The Usefulness of Video Games to Mental Health and the Pursuit of Social Interest

A Summary Paper

Presented to

The Faculty of the Adler Graduate School

In Partial Fulfillment of the Requirements for

The Degree of Master of Arts in

Adlerian Counseling and Psychotherapy

By:

Robert Mantia

August 2010
Abstract

The rise in popularity and use of video games has carried with it a number of concerns by parents and activist groups regarding what effect these games are having on those who play them, with special attention being paid to the effect of video games on children and adolescents. The majority of research in this area has confirmed a link between violent content in video games and increased aggression by those who play them. This is a concern among researchers. However, a possible solution to this problem can be found in the studies that have demonstrated a similar link between prosocial themes in video games and prosocial behaviors in those who play them. Instead of limiting video games as a whole, the best way to address the concern of increased aggression may be to mediate the content in such games by encouraging the development of games with more prosocial themes. This thesis reviews available research addressing the use and content of video games, the identification and practice of social interest, and how those two variables interact. Suggestions are included for further research possibilities as well as recommendations for video game developers, parents, mental health professionals, and gamers.
The Usefulness of Video Games to Mental Health and the Pursuit of Social Interest

Introduction

The video game industry is one of the biggest and most profitable sectors of entertainment in the world. In the United States alone, video games accounted for 11.7 billion dollars worth of income in 2008 (Entertainment Software Association, 2010). For comparison, total box office receipts at America’s movie theaters for that year were $9.78 billion (Ars Technica, 2009). Video games have grown from relatively small beginnings and are continuing to gain players as more forms of electronic devices flourish. Video games can now be found on cell phones and music players and on a myriad of handheld devices in addition to their traditional background of computers and dedicated consoles.

This proliferation of video games has caused concern among many parents and advocacy groups that video games could be a negative influence on the social, cognitive, and emotional development of children and adolescents. And the concerns of parents are not the only ones aimed at video games. Some people, like lobbyist Jack Thompson, have waged a virtual war against video games in attempts to hold video game corporations legally liable for actions done by those who have played their games. Partially as a result of these concerns, the Entertainment Software Ratings Board (ESRB) has developed a ratings system for video game content similar to the ratings system developed for motion pictures by the Motion Picture Association of America (MPAA). This rating system has divided games into those suitable for young children ages 3 and older (eC for EARLY CHILDHOOD), those suitable for everyone age six or older (E for EVERYONE), those suitable for everyone 10 and above (E10), those suitable for teenagers and adults (T for TEEN), those suitable for older teens and adults (M for MATURE), and those not suitable for minors at all (AO for ADULT ONLY) (ESRB, n.d.). However, unlike the
situation with motion picture ratings, video games of any rating, with the possible exception of AO, may typically be purchased and played by someone of any age.

Another concern parents have had is the amount of time their children play video games in contrast to the amount of time they spend in other activities. Concerns have arisen that video games can take up inordinate amounts of time and interfere with other activities in the life of a child or adolescent that have traditionally been considered more important, such as schoolwork, appropriate socialization, and physical activity.

The third realm of concern that has arisen regarding video games is their effect on the behavior of those who play them. While this area of concern also tends to focus on children and adolescents, it has carried over into concern with adults who have played or are playing video games and the effect of the games on them. This area has been pursued by researchers and has most often focused on determining whether there is a link between violent content in video games and aggression in those who play them.

Since video games continue to become steadily more pervasive in society, the concerns about them, if confirmed, could become more serious. As such, there is a need to determine how accurate the concerns about video games are. In addition, there is also a need to determine how, if at all, video games can be a positive influence on those who play them. Also, if video games can be a positive influence on their players, then suggestions should be made regarding potential methods for maximizing these benefits while limiting the liabilities.

Usefulness is an effective evaluation methodology for this problem because it addresses not only the existing current situation but also the potential future situation. Something can be useful regardless of whether its users are aware of that use or not. In such a case where the users are not aware of a thing’s usefulness, they may still effectively use the thing when someone
informs them of its uses. For video games, usefulness is a valuable method because most video
games are used primarily for entertainment and there have been relatively few other uses
considered for them, even though others may exist.

In addition to a methodology, a scale is also helpful to have when value judgments are
being made. Values can be difficult to scale because they often change and shift among various
people and the establishment of values with which everyone agrees is a virtually impossible task.
Since a value scale cannot be proposed that will appeal to absolutely everyone, the current
discussion will use two terms with positive connotations in order to develop the scale. These
terms are mental health and social interest.

Mental health can be generally defined as a concurrent state of subjective and objective
well-being. In other words, people are mentally healthy if they are sufficiently satisfied with
their state of being and if those around them are also satisfied with that state. Mental health is
often defined negatively in psychology as a lack of intrapersonal, interpersonal, and functional
distress or impairment. Or, to put it more bluntly, people are mentally healthy whenever they are
not mentally sick. Ironically, this reverse definition tends to work effectively because most
people can recognize mental sickness in themselves or others.

The confusing state of the mental health definition has existed in flux practically from the
beginning of mental health as a profession. The concept of mental illness has also undergone
considerable changes and continues to be in question today. Scott (1958) presented a number of
the classical definitions of mental illness as well as one definition of mental health that mental
health professionals can use today to understand some of the ways that mental illness has been
understood. The first and simplest definition of mental illness that Scott discussed is the
presence of an individual in an inpatient psychiatric facility or mental hospital. While this
definition may seem overly simplistic to today’s mental health workers, it does provide a sharp
differentiation between people who are mentally ill and those who are not. This way of defining
mental illness, however, is based on ipso facto reasoning in the same way that people can assume
that anyone in prison is a criminal. The existence of individuals who have been falsely
imprisoned demonstrates the weakness of the argument in relation to criminals in prison, and it is
just as likely that there are individuals who have been falsely committed as well. Further, this
definition cannot be of much use to the current professional since it is impossible to conceive
that all mentally ill people are institutionalized.

Scott’s (1958) second category defines mental illness as maladjustment to socially
normative behavior. In this view, the laws and dominant culture of a nation have a significant
impact on the definition of mental health and illness. Behavior that is not culturally desirable
would thus indicate mental illness. This method provides somewhat greater flexibility in
identifying mental illness than the previous definition and allows virtually anyone in a culture to
have a general idea of what mental illness is because it is represented by significant difference
from the behavior of everyone else. However, there are problems with this definition as well.
Within the nation or culture, there can be a myriad of different opinions regarding how deviant
behavior must be before it is considered mental illness. Both very narrow and very wide
definitions could be detrimental to the culture and with few or no standards to go by, the
evaluations of different people can greatly vary. From an outside perspective, McGuire et al.
(2006) have noted that there are significant disparities between the frequencies that different
cultural groups in the United States receive mental health services. This indicates that using
social norms to define mental health becomes increasingly more difficult as more and more
cultures are added into a society. Societies such as the United States have hundreds of different cultural influences that all could have incredibly different concepts of mental health.

The present model for mental illness in the United States is Scott’s (1958) third category: mental health defined by systematic psychiatric diagnosis. For this reason, the American Psychiatric Association’s *Diagnostic and Statistical Manual for Mental Disorders* (2000) is currently in its fourth edition with more on the way. This method uses specific guidelines in order to determine mental illness. The guidelines in question are generally able to be applied the same way over a wide variety of individuals and thus can arguably apply to different cultures. As a result of this standardization process, both the problems of definition by existing status quo and definition by the fickle opinions of people on the street can be overcome. However, this method also has problems. The diagnostic criteria as well as the names and definitions of the various mental illnesses are determined by the votes of a committee of psychiatrists who all have their own views of cultural norms and deviations. While the committee’s collective opinion may not vary in each edition, it typically does change over time. This renders the psychiatric diagnosis model less than ideal from a long-term perspective. The diagnosis model also renders mental health even harder to define. Indeed, there are so many diagnoses for mental illness, someone could easily argue that the diagnosis model makes mental health an impossible condition.

