	101	101	95	95	102

Table 15
Correlation between Games and Aggression Variables

Correlations

		MeanIrritability	Meanaggress	Meanaggress verbal	Meancrime	Meansafe	timechildhood	currenttime
MeanIrritability	Pearson Correlation	1	.499**	.340**	.167	-.030	-.025	.020
	Sig. (2-tailed)		.000	.000	.061	.739	.784	.823
	N	136	132	132	126	127	126	128
Meanaggress	Pearson Correlation	.499**	1	.467**	.268**	.134	-.026	.080
	Sig. (2-tailed)	.000		.000	.003	.138	.779	.375
	N	132	132	132	123	124	123	125
Meanaggressverbal	Pearson Correlation	.340**	.467**	1	.280**	.097	.095	.035
	Sig. (2-tailed)	.000	.000		.002	.286	.295	.699
	N	132	132	132	123	124	123	125
Meancrime	Pearson Correlation	.167	.268**	.280**	1	-.087	-.041	.058
	Sig. (2-tailed)	.061	.003	.002		.333	.658	.525
	N	126	123	123	126	126	119	121
Meansafe	Pearson Correlation	-.030	.134	.097	-.087	1	.169	.120
	Sig. (2-tailed)	.739	.138	.286	.333		.066	.188
	N	127	124	124	126	127	120	122
timechildhood	Pearson Correlation	-.025	-.026	.095	-.041	.169	1	.369**
	Sig. (2-tailed)	.784	.779	.295	.658	.066		.000
	N	126	123	123	119	120	126	126
currenttime	Pearson Correlation	.020	.080	.035	.058	.120	.369**	1
	Sig. (2-tailed)	.823	.375	.699	.525	.188	.000	
	N	128	125	125	121	122	126	128

Descriptive Statistic

Games Frequencies. The researcher created 21 categories for categorizing video games played by participants based on their violence level: 65, 55, 50, 45, 40, 32, 28,24, 20, 18, 16, 15, 12, 9, 8, 6, 5, 4, 3, 2, and 1. A higher number in these categories indicates a higher level of violence in video games. These categories were summarized in only four categories that provide four levels of violence in video games played among participants: extremely violent (65, 55, 50, 45, 40 points), more violent (32, 28,24, 20 points), violent (18, 16, 15, 12 points), and less violent (, 9, 8, 6, 5, 4, 3, 2, 1 points).

Regarding the most favorite games among Saudi college student players, 45 (47.9%) of the participants prefer to play video games that are extremely violent, while 11 participants (11.7%) prefer to play more violent video games for their first games. Only 2 participants (2.1%) prefer to play violent video games, and 36 participants (38.3%) prefer to play less violent

video games (see Table 16).

Table 16
Game 1 Violence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9.00	36	26.5	38.3	38.3
	18.00	2	1.5	2.1	40.4
	32.00	11	8.1	11.7	52.1
	65.00	45	33.1	47.9	100.0
	Total	94	69.1	100.0	
Missing	System	42	30.9		
Total		136	100.0		

Regarding second favorite games among Saudi players, 25 participants (39.7%) prefer to play extremely violent video games, 12 participants (%9.0%) prefer to play more violent video games, 4 participants (6.3%) prefer to play violent video games, and 22 (34.9%) participants prefer to play less violent video games (see Table 17)

Table 17
Game 2 Violence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9.00	22	16.2	34.9	34.9
	18.00	4	2.9	6.3	41.3
	32.00	12	8.8	19.0	60.3
	65.00	25	18.4	39.7	100.0
	Total	63	46.3	100.0	
Missing	System	73	53.7		
Total		136	100.0		

For the third favorite games, 16 participants (31.4%) prefer to play less violent video games, 2 participants (3.9%) prefer to play violent video games, 13 players (25.5%) prefer to play more violent video games, and 20 participants (39.2%) prefer to play extremely violent

video games (see Table 18).

Table 18
Game 3 Violence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9.00	16	11.8	31.4	31.4
	18.00	2	1.5	3.9	35.3
	32.00	13	9.6	25.5	60.8
	65.00	20	14.7	39.2	100.0
	Total	51	37.5	100.0	
Missing	System	85	62.5		
Total		136	100.0		

Regarding the fourth favorite video games, 12 participants (33.3%) prefer to play less violent video games, 1 participant (2.85) prefers to play violent video games, 5 players (13.5%) prefer to play more violent video games, and 18 participants (50.0%) prefer to play extremely violent video games (see Table 19).

Table 19
Game 4 Violence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9.00	12	8.8	33.3	33.3
	18.00	1	.7	2.8	36.1
	32.00	5	3.7	13.9	50.0
	65.00	18	13.2	50.0	100.0
	Total	36	26.5	100.0	
Missing	System	100	73.5		
Total		136	100.0		

Finally, for the fifth preferred video games, 11 participants (42.3%) prefer to play extremely violent video games, 3 players (11.5%) prefer to play more violent video games, 1 player (3.8%) prefer to play violent video games, and 11 participants (42.3%) prefer to play less

violent video games as their fifth favorite video games (see Table 20).

Table 20
Game 5 Violence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9.00	11	8.1	42.3	42.3
	18.00	1	.7	3.8	46.2
	32.00	3	2.2	11.5	57.7
	65.00	11	8.1	42.3	100.0
	Total	26	19.1	100.0	
Missing	System	110	80.9		
Total		136	100.0		

Follow-Up Analyses

As no relationships were found between the total video game violence and dependent variables (irritability, physical aggression, verbal aggression, crime likelihood, and safety feelings), follow-up analysis were done between outcome variables with each of the individual components of the index (blood, violence, language, and game rating). A significant positive moderate correlation was found between the amount of blood in video games and physical aggression, [r= .26, n= 65, p= .039] (see Table 21). The regression was run to examine any other correlations. A significant negative moderate correlation was found between irritability and game rating, [r= -.212, p=.018] (see Table 22).

