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# The effect of video games on family communication and interaction

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**The effect of video games on family communication and interaction**

by

Dustin Lamar Redmond

A thesis submitted to the graduate faculty  
in partial fulfillment of the requirements for the degree of  
**MASTER OF SCIENCE**

Major: Human Development and Family Studies

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## **ABSTRACT**

This study examined the effect of video games on communication and interaction between participants and their family members. These variables were measured using an online survey derived from the Family Communication Scale, the Inventory of Parent and Peer Attachment, and the Anderson Video Game Questionnaire. A total of 480 18-year-old college students were recruited via email to complete the survey. Correlational and regression analyses revealed a significant negative relationship between the total amount of time an individual spent playing video games and the amount of parent communication and sibling communication. However, the relationship between video game usage and interaction with parents or siblings was not significant. A Chi-Square analysis revealed a significant difference in the type of games preferred by males and females, and indicated that males play more frequently than females.

## INTRODUCTION

The image of video games within the public eye has changed a great deal over the nearly 40 years that video games have existed. What began as little more than a science experiment with the creation of the Odyssey game system and a two-colored game called Pong has changed into a bustling industry with games that are, at times, so graphically advanced that it can be difficult to tell the difference between the game image and a real photograph. These changes are self evident. It is not difficult to remember a time in which video game use was the exception instead of the norm.

Even in the legal system the presence of video games continues to grow. For example, former Florida attorney Jack Thompson has become increasingly well known in his attempts to censor, and in some cases, completely ban the sale of some video games such as the popular Grand Theft Auto series (McCauley, 2009). On the other hand, some politicians, such as Bob Dole, are embracing the gaming community and actively campaigning in virtual worlds such as Second Life (McCauley, 2009).

As the industry has changed the image of the “gamer” has also changed. Instead of the shy nerd playing by himself in a quiet room the image has been altered to show that anyone can pick up a controller and play. Games have come out of the background and have entered the popular media. Commercials for video games are found on TV, billboards advertise the newest hardware on which to play the games, and even celebrities endorse the use of internet games such as World of Warcraft.

As video games have become increasingly popular, scientific interest in the effects video games have on individuals has also increased. Attention has been given to how video games affect aggression (Bartholow & Anderson, 2002, Wallenius, 2008) and even decision making (Andrews & Murphy, 2006, Kim et al., 2008). However, little research has been done to see how video games have affected the family. The impact of video games, whether positive or negative, is most likely to extend beyond the individual. The family and friends of that person also experience the effects. Family members and friends can become closer through the interaction (Aarsand, 2007, Durkin, 2002, Jansz & Martens, 2005), and relationships can develop without any face to face contact (McMillan, & Morrison, 2006, Lo et al., 2005). Alternatively, misuse of the video game can potentially lead to dependence upon the game for social interaction, sleep deprivation, and even a decrease in academic performance (Lo et al., 2005, Cole & Griffiths, 2007).

With the internet becoming more widely used and accepted, the video game has increasingly become a social tool. Players are able to play games together across vast distances and speak with one another through an audio interface. In fact, players can subscribe to a MMORPG (massively multiplayer online role playing game) and play with thousands of other gamers at any given time.

As video games have begun to alter the ways in which individuals interact, the concern over how behaviors of individual gamers are affected has become an increasing issue. Research has predominantly focused on the behavioral changes within an individual gamer, and researchers have begun to analyze how adolescents have been affected by video games and the technology which allows the games to be played online.

## LITERATURE REVIEW

### Internet Generation

Lei and Wu (2007) have suggested that as children grow into adolescence, the need for symbolic communication by means of tools like the internet becomes more and more important. As technology has improved over the years, the ease of communication has also increased. The availability of internet access continues to increase and, as such, more and more children and adolescents are logging on and becoming skilled in, as well as accustomed to, internet use. Lei and Wu further explain that internet use by adolescents continues to grow because adolescents are intensely interested in forming relationships online, gaining access to information, and engaging in online entertainment. Additionally, Lei and Wu mention that the expansiveness of the internet provides an environment in which adolescents are freed from many of the constraints that they may encounter in society.

From a family perspective, research by McMillan and Morrison (2006) has shown that the internet is frequently used by adolescents to maintain contact with distant family members. The use of email and other web tools provide a low-cost, low-effort substitute for making phone calls or writing letters. Their work also shows that the use of electronic communication can be more substantive than its real world counterpart. McMillan and Morrison detail a story in which an adolescent explains that she is able to speak with her father about certain things, like dating, through email that she never could have done in

person. This suggests that the use of the internet as a communication tool can provide adolescents with a feeling of security that may not be available in a face to face conversation.

### **Social Development**

As the internet and video games have become increasingly present in the lives of children and adolescents, many questions have been raised in relation to how these mediums have impacted the development of adolescents. Yee (2006) suggests that playing video games does not leave an individual mentally inept. In fact, Yee explains that many “hard-core” gamers are goal-seeking and high-achievement students. To further press the point, Cole and Griffiths (2007) explain that online video games require a high level of social interaction and cooperation. Large numbers of players must work together to accomplish certain goals and it is only through teamwork that many of these goals can be met. Additionally, Cole and Griffiths further challenge the myth that gamers are socially inactive by demonstrating that eighty percent of the 912 participants in their study preferred to play their games with friends and family. Furthermore, their research showed that 76.2% of the males and 74.7% of the females in the study made good friends within the game environment. This research suggests that online video games can be a medium through which adolescents are able to interact with one another and form significant and meaningful relationships with each other. Krotoski (2004) supports this claim and asserts that MMORPGs encourage group interaction that results in the forming of significant friendships as well as personal empowerment. In fact, work by Weibel et al. (2007) suggests that players have a deeper sense of immersion and enjoyment when playing with other people as

compared to simply playing with a computer opponent. This may direct gamers to seek out interaction with other human players within the game.

Interestingly, work by Lei and Wu (2007) has suggested that the internet may provide adolescents with a means of establishing their own identities. The limitless amounts of information and communication opportunities that are available on the internet provide adolescents with a multitude of avenues that can be taken as they discover who they are. Lei and Wu further explain that internet use can be affected by paternal attachment, suggesting that adolescents who feel alienated from their fathers may turn to the internet in order to find meaningful relationships. This suggests that the internet may operate as a buffering system for social development, enabling those who may be experiencing shortcomings in a real world situation to form meaningful relationships online.

Research by Jansz and Martens (2005) furthers the argument that video games may not be a detriment to the social development of the player by suggesting that gamers who had aged beyond adolescence, some as old as 35, were able to live independently from their parents and were able to maintain significant romantic relationships with others. This research shows that gamers are able to develop effectively in light of daily video game play. In order to be able to live independently from their families gamers must be able to maintain a stable income, and the ability to maintain significant romantic relationships suggests that gamers are successfully able to navigate the social intricacies of courtship and dating.

A great deal of research has examined aggression of adolescents in regard to the use of video games. Durkin and Barber (2002) suggest that the available evidence is

controversial and misleading. Their research suggests that the common format of a non-violent game playing control group and a violent game playing experimental group may introduce a bias into the results. Further, they explain that many other potentially relevant factors such as family and how the aggression is demonstrated are often left out or are narrowly interpreted, and in cases where multiple dependent measures are involved the results tend to be weak leaving the issue open to interpretation. In a meta-analysis of articles addressing violent video games and their impact on aggressive behavior as well as visual-spatial cognition, Ferguson (2007) concluded that a publication bias was present. Once the publication bias was accounted for, Ferguson suggests that the meta-analysis failed to support a relationship between violent video games and aggressive behavior. Interestingly, the meta-analysis revealed that violent video games were associated with improved visual-spatial cognition.

However, Ferguson's results are not unanimously accepted by all researchers within the field. A meta-analysis conducted by Anderson (2004) suggests just the opposite of Ferguson. Anderson explains that his meta-analysis revealed that violent video games were strongly related to increased aggressive behavior, aggressive cognition, cardiovascular arousal, and even in a decrease in helping behaviors.

In a later meta-analytic study, Anderson et al. (2010) strengthen their position by suggesting that the evidence within their meta-analysis strongly suggests that exposure to violent video games is a causal risk factor for increases in aggressive behavior, aggressive cognition, and even aggressive affect. Similarly, there is evidence of a decrease in prosocial behavior, a decrease in empathy, and the presence of desensitization to violence due to

exposure to violent video games. Interestingly, this data yielded similar results when controlling for Eastern and Western cultures as well as for gender. This study went to great lengths to protect against the publication bias suggested by Ferguson (2007) in that the analyses conducted were highly conservative and cautious. Even the addition of studies with low significance resulted in small changes to the overall effect size of the study. As such, the research conducted by Anderson et al. strongly emphasizes the potential hazards associated with violent video games.

However, Przybylski et al. (2009) suggest that violent content may have nothing to do with why people choose to play a given game. Przybylski et al. analyzed the results from six studies that addressed the relationship between violent game content and player enjoyment. Their results revealed that enjoyment and the desire for future play was strongly associated with the level of autonomy and feeling of competence awarded by the game. In fact, the level of violence present in the game added little to the overall satisfaction experienced by the player. Unsurprisingly, the results also revealed that players scoring high in aggression had a preference for video games with violent content. However, even in these cases, it remained true that the violent content of the game did not significantly affect the level of enjoyment experienced by the player.

Durkin (2002) further claims that there may be potential advantages to playing video games. In his study, Durkin determined that adolescents that played video games demonstrated significantly lower amounts of risk taking behavior, such as substance abuse, and self-reported disobedience than those adolescents that did not play. Interestingly, Durkin also noted that gamers, whether it be those that played every so often or the “hard core”

player, participated in significantly less risky friend networks than those adolescents that did not play video games, and even the average GPAs of the adolescents that played video games were significantly higher than their non gaming counterparts. Further, recent research by Holmes et al. (2009) suggests that playing the video game “Tetris” may be useful for interrupting and alleviating flashbacks for individuals suffering from Post Traumatic Stress Disorder.

Research from Gentile et al. (2009) adds even more emphasis on the potential positive effects that video games can have by suggesting that video games with prosocial content can improve prosocial behavior in the player. Specifically, Gentile et al. suggest that games that have characters help each other in nonviolent ways may influence players to act in helpful ways toward other people. This research compared the results of three studies that addressed the effects of prosocial games on behavior on individuals at college age. The results of all three studies indicate that there is a short term impact on prosocial behavior from prosocial games. These results follow with the General Learning Model which suggests that any learning encounter can affect cognition in the short term.

Similarly, Baranowski et al. (2008) suggest that video games can be used to illicit positive behavior changes. Baranowski et al. suggest that getting and maintaining an individual’s attention is a crucial step in altering behavior, and it is here that video games are most useful to the process. Video games add an element of fun and motivation to the process and can make the transition to a new behavior easier. Baranowski et al. note that video games may be positively related to behavior change in one of two primary ways: either the game directly involves behavior changing procedures into the game, such as being required to set

goals, or the game can integrate the new behaviors into the story. An example given by Baranowski et al. details a video game called Squire's Quest that integrates the idea of eating fruits and vegetables into the story. Through the story, the player is shown that eating fruits and vegetables can make the character stronger and more resistant to enemies. This, in turn, encourages the player to eat more fruits and vegetables.

### **Skill Development**

It is not only in social interaction that video games have had a positive impact. Some research has shown that video games can be used as tools to improve skills such as hand-eye coordination and even the cognitive abilities of the players. Even the U.S. military has shown interest in using video games as training simulators (Grossman & DeGaetano, 1999). In a similar fashion, a study by Rosser Jr. et al. (2007) suggests that video games may be an effective tool in training surgeons in laparoscopic surgery. The research by Rosser Jr. et al. (2007) reveals that surgeons who had played video games for more than three hours per week in the past made 37% fewer mistakes and were 27% faster than surgeons that did not play. Current players of video games made 32% fewer mistakes and were 24% faster. While Rosser et al. are unable to attribute the improvements in surgical skill directly to video game play, they stress that the potential for video games to improve surgical skill should not be overlooked.

In terms of cognitive abilities, Boot et al. (2008) suggest that video games can be used to improve attention, memory, and even executive mental control. The research by Boot

et al. reveals that gamers that had played games for several years were able to track objects at greater speeds, perform more accurately in visual memory tests, and even make decisions about rotated objects more quickly those who did not play video games. A total of 21 hours of practice regimens for non gamers failed to produce improvements in the tested areas. This suggests that the improvements may be derived after a much longer period of play, possibly measured in years. However, Boot et al. recognize that these effects may come from the fact that people with higher abilities in the tested areas prefer to play video games.

Similarly, Haier et al. (2009) discovered that three months practice with the visual-spatial video game Tetris resulted in increased cortical thickness in adolescent females. Specifically, the study revealed an increase in regions of the brain having to do with visual, spatial, and tactile input. Interestingly, the greatest changes occurred within the left temporal pole suggesting that the video game was processed as a cognitive puzzle.

It should be noted that some research has yielded results suggesting that the playing of video games may be a detriment to the player's abilities. In particular, the results of an experiment conducted by Bailey et al. (2009) suggest that playing video games may be negatively related to the ability of an individual to process goal-directed information when presented with distracting stimuli (cognitive control). Bailey et al. explain that participants who had extensive video game experience, determined by a questionnaire addressing game playing habits, demonstrated less cognitive control than participants with limited video game experience. Specifically, this study revealed that there was a negative relationship between proactive control, future-oriented information processing that occurs before the stimulus occurs, and video game experience. Conversely, there was no notable relationship between

the participant's reactive control, information processing that occurs just in time for the given stimulus, and video game experience. This suggests that video games may be associated with a decrease in efficiency in proactive cognition.

### **Gender Issues**

Video games appeal to both men and women. However, this is not to suggest that men and women are equally drawn to the experience. The vast majority of games feature male protagonists and are geared towards male users (Yang, 2001). In fact, observations by Jansz and Martens (2005) at a LAN (local area network) gaming event revealed that 96.5% of the participants were male. However, the number of female gamers is on the rise. Cole and Griffiths (2007) explain that females are becoming increasingly drawn to MMORPGs due to the social interaction, team participation, and the ability to simply explore a world. While the pace of the increase is relatively slow, the demographic changes are quickly becoming apparent. Yee (2006a) reports that in 2001 the user base of Everquest, a MMORPG, was 84% male. Three years later Griffiths et al. (2004) reported that the male user base had been reduced to 81%. Interestingly, a recent national survey of U.S. teens revealed that the number of females playing video games has almost caught up to the number of males with 99% of the male population playing as compared to 94% of the female population (Lenhart et al., 2008)

Surprisingly, many of the gender-specific cultural norms experienced in the real world are transferred to the game environment (Yee et al., 2007). For example, Yee et al.

observed that offline personal space norms were in use among the digital users of Second Life (a graphically advanced digital community). Female pairs tended to stand closer together and maintain more eye contact as compared to the male pairs. Yee et al. also noted that male pairs tended to stand farther apart in an outdoor setting than in an indoor setting. Similarly, Martey and Stromer-Galley (2007) observed that players in The Sims Online followed other cultural norms as well. Norms regarding how a player may enter another player's house and what sort of behavior is acceptable within the house were dutifully followed. This suggests that individuals playing in the virtual world can comfortably engage with other players and even express cultural norms that would exist in a real-world social scenario.

