2014

Voice Over Internet Protocol (VOIP), Video Games, and the Adolescent's Perceived Experience

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This is to certify that the doctoral dissertation by

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Walden University
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Abstract

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by

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John F. Kennedy University, 2007

Brigham Young University, 2004

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Health Psychology

Walden University

January 2015

Abstract

Video games are an everyday experience for adolescents and have changed how adolescents interact with one another. Prior research has focused on positive and negative aspects of video game play in general, without distinguishing Voice Over Internet Protocol (VOIPing) as the mode of play. Grounded in entertainment theory, motivational theory, and psychological distress theory, this cross-sectional, correlational study examined the relationship between VOIPing and quality of life (Pediatric Quality of Life Inventory), Yee's motivation to play video games, and resilience (Child and Youth Resilience Measure). A series of linear regression and multivariate canonical correlation models analyzed self-report responses of 103 adolescents aged 13 to18. Results indicated that VOIPing was not statistically related to quality of life or resilience. However, VOIPing correlated positively with motivation to play video games, particularly with the subscales of socialization and relationships. Canonical analysis of motivation for gaming and quality of life indicated that adolescents with high scores on customization and escapism motivation for gaming subscales tended to also have high scores on each of the emotional, social, and school quality of life subscales. Canonical analysis of motivation for gaming and resilience indicated that adolescents with low scores on the escapism motivation for gaming subscale tended to also have high scores on the individual, relationships, and community resilience subscales. The positive aspects of VOIPing, particularly with increased motivation to play video games, can be effectively used in coaching adolescents in social skills and relationship building.

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Dedication

This work is dedicated to my wife, who has supported me through the challenging process of earning a doctoral degree. It is also dedicated to my parents, in-laws, and friends. My parents and in-laws instilled in me a love of education and dedication to work hard. Also, my circle of friends offered constant patience and encouragement. Thank you one and all.

Acknowledgments

I wish to acknowledge my committee chair, Dr. Thomas Diebold, and my committee member, Dr. Martha Giles, for their support and guidance with my dissertation and my entrance into the doctoral community.

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Chapter 1: Introduction to the Study

Background

Adolescent life has changed since the advent of video games. Prior to video games, individuals played games outdoors with their friends, socialized face to face, and were more involved in family activities. However, adolescents are now spending more time playing video games than they did before (Kaiser Family Foundation, 2010).

An important aspect of video gaming is that of social gaming, which is the fastest growing section of the video game industry. The Entertainment Software Association (ESA; 2012) defined *social gaming* as pertaining to games that enable and foster social interaction inside and outside of the gaming experience. Over 40% of United States gamers play on social gaming sites (ESA, 2012). Rheingold (2000) commented that online game communities present an opportunity for individuals to make new friends, interact, and build a social community. ESA determined that the majority of parents accept video gaming as a positive social experience (ESA, 2012).

Nevertheless, researchers have also expressed concern about online communities, indicating that social interaction online is not always beneficial and, in fact, may be harmful to the individual by replacing face-to-face social interactions (Kraut et al., 1998). Wang, Chen, Lin, and Wang (2008) expressed that time engaged in online activities negatively impacts individuals' perceived life satisfaction, school grades, interpersonal relationships, and physical health. A detailed discussion of these and other studies is provided in Chapter 2.

Most researchers have looked at the interaction of individuals playing video games without Voice Over Internet Protocol or VOIPing. Gamers who VOIP use a microphone and earphones to talk over the Internet with fellow gamers. The communication occurs through the video game server during the course of in-game play and also in waiting rooms, where more relaxed conversations occur. Halloran (2011) suggested that the current trend of VOIPing may significantly impact not only the way individuals play video games, but also how they socialize, who they socialize with, and how they mentally and physically feel about themselves. Even with all the research that has been done on video games, no researchers have asked about the impact that VOIPing may have on adolescents' quality of life, their motivation for gaming (e.g., escapism or socialization), and their resilience in life's struggles. This study was conducted to help fill the current gap in understanding the effects of VOIPing on adolescents.

Problem Statement

Video games impact the lives of individuals who play them in many positive and negative ways. Some of the positives include expanded visual attention, increased processing speed, improved cognitive function, and enhanced spatial cognition (Green & Bavelier, 2006; Spence & Feng, 2010). On the other hand, some of the negatives of video gaming encompass detrimental impacts on friendships, school, work, the individual's physical and emotional health, and the individual's ability to function on a daily basis (Chappell, Eatough, Davies, & Griffiths, 2006; Mentzoni et al., 2011). However, it is not known if video game VOIPing positively or negatively impacts adolescents' quality of life, motivation for gaming, and life resiliency.

Purpose of the Study

The purpose of this quantitative study was to determine the relationship of adolescent video game VOIPing on adolescents' quality of life, motivation for gaming, and life resiliency. Video games continue to be a dominant force in adolescent lives, and the research focus in this area has been primarily on the negative aspects of gaming (Ha et al., 2007). Positive aspects of video gaming are starting to be addressed in research, but information is still limited. VOIPing has been mentioned as one of the influences that may help improve adolescent lives (Halloran, 2011). This study examined the relationship on a continuum between those who VOIP and those who do not VOIP with regard to three factors: quality of life, motivation for gaming, and life resiliency.

Nature of the Study

This research study was quantitative in nature and was a single-stage design of a one-time capture approach. Participants in the study responded to surveys provided to them through an electronic format. This selection methodology offered ease of use, flexibility for participants, and participants' comfort with electronic surveys. This research study used a combination of preestablished surveys that had shown validity and reliability in previous research studies. The variables in the study included VOIPing (independent variable), quality of life (dependent), motivation for gaming (dependent), and resilience (dependent). The multivariate effects of quality of life, motivation for gaming, and resilience were examined after controlling for the independent variable.

VOIPing was measured on a continuous scale determined by how participants responded to two questions. Quality of life was measured using the PedsQL™ Short-

Form 15 Generic Core Scales© (ProQollid, 2012). Motivation for gaming was measured using a 39-item survey on motivation for gaming created by Yee (2007). Resilience was measured from the quantitative portion of the resiliency survey of The Child and Youth Resilience Measure (CYRM) 28 (Resilience Research Centre, 2009). These measures are discussed in further detail in Chapter 3.

Participants for this study were selected from one school district within California near a major metropolis. All participants from the ages of 13 to 18 had an opportunity to participate after informed consent was given by a parent or legal guardian. Assent of the adolescent was required.