Table 21
Correlations Between Outcome Variables and Each Components in Violence

		MeanIrritability	Meanaggress	Meanaggressverbal	Meancrime	Meansafe	MeanB	MeanV	MeanL	MeanGR
MeanIrritability	Pearson Correlation	1	.499**	.340**	.167	-.030	.130	.127	-.015	-.068
	Sig. (2-tailed)		.000	.000	.061	.739	.302	.263	.899	.510
	N	136	132	132	126	127	65	79	70	96
Meanaggress	Pearson Correlation	.499**	1	.467**	.268**	.134	.256*	.059	-.018	-.068
	Sig. (2-tailed)	.000		.000	.003	.138	.039	.603	.882	.510
	N	132	132	132	123	124	65	79	70	96
Meanaggressverbal	Pearson Correlation	.340**	.467**	1	.280**	.097	.198	.117	.071	.007
	Sig. (2-tailed)	.000	.000		.002	.286	.115	.306	.557	.944
	N	132	132	132	123	124	65	79	70	96
Meancrime	Pearson Correlation	.167	.268**	.280**	1	-.087	.060	-.207	-.110	-.059
	Sig. (2-tailed)	.061	.003	.002		.333	.647	.078	.388	.582
	N	126	123	123	126	126	60	73	64	89
Meansafe	Pearson Correlation	-.030	.134	.097	-.087	1	-.193	.126	.181	-.039
	Sig. (2-tailed)	.739	.138	.286	.333		.139	.287	.153	.718
	N	127	124	124	126	127	60	73	64	89
MeanB	Pearson Correlation	.130	.256*	.198	.060	-.193	1	.599**	-.177	.295*
	Sig. (2-tailed)	.302	.039	.115	.647	.139		.000	.172	.017
	N	65	65	65	60	60	65	65	61	65
MeanV	Pearson Correlation	.127	.059	.117	-.207	.126	.599**	1	.305*	.592**
	Sig. (2-tailed)	.263	.603	.306	.078	.287	.000		.011	.000
	N	79	79	79	73	73	65	79	69	79
MeanL	Pearson Correlation	-.015	-.018	.071	-.110	.181	-.177	.305*	1	.391**
	Sig. (2-tailed)	.899	.882	.557	.388	.153	.172	.011		.001
	N	70	70	70	64	64	61	69	70	70
MeanGR	Pearson Correlation	-.068	-.068	.007	-.059	-.039	.295*	.592**	.391**	1
	Sig. (2-tailed)	.510	.510	.944	.582	.718	.017	.000	.001	
	N	96	96	96	89	89	65	79	70	96

Table 22

Correlation Between Game Rating and Irritability

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	2.502	.425		5.888	.000			
	MeanB	.059	.105	.090	.565	.574	.188	.075	.070
	MeanV	.129	.074	.289	1.741	.087	.210	.227	.215
	MeanL	-.012	.066	-.025	-.175	.862	-.046	-.023	-.022
	MeanGR	-.210	.086	-.329	-2.445	.018	-.212	-.311	-.301

a. Dependent Variable: MeanIrritability

Chapter 5 Discussion

Introduction

This chapter discusses the major and additional findings with consideration of the purpose of the study, research questions, and the research hypotheses. In addition, it includes limitations, implications, and recommendations for future research.

Purpose of the Study

This study was conducted to investigate the relationships between playing video games and aggression. It examines the impact of playing violent video games and spending time playing these games on aggressive behaviors, thoughts, and feelings among male and female Saudi college students. To find these correlations, the researcher set research questions as follows:

1) Is there a relationship between the amount of violent video games played and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

2) Is there a relationship between the amount of violent video games played and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

3) Is there a relationship between the amount of violent video games played and reported irritability? (Irritability Survey 30)

4) Is there a relationship between the amount of violent video games played and the likelihood of crimes? (World View Crime Likelihood 1-4)?

5) Is there a relationship between the amount of violent video games played and the perception of safety? (World View Safety 5-6)

6) Is there a relationship between the amount of time playing video games and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

7) Is there a relationship between the amount of time playing video games and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

8) Is there a relationship between the amount of time playing video games and irritability? (Irritability Survey 30)

9) Is there a relationship between the amount of time playing video games and the likelihood of crimes? (World View Crime Likelihood 1-4)

10) Is there a relationship between the amount of time playing video games and the perception of safety? (World View Safety 5-6)

Research Hypotheses

The researcher builds the hypotheses on the research questions as follows:

1) There is a positive relationship between the amount of violent video games played and reported physically aggressive behavior. (Aggression Traits Survey 1-9)

2) There is a positive relationship between the amount of violent video games played and reported verbally aggressive behavior. (Aggression Traits Survey 10-14)

3) There is a positive relationship between the amount of violent video games played and irritability. (Irritability Survey 30)

4) There is a positive relationship between the amount of violent video games played and the perception of likelihood of crimes. (World View Crime Likelihood 1-4)

5) There is a negative relationship between the amount of violent video games played and the perception of safety. (World View Safety 5-6)

6) There is a positive relationship between the amount of time playing video games and reported physically aggressive behavior (Aggression Traits Survey 1-9)

7) There is a positive relationship between the amount of time playing video games and reported verbally aggressive behavior. (Aggression Traits Survey 10-14)

8) There is a positive relationship between the amount of time playing video games and irritability. (Irritability Survey 30)

9) There is a positive relationship between the amount of time playing video games and the perceptions of likelihood of crimes. (World View crime likelihood 1-4)

10) There is a negative relationship between the amount of time playing video games and the perception of safety. (World View Safety 5-6)

Participants

The participants in this study are male and female Saudi college students at Taibah University, Saudi Arabia. The actual size is 136 after deleting 85 cases. Thus, the sample size was 221, but the researcher deleted 85 cases for two reasons: the participants were over 30 and they did not play games. There were 70 females and 52 males who participated in the questionnaire, and 14 unknown gender because participants did not answer this question. Thus, the females who participated were 51.5% of the total number of participants, while the males were 38.2% of the actual number.