Relationship formations in online video games also differ across gender. Cole and Griffiths (2007) reported that males were more likely to make friends in a digital world. However, they note that women are more likely to discuss sensitive issues with the individuals who they met through the game. Furthermore, it was pointed out that female players were significantly more likely to meet with someone that they met through the game in the real world than male players.

### **Community Building**

Despite the often large gender differences involved with an online video game, players are able to come together and work towards a common goal. In many online games, especially MMORPGs, a great deal of emphasis is placed on socialization and community

building. According to Jansz and Martens (2005), gamers are strongly socially motivated to play video games online. In fact, gamers that scored high in socialization, based on a measure designed by the authors, were far more likely to have participated in more than one LAN event. However, the social element is not simply limited to LAN events. Tanis and Jansz (2007) showed that more than 80% of the individuals who played first person shooter games online were members of an in-game clan and that it was the social element that was the strongest predictor of how players would spend their time. A clan can be described as a group of gamers that work together, often through audio conversation, to reach goals that benefit their group. Tanis and Jansz explain further that members of amateur, non professional, clans scored significantly higher in socialization than players that were not in a clan. Many clans begin as a group of friends that want to work together as a group within the game. From there the clan can grow to include more members so that goals can be achieved more easily. As the clan grows the social network within the clan becomes more complex. It is stressed that, above anything else, it is the social aspect of the game that motivated many of their participants to play. Lo et al. (2005) support this claim explaining that group members work together to complete tasks, exchange assets, and develop relationships with each other that strengthen social ties.

Steinkuehler and Williams (2006) propose that online video games work as virtual “third places” suggesting that online communities allow for informal social interaction and relationship building. Steinkuehler and Williams liken these online environments to real world third places such as pubs and coffee shops and stress that conversation and social interaction is the principal activity within the online game community. It is through dialogue

with other gamers that goals can be accomplished and reliable partners and friends can be made. They further press their argument by suggesting that these online game communities provide an ease of access that allows a gamer to be able to enter into this community at any time and be certain of whom he or she will see there as well as what activities will take place. For example, members of a guild, which operates in much the same way as a clan, are able to speak with each other, either through text or audio, regardless of where their avatar is in the game. This ensures instant access to social interaction.

As the above research suggests, the relationships that gamers form in online video games can become much more than a simple means to an end. McMillan and Morrison (2006) support this claim with findings from a qualitative study showing that bonds formed online have meaning beyond the context of the game. Specifically, one male interviewee explained that he could be more open and connect with his online friends in a way that he couldn't with the friends he spoke with everyday. As relationships within the game grow they may eventually be moved to the real world where players can interact face to face.

McMillan and Morrison explain that the virtual identity of an individual can often be a realistic representation of that individual's real personality. Once connected with another individual, trust is quickly built through the virtual identities which allow for a larger amount of personal disclosure than a face to face meeting would. From here, relationships, such as those with romantic intentions, are able to transition into the real world. Sheeks and Birchmeier (2007) suggest that individuals who demonstrate higher levels of shyness but are still interested in forming relationships with other people, defined as socialability by Sheeks

and Birchmeier, may find online relationships more meaningful than individuals who do not share these personality traits.

For many gamers, online friendships allow for a greater level of intimacy and self-disclosure than they might be willing to engage in during a real world scenario (Martey, 2007). As such, friendships may form more quickly than in the real world. Through these online interactions gamers are able to create meaningful relationships with other players and alter their relationships within their peer groups (Jansz & Martens, 2005). Participation in a clan can potentially expedite this process by providing a wider group of potential friends who are immediately available as compared to the player who chooses to not participate in a clan. However, most gamers choose to be a part of a clan rather than play by themselves. In the study by Jansz and Martens, 54.5 % of the gamers at the LAN event actively chose to be a part of a clan in lieu of playing alone.

The desire for players to uphold real world norms within the game environment (Martey & Stromer-Galley, 2007) further emphasizes the need for players to interact with each other in significant ways. Martey and Stromer-Galley report that players were more likely to join groups with social norms that were similar to their own. This suggests that players are actively seeking interaction with individuals who are similar to themselves. This yearning for similarity could be described as the beginnings of a foundation upon which friendships can be formed.

## **Family Interaction**

Interaction within a video game includes more than relationships with strangers. Durkin and Barber (2002) explain that gamers tend to have a high level of family closeness as compared to adolescents who do not play games at all implying that social cohesion within the family is generally higher with gamers. Moreover, despite the fact that video games are often played alone, many gamers would prefer to play with friends or family as indicated by interviews with LAN gamers (Jansz & Martens, 2005). This could be, in part, because the game environment allows family members to interact with each other in a new and interesting format that fosters togetherness and teamwork. Work by Kubey and Larson (1990) suggests that adolescents playing video games may show higher arousal and more positive subjective states when they play video games with friends or family. If playing with family and friends can enhance the experience of playing video game then this may be an incentive for adolescents to seek out family and friends to play the game with. Durkin and Barber (2002) suggest this very idea claiming that adolescents that feel close to their families may play video games more frequently in order to share the experience with family members. In particular, gaming together can produce stronger bonds between fathers and sons (Jansz & Martens, 2005).

It is important to mention that video games are not only played by adolescents and children. In fact, the average age of today's gamer is 29 (Rosser Jr. et al., 2007). Further, the average age of a MMORPG player in the study conducted by Cole and Griffiths (2007) was 23.6 years with nearly 30% of players being older than 25. Interestingly, only one fifth of the players in the study were under age 18. This shows that video games are becoming more

acceptable and even enjoyable to adults making the potential for family interaction within the game even higher. Parents interviewed by Kutner et al. (2008) expressed an understanding of how valuable video games were to the social lives of their children further indicating that parents are becoming increasingly willing to accept video games as a social tool.

### **Notable Concerns**

While there has been an increasingly greater body of research to suggest that video games have the potential to positively stimulate adolescent development and enhance relationships of those involved in the gaming process, there are also notable negative effects that can potentially affect some gamers. These effects may include gambling issues, internet addiction, significant damage to relationships with others, and even a possible reduction in academic performance. These effects seem to target certain groups of individuals within the gaming community and are not necessarily reflections of gamers as a whole.

For example, Mitchell et al. (2005) observed that 15% of the individuals within their study who were identified as having internet addiction were actively involved in online gambling and online video games. This suggests that those with addictive personalities may be drawn to the recreational opportunities provided by video games. However, this research is addressing a single group within the gaming community and does not suggest that all video game players are more likely to be drawn into gambling. Similar research by Parker et al. (2008) suggests that some gamers who are deficient in emotional intelligence, defined as one's ability to describe and/or recognize one's own emotions, may be more likely, though

not guaranteed, to engage in more addiction related behaviors such as gambling and gaming. As a consequence, those gamers may not have the appropriate skills necessary to function interpersonally.

Research by Li (2007) suggests that females who are already struggling with interpersonal issues, especially within their family, may be more likely than their male counterparts to engage in addictive behaviors in relation to video games. There is potential for emotional connectivity in online games which may be related to faster addiction. Li explains that it is possible that women struggling in interpersonal relationships may find that online relationships can act as a surrogate to failed or troubled face to face relationships. As a result, these women may turn online for their social needs at the expense of real world interaction. This is echoed by the research of Kim et al. (2008), emphasizing that those already experiencing interpersonal problems may be at a greater risk for online game addiction.

Similarly, Lo et al. (2005) suggest that individuals who attempt to establish meaningful relationships online may not be able to express themselves in real world situations resulting in higher levels of social anxiety for that individual. Lo et al. explain that virtual relationships are useful for satisfying interaction at a virtual level and do not address real world social needs, suggesting that individuals with strong online relationships may experience lower quality real world interpersonal relationships. The results of the research by Lo et al. show that heavy users of online games had the least fulfilling interpersonal relationships as compared to those that did not play and those who played occasionally.

Occasional gamers reported less fulfilling interpersonal relationships than non gamers. Their findings also suggested that social anxiety tended to increase as game usage increased.

Research by Peters and Malesky (2008) support the idea that players seeking meaningful relationships within a game may have trouble forming meaningful relationships in the real world. In a study addressing time played and various personality characteristics, such as agreeableness and extraversion, among players of World of Warcraft, Peters and Malesky discovered that neuroticism and agreeableness played a key role in determining problematic usage. Further, Peters and Malesky suggest that it is logical to suggest that gamers may spend more time in the game in order to avoid face to face social interactions that may require a higher level of skill. The stress that arises from rejections in the real world interactions may drive the player to seek interaction within a safer arena such as a guild within the game.

From a familial standpoint, research by Vandewater et al. (2005) implies that children who experience high levels of conflict within the home are more likely to spend time playing mildly violent games as compared to nonviolent games. These findings suggest that children exposed to violent or conflict laden environments are more likely to engage in violent media use. However, Vandewater et al. make it very clear that other processes may be at work. Parents in conflictual relationships could themselves be users of violent media and the children could simply be emulating what their parents do. They also suggest that the conflict present within the parent dyad may have a negative effect on the parenting being provided to the child. This could leave the child open to experience violent media on his or her own without parental supervision.

Academically speaking, some research has shown that video game play may be associated with a decrease in students' grade point average (GPA). Anderson and Dill (2000) report that the amount of time spent playing video games was negatively related to GPA. Interestingly, it was not prior exposure to violent video games specifically that resulted in the decrease but long-term exposure to all video games in general. Anderson and Dill also mention that they were unable to find a definitive answer as to whether or not video games have a negative effect on academic performance. It could be a simple matter of time management in that an individual who spends more time playing video games simply has less time for academic work. Naturally, this could result in a decrease in GPA.

Anderson and Dill's results are corroborated by Anand (2007) who suggests that video game usage is related to a decrease in SAT scores as well as GPA. In Anand's study, a survey was distributed to college age students. This survey addressed which types of games players preferred as well as time management questions designed to assess how the participants allocated their time between school, work, video games, and other recreational activities. This data was then compared to reported GPA and SAT scores. The results indicate that video games may have a detrimental effect on GPA and SAT scores. Anand explains, as did Anderson and Dill (2007), that it is difficult to infer a causal relationship with the given data. While it may be possible that video games have a detrimental effect on academic performance indicators such as GPA and SAT scores, it could also be a matter of insufficient time being allocated to academic pursuits.

## **Current Study**

Despite the growing body of research from both sides of the argument, little research has been done to see how video games have affected the family. The impact of video games, whether positive or negative, extends beyond the individual playing the game. The family and friends of that person also experience the effects. The limited research on how video game use affects the family shows that there is still a large area in the research that has remained relatively unexplored.

The research focus of this study is derived from two theoretical perspectives: Social Exchange theory (Thibaut & Kelley, 1959) and Family Systems theory (von Bertalanffy, 1976). In regard to social exchange theory, the general premise is that individuals strive to maximize possible rewards and minimize costs in a given scenario, including in the context of relationships (Nichols, 2007). Given that some adolescents are able to find greater intimacy and personal disclosure with friends that are made online (Martey, 2007; Jansz & Martens 2005), it is easy to see why an adolescent may be drawn to a video game. For example, if an adolescent is experiencing difficulty (cost) in finding friends in face to face scenarios, then that individual may find greater success within a video game (reward). If the rewards provided by the online interaction are sufficient enough, then the individual may be less inclined to make friends in a face to face scenario that has typically been wrought with high costs such as poor intimacy.

Even though the adolescent may be making a choice based on the potential costs and rewards of a given situation it does not mean that his or her actions occur in a vacuum. To be

more direct, systems theory explains that a family is more than the summation of its individual members, and a change in one member of the system can have an impact on the other members of the system (Nichols, 2007). This is to suggest that decisions made by the adolescent will have an effect on the rest of his or her family. For example, if the adolescent chooses to spend more time online, such as in the example described in the preceding paragraph, this could alter the way in which family members interact with each other. If the adolescent is no longer interested in speaking or otherwise engaging with his family members because of the success he or she has had in finding friends online, then the overall interaction of the family may suffer. As such, this study seeks to contribute to the understanding of the effects of video games by examining how the use of video games by adolescents has affected the ways in which family members interact with each other.

This study hypothesizes that video games have a positive effect on family interaction (Aarsand, 2007; Durkin, 2002; Tanis & Jansz, 2007). This hypothesis stems, in part, from the qualitative work of Aarsand (2007). Aarsand's work has shown that the gap in technological proficiency that can occur between adults and children, referred to as the digital divide, can be used to facilitate interaction instead of hindering it. In particular, Aarsand found that children were willing to teach adults who were willing to learn how to play a given video game. This teaching relationship bolstered interaction and communication on the part of children and adults. Additionally, this study hypothesizes that there will be notable gender effects suggesting that male gamers will tend to play video games more often than females and that the types of video games that are played will be different (Cole & Griffiths, 2007; Jansz & Martens, 2005; Parker et al., 2008).

## METHODS

### Participants

An email (Appendix C) was sent out to recruit freshmen from the male and female population enrolled at a Midwestern university. This email requested that all individuals who had gaming experience, no matter how limited, complete an online questionnaire that had been linked at the bottom of the email. The email explained to the students that the survey would take about five minutes of their time and would not collect any personal information other than a student identification number so that that number could be given to any professors that had offered extra credit for completing the survey. It is important to mention that this email specifically targeted individuals with gaming experience. As such, this study does not address, nor compare results with individuals who had never played video games before. If a student chose to participate and click the link to the survey, he or she would be directed to an informed consent document (Appendix C) detailing the nature of the survey. Out of roughly 3,900 possible candidates, 480 students responded to the request.

This freshman group was chosen based on the assumption that college age freshmen, as compared to sophomores, juniors, and seniors, will be more likely to still be very close with their immediate families after having just completed high school. Steinberg (2002) suggests that as children enter into adolescence, the intimacy between themselves and their parents begins to weaken as the adolescent becomes more focused on friends and personal interests. However, Steinberg explains that through the later years of adolescence and the

early years of young adulthood, the intimacy levels between parents and their children recover and begin to rise. This results in close bonds with friends and with family.

Of the 480 participants, 274 (57.1%) were male and 206 (42.9%) were female. A total of 395 (82%) of the 480 participants were 18 years old. The second most common age was 19 totaling 70 (14.5%) of the participants. The largest ethnic group was Caucasian with 422 (87.7%) of the participants followed by the Asian category with 26 (5.4%) participants; 33 (6.9%) classified themselves as African-American, Native- American, Hispanic/Latino, or Other. In regard to the reported number of siblings, 43 (9%) participants reported having no siblings, 183 (38.3%) participants reported having one sibling, 159 (33.3%) reported having two siblings, and 55 (11.5%) reported three siblings. The remaining 38 (7.9%) participants reported having four or more siblings.