So what does Scott (1958) present as a possible definition of mental health? He calls it “positive striving” (p. 37) or the progression of self-betterment. While this seems like a good definition on the cover, it also has some problems. Unlike the practice of mental health that is culturally normative, striving for self-improvement is not based on the many but only on the one person. Since it is based only on the single person, the variations of what that person could
consider improvement are immense and could potentially be harmful to the physical and mental health of the people around him or her.

However, if the striving for betterment is not solely self-focused and instead is focused on the community or family, then the risk of harm to others disappears and the potential benefits increase. If mental health can be defined in a way that ensures that those who possess it are likely to be positive influences on those around them as well as on themselves, then it becomes much more of a desirable concept. In fact, mental health can be defined this way and it is the highest goal of a psychological system. The goal, and the term which can perhaps best be used to describe mental health, is called social interest.

Social interest is a modern English translation of Alfred Adler’s German term *Gemeinschaftsgefühl*, which was for Adler the highest goal in his psychological system. King and Shelley (2007) liken it to “a feeling of community” (p. 97) and Adler himself said it meant “to see with the eyes of another, to hear with the ears of another, to feel with the heart of another” (Ansbacher & Ansbacher, 1956, p. 135). Due to the difficulty of precisely defining the concept, Bass et al. (2002) promoted the use of multiple definitions in order to more fully understand the various aspects of social interest and cited the lack of precise terminology defining intelligence or creativity as precedents for this approach.

Even though social interest has been defined in slightly different ways, it is still a much more precisely defined concept than mental health. As such, if it is considered an important aspect of mental health, then mental health can be more easily clarified and understood by looking at social interest. Also, using both as scales proves complementary since one is a subset of the other.
Nikelly (2005) identified a number of ways that social interest is associated with greater mental and physical health. He found in reviewing relevant research that communities that developed close personal bonds with each other exhibited greater survival rates compared to those that did not develop such bonds and that poor social bonds were correlated with several other health risk factors. He further found that higher levels of social interest are correlated with higher levels of subjective well-being and that social support can account for as much as 40% of positive change among people who undergo psychotherapy. Further, he found that providing such social support to others can lengthen the lives of the providers.

The benefits of altruism, which could also be described as a kind of social interest in action, have also been studied. For example, Barclay (2010) found that altruistic descriptions made both men and women more desirable for long-term relationships as well as for platonic friendships among a study of 305 young adults.

So strong is the correlation between social interest and mental health that Richardson and Manaster (2003) have argued that mental health as a whole should be redefined as social interest. According to them, social interest is an inclusive concept that speaks not only to the clinical situation but also to everyday life.

Since there is such an association between social interest and mental health, they can thus be used together as scales in determining the positivity and negativity of video games in their effect on gamers. The usefulness of video games can thus be related to mental health and social interest and the data from relevant research can be presented and understood within this framework.
Research on Negative Elements in Video Games

It is very rare that all of the research in any given area will come to the same conclusions, and the area of video game research is no different. Samples of research that show no relationship between video game use or content and behavior will be shown as well as samples of research that show a correlation between them. However, an overall picture should begin to form when the research is viewed as a whole and the current overview indicates that there are some types of correlations between violent content in video games and aggression in those who play them. There are also some other conclusions regarding the potentially negative effects of video games. In order to avoid reiterating past research and so the most up to date research is included, the majority of the studies in this section have been written within the last four years. This allows the research to focus on the most recent generation of video games that can contain photo-realistic graphics and much more accurate simulations in comparison to previous generations.

The topic of violence in video games has received the lion’s share of research compared to other video game research, so it is here granted primacy. The question the following studies have attempted to answer is a simple one: does playing violent video games make a person more violent? However, this simple question is not always simple to answer scientifically. In order for it to be answered adequately, correlations must be drawn between playing violent video games and increases in aggression, and such correlations need to be evaluated to see if they are predominantly a result of violent video game playing or a result of other factors.

Of course, violent content is not restricted to video games. Before the research on video games had started, there was already a large body of research regarding the effects of exposure to violence in person as well as via the mass media in relation to subsequent behavior. At a time
when the Atari 2600 was only the second video game console to be invented, researchers were studying the relationship between video exposure to violence and aggressive behavior. Research continues on these subjects today and can inform the present discussion as well.

Geen (1981) found that experimental participants who watched two violent movie clips exhibited lower average blood pressure after viewing the second clip when compared to people who either saw a non-violent clip preceding the second violent one or those who only saw the violent clip. He theorized that this indicated lowered arousal as a function of partial desensitization to violence after having already seen a violent clip.

Felson (1996) examined existing research between media depictions of violence and acts of aggression and came to some of the same conclusions as later researchers reached regarding violence in video games. After reviewing different research methods, he concluded that there did appear to be correlational links between exposure to violence in media and aggression, but that these links may have been strengthened in the research by an attitude of experimental acceptance of violence by the researchers which ensured that there would be no negative consequences among the participants for aggressive behavior. Since there can be real world consequences for aggressive behavior, Felson claimed that such studies introduced a variable for which they did not account and thus their results could have been exaggerated in comparison to what would be seen in a truly environmental situation.

More recent studies have incorporated video games into the broader category of media. Boxer et. al (2008) advised developing more multidimensional interventions for antisocial behaviors among teenagers in order to account for a wide range of possible influences. These influences include violent depictions on television, in the movies, and in video games. Carnagey, Anderson, and Bartholow (2007) suggested that new brain imaging technologies such
as functional magnetic resonance imaging may shed additional light onto the relation between observed violence in media and aggression. They also suggested that incorporating these technologies and others could provide greater insight into video game research, thus linking video game aggression research with the same techniques used for other mass-media aggression research.

Such precedents and links as the above studies can provide a sense of perspective about the current state of aggression research as well as the place video games have within that research. The most recent research appears to be following a trend to incorporate video games into the category of media and use the same models for studying violence exposure in video games as are used for studying violence exposure in other forms of media. As one looks at the following studies directly involving video games, one may have a better perspective regarding their position in contemporary research.

Krcmar and Farrar (2007) conducted a study comparing college students who had played a violent video game at different settings with those who had not played the game to determine levels of aggression and similarity to expectations provided by the general aggression model. They found that aggression was higher in those who had played the violent video game in comparison to those who had not played. In addition, they found that those who played the game in third-person mode with blood and gore enabled (shown) had the highest aggression of all the participants who played the game. Interestingly, though, in their measures of retaliation after being insulted, the participants who had not played the violent video game were more retaliatory than the ones who had played it. A possible explanation to this could be a prediction Geen (1981) made that exposure to violence not only desensitizes the viewer to violence but also blurs perception of the justification for that violence. In other words, Geen stated that those who were
previously subjected to violent stimuli do not care as much about the justice of the situation, whereas those who were not subjected to the desensitizing effects of violence exposure have that sense of justice intact. If that is true, then it would explain why the participants in Krcmar and Farrar’s study who had not played the violent game were more retaliatory because they had a greater remaining sense of justice that could be offended, whereas those who played the game may have been somewhat desensitized to injustice as a result of their exposure to the violent content.