Instrumentations and Data Collection

A self-reporting questionnaire was used in this study to collect data. It was distributed electronically among Taibah University college students. The questionnaire consists of eight appendixes:

- Irritability (30 items)
- Physical aggression (9 items)
- Verbal aggression (5 items)

- Crime likelihood (4 items)
- Safety (2 items)
- Video games (11 items)
- Time (2 items)
- Demographic information (4 items)

Thus, the total number of items was 67 items. Estimated time for taking the survey was ten to fifteen minutes.

Discussion of the Findings

All research questions examine the correlations between video games and aggression in different forms: behaviors, thoughts, and feelings. The researcher divided the research questions into two sets. The first set questioned the relationship between the amount of violence in video games played and irritability, physical aggression, verbal aggression, crime likelihood, and safety feelings. The second set questioned the relationship between the amount of time spent playing video games and irritability, physical aggression, verbal aggression, crime likelihood, and safety feelings.

Questions 1-5. The first set of research questions is as follows:

1) Is there a relationship between the amount of violent video games played and the reported physically aggressive behavior? (Aggression Traits Survey 1-9)

2) Is there a relationship between the amount of violent video games played and the reported verbally aggressive behavior? (Aggression Traits Survey 10-14)

3) Is there a relationship between the amount of violent video games played and the reported irritability? (Irritability Survey 30)

4) Is there a relationship between the amount of violent video games played and the likelihood of crimes? (World View crime likelihood 1-4)

5) Is there a relationship between the amount of violent video games played and the perception of safety? (World View Safety 5-6)

As stated in Chapter 4, there were weak and negative correlations between the amount of violence in video games played and irritability, physical aggression, and crime likelihood, [$r = -.077$, n= 102, $p = .443$], [$r = -.038$, n= 101, $p = .707$], and [$r = -.013$, n= 95, $p = .903$], respectively. However, all the previous correlations were non-significant as the p values indicated in Chapter 4 (see Table 14). On the other hand, the amount of violence in video games played and verbal aggression and safety feelings have positive weak correlations, but they also were non-significant correlations, [$r = .046$, n= 101, $p = .649$], [$r = .041$, n= 95 $p = .695$], respectively (see Table 14).

Based on this, the results suggest that there are no relationships between the amount of violence in video games played and irritability, physical aggression, verbal aggression, crime likelihood, and safety feelings. However, after examining the correlations between outcome variables and each component of violence in video games, there were two significant correlations found. There is a positive moderate correlation between the amount of blood in video games and physical aggression [r=.25, p= .03] and there is a negative moderate correlation between game rating and irritability [r= -.21, p= .018].

Question 6-10. The time spent playing video games that was examined by this study occur in two periods: time spent playing video games in childhood and time spent playing video games in current time. Thus, the researcher examined 10 correlations to answer research questions six through ten.

In childhood. There were negative weak correlations between time spent playing video games in childhood and irritability, physical aggression, and crime likelihood, [r= –.025, n= 126, p = .784], [r= –.026, n= 123, p = .779], and [r= –.041, n= 119, p = .658], respectively. There were positive weak correlations between time spent playing video games in childhood and verbal aggression and safety feelings, [r= .095, n= 123, p = .295], [r= .169, n= 120, p = .06]. As p values shown, all correlations here were non-significant between these variables.

In current time. Correlations were found between time spent playing video games in current and the following: irritability, physical aggression, verbal aggression, crime likelihood, and safety. These were all positive weak correlations, [r= .020, n= 128, p = .823], [r= .080, n= 125, p = .375], [r= .035, n= 125, p = .699], [r= .058, n= 121, p = .525], and [r= .120, n= 122, p = .188], respectively. As the p values that appear in Table 15 in Chapter 4 indicate, all correlations were non-significant.

Major Findings

The non-significant correlations, both positive and negative, suggested that the researcher failed to reject the null hypotheses. Thus, there are no correlations between playing violent video games and aggressive behaviors, thoughts, and feelings. In other words, playing violent video games has no impact on behaviors, thoughts, and feelings, in general.

Regarding the positive relationship between the amount of blood in video games and aggression, playing video games that contain a large amount of blood can increase physical aggression among players. Logically, having blood in video games indicates that the games consist of violent behaviors and content. Thus, players practice physically aggressive behaviors in these games. According to the result, practicing physical aggressive behaviors in video games can lead to physical aggressive behaviors in real life. This finding is consistent with social

learning theory that was discussed in Chapter 1. According to social learning theory, players become more physically aggressive in real life if they play violent video games because they imitate aggressive behaviors they observed in the games.

A game rating that is derived from ESRB can be a good indicator for the irritability level among players. Playing video games that have a higher rate of age correlated negatively with irritability. It is worth mentioning that the collected data suggests that there is a strong positive correlation between violence level in video games and game rating (see table 21). Thus, higher rated games contain a higher level of violence. However, ESRB considers other aspects in game rating such as moral aspects. Thus, Players (college students) who play video games that are rated for older players are less irritated than those who play video games that are rated for younger players. This finding is supported by the catharsis theory that suggests playing video games helps to rid a person from negative emotions. In other words, practicing violence and other banned aspects in video games promotes positive emotions and helps players to be calmer.