## **Measure**

Participants took part in a brief online survey (Appendix B). The survey consisted of Likert style questions taken from the Family Communication Scale (FCS) (Olson et al., 2004). This is a 10 item questionnaire that assesses positive and negative characteristics of parent and child interaction on a five point scale derived from the Parent-Adolescent Communication Scale (PACS) (Bradbury & Fincham, 1990). The FCS has demonstrated a high level of internal consistency (Cronbach's  $\alpha = .90$ ) as well as a high level of test-retest reliability (0.86) in a national sample of 2,465 participants (Olson et al. 2004). The survey also included modified questions taken from Anderson's Video Game Questionnaire

(2009). These questions were designed to collect information regarding amount of time spent playing video games on a weekly basis as well as information regarding whether or not the gamer tends to play alone or with friends and/or family.

Additionally, this survey contained the first half of the Inventory of Parent and Peer Attachment (IPPA) (Armsden & Greenberg, 1987). This portion of the IPPA covers three areas of attachment: Trust, Communication, and Alienation. All three categories demonstrated high internal consistency with Trust at .86, Communication at .91, and Alienation at .91. Finally, the survey collected basic demographic information of the participants in order to test for possible effects of demographic variables on parental communication with regard to video game play. The completed survey results were coded so as to ensure the participants' anonymity. It is important to note that items from the FCS, Anderson Video Game Questionnaire, and the IPPA have been changed to focus specifically on the parents and siblings of the participants.

## RESULTS

The parent and sibling items from the Family Communication scale (FCS) and the Inventory of Parent and Peer Attachment (IPPA) were subjected to a test of reliability (Cronbach's Alpha). As can be seen in Table 1 in Appendix A, the reliabilities of the FCS items and the IPPA items are high. The parent and sibling items for the IPPA scale both scored .95 whereas both the sibling and parent items for the FCS scale scored .82. These scores suggest high internal consistency for both measures.

Factor analyses were conducted addressing the parent and sibling items within the FCS and IPPA scales. The principal axis factor analysis of the FCS parent items (Table 2) revealed that, after a Quartimax factor rotation using SPSS, 10 of the 11 items had high loadings on the first factor. The same factor analysis for the FCS sibling items with the same factor rotation (Table 3) showed that 8 of the 10 items had high load values for factor one. The factor analysis for the IPPA parent items (Table 4) showed that all 26 items had high load values for factor one and factor two. The factor analysis results for the IPPA sibling items (Table 5) revealed that all but one of the items had high load values for factor one and two.

Three items were removed from the FCS scale due to their low factor loadings. The three removed included item #3 (I do not think my dad is a very good listener), item #18 (When my sibling(s) ask questions of me, he/she does not get honest answers), and item #20 (When angry, my sibling(s) and I do not tend to say negative things about each other).

Additionally, item #36 (My sibling(s) expect too much from me) was removed from the IPPA scale due to the low factor loading. Total FCS and IPPA scores were created by summing the scores on all the retained items.

Pearson product moment correlational analyses were conducted to determine if and how strongly GPA, gender, years spent playing video games, total parent communication, total sibling communication, total time spent playing the first favorite game, total time spent playing the second favorite game, total time spent playing with parents, total time spent playing with siblings, total hours spent per month on violent games, total hours spent per month on nonviolent games, total hours spent per month on games with a mixture of violence and nonviolence, and total hours spent playing video games per month were related (Table 6). As these analyses were conducted using pair-wise deletion, it is important to note that the number of participants per variable is different.

In order to accomplish these correlational analyses, the amount of time an individual spent playing video games had to be broken down to a number of hours per month. Questions in the survey (Appendix B) that addressed the amount of time spent playing video games in a month were assigned a numeric value that corresponded to the number of times per month a given participant reported playing the game. This number was then multiplied by the hours the participant reported playing in one session of video game play. This resulted in the total number of hours spent playing in a month.

Similarly, the video games categories selected by the participants were separated into groups. The first group consisted of primarily violent games such as those classified as

Action/Adventure, FPS, 3<sup>rd</sup> person shooters, role playing games, and fighting games. The second group consisted of nonviolent games categorized as sports, puzzle, music and party games, real world online games, and educational games. The third group was composed of game categories that represented a mixture of violence and nonviolence such as strategy games, simulation games, MMORPGs, and games classified as “other”.

Several of the correlation tests performed were statistically significant (Table 6). Specifically, the results indicated a significant positive relationship between GPA and gender. Additionally, there was a significant negative relationship between GPA and total hours per month spent playing games categorized as mixed, and a significant negative relationship between GPA and total hours spent playing video games per month.

The correlational analyses also revealed a significant negative relationship between gender and years spent playing games. Similarly, there was a significant negative relationship between gender and hours per month spent playing violent, nonviolent, and mixed games, as well as total hours spent per month. This suggests that males may be more likely to play video games of all varieties and tend to play them more frequently.

Likewise, a negative relationship was indicated for total parent communication and hours per month spent playing violent, nonviolent, and mixed games, as well as overall hours spent per month. In this instance, only the relationships between total parent communication and nonviolent, mixed, and total hours spent per month were significant. The relationship between total sibling communication and total hours per month spent playing video games also yielded a significant negative result. These results suggest that overall parent

communication and sibling communication may suffer as hours spent playing video games increases. Conversely, a strong positive correlation between overall parent communication and overall sibling communication was revealed. This suggests that participants who rated themselves highly in terms of communication with their parents were more likely to also rate themselves highly in terms of communication with siblings.

Additionally, a statistically significant positive correlation was also found between total time spent playing the most favorite game and total time spent playing the second favorite game, indicating that participants who spent more time playing their most favorite game were also more likely to spend more time playing their second favorite game. A similar result was found between total time spent playing with siblings and total time spent playing with parents, indicating that participants who spent more time playing a video game with their siblings were more likely to spend time playing video games with their parents.

A Chi-Square analysis was conducted to determine if there was a significant difference in the games played by females as compared to games played by males. The results of the analyses suggest that, in terms of the category of the favorite game type, there is a significant difference in the types of games being played by males and females at the middle school,  $\chi^2(13, N = 480) = 152.13, p < .00$ , high school,  $\chi^2(13, N = 480) = 142.69, p < .00$ ; and present day level,  $\chi^2(13, N = 480) = 93.41, p < .00$ . Similarly, the Chi-Square analysis revealed significant differences in the category of the second favorite game for males and females at the middle school,  $\chi^2(13, N = 480) = 78.84, p < .00$ ; high school,  $\chi^2(13, N = 480) = 57.71, p < .00$ ; and present day level,  $\chi^2(13, N = 480) = 54.95, p < .00$ .

A three way age by gender by ethnicity analysis of variance was conducted for the following variables: years an individual spent playing games, total parent communication, total sibling communication, total time spent playing the most favorite game, total time spent playing with parents, and total time spent playing with siblings. For the purposes of these analyses, the age variable was recoded into two groups: those 18 or younger and those who were older than 18. In order to offset the large differences in the number of participants between the two groups, 25% of the participants in the group aged 18 or younger were selected for comparison with the other group. Similarly, the ethnicity variable was divided into two groups: those who classified themselves as Caucasian and those that classified themselves as any other ethnic group. Twenty percent of the participants within the Caucasian group were selected for comparison with the non-Caucasian group. Again, this was to offset the large differences in size of the ethnic groups. The average scores reported along with the results for the three way ANOVAs were obtained, for each person, by adding together the scores on all of the items related to the given variable and dividing that sum by the number of items. The average scores for all participants were then added together for a particular variable and the sum was divided by the number of people within a given group, such as the number of individuals who were female, white, and 18 years old or younger.

The results of the three way ANOVA addressing the number of years spent playing games revealed a significant main effect for gender,  $F(1) = 9.11$ ,  $p = .00$ , (Table 13). The findings reveal that males of all tested ages and ethnicities played an average of 10.07 years and females of all tested ages and ethnicities played an average of 7.5 years. This suggests a

relationship between the gender of the player and the number of years spent playing video games with males at all tested ages and ethnicities having played longer than females.

Similarly, with a maximum possible score of 5 where 1, after recoding, is equal to “almost never true”, 3 is equal to “sometimes true”, and 5 is equal to “almost always true”, the three way ANOVA addressing total sibling communication revealed a significant main effect for gender,  $F(1) = 4.6$ ,  $p = .03$ , (Table 15). Males of all tested ages and ethnicities scored an average of 3.46 whereas females of all tested ages and ethnicities scored an average of 3.73. This suggests that the gender of the individual may have a significant impact on the level of communication he or she has with a sibling. In this instance, females tend to score higher in the total level of communication with their siblings than males.

The three way ANOVA addressing total parent communication revealed a significant main effect for ethnicity,  $F(1) = 4.14$ ,  $p = .04$ , (Table 14). Here again, 1, after recoding, is equal to “almost never true”, 3 is equal to “sometimes true”, and 5 is equal to “almost always true”. The average score for those who classified themselves as Caucasian was 3.9, and those who classified themselves as non-Caucasian scored an average of 3.7. The significant main effect in this three way ANOVA implies that the ethnicity of the individual may be related to how well that person views his or her communication with his or her parents.

The results of the three way ANOVA addressing the total amount of time spent playing games with parents revealed a significant main effect for gender,  $F(1) = 38.55$ ,  $p = .05$ , (Table 17). In this instance, there is a maximum score of 6 where 1 is equal to no amount of time spent playing with parents, 3 is equal to playing two to three times per month with

parents, and 6 is equal to playing five or more times a week with parents. Males of all tested ages and ethnicities scored an average of 1.29, and females of all tested ages and ethnicities scored an average of 1.59. This suggests that gender may be a factor in how willing an individual is to play a game with his or her parents.

In addition, the ANOVA addressing the total amount of time spent playing games with parents also revealed a significant interaction effect for ethnicity, gender, and age,  $F(1) = 45.36, p = .04$ . Using the same scale as the above paragraph, Caucasian males age 18 and younger scored an average of 1.27. Non-Caucasian males 18 and younger scored an average of 1.58. Caucasian females age 18 and younger scored an average of 1.61. Non-Caucasian females 18 and younger scored an average of 1.33. Caucasian males age 19 and older scored an average of 1.27. Non-Caucasian males age 19 and older scored an average of 1.05. Caucasian females age 19 and older scored an average of 1.47, and non-Caucasian females age 19 and over scored an average of 2. This suggests that the interaction between gender, ethnicity, and age, may have a significant impact on the amount of time an individual spends playing video games with parents.

Surprisingly, the three-way ANOVA concerning the total amount of time spent playing games with siblings did not reveal a significant main effect for gender, age, or ethnicity (Table 18). This contrasts with the significant effects found when time spent playing with parents was analyzed using the same variables. Additionally, there was also no significant interaction effect reported for these three variables in regard to time spent playing video games with siblings. This could suggest that the amount of time spent playing with a sibling is not significantly impacted by a person's gender, age, ethnicity, or any possible

interaction between these variables. Likewise, the results of the three way ANOVA concerning the total amount of time spent playing a favorite game did not reveal a significant main effect nor did it reveal a significant interaction effect between age, gender, and ethnicity (Table 16). This may suggest that an individual's age, gender, or ethnicity has no significant impact on the amount of time spent playing a video game with a sibling.

Finally, a linear regression analysis was conducted addressing the relationships between gender, GPA, total sibling communication, total parent communication, total hours per month spent playing violent video games, total hours per month spent playing nonviolent video games, total hours per month spent playing video games with a mixture of violence and nonviolence, the total number of hours spent playing video games in a month, time spent playing video games with parents, and the time spent playing video games with siblings.

These regressions sought to address three propositions using a destructive testing approach (Anderson & Dill, 2000). In this approach the researcher determines if a given relationship exists between a set of variables. If the relationship exists then competitive variables are included in the regression analysis to see if these competing variables disrupt the relationship between the target variables. Anderson and Dill note that the point of this approach is not simply to break the relationship, but to see how durable the relationship is in light of other competing variables. As such, the first proposition is that GPA is negatively affected by total game hours, but that violent, nonviolent, and mixed game hours contribute about the same amount to the effect. The second proposition is that total parent communication is negatively affected by violent game hours, even after controlling for

nonviolent game hours, and the third proposition is that total sibling communication is negatively affected by violent game hours, even after controlling for nonviolent game hours.

In regard to the first proposition, a series of regression analyses were conducted addressing violent gaming hours, nonviolent gaming hours, mixed gaming hours, total gaming hours, and gender as single predictors of GPA (Table 19). The results revealed a negative relationship between all five predictors and GPA. However, only mixed gaming hours, total gaming hours, and gender were significant ( $ps < .05$ ). Additional regressions were conducted adding violent, nonviolent, and mixed gaming hours as predictors of GPA followed by the addition of gender in conjunction with violent, nonviolent, and mixed gaming hours. As shown in Table 19, the addition of predictor related predictor variables gradual reduced the significance of the relationship between total number of hours spent gaming and GPA. Once gender and total gaming hours were accounted for, total gaming hours loses significance entirely, but gender remains significant ( $p < .05$ ). These results suggest that total gaming hours may be negatively related to GPA, but when gender is accounted for the effect loses significance. This may be because both gender and total gaming hours are significantly correlated with total parent communication (Table 6). When both gender and total gaming hours are accounted for, it is difficult to discern where the shared variance between them belongs.

Interestingly, when time spent playing video games with parents, time spent playing video games with siblings, and gender were used as single predictors of GPA (Table 20), there was a marginally significant negative relationship for time spent playing with parents and GPA ( $p < .07$ ) as well as a significant negative relationship with gender and GPA ( $p$

<.05). However, when time spent gaming with parents and time spent gaming with siblings were both accounted for, the significance was lost though there was still a negative relationship. When gender was accounted for in addition to time spent gaming with parents and siblings, the results continued to show a negative, but non significant, relationship between the predictor variables and GPA.

In regard to the second proposition, a similar series of regression analyses were conducted. Again, gender, violent, nonviolent, mixed, and total gaming hours were used individually to predict total parent communication (Table 21). Surprisingly, nonviolent, mixed, and total gaming hours revealed a negative and significant ( $p < .05$ ) relationship. Gender and violent gaming hours, on the other hand, were not significant at all. Similarly, when gender, violent, nonviolent, and mixed gaming hours were accounted for as predictors of total parent communication, nonviolent and mixed gaming hours continued to demonstrate a negative and significant ( $p < .05$ ) relationship with total parent communication. The final regression in which both gender and violent gaming hours were used as predictors of total parent communication did not reveal a significant relationship. This suggests that total parent communication may not be as negatively affected by violent gaming hours as it is by nonviolent or mixed gaming hours regardless of gender; though it is clear that violent, nonviolent, and mixed gaming hours are negatively associated with total parent communication to varying degrees of significance.