Research Questions

A series of constructed analytic models were used to examine explanatory relationships between quality of life, motivation for gaming, and resilience with the proportion of gaming time that included VOIPing. Similarly, multivariate relationship models between (a) motivation for gaming and quality of life and (b) motivation for gaming and resilience were examined. The explanatory models were associated with the research questions listed below. More detailed information on each model and associated analysis plan is provided in Chapter 3.

Model 1: Quality of Life and VOIPing

What are the combined and relative relationships of the physical, emotional, social, and school quality of life subscale scores with proportion of VOIPing gaming time?

Model 2: Motivation for Gaming and VOIPing

What are the combined and relative relationships of Yee's (2007) three motivation for gaming scales and 10 subscales with proportion of VOIPing gaming time?

Model 3: Resilience and VOIPing

What are the combined and relative relationships of the individual, family and peer relationships, community, and culture resiliency subscale scores with proportion of VOIPing gaming time?

Model 4: Motivation for Gaming and Quality of Life

Along how many dimensions are the 10 motivation for gaming subscales related to the four quality of life subscales, and what are the variable patterns that define a dimension?

Model 5: Motivation for Gaming and Resilience

Along how many dimensions are the 10 motivation for gaming subscales related to the four resilience subscales, and what are the variable patterns that define a dimension?

Theoretical Base

The conceptual framework used to create this study was generated from multiple sources: entertainment theory (ET) and motivational theory (MT) by Klimmt, Hefner, Vorderer, and Roth (2008) and psychological distress theory (PDT) proposed by Leonard Perlin and used by Hart et al. (2009) when looking at problem video game playing. Other researchers have used these theories to determine why individuals play video games. ET is based on the assumption that video games are played because individuals see some

value in playing (Klimmt et al., 2008). The value of VOIPing during game play is that players have greater control of their gaming environment and can communicate with other players in order to obtain game objectives. This feature can have increased importance if players believe that they don't have control in other areas of their lives.

MT and PDT suggest that playing is done for a specific reason, such as avoidance of problems, escapism, or, conversely, increased social connection (Hart et al., 2009; Klimmt et al., 2008). The specific reasons for VOIPing might be to allow individuals to immerse themselves in a video game to escape personal problems or, on the other hand, to improve social contacts through planning strategy, giving feedback as the game progresses, or simply chatting. Adolescents can focus on what they are saying about the objectives of the game and how to attain them as a team rather than doing homework or dealing with difficult peers or situations face to face.

This study focused on aspects of VOIPing and its potential impact on adolescent quality of life, motivations for playing, and resilience. Previous studies and research on video games summarized here in Chapter 1 are explained in further detail in Chapter 2.

Definition of Terms

This study used terms that the reader may be unfamiliar with, which are defined here.

VOIP or VOIPing: Refers to *Voice Over Internet Protocol*, a transmission technique and delivery system of a voice over the Internet. More specifically, VOIP involves communication with a microphone and speaker so that individuals can talk with and hear other players (Halloran, 2011).

Life satisfaction: The ability to be successful in whatever an individual has hoped for compared to what he or she has achieved (Wang et al., 2008).

Motivation for gaming: Characteristics that encourage individuals to play video games and are correlated with gaming behavior and usage patterns (Yee, 2007).

Quality of life: Adolescents' satisfaction or dissatisfaction with life in multiple areas such as physical well-being, emotional health, social connections and interaction, and ability to succeed in school over the past month (ProQollid, 2012).

Resiliency or resilience: The ability of a person to use positive patterns of adaptation to work through historic, current, or potential adversity (Evans, Marsh, & Weigel, 2010).

Assumptions

The assumptions for this study included the following:

Assumption 1: Adolescents responded truthfully to the survey questions presented.

Assumption 2: VOIPing impacts quality of life and resilience for adolescents who play video games positively.

Assumption 3: VOIPing motivates adolescents to spend more time playing video games, which may have a negative impact in other areas of school and home life.

Assumption 4: Adolescents VOIP more when playing certain action-oriented video game genres than when playing slower-paced video games.

Limitations

Limitations to this study were the potential inaccuracy of self-report data collection in an electronic format and the possibility that the data collected would only

apply to this specific population. The survey was a compilation of three previously used surveys that had been shown to be valid and reliable and that reduced the potential general limitation of self-reported data. However, the issues of accuracy remain. Prior to use in the study, the data were analyzed for incomplete surveys and outliers. These items were removed so as to gather a cleaner data set and remove potential statistical issues.

Delimitations

This study does not necessarily pertain to all individuals who VOIP because the sample population is specific to a high-tech area, and that particular culture may be different from the cultures of other areas whose residents are not as computer oriented and technologically savvy. Because the sample population in this specific area of the United States is, on average, wealthier, adolescents may have more free time to play video games, and the majority of adolescents in a more affluent community have at least one video game console in their home. This geographic area also boasts some of the fastest Internet speeds, which provide ample bandwidth for online video gaming *and* VOIPing, an asset other populations may lack.

This study did not address individuals older than the age of 18 because those individuals may engage less in video gaming *with* VOIPing communication simply due to the their stage of life and additional responsibilities requiring more of their time and energy. Furthermore, this study did not address individuals younger than 13 due to the potential for age-inappropriate content in most VIOPing games and the limited number of video games that have VOIPing capability with age-appropriate ratings. Additionally, this

study did not address potential issues of bullying or harassment through VOIPing, which can impact an adolescent's quality of life, motivation for gaming, and resilience.

Significance of the Study

The digital age has expanded so fast in video game play that it is hard for parents and other professionals to keep up. This study can help in highlighting pitfalls of video game VOIPing as well as any advantages that might be employed to augment quality of life, motivation for gaming, and resiliency of adolescents. Studies have shown that video games do have negative effects on adolescents (Ha et al., 2007). Negative effects of VOIPing include teasing, unhealthy sense of competition, lessening of self-esteem because of negative social interactions, exclusion of players from a team, and escaping from real world problems. On the other hand, VOIPing could provide improved teamwork skills, increased attention span due to social interaction, lessening of social anxieties, and a positive self-perception of being cooperative, dependable, and fun.