Regarding time spent playing video games, non-significant correlations suggest that there are no relationships between time spent playing video games in childhood or in current time with irritability, physical aggression, verbal aggression, crime likelihood, and safety feelings. In other words, players' aggression cannot be predicted by the time spent playing video games.

Playing Video Games across Life Stages. According to the Means of playing video games in childhood and in current time [M= 4.6, M= 3.13], respectively, Saudi college students played video games in their childhood more than in their current life (see Table 23). The correlation between playing video games in childhood and playing video games in current life is a moderate positive correlation, [r= .369, n= 126, p = .000] (see Table 24). In other words, people who played video games in their childhood are more likely to play video games in adulthood but they spend less time doing so. This finding is consistent with what Griffiths (1999) found, which is that age is an important factor that influence the amount of time playing video games. In other words, younger people play video games more than older players.

Table 23

Compare Mean of Time

Descriptive Statistics

	N	Mean
Time childhood	126	4.56
Current time	128	3.13
Valid N (listwise)	126	

Table 24 Correlation between the Amount of Time Playing

Correlation between the Amount of Time Playing

Correlation

		Time childhood	Current time
Time childhood	Pearson Correlation	1	.369**
	Sig. (2-tailed)		.000
	N	126	126
Current time	Pearson Correlation	.369**	1
	Sig. (2-tailed)	.000	
	N	126	128

**. Correlation is significant at the 0.01 level (2-tailed).

Games Frequencies. As demonstrated in Chapter 4, the researcher categorized the games that played among participants based on their violence level into four categories: extremely violent, more violent, violent, and less violent.

Regarding the most favorite games among players, as seen in Table 15 in Chapter 4, 45 (47.9%) participants like to play extremely violent games as their first games. In other words, almost half of the participants prefer to play extremely violent games than other video games that are less violent. This finding is consistent with Olson et al. (2008) findings. They state that violent video games preferred, and there are three reasons; safe environment that provided, enjoyment, and having no barriers of practicing violence.

The second favorite games among Saudi players based on the results are the extremely violent video games, as 39.7% of the participants prefer to play extremely violent video games, while 34.9% of the participants like to play less violent games. The other 25% of participants spent their time playing violent and more violent games.

For the third favorite video games, almost the same to the second, 39.2% of the participants prefer to play extremely violent video games, while 31.4% of the responses picked less violent video games. The other 24% of the participants played either violent or more violent video games.

For the fourth favorite video games, still the extremely violent video games were the most popular among Saudi players than other games with different violence levels, as 50.0% of the participants prefer to play extremely violent video games as their fourth favorite video

games, while 33% of them prefer to play less violent video games. The other 17 % of the participants play either violent or more violent video games.

Regarding the fifth favorite video games based on the level of violence, Saudi players prefer to play extremely violent video games, with 42.3% of the participants preferring to play extremely violent video games than other levels of video games with the same percentage of the participants preferring to play video games that are less violent. The rest of the participants prefer to play violent of more violent video games as their fifth favorite video games.

In general, across all these five games, 69% of the participants named their most favorite video games, but only 19.1% of the participants listed all five favorite games. These percentages indicate that extremely violent video games are more popular and preferred among Saudi male and female college students. This finding is similar to what many studies found, such as Buchman and Funk, 1996, the Federal Trade Commission, 2000, and Walsh, 1999. Violent video games are more popular compared to other games which are less violent among all players regardless of age or gender (as cited in Anderson, Gentile, & Buckley, 2006).

Additional Findings

Violent Video Games and Gender Differences. Considering the violence level, the average points female favorite games deserved was 33.6 while males' 28.4, however, there is no much variance between females and males [SD=19.5, SD=20.6], respectively (see table 25). Thus, there is no difference in preferring playing violent video games between Saudi males and females. However, after multiplying the violence level of favorite games with frequencies, Saudi males are exposed to and spent time playing violent video games more than females [M= 77.1, SD=83.7] [M=94.3, SD=93.0] respectively (see Table 26). Regarding time playing video games in current, there is no difference between Saudi male and female players [M= 3.2, SD= 2.5] and [M= 3.0, SD= 2.5] respectively (see Table 27). SD

Table 25

Violent Games and Gender

Gender	Mean	N	Std. Deviation
female	33.6190	43	19.52717
male	28.4685	46	20.62610
Total	30.9569	89	20.15543

Table 26

Games and Time Compared by Gender

gender	Mean	N	Std. Deviation
female	77.1894	47	83.78485
male	94.3391	46	93.09838
Total	85.6720	93	88.45176

Table 27

Time of Playing and Gender

gender	Mean	N	Std. Deviation
female	3.01	69	2.529
male	3.23	52	2.548
Total	3.11	121	2.529

Correlations

There is a significant strong positive correlation between irritability and physical aggression [r=.499, p= .000], which means people who are known as irritated are more physically aggressive. Regarding the relationship between irritability and verbal aggression, there is a positive moderate correlation [r= .34, p=.00], which means irritated people are verbally aggressive. The correlation between physical aggression and verbal aggression is a significant positive moderate correlation [r= .46, p= .000], and that means people who are physically aggressive tend to be verbally aggressive. In addition, there are significant positive correlations between crime likelihood with both physical and verbal aggression, [r= .26, p= .003, r=.28, p= .002], which means that people who are physically and verbally aggressive, their crime likelihood perceptions are higher than people who are less aggressive. However, the correlation between crime likelihood and irritability is not significant, but instead it is a positive weak correlation [r= .162, p=.07], so there is no relationship between crime likelihood perceptions and irritability. Finally, all correlations between safety and the other variables are negative or positive weak correlations but non-significant, so there is no relationship between irritability, physical aggression, verbal aggression, and crime likelihood and safety (See Table 14 in chapter 4).