As for the third proposition, here, again, a series of regression analyses were used to analyze the relationship between total sibling communication and a series of related predictors. As such, gender, violent, nonviolent, mixed, and total gaming hours were used

individually to predict total sibling communication (Table 22). In this instance, mixed gaming hours was shown to have a marginally significant ( $p < .07$ ) negative relationship with total sibling communication. Violent and total gaming hours was shown to have a negative and significant ( $p < .05$ ) relationship with total sibling communication. Gender, on the other hand, was shown to have a significant ( $p < .05$ ), positive relationship with total sibling communication, and nonviolent gaming hours did not show a significant relationship at all. When violent, nonviolent, and mixed gaming hours were accounted for as predictors of total sibling communication, violent gaming hours was still shown to have a negative and highly significant ( $p < .05$ ) relationship with total sibling communication. However, when gender was used as a predictor in addition to violent, nonviolent, and total gaming hours, the relationship between gender and total sibling communication was shown to be a positive and significant ( $p < .05$ ) predictor, but the relationship between violent gaming hours and total sibling communication was no longer significant. When using only violent gaming hours and gender as predictors of total sibling communication, gender was still shown to be a positive and significant ( $p < .05$ ) predictor whereas violent gaming hours was not significant at all. These results suggest that violent gaming hours may be a negative predictor of sibling communication even when nonviolent and mixed gaming hours are accounted for. However, when gender is accounted for, violent gaming hours predictability of total sibling communication loses significance.

## DISCUSSION

This study hypothesized that video games positively affected family interaction. Additionally, this study hypothesized that male gamers would tend to play more often than female gamers, and the types of video games played by males and females would be different. With respect to the first hypothesis, the results of the Pearson correlation analyses involving the number of years spent playing games, the total parent or sibling communication, the time spent playing with parents/siblings, and the violent, nonviolent, mix, and total gaming hours played per month did not support the hypothesis that video games positively affected family interaction. However, the strong correlational relationship between time spent playing games with siblings and time spent playing games with parents may support Aarsand's results (2007). Specifically, individuals who are willing to play video games with parents are likely to play video games with their siblings as well. It may be that individuals who display this willingness to play with family members enjoy a greater level of communication with family members on a dimension that was not tested in this study as compared to those who are unwilling to play with their families. For example, while an adolescent may not feel as though he or she can talk with his or her parents about sensitive matters like sex or drug use, he or she may be perfectly willing to play video games with that parent because of a common interest in the game. In effect, a situation in which a parent functions more as a friend than as a parent might result in a score that indicates poor parental communication. However, it is unclear if such an untested relationship between the parent

and adolescent is the result of the influence of the video game or due to the nature of a preexisting relationship between family members that allows for playing games together.

When one considers the, generally, low values of the correlations between the variables addressing video game play and family communication it is difficult to accurately judge the relationships between the topics. This may be, in part, due to the way in which the data were collected. A future study may seek to enhance the survey instrument by asking questions that go into greater detail with the topics of game play and family communication in order to obtain a more accurate picture of the nature of the relationships. This may be accomplished by probing more deeply into how the participant relationships with his or her parents and siblings. It is possible that a participant may see his or her relationship with family as satisfactory even though the overall level of communication is low. Further, it may be the case that video games serve as a medium for interaction between some participants and their families. As such, it may be necessary to understand why the participants choose to play games and why they choose to play with certain individuals.

The regression analyses regarding total parent communication and sibling communication also did not support the hypothesis that video games positively affected family interaction. In fact, the regressions tended to show the opposite effect. In regard to total parent communication violent, nonviolent, mixed, and total gaming hours were negatively associated with total parent communication. However, only nonviolent, mixed, and total gaming hours were significant. Given these results, it may be that time spent playing any form of game could be related to a decrease in total parent communication.

Similarly, the regression analyses revealed that violent, mixed, and total gaming hours per month were negatively associated with total sibling communication. In this instance, however, hours spent playing nonviolent games was shown to have a non-significant, positive relationship with total sibling communication. Even when violent, nonviolent, and mixed gaming hours were accounted for, violent gaming hours were still strongly associated with a decrease in total sibling communication. Additionally, it was shown that nonviolent gaming hours was significantly associated with an increase in total sibling communication. These results may indicate that hours spent playing video games, especially violent video games, may be associated with a decrease in total sibling communication. While the results did indicate that nonviolent gaming hours were significantly associated with a positive change in total sibling communication when violent, nonviolent, and mixed gaming hours were accounted for, this effect is relatively small when one considers the significance of the impact of violent gaming hours per month and total gaming hours per month.

Additionally, the regression analyses revealed that hours spent gaming, regardless of the game type, may be significantly related to a decrease in participant GPA. This corroborates findings by Anderson and Dill (2000) and Anand (2007). However, given the overlap in shared variance between gender and total hours spent gaming per month, it is unclear exactly how these two predictor variables influence GPA.

As for the second hypothesis of this paper concerning the playing habits of males as compared to females, the results of the chi-square analysis suggests that there is a clear difference between the types of games that males and females tend to play. Cross-tabs analyses (Tables 7-12) revealed that, in middle school, boys tended to prefer first-person shooters (FPS) to any other game as their choice for first and Sports as the second favorite game type. This preference for the FPS genre remains true throughout high school and on into college. The sports category was always a second choice for favorite and second favorite game except in middle school when it was preferred over the FPS as second favorite game. As hypothesized, male gamers on average tend to invest more time into playing the game than female gamers.

Females seem to prefer a different approach to gaming. In middle school, there was a preference for the action/platformer category of games as the first and second favorite game type followed closely by games of the party/music genre. Once in high school, the preference changed so that party/music games were preferred as the first and second favorite game type followed by simulation and action/platformer games. In college, the favorite game category remains the party/music genre. However, the second favorite game category became the puzzle genre.

It is difficult to speculate based merely on the category of games being played why there is such a difference between what male and female gamers are playing. One could suggest based on the selection of preferred game type that females begin to favor the party/music games because of the social nature of the games. However, it is just as likely that the main draw of the FPS for males is the social interaction afforded by group-play within the

game. While research has shown that the social interaction provided by online games can be a major reason for gamers to play (Cole & Griffiths, 2007, Krotoski, 2004, Weibel et al., 2007) it is certainly not the only reason. Those who find themselves in unsatisfactory relationships may turn to online gaming as a means for escape (Li, 2007), or game play may be the result of an addiction (Mitchell et al., 2005). Perhaps a future study can address in more detail the reasons why males and females choose to play the games that they do. Additionally, a future study may be able to analyze if and how participants affect, and are affected by, their siblings in regards to game play choices. For example, are younger siblings influenced by the gaming habits of older siblings?

The results of the data fit quite well with the two theoretical perspectives used in this study. From the perspective of Social Exchange theory (Thibaut & Kelley, 1959), it is no real surprise that an individual who devotes time toward video games might have a poorer GPA than an individual that did not play as often. If decisions are made as a cost to benefit ratio, as described by Nichols (2007), then an individual who chooses to play video games due to a perceived benefit would have less time for academics. It is always possible that the individual could account for the decrease in time with academics by taking time from some other activity. However, even this would fit the social exchange model given that the individual would have to subtract time from something in order to increase time with video games. An example of this, other than in GPA, might be in the negative relationship between hours spent playing certain types of video games and total parent and sibling communication.

The data also fit with a Family Systems approach (von Bertalanffy, 1976). As mentioned earlier, the decision of an adolescent to play video games affects more than just

the adolescent. Despite the fact that the adolescent may have made the choice to play more video games with only the perceived benefits of playing in mind, the entire family of that adolescent may be affected. If the adolescent is spending more time playing video games then there is less time for the parents and siblings of the adolescent to communicate with him or her. In this instance, the adolescent's choice to play more video games may have affected the entire family system. As a result, communication with family members may drop, as the data suggests.

As it is, the results of the collected data have provided a small view into how video games may be associated with family interaction and the preferences men and women have for different types of games. As such, one limitation to this study is that the values for some of the correlations, such as the correlations between the number of years spent playing video games and overall parent/sibling communication, are not significant enough to truly judge the nature of the relationship between the variables. A future study may be able to address this limitation by further breaking down game play into how much time is spent playing games as compared to other daily activities such as eating, sleeping, or socializing. Another limitation that may be addressed in a future study is how the amount of time an individual spends playing a given game is recorded. A future study may benefit from having a standardized method that groups hours into categories that can be selected by the participant, such as 0-1 hours, 1-2 hours, and 2-4 hours. This may provide a more uniform response from the participant and cut down on any ambiguity that a number provided by the participant may elicit. Finally, the greatest limitation that may be addressed by a future study is the very sample itself. A future study could surely benefit from having a larger sample size and

greater diversity. This could be done by giving a similar survey to the one in this paper to freshmen at other institutions.

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## APPENDIX A

**Table 1** Analysis of Scale Reliability

Scale	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
FCS Scale Parent Items	.82	.83	11
FCS Scale Sibling Items	.82	.83	10
IPPA Scale Parent Items	.95	.96	26
IPPA Scale Sibling Items	.95	.95	26

**Table 2** Factor Analysis of FCS Parent Items

	Factor	
	1	2
parent communication satisfaction	.435	.280
mom is good listener	.688	-.166
dad listener	.278	.153
parent affection expression	.573	.049
ask parents for wants	.524	-.155
parent discussion	.724	.099
parent discuss ideas and beliefs	.539	-.034
honest answers	.560	-.134
parents understand feelings	.700	.047
say negative things to each other	.499	.232
express true feelings	.669	-.240

**Table 3** Factor Analysis of FCS Sibling Items

	Factor	
	1	2
sibling communication satisfaction	.733	.201
sibling is good listener	.763	.270
sibling affection expression	.603	-.094
ask sibs for wants	.501	-.030
sib discussion	.526	.270
sib discuss ideas and beliefs	.722	.016
sib honest answers	.283	-.095
sibs understand feelings	.795	.141
sibs say neg things to each other	.168	.414
sibs express true feelings	.650	-.142

**Table 4** Factor Analysis of IPPA Parent Items

	Factor		
	1	2	3
parents respect feelings	.815	.010	.231
parents are successful	.702	-.050	.338
different parents	.658	.188	.335
parents accept me	.725	.016	.296
rely on parents	.771	-.058	.208
get parents viewpoint	.753	-.144	-.061
show feelings to parents	.694	.092	-.119
parents sense problems	.680	-.225	-.139
talking w/ parents feels foolish	.559	.260	-.073
parents expect too much	.407	.350	-.028
get upset with parents	.603	.491	.040
upset more than parents know	.552	.375	-.068
parents consider my view	.780	-.019	-.007
parents trust judgment	.682	-.039	.215
parents have own problems	.530	.149	-.188
parents help understand self better	.786	-.121	-.168
tell parents problems	.768	-.151	-.271
feel angry at parents	.633	.438	.154
no attention from parents	.614	.139	.028
parents encourage talk	.672	-.239	-.203
parents understand me	.853	-.064	-.051
parents try to understand	.830	-.131	-.054
trust parents	.791	-.031	.352
parents don't understand experience	.708	.312	-.063
count on parents	.758	-.108	-.093
parents ask about problems	.717	-.204	-.126

**Table 5** Factor Analysis of IPPA Sibling Items

	Factor		
	1	2	3
sibs respect feelings	.771	-.146	.067
sibs are successful	.806	-.298	-.147
different sibs	.667	-.274	-.043
sibs accept me	.580	-.359	-.037
rely on sibs	.599	-.057	-.081
get sibs viewpoint	.763	.373	.009
show feelings to sibs	.683	.258	-.040
sibs sense problems	.637	.126	.005
talking w/ sibs feels foolish	.806	.401	-.019
sibs expect too much	.296	-.346	.078
get upset with sibs	.629	-.223	.265
upset more than sibs know	.517	-.082	.541
sibs consider my view	.723	-.119	.173
sibs trust judgment	.663	-.136	-.158
sibs have own problems	.626	.174	.104
sibs help understand self better	.775	.010	.064
tell sibs problems	.730	.462	.002
feel angry at sibs	.482	-.114	.338
no attention from sibs	.574	-.061	.061
sibs encourage talk	.725	.446	-.036
sibs understand me	.845	-.050	.086
sibs try to understand	.798	-.030	-.017
trust sibs	.796	-.198	-.091
sibs don't understand experience	.662	.211	-.022
count on sibs	.370	-.079	-.170
sibs ask about problems	.732	.310	-.096

**Table 6** Correlations Across Variables

	GPA	gender	years playing	tot parent comm	tot sib comm	tot time with fav game	tot time with 2 <sup>nd</sup> fav game	tot time play with parents	tot time play with sibs	tot vilnt hrs/mnth	tot nonvlnl hrs/mnth	tot mix hours per month	tot game hrs/mnth
GPA	--												
gender	.172**	--											
years playing games	-.068	-.196**	--										
tot parent comm	.117	.035	-.045	--									
tot sib comm	.106	.175**	-.047	.474**	--								
tot time with fav game	-.005	-.062	.119*	-.089	-.091	--							
tot time with 2 <sup>nd</sup> fav game	-.151	-.013	.159*	-.119	-.093	.777**	--						
tot time play with parents	-.158	.239**	-.024	.082	.109	-.001	-.002	--					
tot time play with sibs	-.161	-.007	-.019	-.017	.139	.024	.080	.277**	--				
tot vilnt hrs/mnth	-.088	-.335**	.297**	-.032	-.129*	.760**	.695**	.090	.129	--			
Tot nonvlnl hrs/mnth	-.027	-.093*	.091*	-.099*	.086	.067	.029	.010	.072	.079	--		
tot mix hrs/mnth	-.122*	-.120**	.116*	-.144**	-.099	.275**	.120	-.075	-.040	.146**	-.094*	--	
tot game hrs/mnth	-.128*	-.344**	.313**	-.107*	-.131*	.796**	.677**	.054	.114	.908**	.265**	.478**	--

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

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

**Table 7** Favorite Middle School Game Category by Gender

game category	gender	
	male	female
sports	44	7
action/adventure	23	31
puzzle	3	12
fighting	16	2
FPS	81	7
third-person shooter	14	4
strategy	18	1
simulation	11	24
music and party	3	29
single player RPG	27	8
real world MMO	0	3
MMORPG	12	4
educational	2	1
other	0	3
Total	254	136

**Table 8** Second Favorite Middle School Game Category by Gender

game category	gender	
	male	female
sports	46	10
action/adventure	29	30
puzzle	5	12
fighting	22	3
FPS	42	6
third-person shooter	21	2
strategy	13	5
simulation	17	12
music and party	7	20
single player RPG	19	7
real world MMO	3	3
MMORPG	11	2
educational	0	3
other	2	4
Total	237	119

**Table 9** Favorite High School Game Category by Gender

game category	gender	
	male	female
sports	27	8
action/adventure	14	16
puzzle	0	12
fighting	7	6
FPS	116	16
third-person shooter	14	2
strategy	10	4
simulation	6	17
music and party	17	62
single player RPG	16	7
real world MMO	5	3
MMORPG	23	9
educational	1	4
other	1	4
Total	257	170

**Table 10** Second Favorite High School Game Category by Gender

game category	gender	
	male	female
sports	32	14
action/adventure	16	21
puzzle	4	6
fighting	18	2
FPS	79	15
third-person shooter	17	5
strategy	6	2
simulation	11	13
music and party	25	25
single player RPG	20	6
real world MMO	1	1
MMORPG	6	7
educational	0	2
other	1	6
Total	236	125

**Table 11** Favorite Current Game Category by Gender

game category	gender	
	male	female
sports	29	9
action/adventure	8	12
puzzle	2	11
fighting	11	1
FPS	84	10
third-person shooter	18	4
strategy	17	3
simulation	8	13
music and party	10	24
single player RPG	16	3
real world MMO	5	0
MMORPG	14	11
educational	1	0
other	1	2
<b>Total</b>	<b>224</b>	<b>103</b>