This study may support adolescents, parents, the educational system, social service providers, and game developers by providing awareness of potential problems and assets in VOIPing. Action plans can be developed that may affect adolescents in a positive way. Adolescents can potentially obtain positive skills through increased positive VOIPing interaction during game play. The ability to increase adolescents' quality of life and resiliency through the use of these preferred activities, video games and VOIPing, could be beneficial in the lives of not only adolescents, but also those who interact with adolescents. The impact on adolescents' overall sense of self, self-esteem, and sense of belonging may increase due to VOIPing. At the same time, there may be a decrease in

adolescent depression, detachment from friends, and isolation. On the other hand, if the findings are negative, providing that information to adolescents is important so they can make informed choices regarding their online interactions.

Parents and some youth mentors may find value in VOIPing with adolescents in home or educational settings and in teaching proper online social communication. This type of interaction could produce healthier social regulation, provide social and emotional mental health support groups, and offer healthier resilience skills to support adolescents when needed. Being able to determine ways to deliver positive support while using a high-interest activity such as video games is considered ideal for helping adolescents (Halloran, 2011). VOIPing may be one of those influences.

Summary and Transition

Adolescents enjoy a plethora of activities that consume their time, and video gaming is one dominant activity. Video games have been shown to have negative effects on those who play because players may experience less face-to-face socialization, issues with mental health, and poor physical health (Wang et al., 2008).

Since the mid-2000s, researchers have explored both positive and negative aspects of video gaming to the point that there is a considerable base knowledge of its impact on adolescents. The relatively recent introduction of VOIPing in video games has amplified the gaming experience; however, researchers are just starting to understand its potential impact. Questions for this study have been grouped into three areas of interest: quality of life, motivation for gaming, and resilience in adolescent life. The study incorporated questionnaires from ProQollid (2012), Yee (2007), and Resilience Research

Centre (2009). The study was a one-time electronic sampling comparing a continuum of adolescents who VOIP with those who do not. The target age range was 15 to 18 years old, with a target sample size of 198 participants.

Chapter 1 has provided an overview and an introduction to this research. Chapter 2 details the history of video games and previous studies done regarding both positive and negative effects of video games on adolescents. Chapter 3 sets forth the research design, methodology, process for data collection, and selected data analysis techniques for this study. Chapter 4 presents the findings and results of the study. Chapter 5 provides the summary, conclusions, recommendations for future research, and implications for social change based on the study.

Chapter 2: Literature Review

Brief History of Video Gaming

Visual and auditory applications for computers were first produced in the late 1940s and early 1950s. Charley Adama has been credited with the creation of a program called *Bouncing Ball*, in which series of lights on a screen changed depending on the control settings; this was a precursor to modern video games (Computer Graphic Timeline, 2008). The creation of this earliest computer game inspired many individuals at the time to contemplate the potential for computer games.

A video game console called *Odyssey* by Magnavox, introduced to the public in 1972, enabled individuals to play video games in their homes (Moore & Novak, 2010). Because in-home gaming was becoming popular, in due course game producers created different genres of games. By the 1980s, console video games were organized into categories such as action-adventure, fighting, platform, racing, and scrolling shooters (Wolf, 2008). The 1990s continued to support the evolution of video games and their expansion into the homes of individuals. Games such as *Super Mario World*, released in 1990, were the first directly geared to younger gamers and became hugely successful, according to IGN, a well-established entertainment magazine (IGN, 2012).

Video games likewise evolved in playability and appearance. In the 2000s, video games shifted to a three-dimensional or 3D world. Games such as Bungie Studio's *Halo: Combat Evolved* or Activision's *Call of Duty* have transported individuals from their homes into unique virtual worlds. Video games continued to expand with the introduction of communication during game play. Different communication styles from

bubble talk over the character's head to chatrooms and finally the introduction of simultaneous verbal communication via Voice-Over Internet Protocol (VOIP) improved game interaction (Halloran, 2011).

Literature Search Strategy

The study involved research through academic search engines, topic-related Internet pages, and published books; however, the majority of research for this study was taken from peer-reviewed research studies found on academic search engines. The literature search was conducted using the following library databases: EBSCO's Academic Search Premier, PSYCarticles, PSYCinfo, PubMed, ProQuest, ProQuest Dissertation and Theses, and SAGE.

Key search terms used in the literature search strategy for this study included but were not limited to *video games*, *electronic video games*, *electronic media*, *digital games*, *cyber gaming*, *online games*, *adolescent Internet use*, *adolescent video game use*, *Internet addiction*, *video games and the brain*, *emotion and game experience*, *player experience assessment*, *social experience*, *social presence*, *VOIPing and gaming*, *multiple simultaneous players*, *aggression*, and *video games*.

Violent video games and aggression have been widely researched, whereas research on the impact of video games and VOIPing is less prevalent in the literature. The scope of the literature review included multiple facets of video gaming in order to have enough information pertaining to the area of focus. Due to the limited amount of knowledge in this particular area of research, an additional time period of 10 years was used to gather adequate amounts of peer-reviewed research.

Theoretical Foundation

As mentioned in Chapter 1, in developing the theoretical framework for this study, I drew on three theories: ET, MT (Klimmt et al., 2008), and PDT (Hart et al., 2009). ET posits that individuals play video games because they find some value in doing so. One value is increased control. Players manage their character's actions, interactions with other players and the virtual environment, and even the specific appearance of the virtual environment. MT and PDT indicate that video games are played for specific purposes such as avoiding issues, escapism, or, on the other hand, increasing social interactions and connections with friends (Hart et al., 2009; Klimmt et al., 2008). MT and PDT may explain why connecting with other gamers through VOIPing (the way people might in a face-to-face interaction) provides a deeper, more immersive experience for the gamer.

Who Plays Now

Griffiths, Davies, and Chappell (2004) created a summary of who plays video games in an online atmosphere. The chosen game for the collection of data were *Everquest* produced by Sony Online Entertainment and at the time was considered very popular (Griffiths et al., 2004). It is a Massively Multiplayer Online Role Playing Game, which allows for many thousands of individuals to play at the same time. From 1999 to 2002, Griffiths et al. used questionnaires to gather data from fan sites such as basic demographic information, how often individuals play, what type of games they play, and what the players liked and did not like about the game. They found that 93.2% of adolescent players and 79.6% of adult players were male, and 84% of players were above

19 years of age (Griffiths et al., 2004). They also reported that 16% of those playing *Everquest* were middle and high school students, with a small percentage coming from elementary school (Griffiths et al., 2004). They found that adolescents averaged longer playing times than adults, possibly because adolescents had more available time and fewer responsibilities (Griffiths et al., 2004).