Barlett, Harris, and Baldassaro (2007) conducted an experiment to determine if there were increases in the hostile feelings and heart rate of first-year college students as a violent video game continued to be played. As part of the same study, they sought to determine if the level of hostility and heart rate changed when the controller method was changed from a standard controller to a realistic looking light gun. They found that there were significant differences between the baseline heart rate measurements and the measurements taken while the participants were playing, with average heart rate increasing while playing the game. However, there was not a significant change in heart rate as the game was played for longer periods. The type of controller used by the participants, however, did have an effect on the hostility and heart rate scores of the participants. The group that used the more realistic looking light gun had a higher average heart rate and higher state aggression rating than either the group that played the game with the standard controller or those who did not play the game at all. This indicates that physiological arousal and hostility feelings can be raised higher when the violent simulation requires a more realistic response and that the duration of the game play may be less important than the way the game is played in influencing arousal and feelings of hostility.
In a meta-study done by Porter & Starcevic (2007), a number of studies were examined to determine the relationship between playing violent video games and aggressive behavior. Porter & Starcevic arrived at some interesting conclusions. The first one that should not be forgotten is that there does appear to be some type of correlation between aggression and playing of violent video games. However, Porter & Starcevic noted that due to the type of studies conducted and the methodologies used, they were not able to come to any conclusion on the nature of that correlation. They also indicated that the differences between violent and non-violent video games have not been sufficiently clarified and that there are games that may have been considered violent in some studies that would not be considered violent by other studies. The link between video game usage and crime also seems dubious when it is taken into consideration that increased video game sales over the last two decades have coincided with lowered rates of violent crimes (US Bureau of Justice Statistics, 2006).

Fergusen (2007) reflected on the state of research regarding video games in 2007 and conducted two connected meta-analyses, using 17 studies for the first and seven studies for the second. The first was done to try to identify whether there was indeed a correlation between violent video games and aggression. The second had the goal of assessing if there were positive visual and spatial skills being gained as a result of playing the games. He started his article by explaining that even though the popular media may want to find links between school shootings like the ones at Virginia Tech University or Columbine High School and violent video games, such a correlation is exceedingly difficult to find since video games are played almost universally by adolescents, especially males, and school shootings are incredibly rare occurrences. In other words, while it is possible that video games may have had an influence on the particular shooters involved in these incidents, there is little to no means to be able to
generalize their reactions to those of the general public since attempts to compare ubiquitous activity with very rare activity cannot be done with any confidence. It would also be too difficult to trace a causal connection from playing violent video games to a sudden deadly violent outburst since none of the intermediary factors can be known. Stability of the assailant’s mental state as well as the level of trait aggression and practical considerations like access to weapons would all need to be considered as potential factors involved in such situations.

Fergusen (2007) also criticized some earlier research by claiming that their conclusions were biased. As a result, he determined the extremities of the 95% confidence interval for the correlations he found and also corrected them for bias to determine what effects such things would have on the correlation. The results of his study demonstrated positive correlations between violent video game playing and aggression as well as positive correlations between violent video game playing and increased visual and spatial skills. The correlation for aggression was much weaker than the correlation for visual and spatial skills and when Fergusen corrected for bias, the correlation for aggression became so small as to be negligible. The correlation for visual and spatial skills also revealed bias and dropped accordingly, but it remained much stronger than the correlation for aggression. This shows that according to this analysis video games were on average more directly linked with increases in hand-eye coordination and similar skills than they were linked with aggression. Or, to put it in a simpler way, Fergusen’s analysis showed that there appears to be a greater potential of benefits from gaming than disadvantages. This assertion could appear to contradict other studies in this area, but it is important to note that the other studies frequently focus only on the negative aspects of playing video games and ignore potential positive aspects. The reader will find more research into potentially positive aspects of gaming later on in the paper. Fergusen did not comment on
the potential weaknesses of his meta-analyses, but one critique of his results could be the notably smaller sample size of studies used in order to determine correlation for visual and spatial skills. However, the small sample size can also be defended because Ferguson used all the studies he could find within a particular time period and there were simply many more studies discussing potential negative aspects than positive aspects. This reflects the current state of video game research as well and will be discussed further at a later point.

Along with research on the relationship between aggression and violent video games, there has been research on physiological arousal in connection with such games. One model of how exposure to violent stimuli can increase physiological arousal and in turn increase aggression, the General Aggression Model proposed by Anderson and Bushman (2002), claims that aggression happens as a result of a person’s internal state, among other factors. Staude-Müller, Bliesener, and Luthman (2008) tested whether playing violent video games changed this internal state in young men between the ages of 18-30. They found that regardless of whether participants played a violent or nonviolent game, their physiological arousal decreased while playing. This could indicate adaptation to stimuli received or it could indicate lower levels of responsiveness as the novelty of the situation wears off. However, the researchers did find that those who played violent games in the study were less sensitive to images of violent trauma and more sensitive to images of aggression.

One of the concerns about violence in video games is that greater exposure to violence in the media has been linked with greater exhibition of fear in everyday life (Cantor, 2002). Since video games provide an interactive experience, rather than a passive one, that often puts players in life-or-death situations, Arriga et al. (2008) decided to test for an increase in fear reactions from violent video games by increasing the level of realism via a virtual reality system. This
study is important for the future of video games, since games are steadily progressing in becoming more realistic looking and more interactive. Whereas such games used to be exclusively played with a keyboard or simple handheld controller, currently all three major latest generation video game consoles integrate some form of motion control system and greater motion controls are planned to further enhance the experience. As gaming continues to evolve, future systems may not seem very far removed from virtual reality. Arriga et al. compared the effects of having participants play a non-violent video game in a standard way and in virtual reality with those playing a violent video game in a standard way and in virtual reality. 148 Portuguese college students participated in the study and were randomly assigned into four groups: playing a non-violent game in virtual reality, playing the same game without virtual reality, playing a violent game in virtual reality, and playing the same game without virtual reality. Their heart rates were monitored during game play and afterwards, participants filled out tests for state hostility and reaction to hostile and fear-related words. There were no statistically significant correlations between aggressive behavior or reaction to hostile or fear-related words between those who played the violent game and those who played the non-violent game. However, there were significant positive correlations between game character identification and immersiveness as well as between aggressive behavior and state hostility. Combined with the significant negative correlation between state hostility and perceived competence in playing the game, the results suggest that players who believe they are doing poorly may act more aggressively regardless of the type of game they are playing.

Ferguson et al. (2008) reviewed the research on violent video games and aggression and admitted that the existing research seemed to show a small but significant correlation between violent video game play and aggression. However, they posited that this relationship could have
been caused by multiple factors. They claimed it could be that the act of playing violent video
games does increase aggression but it could also be that aggression and violent video game play
were results of other variables that had not been studied.

In order to test this, Ferguson et al. (2008) compared aggressive reactions between groups
that had been randomly chosen to play a violent or a non-violent game and those who self-
selected to be in one or the other. Then they conducted an experiment evaluating the correlations
between self-admitted violent crime and exposure to video game violence as well as exposure to
family violence and trait aggression. Their results showed that there were clinically significant
(p < .001) correlations between crime admission and high trait aggression as well as a history of
domestic violence, but not between crime and exposure to violent video games. Also, the study
showed no significant difference between exhibited aggressions after playing a violent or non-
violent game. This led the researchers to conclude that violence in video games is not likely to
be a predictive factor in violent crime.

One area of possible weakness for the study was that the instrument used to test for
aggressiveness after volunteers played the video games was criticized earlier in the article for
having no standard interpretation. Despite the claims of Ferguson et al. (2008) that they had
determined a way to standardize the interpretation of the measure, their success at this cannot be
evaluated until other attempts are made to interpret the measure using the same standardization
technique.

In a study analyzing heart rate and blood pressure changes in German male adolescents
when playing video games (Borusiak et al., 2008), the researchers determined that all their
participants showed an increase of two standard deviations or more in both systolic and diastolic
blood pressure and the majority experienced an increase in heart rate when playing a video game.
Borusiak et al. indicated that video game use could potentially be a health concern as a result of the spike in blood pressure while playing. No significant differences were found between playing the game for longer or shorter periods, nor were there significant differences between heart rate or blood pressure before and after the game. This corresponds with previously shared research by Barlett, Harris, and Baldassaro (2007) that also did not reveal differences in physiological arousal due to repeated playing sessions as compared to one.