**Table 12** Second Favorite Current Game Category by Gender

game category	gender	
	male	female
sports	27	6
action/adventure	11	11
puzzle	5	15
fighting	7	1
FPS	69	8
third-person shooter	11	3
strategy	15	3
simulation	13	7
music and party	15	12
single player RPG	9	4
real world MMO	1	2
MMORPG	4	3
educational	0	1
other	1	3
Total	188	79

**Table 13** Three way ANOVA: Years spent playing

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	923.928 <sup>a</sup>	7	131.990	3.210	.002
Intercept	9577.261	1	9577.261	232.884	.000
gender	374.827	1	374.827	9.114	.003
age	26.410	1	26.410	.642	.423
Ethnicity	82.236	1	82.236	2.000	.158
gender * age	.242	1	.242	.006	.939
gender * ethnicity	8.651	1	8.651	.210	.647
age * ethnicity	5.598	1	5.598	.136	.712
gender * age * ethnicity	9.487	1	9.487	.231	.631
Error	19205.170	467	41.125		
Total	58451.250	475			
Corrected Total	20129.098	474			

a. R Squared = .046 (Adjusted R Squared = .032)

**Table 14** Three way ANOVA: Total parent communication

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7118.278 <sup>a</sup>	7	1016.897	1.606	.132
Intercept	2741058.083	1	2741058.083	4329.299	.000
gender	683.186	1	683.186	1.079	.300
age	2001.145	1	2001.145	3.161	.076
Ethnicity	2624.141	1	2624.141	4.145	.042
gender * age	83.401	1	83.401	.132	.717
gender * ethnicity	277.506	1	277.506	.438	.508
age * ethnicity	2.115	1	2.115	.003	.954
gender * age * ethnicity	1077.567	1	1077.567	1.702	.193
Error	265286.195	419	633.141		
Total	8620338.000	427			
Corrected Total	272404.473	426			

a. R Squared = .026 (Adjusted R Squared = .010)

**Table 15** Three way ANOVA: Total sibling communication

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	13088.332 <sup>a</sup>	7	1869.762	3.186	.003
Intercept	813587.460	1	813587.460	1386.516	.000
gender	2702.862	1	2702.862	4.606	.033
age	409.889	1	409.889	.699	.404
Ethnicity	384.211	1	384.211	.655	.419
gender * age	113.987	1	113.987	.194	.660
gender * ethnicity	1269.468	1	1269.468	2.163	.142
age * ethnicity	704.155	1	704.155	1.200	.274
gender * age * ethnicity	1038.660	1	1038.660	1.770	.184
Error	209482.342	357	586.785		
Total	5310024.000	365			
Corrected Total	222570.674	364			

a. R Squared = .059 (Adjusted R Squared = .040)

**Table 16** Three way ANOVA: Total time playing favorite game

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	88.939 <sup>a</sup>	7	12.706	.738	.640
Intercept	2882.306	1	2882.306	167.453	.000
gender	.082	1	.082	.005	.945
age	9.497	1	9.497	.552	.458
Ethnicity	2.960	1	2.960	.172	.679
gender * age	14.792	1	14.792	.859	.355
gender * ethnicity	3.162	1	3.162	.184	.669
age * ethnicity	8.156	1	8.156	.474	.492
gender * age * ethnicity	.797	1	.797	.046	.830
Error	4853.966	282	17.213		
Total	20737.732	290			
Corrected Total	4942.906	289			

a. R Squared = .018 (Adjusted R Squared = -.006)

**Table 17** Three way ANOVA: Total time playing with parents

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	218.792 <sup>a</sup>	7	31.256	2.923	.006
Intercept	3372.536	1	3372.53 6	315.3 50	.000
gender	38.548	1	38.548	3.604	.059
age	.002	1	.002	.000	.988
Ethnicity	3.108	1	3.108	.291	.590
gender * age	27.373	1	27.373	2.560	.111
gender * ethnicity	.561	1	.561	.052	.819
age * ethnicity	2.073	1	2.073	.194	.660
gender * age * ethnicity	45.365	1	45.365	4.242	.041
Error	2363.505	221	10.695		
Total	17918.000	229			
Corrected Total	2582.297	228			

a. R Squared = .085 (Adjusted R Squared = .056)

**Table 18** Three way ANOVA: Total time playing with siblings

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	272.220 <sup>a</sup>	7	38.889	1.028	.412
Intercept	4850.312	1	4850.312	128.246	.000
gender	12.815	1	12.815	.339	.561
age	11.959	1	11.959	.316	.575
Ethnicity	19.020	1	19.020	.503	.479
gender * age	33.420	1	33.420	.884	.348
gender * ethnicity	73.981	1	73.981	1.956	.163
age * ethnicity	6.446	1	6.446	.170	.680
gender * age * ethnicity	5.121	1	5.121	.135	.713
Error	7791.013	206	37.820		
Total	42992.000	214			
Corrected Total	8063.234	213			

a. R Squared = .034 (Adjusted R Squared = .001)

**Table 19** GPA Regression Beta Values

	Single Predictor Model	VG Types	VG Types + Gender	VG Total + Gender
Violent Game hrs	-.09	-.07	-.02	--
Nonviolent Game hrs	-.03	-.03	-.03	--
Mixed Game hrs	-.12**	-.11*	-.11	--
Total Game hrs	-.13**	--	--	-.08
Gender	.17**	--	.15**	.15**

\* Beta is significant at the .07 level

\*\* Beta is significant at the .05 level

**Table 20** GPA Regression Beta Values

	Single Predictor Model	Play w/ Par + Play w/ Sibs	Par + Sibs + Gender
Time Playing w/ Parents	-.16*	-.13	.13
Time Playing w/ Siblings	-.16	-.11	-.13
Gender	-.17**	--	-.11

\* Beta is significant at the .07 level

\*\* Beta is significant at the .05 level

**Table 21** Total Parent Comm. Regression Beta Values

	Single Predictor Model	VG Types	VG Types + Gender	Violent Game hrs + Gender
Violent Game hrs	-.03	-.00	.00	-.02
Nonviolent Game hrs	-.1**	-.12**	-.11**	--
Mixed Game hrs	-.14**	-.16**	-.15**	--
Total Game hrs	-.11**	--	--	--
Gender	.04	--	.01	.03

\* Beta is significant at the .07 level

\*\* Beta is significant at the .05 level

**Table 22** Total Sibling Comm. Regression Beta Values

	Single Predictor Model	VG Types	VG Types + Gender	Violent Game hrs + Gender
Violent Game hrs	-.13**	-.13**	-.08	-.08
Nonviolent Game hrs	.09	.09*	.1	--
Mixed Game hrs	-.1*	-.07	-.06	--
Total Game hrs	-.13**	--	--	--
Gender	.18**	--	.15**	.15**

\* Beta is significant at the .07 level

\*\* Beta is significant at the .05 level

**APPENDIX B***Section 1: Demographic information*

1. What is your age?
2. Would you classify yourself as male or female?
3. What is your ethnicity?
  - Caucasian
  - African-American
  - Native-American
  - Asian
  - Hispanic/Latino
  - Other
4. What is your current GPA?
5. What is your current class rank (Freshman, Sophomore, Junior, Senior)?
6. How many siblings do you have?
7. If you have siblings, what are their ages?
8. If you have siblings, what are their genders?
9. What is your current college major?

Answer questions 10 and 11 ONLY if you are receiving extra credit for a class.

10. What is your student ID number?
11. What class and section should be informed of your participation?

*Section 2: Anderson video game questionnaire*

1. For how many years have you been playing video games?
2. Are you involved with a guild/clan within an online video game?

3. Whom do you tend to play video games with the most?

- Parents
- Friends
- Siblings
- Online clan/guild
- Play solo
- Other

Answer questions 4 through 18 if you were playing video games in middle school. If you were not playing video games during middle school, leave these questions blank.

4. What was the title of your "most played" game during middle school?

5. How often did you play this game?

- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

6. When you were playing the game, how many hours per day did you spend on it?

7. Which of the following categories would you classify your "most played" game as? (check the one most like your game)

- Sports (Madden NFL 09, NBA 2K9)
- Action/adventure (Prince of Persia, Tomb Raider)
- Puzzle games (Super Monkey Ball, Tetris)
- Fighting games (Street Fighter, Marvel Vs. Capcom)
- First-Person Shooters (Halo, Unreal Tournament, Far Cry 2)
- Third-Person Shooters (Gears of War, Grand Theft Auto)

- Strategy (Starcraft, Civilization, Command and Conquer)
- Simulation (Flight Simulator, Sim City)
- Music & Party (Dance Dance Revolution, Guitar Hero, Mario Party)
- Single-player Roleplaying Game (Diablo 2, Final Fantasy XII)
- Real World Massively Multiplayer Online Game (Second Life, The Sims Online)
- Massively Multiplayer Online Roleplaying Game (World of Warcraft, EverQuest )
- Educational Games (Brain Age, Carmen Sandiego,)
- Other

8. How often were players/characters kind to each other or help each other in this game?

**Never: 1 2 3 4 5 6 7 : All the time**

9. How often were players/characters aggressive/harmful towards each other?

**Never: 1 2 3 4 5 6 7 : All the time**

10. How often did you play this game with your parents?

- None
- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

11. If you had siblings, how often did you play this game with them?

- None
- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

12. What was the title of your 2nd "most played" game during middle school?

13. How often did you play this game?

- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

14. When you were playing the game, how many hours per day did you spend on it?

15. Which of the following categories would you classify your "most played" game as? (check the one most like your game)

- Sports (Madden NFL 09, NBA 2K9)
- Action/adventure (Prince of Persia, Tomb Raider)
- Puzzle games (Super Monkey Ball, Tetris)
- Fighting games (Street Fighter, Marvel Vs. Capcom)
- First-Person Shooters (Halo, Unreal Tournament, Far Cry 2)
- Third-Person Shooters (Gears of War, Grand Theft Auto)
- Strategy (Starcraft, Civilization, Command and Conquer)
- Simulation (Flight Simulator, Sim City)
- Music & Party (Dance Dance Revolution, Guitar Hero, Mario Party)
- Single-player Roleplaying Game (Diablo 2, Final Fantasy XII)
- Real World Massively Multiplayer Online Game (Second Life, The Sims Online)
- Massively Multiplayer Online Roleplaying Game (World of Warcraft, EverQuest)
- Educational Games (Brain Age, Carmen Sandiego,)
- Other

16. How often were players/characters kind to each other or help each other in this game?

**Never: 1 2 3 4 5 6 7 : All the time**

4. How often were players/characters aggressive/harmful towards each other?

**Never: 1 2 3 4 5 6 7 : All the time**

17. How often did you play this game with your parents?

- None
- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

18. If you had siblings, how often did you play this game with them?

- None
- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

Answer questions 19 through 34 if you were playing video games in high school. If you were not playing video games during high school, leave these questions blank.

19. What was the title of your "most played" game during high school?

20. How often did you play this game?

- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week

5 or more times a week

21. When you were playing the game, how many hours per day did you spend on it?

22. Which of the following categories would you classify your “most played” game as? (check the one most like your game)

- Sports (Madden NFL 09, NBA 2K9)
- Action/adventure (Prince of Persia, Tomb Raider)
- Puzzle games (Super Monkey Ball, Tetris)
- Fighting games (Street Fighter, Marvel Vs. Capcom)
- First-Person Shooters (Halo, Unreal Tournament, Far Cry 2)
- Third-Person Shooters (Gears of War, Grand Theft Auto)
- Strategy (Starcraft, Civilization, Command and Conquer)
- Simulation (Flight Simulator, Sim City)
- Music & Party (Dance Dance Revolution, Guitar Hero, Mario Party)
- Single-player Roleplaying Game (Diablo 2, Final Fantasy XII)
- Real World Massively Multiplayer Online Game (Second Life, The Sims Online)
- Massively Multiplayer Online Roleplaying Game (World of Warcraft, EverQuest)
- Educational Games (Brain Age, Carmen Sandiego,)
- Other

23. How often were players/characters kind to each other or help each other in this game?

**Never: 1 2 3 4 5 6 7 : All the time**

24. How often were players/characters aggressive/harmful towards each other?

**Never: 1 2 3 4 5 6 7 : All the time**

25. How often did you play this game with your parents?

- None
- Once a month or less
- 2-3 times a month

- Once a week
- 2-4 times a week
- 5 or more times a week

26. If you had siblings, how often did you play this game with them?

- None
- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

27. What was the title of your 2nd "most played" game during high school?

28. How often did you play this game?

- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

29. When you were playing the game, how many hours per day did you spend on it?

30. Which of the following categories would you classify your "most played" game as?  
(check the one most like your game)

- Sports (Madden NFL 09, NBA 2K9)
- Action/adventure (Prince of Persia, Tomb Raider)
- Puzzle games (Super Monkey Ball, Tetris)
- Fighting games (Street Fighter, Marvel Vs. Capcom)
- First-Person Shooters (Halo, Unreal Tournament, Far Cry 2)
- Third-Person Shooters (Gears of War, Grand Theft Auto)

- Strategy (Starcraft, Civilization, Command and Conquer)
- Simulation (Flight Simulator, Sim City)
- Music & Party (Dance Dance Revolution, Guitar Hero, Mario Party)
- Single-player Roleplaying Game (Diablo 2, Final Fantasy XII)
- Real World Massively Multiplayer Online Game (Second Life, The Sims Online)
- Massively Multiplayer Online Roleplaying Game (World of Warcraft, EverQuest)
- Educational Games (Brain Age, Carmen Sandiego,)
- Other

31. How often were players/characters kind to each other or help each other in this game?

**Never: 1 2 3 4 5 6 7 : All the time**

32. How often were players/characters aggressive/harmful towards each other?

**Never: 1 2 3 4 5 6 7 : All the time**

33. How often did you play this game with your parents?

- None
- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

34. If you had siblings, how often did you play this game with them?

- None
- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

Answer questions 35 through 50 if you currently play video games. If you do not currently play video games leave these questions blank.