In 2010, the Entertainment Software Association (ESA) gathered information about gamers. The ESA reported that 60% of all gamers were male and that the average age of gamers had increased to 34. In 2012, the ESA reported that the average age of gamers had dropped by 4 years to age 30, with 32% of all gamers under the age of 18. The gender makeup of gamers had shifted to 53% male and 47% female (ESA, 2012). The ESA (2012) reported that, additionally, 70% of households in the United States at that time had a dedicated game console, and 62% of gamers played with others online or in person.

Video Game Genres

Today's video games can be categorized into many genres: educational, puzzle, party, racing, fighting, sports, platformer, real-time strategy, third-person shooter, first-person shooter, role playing, and massively multiplayer online role-playing. Each one of these genres has unique features that attract different gamers.

Educational video games teach basic skills such as reading and math. Examples of educational games are *Jumpstart: Advanced Kindergarten* and *Scholastic: Dragon Tales: Learn and Fly With Dragons,* in which the basics of thinking skills and math are taught.

Puzzle games encourage the gamer to think logically in order to solve random problems that are continuously presented (Achtman, Green, & Bavelier, 2008). *Tetris* or *Bejeweled* are popular examples. Puzzle games are usually of a simple design with no particular theme and provide many levels of play. They provide the gamer with a high level of immediate interaction in a short space of time.

Party games provide fun and simple experiences for group play. They contain multiple minigames and allow many gamers to play at the same time. These games are often competitive, and gamers collect points or compete for the best time within each game. Examples are *Mario Party* by Nintendo or *Fusion Frenzy* by Microsoft.

Racing games create the experience of driving. The gamer can be the driver looking out through a windshield or have a camera perspective from just behind the car. Realistic images and sounds of high-performance cars enhance the gaming experience. Gamers can use the cars either in stock format or in a custom format created by the gamer. The gamers compete against their own previous best times, other racers who are computer generated, or other gamers. The graphics are realistic and use natural physical properties such as gravity or weather conditions. However, defying natural law, cars that crash reset after a short time, and no character is injured. Examples are *Need for Speed* by Electronic Arts and *Burn Out* by Acclaim Entertainment.

Fighting games capitalize on one-to-one combat. They are realistically oriented in graphic design, but the characters perform moves that are impossible in the real world. Fighting games use martial arts as the primary fighting forms. The characters may be unarmed, may use handheld weapons to defeat an opponent (e.g., ice thrown from the

fingertips at the opponent), or may disappear to avoid an attack. Examples are *Mortal Combat* by Nether Realm Studios and *Street Fighter* by Capcom.

There are two types of *sports* video games: realistic and fantasy. Realistic sports games simulate live sports through lifelike graphic design and realistic play. Players can be hurt, and physical laws of nature such as gravity apply. Additionally, realistic sports games provide coaching experiences, encouraging the gamers to improve their teams through trading or benching players. Examples are *MLB Baseball*, *NBA Basketball*, and *Madden Football*. In contrast, fantasy sports games do not follow the laws of nature. A cartoon-like character might launch his snowboard into the air for 2 minutes, all the while gathering points for performance, and never be hurt in collisions. Examples are *SSX Snowboarding* and *Wii Sports*. Both reality and fantasy sports games provide the gamer with opportunities to compete against other gamers and to play exhibition games as well as an entire season.

Platformer games entail moving a character from Point A to Point B while overcoming obstacles and jumping from platform to platform (Wolf, 2000). They follow a simple storyline such as rescuing a princess, stopping an evildoer, or preventing aliens from taking over a space station. Examples are *Mario Brothers* by Nintendo, *Sonic the Hedgehog* by Sega, and *Metroid* by Nintendo. The characters are all very cartoon-like in appearance, and the violence is not realistic, having no blood or graphic scenes. This type of violence includes jumping on the head of a foe, throwing fireballs, or shooting the enemy, who then disappears with a poof.

Real-time strategy games are based on creating or developing something such as a

city or an army over a period of time. Gamers, for instance, may compete to gain resources for their city or defeat the opponent's armies. The game is played simultaneously against opponents, without taking turns (Wolf, 2000). The gamers' perspective is called God view and involves seeing large areas of the game from above. Competitors may build bases or control army units to dominate opponents. While they are building and creating, their opponent is often attacking. The victor is the last person alive. Recently, the game has expanded to include a multiplayer online version that lets gamers face off against each other instead of against the computer. An example of a real-time strategy game is *Command and Conquer*, a series created by Electronic Arts.

Third-person games place the character in a three-dimensional setting or virtual world with which the player interacts. The gamer views the hero from behind and over the shoulder, and the hero is more realistic and human-like. The goal is to stay alive while going from Point A to Point B. Possible tasks include solving difficult puzzles such as unlocking doors, working through mazes, and defeating foes. Third-person games usually entail mature or extreme violence such as brutal deaths, squirting blood, and mutilation. Graphics are very realistic; however, the games usually include fictional characters and situations, such as monstrous orcs coming out of the ground. Examples are *Gears of War 3* by Epic Games and *Tom Clancy's Ghost Recon: Future Soldier* by Ubisoft.

First-person shooters (FPS) are games such as *Halo* by Microsoft Corp. and *Call of Duty* by Activision. The gamer is the ultimate hero and sees everything through the hero's eyes (Wolf, 2000). The graphics are high definition and intricately detailed. As the

hero progresses through the storyline, gamers are attacked either by other computer-controlled enemies or by characters controlled by other gamers. The goal is to use a variety of weapons, vehicles, or armor to annihilate the enemy and save the country or the world. The hero is also able to advance in a ranking system similar to that of a military order, which is built into the game. Gamers are able to get medals and other rewards as they advance in the game. Such games are designed for mature audiences due to violence, gore, and sexual themes.

Role playing games (RPGs) were originally designed for individual, noncompetitive play and progress through a storyline. These games feature a huge variety of characters, such as humans, orcs, dwarves, and elves, who can be either good or evil. These characters may interact with the environment in great detail by casting spells, going in and out of structures, battling computer-generated foes, solving complex puzzles, and gaining abilities or skills. Gamers usually spend a longer time in the story modes of this type of game than in any other due to the vast variety of options provided them. Several fixed endings are determined by the choices the gamer makes (Wolf, 2000). Recently, RPGs have become online multiple player instead of individual games. Examples of RPGs are *Fable III* by LionHead Studios and *The Elder Scrolls V: Skyrim* by Bethesda Softworks.