Continuing the research in the link between violence in video games and acted out aggression, Polman, Orobio, and van Aken (2008) compared aggression in children who had played a violent video game with those who had simply watched a violent video game being played and with those who had played a non-violent video game. Of note in this study is that the measurement used to determine aggression was peer report of actual aggressive acts committed during the day after playing the game. The study found that boys who played violent video games were significantly more likely to exhibit aggression in comparison to those who either watched violent games being played or played nonviolent video games. In addition, there were no significant changes in aggression among girls who played violent video games in comparison with the others. This difference in results by gender puzzled the researchers, who wrote that more research should be done in the area of gender differences. The researchers were also surprised that there was no significant difference between aggression in children of either gender who watched violent video games being played and those who played nonviolent video games.

Since symptoms of problem video game playing has been correlated with symptoms of gambling addiction and that some people appeared to exhibit a dependence on video games (Salguero & Morán, 2002), Hart et al. (2009) studied whether there was any indication of problems with social life or performance of adolescents in various spheres of life as a result. The
study found no correlation between problem video game playing and negative social or performance characteristics. Interestingly enough, the study also found no correlation between hours of play and problem video game behavior. One of the limitations in the study was its reliance on self-report to gauge problems in various areas of life. It is possible that problems existed of which the adolescents were not aware.

Meta-analyses of the relationship between violence in video games and aggression have more often than not identified a correlation between the two. According to Anderson (2004), studies using superior methodological design demonstrated an even greater correlation than those using less stringent guidelines. However, there is still an important feature of the discussion left out. The vast majority of the studies examining the relationship between aggression and violence in video games have been cross-sectional. Even though there are numerous studies that claim aggression is related to violent video games, it could not be determined due to the brief nature of the studies to what degree violent video games caused aggressive behavior or aggressive behavior created a stronger desire for violent video games.

In order to partially fill in this research gap, Möller and Krahé (2009) conducted a longitudinal study on the matter. After assessing beliefs about aggression, aggressive behavior, and violent video game usage in the sample group of adolescents, they waited 30 months and then retested the group. The results of the study show significant differences that indicate an increased exhibition of aggressive behavior among those who have played violent video games the most. The researchers also noted that video game activity remained consistent among males over the 30 month period but dropped among females. A potential shortcoming of the research was identified in that approximately half of the initial group studied could not be located after the
30 month period, so the sample size for the second group of measurements was considerably less than the sample size of the first group.

It may be useful to note that the majority of studies used herein that separate participants by sex have noted different patterns of video game play and different aggressive responses between males and females. Various possibilities could influence this situation. The cultural expectations of each gender may make it more appropriate or expected for males to act aggressively than females. If this is the case, then it also demonstrates that any influence that playing violent video games has on gamers is insufficient to overcome ingrained cultural values.

Just as they do with any other potentially polarizing issue, researchers sometimes have strong opinions on the research results regarding video games and the possible link between violent content in the games and aggression among those who play them. After reading the latest meta-analysis by Anderson et al. (2010) that included 136 studies, Huesmann (2010) wrote an opinion piece where he stated some of his beliefs about the field of research. According to Huesmann, violent video games should be considered a public health threat as a result of many studies that relate increases in aggression to playing violent video games. He pointed to the meta-analysis mentioned above as a capstone that should convince anyone who is “psychologically sophisticated” (p. 179) enough to understand the research and claimed that the researchers who continue to doubt such a link do not understand observational learning theory, which presumably is the main theory used in such research. However, despite these claims, Huesmann wrote that he did not expect many in the public or the news media to change their views that the issue of violent video games and aggression has not been sufficiently determined.

The reader of all this research regarding violent video games and aggression may be able to see some trends. One of the most notable observations of the research done and cited by the
above articles reveals that there are some researchers whose studies almost always seem to validate their hypotheses. Ferguson’s (2007) observation that there seemed to be a lot of bias in video game research is evident not only in the studies he included in his meta-analysis but also in studies done in the years since. For instance, studies conducted by Anderson, who co-founded the General Aggression Model in 2002, tend to show a significant and possibly causal relationship between violent video game play and aggression. Studies by Ferguson tend to show that any relationship between the two factors is minimal at best and possibly non-existent. Overall, the majority of the research does seem to indicate a positive correlation between violent video game play and aggression. Even the researchers like Ferguson who do not seem to be convinced that the link is sufficiently strong to merit any action have admitted that there is indeed a link. However, instead of repeating the dogmatic assertions of Huesmann (2010), wise mental health professionals will take the more cautious approach of Porter & Starcevic (2007), who acknowledged the relationship but also said that more research was needed regarding longitudinal effects as well as differing effects on males and females and people of different age groups.

As much as there has been the most research in that area, research into video games has not been exclusively devoted to the correlation between violent content and aggression. There have been some studies that wonder about the motivation for playing violent video games in order to determine what makes them so attractive.

While there are a number of existing studies relating aggression to violence in video games, there has been less of an emphasis in generating reasons why male adolescents, typically one of the largest groups of violent video game users, might desire to play such games in the first place. Konijn, Bijvank, and Bushman (2007) thought that identification with the heroes of the
games made the games more attractive. They then tested to determine if this identification with heroes in more realistic violent games, especially in place with first-person shooter games, would create stronger aggressiveness as measured by a desire to blast a unknown (and actually fictitious) partner with very high volumes of sound. The researchers found that the participants showing the highest aggression were indeed those who wanted to be like the game characters in violent video games.

Regarding the issue of male and female stereotypes in video games, Brenick et al. (2007) asked 87 college students to evaluate the reasons male and female adolescents would play three games and the appropriateness of the games for the age group as well as what actions should be taken as a result. One game contained violent male stereotypes, another contained sexualized female stereotypes, and a third acted as a control. The researchers used self-reports from the participants to determine their levels of acceptance of these stereotypes. They found that males were less concerned with the violent male stereotypes when compared to females, whereas both males and females were concerned with the sexualized female stereotypes. The findings also indicated that a vastly larger percentage of males were frequent gamers than females and that it was more socially acceptable among participants for males to play video games than females. This could play into the cultural theory stated earlier and the varying expectations of different genders according to their culture. It is possible that video games are considered more acceptable for males and less acceptable for females due to the conflicting values of competition for males and cooperation for females. Since video games more often encourage competition instead of cooperation, females who hold to cultural values may not be as interested. For the action steps requested, both males and females showed a preference for increased parental involvement and monitoring over increased governmental monitoring and involvement.
When reviewing the literature on violent video games and aggression, Przybyiski, Ryan, and Rigby (2009) saw a need to determine what role the violence in video games plays in the success of the game. They first theorized that since most human behavior appears to involve motivation, video games should also have a motivating factor that causes people to play them. However, the motivation to play video games cannot be external, since the games require both time and monetary expenditures to play and some gamers face disapproval from parents or others when playing.

In response, the researchers hypothesized that the motivating factors in playing video games are autonomy and competence and tested to see if violence itself was a motivating factor. To determine this, they conducted six experiments with varying groups of individuals. These experiments looked for correlations between violent content, competence, and autonomy and game immersion, enjoyment, and desire to buy or play a sequel to the game (Przybyiski, Ryan, & Rigby, 2009).

Przybyiski, Ryan, and Rigby (2009) discovered that players who had high degrees of trait aggression prior to playing the games had a preference to higher violence video games but that this preference did not carry over to the general population. Instead, the study found that competence and autonomy were correlated with game enjoyment, desire to play a sequel, and immersion regardless of violent content. As a result, the researchers concluded that violence does not play a part in the motivation of most people to play violent video games but it does play a motivational role among those who are more predisposed to act out violently themselves.

The studies that looked into motivation for playing violent video games reveal that violence is not the determining factor for most players when they choose which video games to play. Instead, the ability to identify with a character and to view them as an idealized version of
the player as well as opportunities to exhibit their competence and autonomy made gamers more likely to play their preferred games. There is a note of caution, however, that males can become desensitized to violence and people who have higher degrees of trait aggression may still prefer violent games solely for their violent content.

The third area of research into potentially negative aspects of video games has to do with character representation in the games in comparison to representative depictions of the general population. This research seeks to determine if there is a significant difference between video game depictions of people and the statistical averages of people one would be likely to meet in real life.