35. What is the title of your current "most played" game?

36. How often do you play this game?

- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

37. When you are playing the game, how many hours per day do you spend on it?

38. Which of the following categories would you classify your "most played" game as? (check the one most like your game)

- Sports (Madden NFL 09, NBA 2K9)
- Action/adventure (Prince of Persia, Tomb Raider)
- Puzzle games (Super Monkey Ball, Tetris)
- Fighting games (Street Fighter, Marvel Vs. Capcom)
- First-Person Shooters (Halo, Unreal Tournament, Far Cry 2)
- Third-Person Shooters (Gears of War, Grand Theft Auto)
- Strategy (Starcraft, Civilization, Command and Conquer)
- Simulation (Flight Simulator, Sim City)
- Music & Party (Dance Dance Revolution, Guitar Hero, Mario Party)
- Single-player Roleplaying Game (Diablo 2, Final Fantasy XII)
- Real World Massively Multiplayer Online Game (Second Life, The Sims Online)
- Massively Multiplayer Online Roleplaying Game (World of Warcraft, EverQuest)
- Educational Games (Brain Age, Carmen Sandiego,)

Other

39. How often are players/characters kind to each other or help each other in this game?

**Never: 1 2 3 4 5 6 7 : All the time**

40. How often are players/characters aggressive/harmful towards each other?

**Never: 1 2 3 4 5 6 7 : All the time**

41. How often do you play this game with your parents?

None

Once a month or less

2-3 times a month

Once a week

2-4 times a week

5 or more times a week

42. If you have siblings, how often do you play this game with them?

None

Once a month or less

2-3 times a month

Once a week

2-4 times a week

5 or more times a week

43. What is the title of your current 2nd "most played" game?

44. How often do you play this game?

Once a month or less

2-3 times a month

Once a week

2-4 times a week

5 or more times a week

45. When you are playing the game, how many hours per day do you spend on it?

46. Which of the following categories would you classify your “most played” game as? (check the one most like your game)

- Sports (Madden NFL 09, NBA 2K9)
- Action/adventure (Prince of Persia, Tomb Raider)
- Puzzle games (Super Monkey Ball, Tetris)
- Fighting games (Street Fighter, Marvel Vs. Capcom)
- First-Person Shooters (Halo, Unreal Tournament, Far Cry 2)
- Third-Person Shooters (Gears of War, Grand Theft Auto)
- Strategy (Starcraft, Civilization, Command and Conquer)
- Simulation (Flight Simulator, Sim City)
- Music & Party (Dance Dance Revolution, Guitar Hero, Mario Party)
- Single-player Roleplaying Game (Diablo 2, Final Fantasy XII)
- Real World Massively Multiplayer Online Game (Second Life, The Sims Online)
- Massively Multiplayer Online Roleplaying Game (World of Warcraft, EverQuest)
- Educational Games (Brain Age, Carmen Sandiego,)
- Other

47. How often are players/characters kind to each other or help each other in this game?

**Never: 1 2 3 4 5 6 7 : All the time**

48. How often are players/characters aggressive/harmful towards each other?

**Never: 1 2 3 4 5 6 7 : All the time**

49. How often do you play this game with your parents?

- None
- Once a month or less
- 2-3 times a month
- Once a week

- 2-4 times a week
- 5 or more times a week

50. If you have siblings, how often do you play this game with them?

- None
- Once a month or less
- 2-3 times a month
- Once a week
- 2-4 times a week
- 5 or more times a week

*Section 3: Family communication scale (FCS)*

**1 Strongly Disagree**

**2 Disagree**

**3 Undecided**

**4 Agree**

**5 Strongly Agree**

1. I am not satisfied with how my parents communicate with me.
2. I think my mom is a very good listener.
3. I do not think my dad is a very good listener.
4. My parents do not tend to express affection to me.
5. I am able to ask my parents for what I want.
6. My parents have difficulty calmly discussing problems with me.
7. My parents do not have difficulty discussing their ideas and beliefs with me.
8. When my parents ask questions of me, they get honest answers.
9. My parents do not try to understand my feelings
10. When angry, my parents and I tend to say negative things about each other.

11. My parents and I are able to express our true feelings to each other.

Answer questions 12 through 21 if you have at least one sibling. If you do not have any siblings leave questions 12 through 21 blank.

12. I am satisfied with how my siblings communicate with me.

13. I do not think my sibling(s) is a very good listener.

14. My sibling(s) does not tend to express affection to me.

15. I am not able to ask my sibling(s) for what I want.

16. My sibling(s) do not have difficulty calmly discussing problems with me.

17. My sibling(s) have difficulty discussing his/her ideas and beliefs with me.

18. When my sibling(s) ask questions of me, he/she does not get honest answers.

19. My sibling(s) try to understand my feelings

20. When angry, my sibling(s) and I do not tend to say negative things about each other.

21. My sibling(s) and I are not able to express our true feelings to each other.

*Section 3: Inventory of parent and peer attachment (IPPA)*

**1 Almost Always True**

**2 Often True**

**3 Sometimes True**

**4 Seldom True**

**5 Almost Never True**

1. My parents respect my feelings.
2. I feel my parents are successful as parents.
3. I wish I had different parents.
4. My parents accept me as I am.
5. I can rely on my parents when I have a problem to solve

6. I like to get my parents' point of view on things I'm concerned about.
7. I feel it is no use letting my feelings show toward my parents.
8. My parents sense when I am upset about something.
9. Talking over my problems with my parents makes me feel ashamed or foolish.
10. My parents expect too much from me.
11. I get upset easily at home with my parents.
12. I get upset a lot more than my parents know about.
13. When we discuss things, my parents consider my point of view.
14. My parents trust my judgment.
15. My parents have their own problems, so I don't bother them with mine.
16. My parents help me to understand myself better.
17. I tell my parents about my problems and troubles.
18. I tend to feel angry with my parents.
19. I don't get much attention at home from my parents.
20. My parents encourage me to talk about my difficulties.
21. My parents understand me.
22. When I am angry about something, my parents try to be understanding.
23. I trust my parents.
24. My parents don't understand what I'm going through these days.
25. I can count on my parents when I need to get something off my chest.
26. If my parents know something is bothering me, they ask about it.

Answer questions 27 through 52 if you have at least one sibling. If you do not have any siblings leave questions 27 through 52 blank.

27. My sibling(s) do not respect my feelings.
28. I feel my sibling(s) are good sibling(s).
29. I wish I had different sibling(s).
30. My sibling(s) do not accept me as I am.
31. I can not rely on my sibling(s) when I have a problem to solve
32. I like to get my sibling(s) point of view on things I'm concerned about.
33. I feel it is good to let my feelings show toward my sibling(s).
34. My sibling(s) do not sense when I am upset about something.
35. Talking over my problems with my sibling(s) makes me better.
36. My sibling(s) expect too much from me.
37. I get upset easily at home with my sibling(s).
38. I get upset a lot more than my sibling(s) know about.
39. When we discuss things, my sibling(s) do not consider my point of view.
40. My sibling(s) trust my judgment.
41. My sibling(s) have their own problems, so I don't bother them with mine.
42. My sibling(s) do not help me to understand myself better.
43. I tell my sibling(s) about my problems and troubles.
44. I do not tend to feel angry with my sibling(s).
45. I don't get much attention at home from my sibling(s).

46. My sibling(s) encourage me to talk about my difficulties.
47. My sibling(s) do not understand me.
48. When I am angry about something, my sibling(s) do not try to be understanding.
49. I trust my sibling(s).
50. My sibling(s) understand what I'm going through these days.
51. I can not count on my sibling(s) when I need to get something off my chest.
52. If my sibling(s) know something is bothering me, they ask about it.

## APPENDIX C

### Recruitment E-mail

Hello,

I am Dustin Redmond and I am a Master's student in Human Development and Family Studies. If you happen to have about 5 free minutes and have ever played a video game please click the link to the survey below. Everyone who has played a video game (from daily players to the person who played that one time on a weekend) is encouraged to take this survey. This is a very brief survey that does not collect any personal information beyond a name to give to your professor if you are earning extra credit. If you have any questions about the study feel free to send me an email at [dredmond@iastate.edu](mailto:dredmond@iastate.edu)

<http://humansciences.vgfcisgizmo.com/>

Cheers,

Dustin Redmond

## **Informed Consent Document**

**Title of Study:** Effect of Video Games on Family Communication and Interaction

**Investigators:** Dustin Redmond, Dr. Jacque Lempers

This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

### **INTRODUCTION**

The purpose of this study is to learn more about how online video games have impacted family communication and interaction. You are being invited to participate in this study because you are currently 18 years old or older and you are a freshman student at Iowa State University.

### **DESCRIPTION OF PROCEDURES**

If you agree to participate in this study, your participation will consist only of the completion of this survey which will take about 20 minutes. During the study you may expect the following study procedures to be followed: You will be asked questions regarding your age, ethnicity, as well as your current GPA and college major. Additionally, you will be asked to give information detailing your video game play habits such as the type of games that you play, how long you have played video games, and for how long a play session might last. Finally, you will be asked to supply information regarding your feelings in relation to communication and interactions between yourself and your parents as well as your feelings regarding communication and interaction with any siblings that you may have. If you indicate that you do not have any siblings then you will not be asked to answer any questions regarding siblings. You are free to skip any question that you do not wish to answer or that makes you feel uncomfortable.

**RISKS**

There are no foreseeable risks at this time from participating in this study.

**BENEFITS**

Participants who are enrolled in courses offering extra credit for the completion of this survey may receive the extra credit by taking the survey and providing their student ID numbers and the name of the class for which the credit has been offered. The amount of credit earnable from the completion of this survey is determined by the professor of the course for which the credit is offered. Please know that taking part in this study is only one option for earning extra credit in your class. Information about other ways to earn extra credit can be found by consulting the professor or the course syllabus. If you decide to participate in this study and no extra credit has been offered for its completion by a professor then there will be no direct benefit to you. It is hoped that the information gained in this study will benefit society by furthering the understanding of how video games have come to influence communication and interaction within families.

**COSTS AND COMPENSATION**

You will not have any costs from participating in this study. You will not be monetarily compensated for participating in this study.

**PARTICIPANT RIGHTS**

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty.

**CONFIDENTIALITY**

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal

government regulatory agencies such as the National Institutes of Health, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken: Subjects will be assigned a number based on the order in which the surveys are received. No personal information directly linking the subject to the study, such as name or social security number, will be collected. The information collected within this survey will only be accessible to the investigators involved in this study (Dustin Redmond and Dr. Jacque Lempers). To further ensure confidentiality, completed surveys will be stored in a password protected computer file. The collected data will be erased within two years after this study. If the results are published, your identity will remain confidential.

## **QUESTIONS OR PROBLEMS**

You are encouraged to ask questions at any time during this study.

- For further information about the study contact Dustin Redmond at 706-346-1121 or Dr. Jacque Lempers at 515 294 5308.
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, [IRB@iastate.edu](mailto:IRB@iastate.edu), or Director, (515) 294-3115, Office of Responsible Research, Iowa State University, Ames, Iowa 50011.

\*\*\*\*\*

## **BEGINNING THE SURVEY**

To begin the survey please indicate in the question below that you are at least 18 years old and are currently a freshman at Iowa State University by selecting “YES”. However, if you are not at least 18 years old or are not a freshman at Iowa State University please select “NO”. By selecting “YES” you confirm that you have voluntarily agreed to participate in this study, that the study has been explained to you, that you have taken time to read the document, and that your questions have been satisfactorily answered.

Are you currently a freshman at Iowa State University age 18 or older? YES / NO

### Waiver of Informed Consent Documentation

Principal Investigator Name:	Dustin Redmond
Phone Number:	706-346-1121
E-mail Address:	dredmond@iastate.edu
Title of Study:	Effect of Video Games on Family Communication and Interaction

Iowa State University's Institutional Review Board (IRB) may waive the requirement for obtaining a signed informed consent document from each research participant if the investigator can provide specific reasons that the research meets regulatory criteria. *The IRB will make the final determination as to whether or not a waiver is appropriate based on the information provided by the investigator.*

**Please note:** A waiver of documentation of consent only means you do not have to have participants sign a document prior to their participation. Participants must still be given an opportunity to give consent to participate in the research and must be provided sufficient information upon which they can base their decision. A waiver of documentation is not a waiver of the consent process.

Please describe with details specific to your research how your research study satisfies the criteria listed in either #1 or #2 (a) & (b) below. The space will expand as you type.

1. The only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality.

Participants in this study will not be asked to submit any information that may link them to the study beyond basic demographic questions such as ethnicity and current college major. Completed online surveys will be assigned a number in the order in which they are received with no regard to any information provided by the participant. As such, in the event of a breach in confidentiality, a signed consent document would be the greatest risk in linking the participant to the study.

2. (a) The research presents no more than minimal risk of harm to subjects.
Justification:
(b) <u>And</u> , involves no procedures for which written consent is normally required outside of the research context.
Justification:

\_\_\_\_Dustin Redmond\_\_\_\_

\_\_\_\_\_5/27/2009\_\_\_\_\_

Principal Investigator's Signature

Date

**IRB Acceptance Letter**

**IOWA STATE UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

Institutional Review Board  
Office of Research Assurances  
Vice President for Research  
1138 Pearson Hall  
Ames, Iowa 50011-2207  
515 294-4566  
FAX 515 294-4267

**DATE:** 29 June 2009

**TO:** Dustin Redmond  
4510 Twain Circle, #204  
Ames, IA 50014

**CC:** Dr. Jacques Lempers  
4380 Palmer Bldg., Suite 2361

**FROM:** Jan Canny, IRB Administrator  
Office of Research Assurances

**TITLE:** **Effect of Video Games on Family Communication and Interaction**

**IRB ID:** 09-277

**Approval Date:** 29 June 2009  
**Date for Continuing Review:** 22 June 2010

The Chair of the Institutional Review Board of Iowa State University has reviewed and approved this project. Please refer to the IRB ID number shown above in all correspondence regarding this study.

Your study has been approved according to the dates shown above. To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- **Use the documents with the IRB approval stamp** in your research.
- **Obtain IRB approval prior to implementing any changes** to the study by completing the "Continuing Review and/or Modification" form.
- **Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences** involving risks to subjects or others; and (2) **any other unanticipated problems involving risks** to subjects or others.
- **Stop all research activity if IRB approval lapses**, unless continuation is necessary to prevent harm to research participants. Research activity can resume once IRB approval is reestablished.
- **Complete a new continuing review form** at least three to four weeks prior to the **date for continuing review** as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.

Research investigators are expected to comply with the principles of the Belmont Report, and state and federal regulations regarding the involvement of humans in research. These documents are located on the Office of Research Assurances website [[www.compliance.iastate.edu](http://www.compliance.iastate.edu)] or available by calling (515) 294-4566.

Upon completion of the project, please submit a Project Closure Form to the Office of Research Assurances, 1138 Pearson Hall, to officially close the project.

**IRB Application**

For IRB Use Only	Review Date: _____	IRB ID: _____
	Approval Date: _____	Length of Approval: _____
	Approval Expiration Date: _____	FULL Committee Review: _____

***ISU NEW HUMAN SUBJECTS REVIEW FORM******SECTION I: GENERAL INFORMATION***

Principal Investigator (PI): Dustin Redmond		Phone: 706-346-1121	Fax:
Degrees: B.S.	Correspondence Address: 4510 Twain Circle #204 Ames IA, 50014		
Department: Human Development and Family Studies		Email Address: Dredmond@iastate.edu	
Center/Institute:		College: Iowa State University	
PI Level: <input type="checkbox"/> Faculty <input type="checkbox"/> Staff <input type="checkbox"/> Postdoctoral <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student			
<b>Alternate Contact Person: Dr. Jacques Lempers</b>		<b>Email Address: jlempers@iastate.edu</b>	
<b>Correspondence Address: Ste 2361 4380 Palmer</b>		<b>Phone: 1 515 294 5308</b>	
<b>Title of Project: Effect of Video Games on Family Communication and Interaction</b>			
<b>Project Period (Include Start and End Date): [mm/dd/yy][6/1/2009] to [mm/yy/dd][12-31-2009]</b>			

FOR STUDENT PROJECTS

Name of Major Professor/Supervising Faculty: Dr. Jacques Lempers	Signature of Major Professor/Supervising Faculty:
Phone: 1 515 294 5308	Campus Address: Ste 2361 4380 Palmer
Department: Human Development and Family Studies	Email Address: jlempers@iastate.edu
Type of Project: (check all that apply)	
<input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Thesis <input type="checkbox"/> Dissertation <input type="checkbox"/> Class project <input type="checkbox"/> Independent Study (490, 590, Honors project) <input type="checkbox"/> Other. Please specify: _____	

### ***KEY PERSONNEL***

List all members and relevant experience of the project personnel. This information is intended to inform the committee

of the training and background related to the specific procedures that each person will perform on the project.