The last game type, which is enormously successful, is the *massively multiplayer online role playing game* (MMORPG). According to many researchers, MMORPGs draw in many thousands of players at one time and are virtual worlds unto themselves (Cole & Griffiths, 2007). MMORPGs do not have specific storylines or a fixed ending (Cole &

Griffiths, 2007). Players can play as individuals, on teams, or in clans. These clans form social hierarchies within which gamers gain respect and power. Players can go on a large variety of quests, or they can hang out and chat. A defining aspect of MMORPGs is a large number of in-game tasks to accomplish either individually or cooperatively. Gamers are challenged in many ways through puzzles and assignments, battles against computer-generated characters or other gamers, or different social settings and interactions. This was the first type of game to use bubble chat and chatrooms to help gamers strategize and socialize (Cole & Griffiths, 2007). One of the largest games in sheer numbers of players is *World of Warcraft* by Blizzard (2010), which boasts over 12 million gamers (Blizzard, 2010). Other games are *Spore* by Electronic Arts and *Diablo* by Blizzard.

Rating of Video Games

The Entertainment Software Rating Board (ESRB) was created in 1994 to regulate video games and to inform consumers (Thompson & Haninger, 2001). Ratings range from "Early Childhood" (EC) to "Adults Only" (AO), with games in the development stages receiving a Rating Pending (RP) until the board has a chance to fully review them. These ratings are based on a categorical rating process, with games having to meet certain criteria to be placed in a category.

The EC category refers to games that have content designed for gamers 3 years and older and have no objectionable content as seen by parents (Thompson & Haninger, 2001). E is the rating given for *Everyone*. Content is intended for gamers 6 years and older and may contain some nongraphic violence, slapstick humor, or objectionable language as defined by the ESRB (Thompson & Haninger, 2001). E +10, created in 2005,

is the rating category for everyone 10 years and older; the violence and graphic content are mild, and the themes may be minimally suggestive (ESRB, 2012). T stands for Teen and is for gamers 13 years and older. According to the ESRB, these games are more graphic and violent, showing more blood and "crude humor" (ESRB, 2012). They also have stronger suggestive language and themes (Thompson & Haninger, 2001). M is the rating for Mature, geared for gamers 17 years or older and containing severe language, violence, and sexual themes (Thompson & Haninger, 2001). The AO rating, for adults 18 years and older, is reserved for select games that are too sexual or violent for an M rating (Thompson & Haninger, 2001). The ESRB rating is not required; however, many video game companies opt to get an ESRB rating to help the consumer know which games are appropriate for various age groups (ESRB, 2012).

Type of Gaming Communication

Since the 1990s, communication has become a large part of the gaming experience, and game developers employ different communication formats for players to interact (Halloran, 2011). Text communication, one of the early forms, utilized a Unix-based computer system to support either chatroom formats or cartoon bubble-speech (Halloran, 2011). This type of communication helped gamers identify which player was speaking.

In the mid-2000s, video game designers introduced simultaneous voice communication to game play. This was achieved through headphones and a microphone using an approach called Voice Over Internet Protocol or VOIP. Halloran (2011) pointed

out that VOIP helps gamers coach each other, strategize, and work together on similar tasks.

Visual and Auditory Systems

Video game developers create virtual worlds that are all encompassing. They intentionally use colorful cinematic detail and stimulating soundtracks with entertaining sound effects to captivate gamers, who lose themselves in the game (Zyda, 2005). According to a study by Ravaja, Saari, Salminen, Laarni, and Kallinen (2006), what the gamer hears and sees engages the sympathetic nervous system. Thirty-six gamers, from 20 to 30 years old, played *Super Monkey Ball 2*. Ravaja et al. (2006) video recorded the audio and visual events of four different gaming experiences for each gamer. Using electrodes, Ravaja et al. assessed the players' visual and auditory responses to events in the game for sympathetic nervous system activation such as changes in skin conductance and facial and eye muscle movement. They then compared the physiological response data to the video recordings (Ravaja et al., 2006). The results indicated changes in the gamers' physiological responses, based on the gaming events (Ravaja et al., 2006).

He´bert, Be´land, Dionne-Fournelle, Creˆte, and Lupien (2005) reported that video games have multiple physiological impacts on gamers such as changes in heart rate, increase in breathing rate, and increase in blood pressure. He´bert et al. (2005) stated that even video game soundtracks alone appeared to engage the sympathetic nervous system in gamers. Ravaja et al. (2006) pointed out that violent video games appear to influence the stress responses of the sympathetic nervous system to a greater degree than the nonviolent video games.

Effects on the Brain

Video game play has been shown to create certain changes in the brain. Specifically, studies have shown that gamers have an increase of two chemicals, dopamine (Koepp et al., 1998) and cortisol (He´bert et al., 2005). Pinel (2011) stated that dopamine, produced by the brain, is a neurotransmitter that affected both gross and fine motor control, memory, and cognitive ability (Arias-Carrion & Poppel, 2007). Lack of dopamine caused motor tremors in Parkinson patients and was associated with disorders such as schizophrenia and attention deficit hyperactivity disorder [ADHD], (Arias - Carrion & Poppel, 2007). According to Arias-Carrion and Poppel (2007), dopamine appeared to affect how the working memory and executive function respond in processing time, ability to make decisions, and adaptability to a changing environment. They are doing more research to identify the connection more fully. Dopamine was also connected with a person's ability to learn and the individual's motivation or, in other words, reward-seeking behavior (Arias-Carrion & Poppel, 2007).

Koepp et al. (1998) studied the interaction of dopamine on behavioral learning, reinforcement of behavior, attention, and sensory-motor integration. They asked eight male gamers to play a specific game for 50 minutes and also at some point watch a blank screen for the same length of time as a control (Koepp et al., 1998). The participants maneuvered an in-game tank over a virtual terrain. As the tank moved, the participants were challenged to collect in-game flags, destroy enemy tanks, and avoid being killed. After collecting all flags, players advanced to the next level. PET scans assessed dopamine levels in the players' cerebellum, ventral striatum, and dorsal striatum during

game play. According to Koepp et al., the dopamine levels of gamers increased in the ventral striatum and dorsal striatum at levels similar to those found in individuals who were injected with amphetamines. Playing video games correlated with reinforcement of the particular behavior because of the sustained increase of dopamine (Koepp et al., 1998). According to Arias-Carrion and Poppel (2007), high levels of dopamine were also found in persons with addictions (drugs and alcohol) and addicting behaviors (gambling and sex).