One of the aspects of mental health is an acceptance of reality. Video games can affect this aspect by either confirming or modifying players’ views of reality by their portrayal of the world in the game. While there are many aspects to video games that are patently unrealistic and that make no attempt to be so, it is the aspects of video games that do attempt to show something that may be seen in real life which can modify or confirm a realistic view of the world around players. Martins et al. (2009) researched female body images in video games in an attempt to determine if video games, like other types of media, distort female body images in comparison to the US national average, as defined by the Civilian American and European Surface Anthropometry Resource (CAESAR) study (Harrison & Robinette, 1998).

Their conclusions were that such distortions do occur both in females intended to be displayed as photo-realistic and those portrayed in a less realistic manner. When compared with the national average for healthy females in the CAESAR study (Harrison & Robinette, 1998), the study found that the average photo-realistic, or highly rendered, female images were substantially thinner but had somewhat larger heads. Lower rendered female images were very
close to the national average in body measurements, according to the study, but had even larger heads than the highly rendered images.

The study also determined that female characters in games rated for children were thinner on average than female characters in games rated for adults. The enlargement of heads observed in the study compared to the average female could possibly be explained as an attempt to subtly approximate the greater head dimensions of children in comparison to the rest of the body in an attempt to exaggerate or emphasize facial features and make the characters more noticeable or easier for players to empathize with. However, the findings of Martins et al. that female images in more photorealistic games and games rated for children are over 20% thinner than females in the general population suggest that video games may contribute in some way to unrealistic female body images.

Williams et al. (2009) addressed demographic representation in their study of video games. Instead of looking for correlations between playing games and targeted behavior, they looked at the games themselves and compared the characters in them to the United States population in order to determine whether there were differences and how significant those differences were between the demographic makeup of the US population and characters in video games. Their first finding was that males are vastly overrepresented in video games in comparison with the US population. While males are approximately 50% of the US population, they are over 80% of video game characters. When looking at racial appearance, those of Hispanic and Native American races were significantly underrepresented in video games compared to their respective percentages of the US population and there were no primary characters that appeared to belong to either group among the 150 video games used for the study. Since one reason people play video games is to be able to identify with the main character as an
idealized version of the self (Konijn, Nije Bijvank, & Bushman, 2007), people of Native American or Hispanic heritage may have difficulty envisioning themselves as a potential hero and that may lead to a lower drive to succeed than others, which could in turn reduce educational and occupational opportunities in a competitive economy. It could also lead to people outside those ethnic groups subconsciously marginalizing them.

These findings show that there are some significant differences between video game characters and the United States population. Williams et al. (2009) proposed as a result of this study that game developers market more games at the currently underrepresented populations in order to help them more easily identify with their race and gender and feel more empowered. In their conclusion, the researchers admitted that they were limited by judging racial features solely on appearance and also that they had a comparatively small selection of games included for which players could choose the gender and appearance of their characters. One further addition may be made to the researcher’s admitted limitations in that there are a substantial number of games that are not produced or developed within the United States and as such, comparing their demographics to US population demographics may be somewhat unfair.

The studies by Martins et al. (2009) and Williams et al. (2009) show notable differences between the average video game character and the average United States resident. While there were only two studies on the matter, both showed variances that indicate a need for further studies to be done regarding this type of comparison. The main question regarding these studies remains what implications they may hold. Both have clearly shown that video games are in some way unrealistic regarding their depictions but neither has satisfactorily demonstrated how this lack of realism is necessarily harmful. It can be hypothesized, for instance, that heads are bigger in video games in order to emphasize facial expressions which may not be read or
understood as clearly if they were correctly proportionate. In addition, males could have such an overrepresentation in video games because males are more likely than females to play them and the programmers wanted to make more characters that appeal to the majority of their playing audience.

By now, the reader has seen some of the recent research regarding the potentially negative aspects of video games and may conclude that research is almost exclusively conducted in relation to these aspects. Regarding their usability for promoting social interest, video games appear to be limited when one only views this data. Social interest is generally not promoted by fostering unrealistic views of others or by increasing aggression. However, a glimmer of hope remains when the motivations for playing violent games are taken into consideration. Most individuals do not play video games for the violent content. Instead, games are typically played so the players feel empowered and can attain feelings of autonomy and competence. Being able to identify with others and achieve competence can be very socially interested goals, and while autonomy does not necessarily lead to greater social interest, it can free up some of the mental and physical resources needed to have social interest, at least from the perspective of Maslow’s (1954) view of self-actualization and social interest. While current research is indeed tilted toward their negative aspects, there is also ongoing research on the positive aspects of video games and their potential.

**Research on Positive Elements in Video Games**

While fewer in number, there have also been a number of studies that have attempted to highlight potentially positive aspects of video games. From social development to better visual and spatial abilities to even increases in prosocial behavior, video games have been considered
useful even by some of the same people who would point out the uselessness of violent content leading to aggression.

One of the useful possibilities for video games in the present and future is in the role of teaching tool. Learning games such as Nintendo’s *Brain Age* and *Where in the World is Carmen Sandiego?* have gained a tremendous amount of popularity while still teaching valuable skills and information to thousands of players. As a result, there has been some desire to try out video games as part of a school learning curriculum.

Tüzün (2007) conducted a qualitative study in which he used video games to teach students geography, first aid, and basic computer skills. His intent was to find new teaching methods that could replace the traditional methods which are having difficulty connecting with students today. The study was done in three schools in central Turkey in order to gain a better real world context. Tüzün discovered that there were several difficulties to face in designing and deploying the games for certain teaching goals, since the designing process took longer than he anticipated and the students who used the games had higher expectations regarding interactivity than the experimental games were able to provide. Also, while each class was using the games, the role of the teacher changed from being a direct instructor to what Tüzün called a guide. However, Tüzün indicated that this did not cause teachers to lose authority. The conclusions of the study were that while video games can contribute positively to education, there are a number of changes needed in order to make this happen. Video games must be designed and produced to the same quality level as games produced by the major companies in the field. Schools must have reliable technological infrastructures and support. And teachers must be willing to change their roles somewhat for video games to be effective in the classroom.
Since one of the potential positive uses of video games can be their use as a teaching tool, Baek (2008) examined the obstacles in the way of using video games for that purpose. In order to discover the obstacles that were blocking video games from being used in the classroom as a learning tool, he asked 444 teachers from Korean schools to identify the largest obstacles from their points of view. They came up with six categories of obstacles.

The most common obstacle overall was the inflexibility of the curriculum to include video games as learning materials. Other obstacles were the negative effects of gaming, student unreadiness to use video games for learning, a lack of supporting materials for the procedure, the limited and fixed class schedule, and limited budgets that would make purchasing the games difficult to afford.

Aside from the concern about negative effects of gaming, Baek found that the answers provided most often by male and female teachers varied widely. Female teachers mentioned student unreadiness, lack of support materials, the limited and fixed class schedule, and limited funding much more often than male teachers. On the other hand, male teachers mentioned the inflexible curriculum more often than female teachers.

From the existing research, it appears that video games are not likely to play a major role in the classroom for a while unless some significant changes are made to the existing school infrastructure. However, this does not mean that video games cannot be used effectively in any school environment. Private and alternative schools may have the funding and the scholastic flexibility to be able to put video games to use in a curriculum. Their methods could potentially provide the strategies that more mainstream schools could use to implement such games as a part of their programs as well. In addition, video games may be used as part of a supplemental curriculum for students who have difficulty with the standard curriculum. In this latter case, it is
unlikely that school districts would be willing to fund game development for a smaller percentage of their students, but existing games may be able to be adapted for the purpose. Not only can video games be potentially useful in schools, but some research has been done on potential ways that games could be beneficial to communication. This may be a foreign concept to many who are convinced that video games alienate their players, but some researchers have challenged that assertion.