NAME & DEGREE(S)	SPECIFIC DUTIES ON PROJECT	TRAINING & EXPERIENCE RELATED TO PROCEDURES PERFORMED, DATE OF TRAINING
Jacques Lempers, PhD	Committee co-chair	PhD acquired in 1976. Professor since 1975.
Craig Anderson, PhD	Committee co-chair	PhD acquired in 1980. Professor in Psych Department.
Janet Melby, PhD	Committee member	PhD acquired in 1988. Adjunct professor and scientist at the Institute for Social and Behavioral Research.
Dustin Redmond, BS	Facilitator	MS student in HDFS program

**FUNDING INFORMATION**

Yes  No Has or will this project receive funding?

Internally funded, please provide account number:
Externally funded, please provide funding source and account number:
Funding is pending, please provide OSPA Record ID on GoldSheet:
Title on GoldSheet if Different From Above:
Other: <i>(e.g., funding will be applied for later)</i>

**SCIENTIFIC REVIEW**

**Although the assurance committees are not intended to conduct peer review of research proposals, the federal regulations include language such as “consistent with sound research design,” “rationale for involving animals or humans” and “scientifically valuable research,” which requires that the committees consider in their review the general scientific relevance of a research study. Proposals that do not meet these basic tests are not justifiable and cannot be approved. If an assurance review committee(s) has concerns about the scientific merit of a project and the project was not competitively funded by peer review or was funded by corporate sponsors, the project may be referred to a scientific review committee. The scientific review committee will be ad hoc and will consist of your ISU peers and outside experts as needed. If this situation arises, the PI will be contacted and given the option of agreeing that a consultant may be contacted or withdrawing the proposal from consideration.**

Yes  No Has or will this project receive peer review?

If the answer is “yes,” please indicate who did or will conduct the review:

If a review was conducted, please indicate the outcome of the review:

**NOTE: RESPONSE CELLS WILL EXPAND AS YOU TYPE AND PROVIDE SUFFICIENT SPACE FOR YOUR RESPONSE.**

**COLLECTION OR RECEIPT OF SAMPLES**

Will you be: (Please check all that apply.)

Yes  No Receiving samples from outside of ISU? See examples below.

Yes  No Sending samples outside of ISU? See examples below.

Examples include: genetically modified organisms, body fluids, tissue samples, blood samples, pathogens.

**If you will be receiving samples from or sending samples outside of ISU, please identify the name of the outside organization(s) and the identity of the samples you will be sending or receiving outside of ISU:**

**Please note that some samples may require a USDA Animal Plant Health Inspection Service (APHIS) permit, a USPHS Centers for Disease Control and Prevention (CDC) Import Permit for Etiologic Agents, a Registration for Select Agents, High Consequence Livestock Pathogens and Toxins or Listed Plant Pathogens, or a Material Transfer Agreement (MTA) [EH&S Website](#)**

Yes  No Does this project involve human research participants?

Yes  No Does this project involve human cell lines or tissue culture (primary OR immortalized), or human blood components, body fluid or tissues?

#### **ASSURANCE**

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subject or welfare of animal subjects are protected. I will report any problems to the appropriate assurance review committee(s).
- I agree that I will not begin this project until receipt of official approval from all appropriate committee(s).
- I agree that modifications to the originally approved project will not take place without prior review and approval by the appropriate committee(s), and that all activities will be performed in accordance with all applicable federal, state, local and Iowa State University policies.

#### **CONFLICT OF INTEREST**

A conflict of interest can be defined as a set of conditions in which an investigator's or key personnel's judgment regarding a project (including human or animal subject welfare, integrity of the research) may be influenced by a secondary interest (e.g., the proposed project and/or a relationship with the sponsor). ISU's Conflict of Interest Policy requires that investigators and key personnel disclose any significant financial interests or relationships that may present an actual or potential conflict of interest. By signing this form below, you are certifying that all members of the research team, including yourself, have read and understand ISU's Conflict of Interest policy as addressed by

the ISU Faculty Handbook (<http://www.provost.iastate.edu/faculty> ) and have made all required disclosures.

Yes  No Do you or any member of your research team have an actual or potential conflict of interest?

Yes  No If yes, have the appropriate disclosure form(s) been completed?

## SIGNATURES

Dustin Redmond \_\_\_\_\_ 5/12/09 \_\_\_\_\_

Signature of Principal Investigator Date

\_\_\_\_\_  
Signature of Department Chair Date

**Major Professor/Supervising Faculty: Please sign cover page.**

**PLEASE NOTE: Any changes to an approved protocol must be submitted to the appropriate committee(s) before the changes may be implemented.**

Please proceed to SECTION II.

## SECTION II: IRB SECTION - STUDY SPECIFIC INFORMATION

### STUDY OBJECTIVES

Briefly explain in **language understandable to a layperson** the specific aim(s) of the study.

To determine the effects of video games on family communication and interaction.
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### BENEFITS TO SOCIETY AND PARTICIPANTS

Explain in **language understandable to a layperson** how the information gained in this study will advance knowledge, and/or serve the good of society. Please also describe the direct benefits to



Accountability Act established the conditions under which protected health information may be used or disclosed for research purposes. If your project will involve the use of any past or present clinical information about someone, or if you will add clinical information to someone's treatment record (electronic or paper) during the study, you must complete and submit the Application for Use of Protected Health Information.

### PART C: ANTICIPATED ENROLLMENT

<b>Estimated number of participants <i>contacted</i> to reach required enrollment: 250</b>	
<b>Number of participants to be enrolled in the study</b> Total: 250      Males: 125      Females: 125	
Check if any enrolled participants are: <input type="checkbox"/> Minors (Under 18) Age Range of Minors: 17-18 <input type="checkbox"/> Pregnant Women/Fetuses <input type="checkbox"/> Cognitively Impaired <input type="checkbox"/> Prisoners	Check below if this project involves either: <input type="checkbox"/> Adults, non-students <input type="checkbox"/> Minor ISU students <input checked="" type="checkbox"/> ISU students 18 and older <input type="checkbox"/> Other (explain)
<b>List estimated percent of the anticipated enrollment that will be minorities <i>if known</i>:</b>	
American Indian:	Alaskan Native:
Asian or Pacific Islander:	Black or African American:
Latino or Hispanic:	

### PART D: PARTICIPANT SELECTION

**Please use additional space as necessary to adequately answer each question.**

11. Explain the procedures for selecting participants including the inclusion/exclusion criteria and how participants will be contacted or recruited (*i.e.*, *Where will the names come from? Will a sample be purchased, will ads, flyers, word of mouth, email list, etc., be used?*).

Participants will be college freshmen only. These participants will be recruited through word of mouth and by requesting that professors of large freshman course (such as Psych 101) mention
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the study in class.

- 12. Attach a copy of any recruitment telephone scripts or materials such as ad, fliers, e-mail messages, etc. Recruitment material must include a statement of the voluntary and confidential nature of the research. Do not include the amount of compensation, (e.g., compensation available).**

**Note: Please answer each question. If the question does not pertain to this study, please type not applicable (N/A).**

PART E: RESEARCH PLAN

**Include sufficient detail for IRB review of this project independent of the grant, protocol, or other documents.**

- 13. The information needed here is similar to that in the “methods” or “procedures” sections of a research proposal—it should describe the flow of events that will occur during your interactions with subjects. Please describe in detail your plans for collecting data from participants, including all procedures, tasks, or interventions participants will be asked to complete during the research (e.g., random assignment, any conditions or treatment groups into which participants will be divided, mail survey or interview procedures, sensors to be worn, amount of blood drawn, etc.) . This information is intended to inform the committee of the procedures used in the study and their potential risk. Please do not respond with “see attached” or “not applicable.”**

**Participants will be directed to a website where they will find a digital version of the prepared questionnaire. The participants will be briefed on the nature of the study and be made aware of the confidentiality of their responses before the questionnaire is given. Participants will then fill out and submit the questionnaire online. Once submitted, the participants will receive a debriefing informing them, in greater detail, the nature and purpose of the study.**

- 14. For studies involving pathology/diagnostic specimens, indicate whether specimens will be collected prospectively and/or already exist “on the shelf” at the time of submission of this review form. If prospective, describe specimen procurement procedures; indicate whether any additional medical information about the subject is being gathered, and whether specimens are linked at any time by code number to the participant’s identity. If this question is not applicable, please type N/A in the response cell.**

N/A

- 15. For studies involving deception, please justify the deception and indicate the debriefing procedure, including the timing and information to be presented to participants. If this question is not applicable, please type N/A in the response cell.**

N/A

**PART F: CONSENT PROCESS**

16. Describe the consent process for adult participants (those who are age 18 and older). *If the consent process does not include documented consent, a waiver of documentation of consent must be requested.*

Before the participants view the questionnaire, a screen will appear requesting that subjects verify that they are freshmen at Iowa State University and are 18 or older. Subjects must click “yes” in order to proceed. If the subject clicks “No” he or she will be directed to a page thanking him or her for their time, but that they must be 18 or older to complete the survey.

17. If your study involves minors, please explain how parental consent will be obtained prior to enrollment of the minor(s).

18. Please explain how assent will be obtained from minors (younger than 18 years of age), prior to their enrollment. Also, please explain if the assent process will be documented (*e.g., a simplified version of the consent form, combined with the parental informed consent document*). According to the federal regulations assent “...means a child’s affirmative agreement to participate in research. Mere failure to object should not, absent affirmative agreement, be construed as assent.”

**PART G: DATA ANALYSIS**

- 19. Describe how the data will be analyzed (*e.g. statistical methodology, statistical evaluation, statistical measures used to evaluate results*).**

The Family Communication Scale (FCS) and the Inventory of Parent and Peer Attachment (IPPA) will be subjected to separate tests of reliability to ensure internal consistency across sibling items and parent items. Additionally, a separate exploratory factor analysis will be conducted for the parent and sibling portions of the FCS as well as for the IPPA.

A chi square analysis will be conducted addressing male and female gamers and the possible differences between the types of games that they place as their first or second most played.

Separate correlation analyses will address the relationship between reported GPA, time spent playing the most played game and the 2nd most played game, time spent playing these games with parents and with siblings, parent communication, and sibling communication.

Finally, in the event that there are enough subjects across the other ethnicity groups, an ANOVA will be conducted comparing the Caucasian group with the combination of the other ethnic groups (non-Caucasian group). Similarly, if the variability across ages is sufficient an ANOVA will be conducted addressing age and gender.

20. If applicable, please indicate the anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

\_\_\_\_\_ Month/Day/Year

#### **PART H: RISKS**

The concept of risk goes beyond physical risk and includes risks to participants' dignity and self-respect as well as psychological, emotional, legal, social or financial risk.

21.  Yes  No Is the *probability* of the harm or discomfort anticipated in the proposed research greater than that encountered ordinarily in daily life or during the performance of routine physical or psychological examinations or tests?
22.  Yes  No Is the *magnitude* of the harm or discomfort greater than that encountered ordinarily in daily life, or during the performance of routine physical or psychological examinations or tests?

23. Describe any risks or discomforts to the participants and how they will be minimized and precautions taken. Do *not* respond with N/A. If you believe that there will not be risk or discomfort to participants, you must explain why.

Subjects are simply asked to fill out the survey. In the event that a subject becomes

uncomfortable with the questions being asked, he or she is free to leave the study at any point.

24. If this study involves vulnerable populations, including minors, pregnant women, prisoners, the cognitively impaired, or those educationally or economically disadvantaged, what additional protections will be provided to minimize risks?

#### PART I: COMPENSATION

25.  Yes  No Will participants receive compensation for their participation? If yes, please explain.

**Do not make the payment an inducement, only a compensation for expenses and inconvenience. If a person is to receive money or another token of appreciation for their participation, explain when it will be given and any conditions of full or partial payment. (E.g., volunteers will receive \$5.00 for each of the five visits in the study or a total of \$25.00 if he/she completes the study. If a participant withdraws from participation, they will receive \$5.00 for each of the visits completed.) It is considered undue influence to make completion of the study the basis for compensation.**

#### PART J: CONFIDENTIALITY

26. Describe below the methods that will be used to ensure the confidentiality of data obtained. (For example, who has access to the data, where the data will be stored, security measures for web-based surveys and computer storage, how long data or specimens will be retained, etc.)

Results of the online survey will be stored in an encrypted file on a single personal computer. Subjects will be assigned a number to ensure confidentiality.

#### PART K: REGISTRY PROJECTS

**To be considered a registry: (1) the individuals must have a common condition or demonstrate common responses to questions; (2) the individuals in the registry might be contacted in the future; and (3) the names/data of the individuals in the registry might be used by investigators other than the one maintaining the registry.**

- Yes  No Does this project establish a registry?

If “yes,” please provide the registry name below.

### Checklist for Attachments

Listed below are the types of documents that should be submitted for IRB review. Please check **and attach** the documents that are applicable for your study:

- A copy of the informed consent document **OR**  Letter of introduction containing the elements of consent
- A copy of the assent form if minors will be enrolled

Letter of approval from cooperating organizations or institutions allowing you to conduct research at their facility

Data-gathering instruments (including surveys)

Recruitment fliers, phone scripts, or any other documents or materials participants will see or hear

The original signed copy of the application form and one set of accompanying materials should be submitted for review. **Federal regulations require that one copy of the grant application or proposal be submitted for comparison with the application for approval.**

### FOR IRB USE ONLY:

Initial action by the Institutional Review Board (IRB):

Project approved. Date: \_\_\_\_\_

Pending further review. Date: \_\_\_\_\_

Project not approved. Date: \_\_\_\_\_

Follow-up action by the IRB:

\_\_\_\_\_

IRB Approval Signature

Date

### **SECTION III: ENVIRONMENTAL HEALTH AND SAFETY INFORMATION**

Yes  No Does this project involve human cell or tissue cultures (primary OR immortalized), or human blood components, body fluids or tissues?

#### **PART A: HUMAN CELL LINES**

Yes  No Does this project involve human cell or tissue cultures (primary OR immortalized cell lines/strains) that have been documented to be free of bloodborne pathogens? If the answer is “yes,” please answer question 1 below and attach copies of the documentation.

1) Please list the specific cell lines/strains to be used, their source and description of use.