Playing video games also affected cortisol levels. According to Pinel (2011), the adrenal gland produced cortisol in response to a negative stressor. Cortisol suppresses secondary functions such as the immune system and increases glucose levels, providing more energy for immediate response to the stressor (Pinel, 2011). He´bert et al. (2005) noted that cortisol caused the heart rate to increase and blood pressure to elevate. De Quervain, Roozendaal, and McGaugh (1998) conducted a study on rats and found that cortisol impacted memory retrieval, stopping the rat from navigating on the correct path through a maze. They suggested that cortisol affected humans in similar ways. Long-term exposure to high levels of cortisol were associated with several health issues such as depression, osteoporosis, and hypertension (Brown, Varghese, & McEwen, 2004).

He´bert et al. (2005) showed that music in video games heightened the stress response, stimulating cortisol production. They asked 52 men to play a game called *Quake III* for 10 minutes. Half of the participants played the game with sound and the other half without. The gamers who experienced in-game music for 10 minutes had larger amounts of cortisol in their saliva for up to 30 minutes after they had stopped

playing the game than the control group. He´bert et al. (2005) concluded that video game music stimulates the stress response, which activates cortisol levels.

Wolf, Schommer, Hellhammer, McEwen, and Krischbaum (2001), explained the impact of increased cortisol on the brain. They stated that cortisol can either improve or decrease the ability to remember, depending on the memory task (Wolf, Schommer, Hellhammer, McEwen, & Krischbaum, 2001). Buchanan and Lovallo (2001) highlighted that increased cortisol levels supported long-term memory recall of events that were emotionally stimulated. Conversely, high levels of cortisol negatively affected short-term memory retrieval (Buchanan & Lovallo, 2001). Wolf et al. (2001) also mentioned that learning deficits correlated with elevated cortisol levels.

Immersion Factors

When gamers experience high levels of enjoyment, control, and proficiency, they become immersed in the game. Lin (2010) commented that for some gamers, violence contributed to the pleasure of the video game. Adolescent males were more likely to experience enjoyment from violent video games than adolescent females (Lin, 2010).

Using social cognitive theory proposed by Albert Bandura, Lin (2010) pointed out that in general the extremely violent behaviors in the game were against individuals' morals and values, causing guilt and other conflicting emotions. However, gamers used justification such as "This is only a video game" to help reduce or eliminate those negative feelings (Lin, 2010), thereby creating a more pleasurable experience. Lin reported that the better the justification, the more pleasurable the experience. Moreover, males appeared better able to manage and possibly separate themselves from the virtual

world's moral dilemmas than females, and in turn were able to enjoy the experience more often (Lin, 2010). Lin also commented that females enjoyed nonviolent video games more and were not as likely as males to identify with villains and violent characters.

Additionally, researchers noted that the gamers' ability to assume different roles, such as heroes or villains, provided enjoyment (Marin, 2010). Gaming provided opportunities to test different identities and test boundaries (Marin, 2010). Shieh and Cheng (2007) also commented that gamers could express themselves in a greater variety of ways while gaming, both positively and negatively, than they would in the real world.

While character connection and separation of real world and virtual world morals can help gamers enjoy their time playing, interactivity can also lead to enjoyment. Klimmt, Hartmann, and Frey (2007) stated that interactivity can be explained by *effectance* and *control*. According to Klimmt et al. (2007), effectance is the concept that the avatar (player's character) in video games "respond[s] to player inputs immediately and constantly" (p. 845). This immediate and constant response provided the player with instant gratification of desired avatar actions. Control implies that the player is knowledgeable of the video game's environment and mechanics to play successfully and achieve the game objective (Klimmt et al., 2007). The study used three phases of the same game to determine whether effectance or control created higher levels of enjoyment. Klimmt et al. asked study participants to play the game at a normal or non-manipulated state, which was followed by a questionnaire. Following this process, participants were put into one of three groups. One group played the same game with no changes; the second group played the game that decreased effectance; and the last group

played the game that decreased control. As the gamer's ability to manipulate the avatar diminished in effectance, the gamer's perceived enjoyment also decreased. They noted that this pattern was not true when the environment was changed decreasing control. The study therefore showed that effectance has stronger association with enjoyment than control. Klimmt et al. concluded that a reduced amount of control of the environment did not necessarily bring less enjoyment because an uncontrolled environment was perceived as a challenge that could be viewed as enjoyable (Klimmt et al., 2007).

Game technologies have created virtual worlds in which gamers can immerse themselves with little perception of time spent, fluctuations in their real-world environment, and at times even their own physical needs (Griffith, 2012). Flow is a key element for individuals to be enveloped in a game and experience that sense of enjoyment (Limperos, Schmierbach, Kegerise, & Dardis, 2011). According to Limperos et al. (2011), total immersion in a video game happened when the gamer achieved equilibrium between their peak performance and the difficulties of the game. They reported that when gamers were in their state of flow, they felt as if they were in control, lost all sense of time orientation, and were wholly absorbed in their game. The stronger the flow, the more the gamer stated that he enjoyed the game. In the study, Limperos et al. utilized a video game called *Madden Football, which* crossed multiple platforms (consoles). This game was played on the Nintendo Wii and Sony Playstation. The Wii, using motion-based sensors, required the gamer to physically do the actions of the game. Playstation utilized a multi-buttoned controller in order to manipulate the game avatar. Limperos et al. found that individuals were able to flow when playing *Madden* on the Playstation as

opposed to on the Wii. They pointed out that if gamers experienced the video game as too difficult or challenging, their sense of flow was lessened and they seemed to enjoy the game less. Game technology had a large impact on how strong the flow was for this particular game. In their study, Limperos et al. also commented that the aspect of control seemed to be the dominating factor within the concept of flow. They proposed that one of the reasons for this was that the traditional controller was more familiar to gamers and that there may have been a learning curve to the Wii process. They suggested that technology advances might have a larger impact on the gamer's experience.

Benefits of Video Games

The current culture does not focus on the positive aspects of video games because the negative effects are emphasized more often in studies (Spence & Feng, 2010). The benefits of video game play include improved visual attention, processing speed, cognitive function, and spatial cognition because today's games require greater focus, utilize strong eye-hand coordination, and are faster paced.