Limitations

Several limitations could cause non-significant results. Gender differences, players' personalities, and equivalent games are discussed and examined to determine if they are limitations or not for the present study.

Gender Differences. The researcher excluded all female responses and unknown gender and then ran the correlation. For the next step, the researcher did the same process with male responses and unknown gender to see if the gender differences affected the major findings that were discussed earlier in this chapter. The only significant correlation that was found is the correlation between the amount of time playing video games in childhood and verbal aggression among female players. The correlation is a positive moderate correlation [r=. 26, n=64, p= .035] (see Table 28). Thus, Saudi females who spent more time playing video games in their childhood than others are more likely to be more verbally aggressive.

In general, gender differences between participants did not affect the results of the study. Thus, the amount of violence in video games and the amount of time spent playing video games in current time or in childhood do not promote or hinder aggression in different forms, including behaviors, thoughts, and feelings. There is one exception, however, which is that female players who spent more time playing video games in their childhood are more verbally aggressive.

Table 28 Correlation between Aggression and Video Games among Females

Correlation between Aggression and Video Games among Females

Correlations

		MeanIrritability	Meanaggress	Meanaggress verbal	Meancrime	Meansafe	timechildhood	currenttime
MeanIrritability	Pearson Correlation	1	.696**	.480**	.242	.160	.009	.025
	Sig. (2-tailed)		.000	.000	.052	.199	.943	.839
	N	70	68	68	65	66	67	69
Meanaggress	Pearson Correlation	.696**	1	.465**	.255*	.019	.014	.237
	Sig. (2-tailed)	.000		.000	.044	.883	.913	.054
	N	68	68	68	63	64	65	67
Meanaggressverbal	Pearson Correlation	.480**	.465**	1	.260*	.124	.265*	.040
	Sig. (2-tailed)	.000	.000		.039	.329	.033	.747
	N	68	68	68	63	64	65	67
Meancrime	Pearson Correlation	.242	.255*	.260*	1	-.041	.034	.182
	Sig. (2-tailed)	.052	.044	.039		.747	.790	.150
	N	65	63	63	65	65	62	64
Meansafe	Pearson Correlation	.160	.019	.124	-.041	1	.172	.164
	Sig. (2-tailed)	.199	.883	.329	.747		.178	.192
	N	66	64	64	65	66	63	65
timechildhood	Pearson Correlation	.009	.014	.265*	.034	.172	1	.259*
	Sig. (2-tailed)	.943	.913	.033	.790	.178		.034
	N	67	65	65	62	63	67	67
currenttime	Pearson Correlation	.025	.237	.040	.182	.164	.259*	1
	Sig. (2-tailed)	.839	.054	.747	.150	.192	.034	
	N	69	67	67	64	65	67	69

Players' Personalities. The difference between the players' personalities can be considered as a limitation that could affect the results of this study. In particular, self-efficacy can affect the results according to social learning theory as discussed in Chapter 1. If the players' self-efficacy is low, the relationship between the amount of violence in video games and aggression is negative or has no correlation at all. In other words, if a players' self-efficacy is high, the players will imitate the aggression they are exposed to. For this study, the researcher did not consider or measure this aspect in the questionnaire, and that might produce non-significant results.

Equivalent Video Games. The researcher for this study measured the violence in video games that were listed by the participants using ESRB. However, the researcher considered only three concepts in rating these games: violence level, blood level, and language level. Thus, the researcher measured the violent content in general among many players who play different games. In other words, there might be other factors that enhance aggression instead of violent

content itself. According to Adachi and Willoughby, most of the studies that investigate violent video games' impact did not consider all factors that might lead to aggression such as competitiveness, pace of action, and difficulty (2011). For example, according to this study, Fifa 18 deserved only two points, which indicated that there is no violent content in this game; however, this game has a high level of competitiveness that was not measured. A high level of competitiveness promotes aggression as Adachi and Willoughby found (2011).

Implications

The study investigated the impact of violent video games on Saudi college students. Even though the study had many non-significant results and most of the major findings suggest that there is no relationship between playing violent video games and time spent playing video games with aggression, it provides valuable information about the video game industry and video game popularity in Saudi Arabia. This study reveals that many of the popular video games that were listed by participants are banned video games in Saudi Arabia. Furthermore, most of them received the highest level of violence in the present study based on the violence level, blood level and language level in their content. According to GCAM (General Commission for Audiovisual Media), there are 63 banned video games in Saudi Arabia (2016). However, these are still popular games among Saudi players. The study notes that despite removing banned video games from Saudi stores, Saudi players still have access to them. This study can help raise awareness about the impact of playing video games among players themselves. In addition, revealing the numbers of players and the types of video games that are popular among Saudi college students as this study has done might shed light on the necessity of doing more research in order to reduce and hinder the negative impact of banned video games.

Recommendations

For future research, the researcher suggests considering the ratings of video games in GCAM if another study is conducted in Saudi Arabia, in particular if they improve the ratings to make them more clear and specific. This could produce results that are helpful for game designers, stakeholders, educators, and parents in Saudi Arabia.

This study reveals that most games that Saudi college students are playing are banned games. Regarding this finding, this study recommends the following:

- Replace these games with others that have the same level on enjoyment but with values and content that are suitable for the Saudi community.
- Encourage educators and parents in Saudi Arabia to be close to the younger generation and be aware of their surroundings, not to prevent them from exploring but to guide them through exploring.
- Take advantage of players' experience with technology and problem solving towards a way of developing applicable issues in Saudi Arabia.