CELL LINE	SOURCE	DESCRIPTION OF USE

2) Please refer to the ISU “Bloodborne Pathogens Manual,” which contains the requirements of the OSHA Bloodborne Pathogens Standard. Please list the specific precautions to be followed for this project below (e.g., retractable needles used for blood draws):

**Anyone working with human cell lines/strains that have not been documented to be free of bloodborne pathogens is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual (<http://www.ehs.iastate.edu/cms/default.asp?action=article&ID=214>)**

**PART B: HUMAN BLOOD COMPONENTS, BODY FLUIDS OR TISSUES**

- Yes  No Does this project involve human blood components, body fluids or tissues? If “yes,” please answer all of the questions in the “Human Blood Components, Body Fluids or Tissues” section.

1) Please list the specific human substances used, their source, amount and description of use.

SUBSTANCE	SOURCE	AMOUNT	DESCRIPTION OF USE
<i>E.g., Blood</i>	<i>Normal healthy volunteers</i>	<i>2 ml</i>	<i>Approximate quantity, assays to be done.</i>

**Add New Row**

2) Please refer to the ISU “Bloodborne Pathogens Manual,” which contains the requirements of the OSHA Bloodborne Pathogens Standard. Specific sections to be followed for this project are:

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Anyone working with human blood components, body fluids or tissues is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual (<http://www.ehs.iastate.edu/cms/default.asp?action=article&ID=214>).

## Online Survey Application

### “SurveyGizmo” SURVEY PROJECT REQUEST FORM

Submit to: Karla Embleton, Office of Distance Education & Educational Technology,  
306 MacKay Hall, 294-9198 [embleton@iastate.edu](mailto:embleton@iastate.edu)

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**Requests should be submitted AT LEAST 2 WEEKS prior to survey data collection start date.**

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**This form does not replace information requested in the IRB application**

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#### College technical assistance overview:

Based on the information that you provide, College ODE staff will code a web-based survey for you. One or more meetings can be expected during the coding phase. Researchers should provide question text, images, and other data in electronic format. In rare cases, question reformatting may be necessitated by the survey software. Each survey will have a unique URL. It is the responsibility of the researcher to send out survey participation invitations. ODE staff will provide you with collected data in electronic, Excel-compatible format. It is the responsibility of the researcher to pilot test the online survey to verify that it operates as expected and that collected data is both accurate and in a usable format, prior to large scale sampling. At the end of your study, the survey will be archived but it is the researcher’s responsibility to store and archive collected data.

**IRB Approval Number = \_\_\_\_\_09-277\_\_\_\_\_ (please provide this to the ODE group once you receive it)**

The researcher is responsible for obtaining any necessary IRB approval, or official IRB exemption, from ISU. Please submit a copy of your IRB approval code or exemption notice to the CHS ODE office. To facilitate the IRB review process, *please include a signed copy of this form with the IRB application*. This form does not replace information requested in the IRB application—you must also complete all sections of the IRB application before your study can be reviewed.

<b>Survey Title:</b>	<b>Effect of Video Games on Family Communication and Interaction</b>
<b>Primary Investigator:</b>	<b>Dustin Redmond</b>
Phone:	<b>706-346-1121</b>

Email:	<a href="mailto:dredmond@iastate.edu">dredmond@iastate.edu</a>
Department / Unit:	<b>Human Development and Family Studies</b>
<b>Secondary Investigator:</b>	<b>Dr. Jacques Lempers</b>
Phone:	<b>515-294-5308</b>
Email:	<b>jlempers@iastate.edu</b>
Department / Unit:	<b>Human Development and Family Studies</b>
<b>Type of survey:</b>	<input type="checkbox"/> Non-research: Administrative use (vote, student data collection) <input type="checkbox"/> Non-research: Course evaluation <input type="checkbox"/> Research: Faculty/Staff <input checked="" type="checkbox"/> Research: Graduate student /Undergraduate <input type="checkbox"/> Other. Please describe:

<b>Is IRB approval required?*</b>	<input type="checkbox"/> Unsure <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES , approval required <input type="checkbox"/> YES, exemption required	
<b>Will your survey include images or multimedia files?</b>	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES. Approximate data size of files (if known): ___ KB	
<b>Anticipated Timeline:</b>	Development start date:	<b>6/1/2009</b>
	Date that data collection will begin:	<b>8/10/2009</b>
	Date data collection will end:	<b>12/31/2009</b>
	Date project will end:	<b>12/31/2009</b>

### Privacy and Confidentiality Settings

There are a variety of settings in the survey software that can be set to ensure privacy and confidentiality for research participants. The default settings we have chosen allow for the collection of identifying information (names, email addresses, electronic identifiers, etc.) if such data is needed, and use standard security settings for data transmission. However,

sometimes different settings are useful or necessary for some types of research. Accordingly, there are a variety of options available related to privacy and confidentiality. Please indicate your choices for privacy and confidentiality settings.

**Names, contact information, and/or email addresses** (*check one box*):

	Names, contact information and/or email addresses should be collected and included with the survey data in a single file ( <i>common for longitudinal studies or when follow-up is necessary</i> )
	Names, contact information, and/or email addresses should be collected, but will be removed by ODE staff prior to releasing data to the investigator ( <i>researcher receives one anonymous data file</i> )
	Names, contact information, and/or email addresses should be collected, but will be removed and retained in a separate file by ODE staff prior to releasing data to the investigator ( <i>common when compensation is provided to participants</i> )
X	Names and/or email addresses should not be collected ( <i>required for the data to be anonymous</i> )

**Electronic identifiers** (e.g., IP addresses, cookies) (*check one box*):

	Electronic identifiers should be tracked and included with the survey data
	Electronic identifiers should be tracked, but removed from the data by the college technical assistant prior to releasing data to the investigator
X	Electronic identifiers should not be tracked ( <i>required for the data to be anonymous</i> )

**If shared computer use is likely** (e.g., spouses, roommates, etc.) (*check all that apply*):

	Ensure that responses from users cannot be viewed by other users
	Ensure that only one response from a computer is allowed; <b>or</b>
X	Allow multiple responses from the same computer

**Level of security required during transmission of data** (*check one box*):

	Encryption, secure HTTP, etc. (normally used when highly sensitive information is collected)
X	Standard Survey Gizmo settings

### Other Settings

Along with settings for privacy and confidentiality, there are other issues that impact how your survey is designed. For example, we will use a default setting when constructing your survey that allows participants to skip questions they do not wish to answer because it is normally required by the IRB. Additionally, participants must be able to consent to participate. If you wish to have consent information included as an introduction to the survey, it is customary to include a button where participants must click “agree” to take the survey. Some surveys include ID codes that participants must enter in order to complete the survey. Please indicate your choices below.

#### Informed Consent Process *(check all that apply):*

	Informed consent information will be included in a letter of introduction sent by email or regular mail to recruit participants
X	Informed consent information should be included as the first page of the survey and participants must click a button to “agree” before participating in the survey

#### Use of ID codes *(check one box):*

	Participants will be assigned an ID code that they will type into the survey form
X	No ID codes will be needed

#### Special Requests *(please explain):*

Some of the questions in the questionnaire are relevant only if the subject has indicated that he or she has at least one sibling. If the subject does not have any siblings then these questions are not necessary. Can the sibling related questions be skipped if the subject does not have siblings? Additionally, As part of the consent information, the subject must agree that he or she is both over 18 and currently a freshman at ISU before continuing.

**IRB Continuing Review/Modification Form**

For IRB	Modification Approval Date _____
Use Only	Continuing Review Approval Date _____

***ISU HUMAN SUBJECTS CONTINUING REVIEW AND/OR MODIFICATION FORM***

TYPE OF SUBMISSION:  Continuing Review       Modification   
 Continuing Review and Modification

Principal Investigator: Dustin Redmond		Phone: 706-346-1121
Degree: BS	Correspondence Address: 4510 Twain Circle #204 Ames IA, 50014	
Department: Human Development and Family Studies		E-mail Address: Dredmond@iastate.edu
Project Title: The Effect of Video Games on Family Communication and Interaction		
IRB ID: 09-277		Date of Last Continuing Review:
IF STUDENT PROJECT		
Name of Major Professor: Dr. Jacques Lempers		Phone: 1 515 294 5308
Department: Human Development and Family Studies		Campus Address: Ste 2361 4380 Palmer
		E-mail Address: Jlempers@iastate.edu



**Signature of Supervising Faculty**  
**Date**

**Date**

**IRB Approval Signature**

For  
IRB  
Use

EXPEDITED per 45 CFR 46.110(b) \_\_\_\_\_, Category \_\_\_\_\_, Letter \_  
STUDY REMAINS EXEMPT per 45 CFR 46.101(b) \_\_\_\_\_  
WAIVER of SIGNED CONSENT per 45 CFR 46.117(c) \_\_\_\_\_  
WAIVER of ELEMENTS of Consent per 45 CFR 46.116 \_\_\_\_\_  
VULNERABLE POPULATION per 45 CFR 46. \_\_\_\_\_

*Please answer each question. If the question does not pertain to this study, please type not applicable (N/A).*

**SECTION I: KEY PERSONNEL**

Yes  No Have there been any personnel/staff changes since the last IRB approval was granted?

If yes, complete the following sections (Additions/Deletions) as appropriate.

Add	Delete	Last Name	First Name

**Add New Row**

List all current members and relevant experiences of the project personnel. This information is intended to inform the committee of the training and background of the investigators and key personnel.

NAME & DEGREE(S)	POSITION AT ISU & ROLE ON PROJECT	TRAINING & DATE OF TRAINING
Jacques Lempers, PhD	Committee co-chair	PhD acquired in 1976. Professor since 1975.

Craig Anderson, PhD	Committee co-chair	PhD acquired in 1980. Professor in Psych Department.
Janet Melby, PhD	Committee member	PhD acquired in 1988. Adjunct professor and scientist at the Institute for Social and Behavioral Research.
Dustin Redmond, BS	Facilitator	MS student in HDFS program

[Add New Row](#)

**SECTION II: CONTINUING REVIEW**

**In addition to completing Section I: Key Personnel, please complete Section II if this is an application for Continuing Review. If this is an application for continuing review and you will be modifying your project in the future, please complete all sections of the form.** If this application is only to request approval for a modification or change to your study, please complete Section I: Key Personnel and Section III: Proposed Modifications or Changes.

**Part A: Enrollment Status**

1.  Yes  No Is the research **permanently** closed to the enrollment of new participants?
2.  Yes  No Have **all** participants completed all research-related interventions?
3.  Yes  No Does research remain active only for long-term follow-up of participants?
4.  Yes  No Are the remaining research activities limited to data analysis? OR
5.  Yes  No Participant enrollment has not begun and no additional risks have been identified.

Number of Participants Approved by IRB:	Number of Participants Consented to Date:
Number of Participants Consented Since Last Continuing Review: Total: Males:	
Females:	

Number of Participants Screened:	Number of Participants Lost to Follow-up:
Check if any enrolled participants are:  <input type="checkbox"/> Minors (under 18). Age Range of Minors: _  <input type="checkbox"/> Pregnant Women/Fetuses  <input type="checkbox"/> Cognitively Impaired  <input type="checkbox"/> Prisoners	Check below if this project involves either:  <input type="checkbox"/> Existing Data/Records  <input type="checkbox"/> Secondary Analysis  <input type="checkbox"/> Pathology/Diagnostic Specimens
List Estimated Percent of the Total Enrolled That Are Minorities Below	
American Indians:	Alaskan Native:
Asian or Pacific Islander:	African American:
Black (Not of Hispanic Origin):	Hispanic:

1.  Yes  No **Have any participants withdrawn or have you asked any participants to withdraw from the study?**

**List number for each and reason for withdrawal:**

--

Part B: Protocol Summary – Please use the amount of space needed to adequately address the questions.

1. **Please provide a concise summary of the purpose and main procedures of the study.**

--

2. **Please provide a summary of how the study is progressing (e.g., progress to date in terms of the overall study plan, success or problems encountered, reasons enrollment has not begun, etc.)**

--

3. Is there any new information (positive or negative) from this study (e.g., interim analysis) or elsewhere (e.g., current literature) that might affect someone's willingness to enroll or continue in the study? It is especially important for the investigator to notify the IRB of literature or information that's relevant to the risks to participants in the study.

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4. Please provide a summary of amendments or modifications since last IRB review.

--

Part C: Adverse Events and Unforeseen Problems

1.  Yes  No Have there been any adverse events or unanticipated problems involving risks to participants or other people?

If yes, please give them numbers and describe.

--

If yes, was it reported to the IRB? Date reported  
If report was not submitted, please explain why.

--

2.  Yes  No Have there been any participant complaints?

If yes, please describe.

--

Attach any reports submitted to NIH or a Data and Safety Monitoring Board.   
Attached  N/A

Part D: Informed Consent

1.  Yes  No If a signed Informed Consent Form was required, was Informed Consent obtained from all participants?

If no, please explain.

2.  Yes  No Are all signed Informed Consent Forms on file with the PI?

If no, please explain.

- 3.
- Attached    Submit copy of the currently approved Informed Consent Form and an original unstamped copy (if stamped). If changes have been made, please submit the original, a copy with the changes highlighted, and a copy to be stamped with IRB approval
- N/A
- Attached    Submit currently approved informational letter
- N/A
- Attached    Submit an unstamped copy of all survey instruments, interview questions, recruitment materials, instructions, and all other material participants will see or hear during their participation so that a current IRB approval stamp can be added. If changes have been made, please submit the original, a copy with the changes highlighted, and a copy to be stamped with IRB approval.
- N/A

### **SECTION III: PROPOSED MODIFICATIONS OR CHANGES**

If this application is to request approval for modification or changes to your project, please complete Section I: Key Personnel and Section III.

The submission of a modification form is required whenever changes are made to an approved project. This includes but is not limited to a title change, changes in investigators, resubmission of a grant proposal involving changes to the original proposal, changes in the funding source, changes of an instrument, advertisements, reports from a data safety and monitoring board, addition of a test instrument, etc. NOTE: All changes must be submitted and approved by the IRB prior to their implementation, unless the change is necessary to protect the safety of participants.

1. Does your project require approval from another institution, please attach letters of approval?

Yes     No

2. The following modification(s) are being made (check all that apply):

Change in protocol.

- Change in type or total number of participants. New anticipated total:  
 Change in informed consent document.  
 Change in co-investigator(s). New co-PI name:

Signature of new Co-PI: \_\_\_\_\_

- Change in funding source/sponsor. Please attach copy of grant proposal sent to new funding agency.  
 Other (e.g., change in project title, adding new materials, adding advertisement, etc.)

**NOTE: If the change involves a new Principal Investigator, a new Human Subjects Review form must be submitted.**

**3. Describe the modification(s) indicated above in sufficient detail for evaluation independent of any other documents. When submitting revised documents please submit one clean copy of the new document and a copy with the changes highlighted.**

Two questions have been added to section 1 of the online survey for students receiving extra credit from their professors. These two questions ask for the student's ID number and what class they are receiving the extra credit in. Subjects need to fill out these two questions only if they are receiving extra credit. This information will be given to the appropriate professor. Additionally, instructions have been added before each section to make the survey easier to understand. Some questions have had small grammatical changes to make them easier to understand.