In a meta-analysis of spatial cognition, Spence and Feng (2010) reported that studies showed that females' *attentional visual field* was less developed than males'. Attentional visual field means the ability to distribute attention over a wide visual field. However, after training with First-Person Shooter (FPS) games, females' scores improved, closing the gap. Conversely, Spence et al. in 2009 found that training with puzzle-oriented games such as *Tetris* did not improve visual field attention (Spence et al., 2010). Spence et al. (2010) found that specific games genres, such as FPS, appear to positively affect cognitive functions.

Another benefit of video gaming is improved visual processing. Raymond, Shapiro, and Arnell (1992) asked study participants to observe a stream of black letters presented rapidly. The individuals were asked to identify a single white letter and then notice a black X presented shortly thereafter. Participants who played video games were more successful at noticing the X sooner than nonvideo game players. Achtman et al. (2008), who reviewed Raymond et al., stated that video game players who played action-oriented video games had faster visual processing times than the nonvideo game players.

Another potential benefit is the ability to give visual attention to multiple objects, or multiple-object tracking (Green & Bavelier, 2006). Green and Bavelier (2006) stated that individuals who play video games noticed more visual stimuli and tracked more objects when compared to nongamers. Green and Bavelier conducted a study that included three experiments to show this point. The first experiment measured the resources of visual attention available in gamers compared to nongamers. Sixteen participants, all male, were divided into two groups based on gaming experience. The participants in the gaming group played action video games. Those in the control group were not gamers. Green and Bavelier noted that action video games were specified because of the fast-paced play and constant visual attention required. They tested the participants using a monitor that displayed cards with a centered fixed focus point for one second. Each card had circles in similar locations with other geometric shapes presented inside. The participants were to notice either a square or diamond within the circles with speed and precision. In the first experiment, video game players noticed the target shapes

faster and with more precision regardless of the other shapes presented. Green and Bavelier determined that video game players' resources for visual attention were greater.

In the second experiment, Green and Bavelier (2006) looked at the useful field of view (UFOV). A new group of 16 participants were separated into two groups, video game players and nonvideo game players. The screen to assess UFOV was divided into 24 different parts. Each part was labeled with a number and the participants used the number to identify where the stimulus had appeared. Participants were asked to focus on a central fixed point for the duration of the experiment. The participants were tested in three ways, with no distracting stimuli, with 23 distracting stimuli, and with 47 distracting stimuli presented within 10, 20, and 30 degrees of the visual field. The results showed that video gamers correctly identified the stimuli at all angles with a higher degree of accuracy when compared to nonvideo gamers. Green and Bavelier pointed out that video gamers' UFOV is larger and better developed than nonvideo gamers.

The final experiment involved 32 men and women who were nongamers. Green and Bavelier (2006) used a video game training regime to determine if video games, specifically *action* video games, could improve visual attention. One group played an action video game called *Unreal Tournament 2004* while the other group played a puzzle game called *Tetris,* both for 30 hours over a month's time. They measured the UFOV of all participants on the first day of the study and on the last. The results showed that non-gamers trained on action video games were able to expand their visual field and utilize their visual resources better than nongamers trained on puzzle games (Green & Bavelier, 2006). According to Green and Bavelier, video games have been shown to help

individuals increase their focus on visual targets and limit distracter influence. It was proposed by Green and Bavelier that video games could potentially help individuals improve visual spatial attention and also potentially regain lost spatial attention as they age.

Guerrero (2011) discussed the positive aspects that video games can have in educational settings. Students appear to retain information longer when using a multi-dimensional approach than with traditional instruction. Squire, Giovanetto, Devane, and Durga (2005) used a strategy video game called *Civilization III* by Sid Meier to demonstrate the educational value of video games. This game is turn-based and uses historical concepts and vocabulary in the process of creating a civilization. Over the course of a year 11 regular participants with diverse educational backgrounds played *Civilization III* for two two-hour sessions a week. Video recordings, interviews, and surveys were used for data collection. The results showed that students were better able to use and understand vocabulary and identify historic facts relating to the civilizations in the game (Squire et al., 2005). They noted that strategy games provide alternative ways of thinking, problem solving, and flexibility in creating solutions (Squire et al., 2005). Guerrero (2011) concluded that video games can help students' ability to pay attention and create the scaffolding to improve their learning.

Sun, Ma, Bao, Chen, and Zhang (2008) showed that, even though in the short term the negative effects of video gaming were stronger than the positive effects, positive effects of video games appeared to be long term. Their study used the theory of Excessive Computer Game Playing or ECGP to determine the negative and positive effects of video

gaming. They stated that ECGP is correlated with impulse control, depression, and other negative emotions. Sixty gamers filled out questionnaires to determine their ECGP score and three groups were created. The first group presently manifested high levels of ECGP; the second group reported ECGP in the past; and a control group scored low on ECGP. They were then tested using multiple object tracking (MOT) tasks. The gamers had to identify target stimuli (red balls versus green balls) on a screen. Sun et al. (2008) found that the current ECGP group did not perform as well as the past ECGP group, but both performed better than the control group. The results indicated that as the gamers reduced the amount of time playing video games, the negative effects subsided and the positive effects became more dominant (Sun et al., 2008).

Negative Effects of Video Games

According to Li, Jackson, and Trees (2008), video games can negatively affect gamers' friendships, school and work, physical and emotional health, and the ability to function on a daily basis. Sharer (2012) suggested that gamers can get caught up in the virtual world and allow their real world relationships to drift and falter. As gamers started to articulate the domination of the game in their lives, the term "Everquest Widow" arose to describe the loss of familial relationships (Chappell et al., 2006). Sharer (2012) noted that South Korea and China have gone so far as to ban adolescent playing of video games between certain hours due to the loss of productivity. There have been multiple reports in recent years of video gamers dying from excessive gaming (Griffith, 2012). In one case noted by Naughton in 2005, an individual who played continuously for 50 hours died from heart failure due to exhaustion.