One of the things enabled by technology has been an increased ability to communicate with people who would otherwise be out of reach. It is not therefore uncommon for those playing online games to have opportunities to converse with people from vastly different backgrounds and cultures. Peña and Hancock (2006) called this type of interaction computer mediated communication (CMC). While many theorists believe that due to the limited nature of such interaction, CMC would be much more limited to tasks and include less social behavior than face-to-face communication, a study by Walther & Burgoon (1992) has indicated the opposite. According to the study, groups of people interacting for the first time via CMC exhibited more social behaviors than those interacting for the first time in person. The study by Peña and Hancock (2006) had similar findings and also revealed that of the social interactions present within the video games, there were a larger percentage of positive social messages and evaluations than there were negative messages. Peña and Hancock stated that the majority of the negative messages were situational, as when a player broke the rules of the game or exhibited rude behavior, and that the positive messages were more evenly distributed throughout the game experience in comparison.

One of the simplest and most fundamental aspects of social interest is family interaction. According to Aarsand (2007), video games can serve as gateways to new forms of
intergenerational family interaction. While most intergenerational activity within families is led and regulated by the parents, grandparents, or other older relation, Aarsand demonstrated that video games allow the younger generation to have more control of a social situation as a result of the perceived difference in computer and electronic abilities between older and younger generations. Since children are often perceived as being more technically savvy than their parents or grandparents, video games provide them the opportunity to use those expectations to feel empowered by playing the role of a teacher to their parents. Conversely, Aarsand said that parents also utilized video games to gain more social interaction with their children, which may be an easier thing to do when the parents are temporarily not seen as the rule givers and can be seen in more of a peer or learner role. So both the parents or grandparents and the children can use video games to indirectly facilitate their social interest in each other.

While this research obviously does not address all the concerns of those who worry about detrimental social effects of video games, it can provide another perspective to balance out some of the concerns. It can be difficult for some to think of video games as being a socially positive influence and the added challenge strengthens the research from both camps. And other potentially positive aspects of video games may have been overlooked by researchers as well.

In an editorial for *Simulation and Gaming*, Myers (2005) described some of the qualities of video games that he believed had been overlooked or trivialized by much of mainstream research. He emphasized that the questions and challenges inherent to video games can also be more broadly applied to other areas of life, thereby making video games a much more useful medium for research than is typically acknowledged. One issue he brought up was the question of gender differences in game preferences. Studies repeatedly reveal that a higher proportion of males play video games than females, and as a result there have been games designed to appeal
more to female gamers. However, Myers pointed to Diana Carr’s research to illuminate that female gamers are not drawn to stereotypically female gaming roles as often as game developers might expect. Myers took this as an example of how gaming research can have useful applications to other areas of research, in this case gender studies.

He also challenged the conception that gaming was predominantly an isolating activity by referencing the huge popularity of guilds and cooperative play in massively multiplayer online role-playing games such as World of Warcraft and said that such games offered players an opportunity to engage in a wide range of social exchanges with others. As a final challenge, he indicated that there was potential in the current video game market for “stealth learning” (p. 445) within games ostensibly designed primarily for entertainment which would allow those playing the game to learn appropriate communication methods and other useful information.

One example of the way video games could trigger a sort of hidden learning is in the development of better visual skills and quicker reactions. Although there have been a number of studies on this topic, for instance the one done by Fergusen (2007) in the previous section, the following one may provide one of the better examples.

Achtman, Green, and Bavelier (2008) used video games in an attempt to determine if playing them had an effect on the visual and spatial skills of adults. They used a first-person shooter game which they called an “action game” (p. 438) and a strategy game for the experiment as well as a method of determining visual processing speed and accuracy. Their results showed that participants who had played either game were more responsive and accurate when they took the visual test and that those who played the action game scored significantly better than those who played the strategy game. As a result, the researchers determined that
video games can promote better visual skills among their players. They also noted that action games are the most effective kind of game for promoting increased visual skills.

In their discussion, the researchers theorized that due to the nature of action games which forces their players to quickly follow a complex pattern of actions in response to a stimulus involving correctly aiming and firing, the visual centers of the brain are more easily trained to react quickly and accurately. They also cited Koepp et al. (1998), who conducted experiments with positron emission tomography to study the brain activity of people playing video games and who found markedly increased levels of dopamine in the brains of gamers while playing compared to their normal state. Achtman, Green, and Bavelier then theorized that this surge in dopamine could indicate rapid learning processes. They further suggested that as a result of the potential rapid learning that could happen as a result of playing video games, that such action video games could be used to assist in rehabilitating people whose visual skills have been damaged or are not as well attuned.

One interesting observation is that the category of video games identified in the article as action games has been often identified in other research as violent games. One may wonder if the different areas of video game research label the games differently in order to focus on their particular area of concern.

Of all the unlikely ways that video games can be potentially useful, perhaps the most surprising to people who are convinced that they increase aggression in gamers is that video games can increase socially beneficial behaviors in those who play them. This correlation between video games and prosocial behaviors has also been studied.

While the effects of violent video games on violent or aggressive behavior have been studied numerous times, the effects of socially positive games on prosocial behavior have been
studied less. Greitemeyer and Osswald (2010) conducted a series of four experiments in which some participants were asked to play a prosocial video game and others were asked to play a neutral or antisocial game. In all four of the experiments, there was a significant difference in measured prosocial feelings or behavior between those who played the prosocial game and those who did not. Thus the study indicated that not only could video games have a potentially negative impact on those who play them, but they can also have a potentially positive impact on those who play them as well. If social interest is seen as one of the most important indicators of mental health, then according to this research, video games may be capable of increasing both social interest and overall mental health. However, the results gained also indicate that caution should be used in deciding which games to play based on the messages promoted in the game.

Gentile et al. (2009) noted that the existing research regarding video games was primarily aimed at only a few limited areas that the games could influence. The majority of research was related to determining whether or not a correlational relationship existed between violence in video games and aggression, while others evaluated the effectiveness of video games as teaching tools and means of developing hand-eye coordination and improved visual attention skills. Instead of challenging that research, the researchers decided to use some of the underlying principles in the general aggression model, which is often used to explain the relationship between violent video games and aggression, and apply them in a new way that had not previously been done. Instead of examining how violent video games can be related to aggression, the researchers examined how prosocial video games can be related to prosocial behavior. In order to provide a solid foundation to this area of video game study, the researchers conducted a total of four studies in three different countries using three different methodologies (correlational, longitudinal, and experimental).
In the correlational study, students who had higher exposure to prosocial video games exhibited markedly higher degrees of helping behavior and empathy and slightly higher degrees of cooperation and sharing. The longitudinal studies showed significant, although very small, correlations over a three month period between prosocial video game playing and prosocial behavior. Interestingly enough, they also found the reverse to be true, where prosocial behavior was significantly, although weakly, correlated with later prosocial video game play. The experimental study showed that the type of video game played (prosocial, neutral, or violent) had a proportionate effect on the number of helpful and hurtful choices made during a follow-up exercise.

The researchers concluded that prosocial content in video games does indeed seem to be correlated with prosocial behavior with potential causal effects. Of note is that among the researchers in this study are Anderson and Bushman, who conducted many of the studies linking violent video games to aggression.

The findings on a link between video games and prosocial behavior are still in their relative infancy when compared to the findings for a link between video games and aggressive behavior, however the initial results look promising. If these results can be substantiated in further studies, then there is a greater likelihood that video games can be viewed in the way Gentile et al. (2009) described when they said the following:

Video games are not inherently good or bad, just as any tool is not inherently good or bad. For example, an axe can be used to split logs for a fire to keep people warm on a cold day or it can be used as a weapon. Likewise, video games can have both positive and negative effects. Content matters, and games are excellent teachers (Gentile & Gentile, 2008). Violent content in video games can
lead people to behave more aggressively. Prosocial content, in contrast, can lead people to behave in a more cooperative and helpful manner. (p. 762)

**Research Implications**

That last quote is a good way to start any analysis or study on video games. While they are nearly ubiquitous, video games are not inherently good or evil, despite the people who would have everyone believe otherwise. There are both positive and negative things to be said about video games and their influence.