Conclusion

This study was conducted to investigate the relationship between the amount of violence in video games that are preferred and the amount of time Saudi college students spent playing video games and aggressive behaviors, thoughts, and feelings. The results of the study suggested that playing violent video games generally does not enhance aggression. Playing video games that contain a large amount of blood promotes physical aggression. On the other hand, playing video games that are rated for older players such as 17 or older can help players to be less irritated. In addition, the results suggested that time spent playing video games either in childhood or in current

time has no influence except among female players; playing video games in childhood can promote verbal aggression only among Saudi female players.

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Appendices

Appendix (A): Human Subject Committee Approval

APPROVAL OF PROTOCOL

May 8, 2017

Manal Alamri
m073a287@ku.edu

Dear Manal Alamri:

On 5/8/2017, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	The Relationship Between Digital Gaming and Behaviors, Thoughts, and Feelings among Saudi College Students
Investigator:	Manal Alamri
IRB ID:	STUDY00140920
Funding:	None
Grant ID:	None
Documents Reviewed:	• Instruments sheet-manal-17.docx, • Consent for participation, • Data Collection sheet-Manal-17.docx, • Manal-HSCL New Submission Form V3 1 (002)-2.pdf

The IRB approved the study on 5/8/2017.

1. Notify HSCL about any new investigators not named in original application. Note that new investigators must take the online tutorial at https://rgs.drupal.ku.edu/human_subjects_compliance_training.
2. Any injury to a subject because of the research procedure must be reported immediately.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity.

Continuing review is not required for this project, however you are required to report any significant changes to the protocol prior to altering the project.

Please note university data security and handling requirements for your project:
https://documents.ku.edu/policies/IT/DataClassificationandHandlingProceduresGuide.htm

You must use the final, watermarked version of the consent form, available under the "Documents" tab in eCompliance.

Sincerely,

Stephanie Dyson Elms, MPA
IRB Administrator, KU Lawrence Campus

Human Research Protection Program
Youngberg Hall | 2385 Irving Hill Rd | Lawrence, KS 66045 | (785) 864-7429 | research.ku.edu/hrpp

Appendix (B): Consent Form in English

Video Games Survey

I am conducting this survey in an effort to better understand the relationship between video games and aggression among male and female Saudi college students.

The survey has only 10 pages with questions and should take no more than 12 minutes to complete. Your responses will remain anonymous. The Department of Educational Leadership and Policy Studies at the University of Kansas supports the practice of protection for human subjects participating in research. Your participation in this survey is strictly voluntary. You may quit the survey at any time by clicking "Exit this survey."

Please contact Manal Alamri if you have any questions or concerns at +966 59 080 6040 or m073a287@ku.edu.

To continue to the survey, please verify you have read this statement by checking "Yes, I have read this statement."

○ yes, I have read this statement.

Appendix (C): Irritability (English Version)

Mood:
To what extent do you agree or disagree with the following statements about your mood.

	Strongly agree	Somewhat agree	agree nor disagree	Somewhat disagree	Strongly disagree
I easily fly off the handle with those who do not listen or understand.	○	○	○	○	○
I am often in a bad mood.	○	○	○	○	○
Usually when someone shows a lack of respect for me, I let it go by.	○	○	○	○	○
I have never been touchy.	○	○	○	○	○
It makes me blood boil to have somebody make fun for me.	○	○	○	○	○
I think I have a lot of patience.	○	○	○	○	○
When I am Irritated I need to vent my feelings immediately.	○	○	○	○	○
When I am tired I easily lose control.	○	○	○	○	○
I think I am rather touchy.	○	○	○	○	○
When I am Irritated I can not tolerate discussions.	○	○	○	○	○
I could not put anyone in his place, even if it were necessary.	○	○	○	○	○
I can not think of any good reason for resorting to violence.	○	○	○	○	○
I often feel like a powder keg ready to explode.	○	○	○	○	○
I seldom strike back even if someone hits me first.	○	○	○	○	○
I can not help being a little rude to people I do not like.	○	○	○	○	○
Sometimes when I am angry I lose control over my actions.	○	○	○	○	○
I do not know of anyone who would wish to harm me.	○	○	○	○	○
Sometimes I really want to pick a fight.	○	○	○	○	○
I do not like to make practical jokes.	○	○	○	○	○
When I am right, I am right.	○	○	○	○	○
I never get mad enough to throw things.	○	○	○	○	○
When someone raises his voice I raise mine higher.	○	○	○	○	○
Sometimes people bother me just by being around.	○	○	○	○	○
Some People irritate me if they just open their mouth.	○	○	○	○	○
Sometimes I shout, hit and kick and let off steam.	○	○	○	○	○
I do not think I am a very tolerant person.	○	○	○	○	○
Even when I am very irritated I never swear.	○	○	○	○	○
It is others who provoke my aggression.	○	○	○	○	○
Whoever insults me or my family is looking for trouble.	○	○	○	○	○
It takes very little for things to bug me.	○	○	○	○	○

Appendix (D): Aggression Traits Survey (English Version)

Behavior:
To what extent do you agree or disagree with the following statements.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
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.	○	○	○	○	○

Appendix (E): Video Games Questionnaire (English Version)

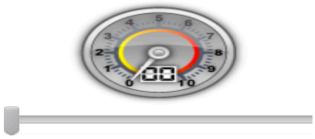
Video Game Questionnaire:

Do you play video game?

Yes ◯ No ◯

The First Favorite Game
What is your first favorite game?

The FIRST Favorite Game:
Frequency of Playing Video Games How often do you play the first favorite game . *0=rarely, 10=extremely.*



The Second Favorite Game
What is your second favorite game?

The SECOND Favorite Game
Frequency of Playing Video Games How often do you play the Second favorite game . *0=rarely, 10=extremely.*

The Third Favorite Game
What is your third favorite game?

The THIRD Favorite Game
Frequency of Playing Video Games How often do you play the Third favorite game . *0=rarely, 10=extremely.*

The FOURTH Favorite Game
What is your fourth favorite game?

The FOURTH Favorite Game
Frequency of Playing Video Games : How often do you play the Fourth favorite game . *0=rarely, 10=extremely.*

The FIFTH Favorite Game
What is the fifth favorite game?

The FIFTH Favorite Game
Frequency of Playing Video Games: How often do you play the Fifth favorite game . *0=rarely, 10=extremely.*

Appendix (F): Time (English Version)

TIME:
How often did you play video games in your childhood?

Currently, How often do you play video games?

Appendix (G): World View of Safety Questionnaire (English Version)

World View Questionnaire

1. What do you think the chances are that a person will be robbed within their life time?

2. What do you think the chances are that any one person will be physically assaulted by a stranger in their life time?

3. What do you think the chances are that any woman will be raped in her life time?

4. What do you think the chances are that any one person will be murdered?

5. How safe would you feel walking alone at night in an average suburban setting?

6. How safe would you feel walking alone at night on campus?

Appendix (H): Demographic Questionnaire (English Version)

Enter your age in years:

What is your gender?

Male ○ Female ○

What is Your Current Grade Point Average?

What is Your Academic Major?

My college level is:

First year university. ○ Second year university. ○ Third year university. ○ Fourth year university. ○ Graduate student. ○

Appendix (I): Consent Letter in Arabic

العاب الفيديو و تاثيرها

الباحث يجري هذا الاستبيان لفهم أفضل لطبيعة العلاقة بين ألعاب الفيديو والسلوك والتفكير والمشاعر بين الطلاب والطالبات السعوديين في مرحلة البكالوريس. الاستبيان يحتوي على عشر صفحات وتستغرق الاجابه عليه تقريبا اثنى عشر دقيقة فقط. اجاباتك ستظل غير معروفة المصدر. أود التنبيه أنه قد يتم الكشف عن اجاباتك لغير الباحث نظراً لطبيعة الانترنت أو بالصدفة.

قسم التعليم العالي في جامعة كانسس يدعم حماية المشاركين في البحوث. مشاركتك في هذا البحث هي من باب التطوع تستطيع انهاء الاستبيان والخروج منه في أي وقت تشاء عن طريق الضغط على (خروج)

في حالة لديك أي استفسار حيال هذا الاستبيان الرجاء الاتصال ب منال العمري على +966 590806040 أو ارسال إيميل على m073a287@ku.edu أو الاتصال بالدكتور رونالد أوست على 3466 -785-864 011أو ارسال ايميل على aust@ku.edu

إذا كان لديك أي استفسارات أخرى كمشارك بالبحث الرجاء الاتصال على 7429-864-785-01 أو الكتابة الى العنوان التالي

The Human Research Protection Program, University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568 أو ارسال ايميل إلى irb@ku.edu

لإكمال الإستبيان يرجى الضغط على (نعم قرأت هذا التوضيح)

◯ نعم قرأت هذا التوضيح

Appendix (J): Irriatability (Arabic Version)

المزاج

إلى أيّ مدى توافق أو لا توافق على العبارات التالية:
موافق بشدة - موافق - غير موافق - غير موافق بشدة.

	موافق بشدة	موافق	غير موافق	غير موافق بشدة.
١. أنا أغضب بسهولة من الأشخاص الذين لا يسمعون أو يفهمون.	○	○	○	○
٢. أنا غالباً أكون في مزاج سيء.	○	○	○	○
٣. عادة عندما يبدي شخص ما عدم الاحترام تجاهي، فإني أتجاهله.	○	○	○	○
٤. أنا لم أكن أبداً سريع الغضب وشديد الحساسية.	○	○	○	○
٥. أستشيط غضباً عندما يسخر مني شخص ما.	○	○	○	○
٦. أعتقد أن لدي قدر كبير من الصبر.	○	○	○	○
٧. عندما أكون متضايقاً، احتاج أن أنفس عن مشاعري فوراً.	○	○	○	○
٨. عندما أكون متعباً، أفقد السيطرة بسهولة.	○	○	○	○
٩. أعتقد أني إلى حد ما سريع الغضب وشديد الحساسية.	○	○	○	○
١٠. عندما أكون غضباناً، فإني لا أستطيع تحمل النقاش	○	○	○	○
١١. لا أستطيع أن أبدي لأي شخص بأنه أقل أهمية مما يظن حتى لو كان ذلك ضرورياً.	○	○	○	○
١٢. لا أستطيع أن أجد سبباً مقنعاً للجوء إلى العنف.	○	○	○	○
١٣. أشعر غالباً بأني برميل بارود جاهز للانفجار.	○	○	○	○
١٤. نادراً اهاجم أي شخص حتى لو كان هو من بدأ.	○	○	○	○
١٥. لا أستطيع تجنب قلة الأدب مع الأشخاص الذين لا أحبهم.	○	○	○	○
١٦. أحياناً عندما أغضب، أفقد السيطرة على تصرفاتي.	○	○	○	○
١٧. لا أعرف أي شخص يتمنى إيذائي.	○	○	○	○
١٨. أحياناً أود فعلاً أن افتعل شجاراً.	○	○	○	○
١٩. لا أحب القيام بمقالب للسخرية.	○	○	○	○
٢٠. عندما أكون على حق، فأنا على حق.	○	○	○	○
٢١. أنا لا أغضب أبداً إلى درجة رمي الأشياء.	○	○	○	○
٢٢. عندما يرفع شخص ما صوته، فإني أرفع صوتي أعلى منه.	○	○	○	○
٢٣. أحياناً يزعجني الناس بمجرد تواجدهم حولي.	○	○	○	○
٢٤. انزعج من بعض الأشخاص بمجرد سماع أصواتهم.	○	○	○	○
٢٥. أحياناً أصرخ وأضرب وأركل لأنفس عن غضبي.	○	○	○	○
٢٦. لا أعتقد أني شخص متسامح جداً.	○	○	○	○
٢٧. لا أحلف أبداً حتى عندما أكون غضبانا جداً	○	○	○	○
٢٨. الآخرون هم من يثير سلوكي العدواني.	○	○	○	○
٢٩. أي شخص يهينني أو يهين عائلتي فهو يبحث عن المشاكل	○	○	○	○
٣٠.أبسط الأمور تثير غضبي.	○	○	○	○