When looking over the research, it is helpful to go over two important areas: what was said and what was not said. This was done in a small way when weak spots were pointed out for some studies that did not admit their possible weaknesses, but it is a process that can be very helpful to utilize over all the studies in order to discover what the reader may have missed along with the information provided.

The first thing the reader can glean from the studies is that there are concerns among some researchers, the mass media, and some of the public in general about the influence that video games can have on people. While this statement may seem obvious, it is worth noting. This concern has primarily been focused on the topical content of video games. In other words, the most substantial concerns over video games has nothing whatsoever to do with the system on which the games are played, the controllers used to play the games, the cost of the games, or the game play of the games. There is also some limited concern about the amount of time some people spend playing video games, but most of it revolves around content. Further, a kind of reverse halo effect has caused many people in various different groups to assume that all video games are at fault for this content. The most frequently cited offensive content in video games is violence, although sexual content has also been labeled as inappropriate in some games.
According to the research, the aforementioned violent content is correlated with short-term increases in the aggression of adolescent males after playing them. Similar effects may potentially exist for males of other ages and for females. Also, long-term increases in aggression after having repeatedly played games with violent content has been observed in some studies and may possibly be true of adolescent males or other age and gender groups. Also according to the research, only certain games contain enough violence to quality as a violent game. Of those that were classified as violent games, the effect of violence on aggression appears to be increased by increasing the degree of realism of the violence. Further, Bluvshtein (personal communication, August 11, 2010) suggested that there could be confounding variables in studies of video game violence and aggression in children and teens since the studies can only be done with those whose parents allow them to play the games. As a result, there may be familial influences and values that affect the results of the studies in question.

Just as important as what is said in the research is what is not said in the research. In most studies, the term violent as it refers to video game content is not well defined. Also, the term aggression is not sufficiently correlated to violence even though it is always used in a negative connotation. Due to these problematic definitions, it can become more difficult for readers of the studies to understand what the implied danger of increased aggression may be.

Other aspects that were not included in most of the research are cultural values. While many articles did engage in discussion of gender differences in regard to video game playing, very few mentioned anything about the cultural values of the participants. In the studies that tested for aggression, there was very little examination of whether aggression could potentially be a cultural value among the participants or a subset of them.
When one reviews what was said and what was not said in the research, some areas of needed future research become clear. First, there is a need to define exactly what researchers consider violence in video games. Many studies have measures that they have used to ensure internal reliability, but reliability across different studies is just as important. Some form of research standardization would be useful for this. Next, video game research has the potential to learn a lot from cultural research, especially research on the role and value of aggression cross-culturally. While there has been a substantial portion of cross-cultural research regarding video games, the research has been primarily focused on determining if violence in video games could cause aggression rather than on what meaning or usefulness aggression could have in the culture. Researchers could integrate more cultural knowledge into their studies in order to gain a better understanding of the possible effects of video games regarding aggression and more particularly dealing with the expressions or uses that aggression may have. Also, since most research in this area has been done with adolescents and college students, expanding the age range of participants could shed more light on the extent of the correlation between video game violence and aggression.

Integrating more cultural values with video game research can be beneficial in other areas in addition to determining the potential value of aggression. Examining such values may shed some light on why certain populations are over-represented in video games and others are under-represented, and it can also illuminate reasons for the appearance of video game characters. There are many possibilities for the character decisions made in the games and cultural insight may be able to provide some answers where other methods have not done so.

One of the most noticeable elements in video game research as a whole is that there is a disproportionately small amount of research into the potentially positive aspects of video games
when compared to research into potentially negative aspects of video games. This phenomenon has some serious implications in the field. Since there is quantitatively more research on negative elements of video games, the results of those studies are likely to have stronger support than studies done on potentially positive aspects of video games due to the comparatively high number of studies that have been done. Also, as a result of the greater number of studies into negative aspects, it can become easier for both professionals and the public at large to assume that there are inherently more negative aspects of video games than there are positive aspects of video games. This possibility of making conclusions primarily from numbers alone has the potential to vilify video games as a whole by minimizing their potential positives. If video games are truly tools to be used however one chooses, then both their usefulness and their uselessness should be examined. If video games are to be seen in the most balanced way possible, there needs to be more research devoted to their potentially positive aspects. Currently, the studies on negative aspects outnumber those on positive aspects by a nearly two-to-one ratio. Whether this is primarily a result of research preferences or a result of funding decisions, both sides need to receive equal scholarly attention if video games are to be properly understood.

One of the areas of research that could be particularly useful is the area of potential prosocial benefits of video games. More research into the ways that prosocial content in games can influence prosocial behavior among players can have multiple beneficial results. On the most basic level, such research can inform more scholars that prosocial games exist in the first place. But more than that, if a correlation could be confirmed between prosocial content and behavior, it could solidify the link between video game content and behavior in general. Whether or not such a link is validated, it has implications for future research on the link between violent content and aggression as well as implications for learning theories in general.
If video game content is correlated with the behaviors of gamers, then different teaching models can be built around the results of studies in the area.

Teaching is one area where, according to the limited research stated earlier, video games could potentially be useful but are having difficulty making headway due to a number of difficulties in adapting to new methods of learning. While an overdependence on video games would likely be a mistake in the classroom, there seem to be some opportunities for integrating video games in schools as part of a learning curriculum in order to teach skills and model behavior that may possibly be easier for students to learn by playing a game then by being taught in more traditional methods. For instance, visual skills may be learned significantly faster by playing video games than by other methods available to schools.

**Use as a Function of Social Interest**

Obviously, there is a great deal of further research to conduct regarding video games. As stated above, they can be useful or useless, depending on a number of factors. However, more is still known about their uselessness than their usefulness and that is a concern. Increased research into the previously mentioned areas can help to determine more information regarding the different ways video games can be useful and useless. However, research is typically a time-consuming process; the time for sufficient numbers of studies to accumulate so conclusions can be drawn is likely to be considerable. In the meantime, the uses of video games can be further clarified, which will in turn provide openings for new avenues of research.

Social interest is one effective way to determine the usefulness of any particular video game. The question to be answered to determine if a video game is useful from a social interest standpoint is whether its use encourages or promotes socially interested behavior “such as
friendliness, empathy, cooperation, tolerance, nurturance, and constructive independence” (Leak, 2006, p. 444) among its players.

Since, as stated earlier, there are many factors that go into a game, there should also be as many factors that go into determinations of its usefulness. For instance, the game play method of a game may lead it to be more useful from a social interest standpoint. As an example of this, the American Heart Association (AHA) praised Nintendo’s Wii game system for its more interactive control method that encouraged gamers to be more active when playing games (Nintendo, 2010). The AHA did not recommend the system because its games had certain content, but simply because it used a type of controller that encouraged greater activity. Socially interested video games could likewise be considered useful for a similarly wide range of reasons.

Similarly, uselessness can be signified in a video game by multiple factors. For example, a computer game with excessively high hardware requirements for playing could be considered useless because it works poorly on most computers and stimulates frustration and anger among its players.

While the examples above demonstrated how a game or a system could be considered useful or useless, it is nearly impossible to describe the useful and useless aspects of video games as a whole since there is such a variety. Also, undertaking such a description would undoubtedly confuse many since games are likely to have multiple useful and useless traits. A massively multiplayer online game may encourage the use of cooperation in raids and a sense of social belonging in guilds, but it can simultaneously decrease personal interaction on a face-to-face level and encourage a lack of commitment to other activities and groups outside the game. A person who read that description could understandably be unsure if that meant the game was
predominantly useful but somewhat useless, predominantly useless but somewhat useful, or functionally neutral since it contained both useful and useless traits.

Therefore, since a descriptive explanation would be ineffective, a prescriptive explanation makes the most sense. Using a prescriptive explanation, the reader may understand what factors contribute to video games being useful or useless and can use their own wisdom to decide which games should be played or avoided as a result.