Appendix (K): Aggression Traits (Arabic Version)

السلوك:

إلى أي مدى توافق أو لا توافق على العبارات التالية:
موافق بشدة - موافق - غير موافق - غير موافق بشدة.

	موافق بشدة	موافق	غير موافق	غير موافق بشدة
١. بين فترة وأخرى، لا أستطيع السيطرة على رغبتي في ضرب شخص آخر.	○	○	○	○
٢. متى كان هناك قدر كاف من الاستفزاز، يمكن أن أضرب شخص آخر.	○	○	○	○
٣. إذا قام شخص بضربي، فإني أقوم بضربه.	○	○	○	○
٤. أنا أدخل في حالات شجار أكثر من الشخص العادي.	○	○	○	○
٥. إذا توجب على اللجوء إلى العنف لحماية حقوقي، فإني أفعل ذلك.	○	○	○	○
٦. يستفزني بعض الناس إلى درجة أن الأمر انتهى إلى تشاجروتضارب بيننا.	○	○	○	○
٧. لا يوجد لديّ دائماً سبب مقنع لضرب أي شخص.	○	○	○	○
٨. لقد قمت بتهديد أشخاص أعرفهم.	○	○	○	○
٩. سبق أن كنت غاضباً جداً إلى درجة أني قمت بتكسير بعض الأشياء.	○	○	○	○
١٠. أنا صريح مع أصدقائي عندما اختلف معهم.	○	○	○	○
١١. غالباً أجد نفسي أختلف مع الناس.	○	○	○	○
١٢. عندما يضايقني الناس، يمكن أن أخبرهم بما أفكر فيه تجاههم.	○	○	○	○
١٣. لا أستطيع تجنب الجدال عندما يختلف معي الناس.	○	○	○	○
١٤. أصدقائي يقولون إني جدلي نوعاً ما.	○	○	○	○

Appendix (L): World View of Safety Questionnaire (Arabic Version)

ما هي درجة احتمال حدوث العبارات التالية:

1) ما هي باعتقادك فرص احتمال تعرض أي شخص للسرقة باستخدام السلاح خلال حياته؟ النسبة من ١٠٠

2) ما هي باعتقادك فرص احتمال تعرض أي شخص للإعتداء من قبل شخص غريب خلال حياته؟ النسبة من ١٠٠

3) ما هي باعتقادك فرص احتمال تعرض أي سيدة للاغتصاب خلال حياتها ؟
النسبة من ١٠٠

4) ما هي باعتقادك فرص احتمال تعرض أي شخص للقتل العمد؟ النسبة من ١٠٠

5) ما هي درجة الأمان التي تشعر بها وأنت تمشي وحدك في الليل في إحدى ضواحي المدينة؟ النسبة من ١٠٠

6) ما هي درجة الأمان التي تشعر بها وأنت تمشي وحدك في الليل في حرم الجامعة؟ النسبة من ١٠٠

Appendix (M): Video Games Questionnaire (Arabic Version)

استبيان ألعاب الفيديو:

هل تلعب ألعاب الفيديو؟

نعم ○ لا ○

بعض الأمثلة للألعاب المفضلة لدى فئة الشباب:
.Heart stone, Mortal Kombar, Call of Duty, Fifa, need for speed

لعبتك الأولى المفضلة :

ماهي أفضل لعبة لديك؟

معدل الوقت الذي تقضيه في ممارسة أفضل لعبة لديك؟
• نادراً -- ١٠ دائماً

ثاني أفضل لعبة:

ماهي ثاني أفضل لعبة لديك؟

ماهو معدل الوقت الذي تقضيه في ممارسة ثاني أفضل لعبة لديك؟
• نادراً -- ١٠ دائماً

ثالث أفضل لعبة:

ماهي ثالث أفضل لعبة لديك؟

ماهو معدل الوقت الذي تقضيه في ممارسة ثالث أفضل لعبة لديك؟
• نادراً -- ١٠ دائماً

رابع أفضل لعبة :
ماهي رابع أفضل لعبة لديك؟

ماهو معدل الوقت الذي تقضيه في ممارسة رابع أفضل لعبة لديك؟
• نادراً -- ١٠ دائماً

خامس أفضل لعبة:
ماهي خامس أفضل لعبة لديك؟

ماهو معدل الوقت الذي تقضيه في ممارسة خامس أفضل لعبة لديك؟
• نادراً -- ١٠ دائماً

Appendix (N): Time Questionnaire (Arabic Version)

ماهو معدل الوقت الذي تقضيه في ممارسة ألعاب الفيديو في مرحلة الطفولة؟

ماهو معدل الوقت الذي تقضيه في ممارسة ألعاب الفيديو حالياً بشكل عام؟

Appendix (O): Demographic Questinnaire (Arabic Version)

أسئلة شخصية:

العمر:

الجنس:

انثى

ذكر

المعدل الدراسي:

التخصص:

السنة الدراسية:

- السنة الأولى .
- السنة الثانية
- السنة الثالثة
- السنة الرابعة
- السنة الخامسة.