Prosocial content appears from the research to be one of the most significant ways that video games can be useful in promoting social interest. As Gentile et al. (2009) and Greitemeyer and Osswald (2010) discovered, there seems to be a correlation between prosocial content and behavior.

While deliberate prosocial content is definitely useful, incidental prosocial content or opportunities for such are also useful. Role-playing games where the main character has the option of helping non-playable characters to complete side quests and multiplayer online games where the characters must work together to defeat certain antagonists are examples of this. While not put in the game deliberately for its prosocial content, it still provides the player an opportunity to act in a socially interested way, which then allows them to self-model the behavior for life in general.

Multiplayer console or local area network games with three or more players are useful for social interest simply because they bring similarly interested people together in the same room. Even if all the players are competing against each other, they all gain some understanding of what the other people are like, and this helps each player understand more of the interconnectedness between them. Manaster, Cemalcilar, and Knill (2003) said “Individuals have immense problems seeing the whole and even larger problems speaking about the whole”
(p. 110) regarding the holistic nature of Adler’s theory, and it applies to social interest as well.
When people are more isolated, they can have more difficulty understanding social interest, but video games can be useful by bringing them together for a fun and non-threatening meeting where they can get a chance to be socially interested by the kind of default community that develops in such situations.

Even though most of the research has been based on violence in video games, the main factor that makes a game useless is not violence per se. Instead, it is a game perspective where the playable character is totally alone in the world and absolutely everything else is an enemy, with the objective being to essentially kill all the enemies in the game. The violence itself can be tempered with teamwork, but when one is alone, it has the chance to reduce a person’s social interest. This happens for the flip side of the very reason that multiplayer games can increase social interest: no one else is there, and one cannot be socially interested if there is no one else in whom it is worth being socially interested. When immersed in this type of situation for long enough, one can potentially isolate to the point that one becomes the center and only important person in one’s world. As discussed when considering self-betterment as a gauge of mental health, being predominantly occupied with one’s self is not always conducive to the health of others. It can also be detrimental to the self. Since the isolated person lacks outside support and interaction, he or she does not see the weak spots or areas of concern that others may be able reveal. As a result, unrealized problems can become worse instead of better.

Another factor that can make a game useless is distortion of game characters. As found in the research by Martins et al. (2009) and Williams et al. (2009), many video games do not adequately reflect the shape and demographic information of people one would be likely to meet in real life. This is useless because it can prime the player to ignore the types of people who do
not fit the people in the games being played. As stated earlier, part of social interest is accepting people as they are, and video games that distort reality do not encourage that acceptance.

A third aspect that can make video games useless is an addictive design. Games with an addictive design have goals that can be completed but do not have any final goal or way to win the game. Many massively multiplayer online games fall into this category. When it is impossible to complete a game, people can do one of two things: they can stop playing after a while or they can continue playing and seek to attain a new goal within the game. Games with addictive design use periodic upgrades and expansions to ensure that it is virtually impossible to complete every goal and they require players who are serious about pursuing these goals to spend ever-increasing amounts of time in order to reach them and often even more time to maintain them. This process can markedly reduce social interest, although in a different way than the games where the playable character is alone. Addictive games have the capacity to narrow a player’s focus until the game is the primary aspect of the player’s life. This of course is terribly damaging to social interest because the player is entirely self-absorbed and constantly striving for personal superiority, both of which are antithetical to being socially interested.

Suggestions

In light of what makes a video game useful and useless, there are several suggestions which can be made to different groups of people to improve the current state of video games in today’s culture. These suggestions are for video game developers and producers, parents of children who play video games, mental health professionals, and gamers themselves.

For game developers, existing research seems to indicate that people play video games because they provide a sense of competence and autonomy and because the games allow them to imagine an idealized version of themselves. There is no reason why games cannot be developed
that are just as fun to play and that will make just as much money that have more prosocial content. Further, there is potential in the education market for games that have never before been conceived but that could sell millions of copies to schools all over the world. As professionals in the field, game developers can go beyond the preschool perceptions of educational games and make video games that would be high quality, would teach subjects effectively, and would be fun to play. And that kind of opportunity, not only for a profitable line of games but also for the positive public relations that would develop as a result, is hard to find elsewhere.

For parents, some of the most important actions are the simplest. Parents that know the ESRB video game rating system and use it to guide them when deciding what video games their children can buy and play are at a huge advantage over parents who are simply too ignorant to be able to make informed decisions. Next, parents should have the family game system or computer in a public area where they can see what it is their children are playing. Putting time limits on how long children are allowed to game at a time or per day or week will make it harder for children to become addicted to games or will at least make the addiction much more obvious to parents. Most importantly, parents need to talk to their children about what video games they play and be willing to play along and perhaps be taught something about the game by their children. In this way, the communication lines can stay open and parents will be able to deal with any problems when they first come up and not after they have become serious.

For mental health professionals, the research has indicated that video game addiction may indeed be a legitimate condition and that it can sometimes be hard to diagnose if the focus is on school performance. However, it is also important to let clients reveal what is troubling them and not automatically jump to a diagnosis when the client says they play a lot of video games.
Video games can also be a positive influence, so attention should be paid when a client is describing what games are played and with whom.

Finally, gamers should be aware that what they play can influence them. It is easy to discount reactionary lobbyists like Jack Thompson as people who do not know what they are talking about, but there is sufficient scholarly research to show that gamers may be what they play, at least to an extent. While it is entirely possible that any particular gamer may not be affected at all by what he or she plays, it is also possible that he or she will be affected, since there is evidence that some people are. Also, gamers should be aware that immediately after playing a game is when they are most likely to be influenced by it, so planning gaming time so it does not happen immediately before meetings or interviews is typically a good idea.

Video games are here to stay. The industry continues to grow even during harder economic times and games continue to spread out across more and more platforms. It is true that games can influence people to behave more aggressively than they may behave otherwise. However, it is also true that they can help people develop various techniques and practice social skills that can get them far in life. Like any number of other things, video games are not innately good or evil, and if they are developed and played with wisdom, they can be useful to mental health and social interest.
References


Barlett, C. P., Harris, R. J., & Baldassaro, R. (2007). Longer you play, the more hostile you feel: Examination of first person shooter video games and aggression during video game play. *Aggressive Behavior, 33*(6), 486-497. doi:10.1002/ab.20227


Cantor, J. (2002). Fright reactions to mass media. In Bryant, J., Zillman, D. (eds.), Media effects: 

neuroscience: New questions and new opportunities. Current Directions in Psychological 
Science (Wiley-Blackwell), 16(4), 178-182. doi:10.1111/j.1467-8721.2007.00499.x


from http://www.esrb.org/ratings/ratings_guide.jsp

22(1), 103-128.

Violent video games and aggression: Causal relationship or byproduct of family violence 
doi:10.1177/0093854807311719

Ferguson, C. J. (2007). The good, the bad and the ugly: A meta-analytic review of positive and 
doi:10.1007/s11126-007-9056-9

exposure to aggressive stimuli. Journal of Personality and Social Psychology, 40(5), 868- 
875. doi:10.1037/0022-3514.40.5.868

Liau, A. K., Khoo, A., Bushman, B. J., Huesmann, L. R., & Sakamoto, A. (2009). The
effects of prosocial video games on prosocial behaviors: International evidence from
correlational, longitudinal, and experimental studies. *Personality and Social Psychology
Bulletin, 35*(6), 752-763. doi:10.1177/0146167209333045


population (ages 18-65) of the United States of America (1998).* Retrieved from

12*(1), 63-65. doi:10.1089/cpb.2008.0117

Huesmann, L. R. (2010). Nailing the coffin shut on doubts that violent video games stimulate
aggression: Comment on Anderson et al. (2010). *Psychological Bulletin, 136*(2), 179-
181. doi:10.1037/a0018567


synergy and differences with the field of community psychology. *Journal of Community