Funk, Baldacci, Pasold, and Baumgardner (2004) observed that gamers who play violent video games tended to have psychological deficits. Mentzoni et al. (2011) summarized studies that revealed that gamers self-reported psychological issues such as "sleep problems, depression, suicidal ideation, anxiety, obsessions, and compulsions as well as alcohol and substance abuse"(Mentzoni et al., 2011, p. 591)

Adolescent behavioral problems have been linked to video game play (Holtz & Appel, 2011). Holtz and Appel (2011) focused on the interaction of Internet use, video game playing, and behavioral problems. 205 participants between the ages of 10 and 14 answered questionnaires that assessed basic demographics, Internet and video game usage, and behavior problems. In the results, Holtz and Appel noted that gamers who played first person shooter (FPS) games were at higher risk of externalizing behavior such as acting out, getting into fights, and generally being more aggressive compared with nonFPS gamers. Gamers who played role playing video games tended to have higher levels of internalized behavior problems such as being withdrawn, somatic complaints, and depression when compared to nonrole-playing gamers (Holtz & Appel, 2011). They pointed out that there was no notable correlation between any other genre of game and behavioral problems. Holtz and Appel also commented that adolescents appeared to be more susceptible to the negative results of video game playing than any other age group.

Violent video games have been shown to increase gamers' levels of aggression (Greitemeyer & Osswald, 2010). In a 2001 meta-analysis, Anderson and Bushman found that violent game play increased aggressive thoughts, emotions, and actions, and

decreased prosocial conduct (Gentile, Lynch, Linder, & Walsh, 2004). The meta-study involved 4262 participants in 54 independent tests of violent video games and aggression. Gentile et al. (2004) observed that students who played violent video games had a higher probability of being in a physical fight and being argumentative with instructors. Polman, de Castro, and van Aken (2008) found that gamers who played violent video games became more aggressive than those who watched violent video games. They also found that violent video games impacted males to a greater degree than females (Polman, de Castro, & van Aken, 2008).

Aggression and Violence

Some researchers found that violent video games increased gamers' level of aggression; however, other researchers disagreed (Ferguson, 2008; Funk et al., 2004). Ferguson (2008) pointed out that violence in video games appeared to dominate the adolescent culture. In order to attempt to quantify the amount of violence that is experienced in video games, Haninger, Ryan, and Thompson (2004) conducted a study of Teen-rated games. They showed that of 81 different video games played by teens, 51 games showed portrayals of human deaths, and 5,689 human deaths took place within 95 hours of game playing (Haninger et al., 2004). According to Engelhardt, Bartholow, Kerr, and Bushman (2011), gamers who played violent video games demonstrated an increase in aggressive responses as shown by a battery of testing methods. Engelhardt et al. were careful to point out that this change in aggression has not yet been thoroughly studied and no causation could be shown.

Some games provide opportunities for gamers to seek out extreme violence such as *Unreal Tournament* by GT Interactive (Funk et al., 2004). Griffiths et al. (2004) stated that most of the violent video games portrayed extreme death (heads being severed) and ultra carnage (blood squirting on the screen) such as in *Mortal Combat* by Midway. Funk et al. (2004) stated that because gamers have direct control over the characters' violent behavior, the gamers' aggression appeared to increase. Violent games that have intense game soundtracks have been linked to gamers being more aggressive in behavior and having stronger negative thoughts when compared to the control group with no music soundtrack or sound effects (He´bert et al., 2005).

However, according to Ferguson (2007), the link between violent video games and aggression may have been magnified beyond the probable truth. Ferguson (2007) stated that other researchers have proposed that exposure to media violence can have positive effects and could potentially lead to a reduction in aggression through a cathartic experience. Sherry (as cited in Ferguson, 2007) concluded that other researchers have not found any correlation between violence in video games and increased aggression. Ferguson (2007) added that violent video games may, in fact, provide many positives that have not been explored. An example is a game produced by HopeLab called *Re-Mission*. This game is a violent third person shooter that goes inside a virtual patient and attacks cancer. According to Kato, Cole, Bradlyn, and Pollock (2008), this game provided cancer patients with information on cancer and treatment and resulted in improved treatment compliance, quality of life, resiliency, and self-efficacy meaning the game-players' confidence in their own abilities. The video games gave cancer patients an

interactive venue for “vicarious practice of target skills, complex problem-solving, contingency-based learning of targeted information” (Kato et al., 2008, p.e306). The effects were increased adherence to treatment, cancer-related knowledge, and increased positive outcomes (Kato et al., 2008). Ferguson (2007) summarized that further studies need to be done due to the discrepancies that exist in literature.

Polman et al. (2008) additionally suggested that there might be a correlation between the individual’s schema and the type of video games selected for play: the more aggressive the schema, the more violent the chosen video game. However, Polman et al. (2008) pointed out that there has not been much research in that area and drawing conclusions is premature. Gentile et al. (2004) agreed that more studies need to be done. Furthermore, they suggested that the effects of realistic violence be compared to cartoon violence.

Another negative effect of video games is the possibility of addiction. Many gamers appear unaware of their gaming addiction and of the impact that gaming is having on their lives (Mentzoni et al., 2011). In the Mentzoni et al. (2011) study, gamers scored lower on overall health when compared to nongamers, and “problem” gamers were the ones that demonstrated higher levels of psychological issues such as depression and anxiety.

Gamers who have lower levels of dopamine have a greater desire to play video games to boost levels of the neurotransmitter. Ko, Yen, Yen, Lin, and Yang (2007) stated that a lack of dopamine in the brain can also lead to negative thoughts and behaviors which in turn can lead to low self-esteem, negative family functioning, abuse

of substances, isolation, unwillingness to do tasks, and lack of motivation. Ko et al. also pointed out that video game addiction correlated with higher levels of depression in gamers.

Durkin (2010) demonstrated through a literature review that attention deficit hyperactivity disorder (ADHD) is another mental health disorder that is affected by video games. It has been shown that attention and impulse control are associated with dopamine levels; the less dopamine, the more likely ADHD will present itself (Durkin, 2010). According to Durkin, one reason that ADHD individuals played video games was to increase dopamine levels and fulfill a psychological need for prompt reinforcements.

Parental involvement has been shown to decrease the negative effects of violent video games (Gentile et al., 2004). Parents can ameliorate some of the negative effects by showing interest in video games and implementing appropriate limits and rules, so that their adolescent children might become more social and engage in less physical conflict (Gentile et al., 2004).

Socialization

Seay (2006) expressed that social groups are an important resource for dealing with issues that arise in an individual's life and are positively correlated with a person's sense of well-being. Social group size is an important aspect to consider when examining social groups (Seay, 2006). For example, social group size is a direct expression of number of individuals in their social group, and when dealing with gamers it is represented by the number of individuals within their friends contact list. The friends list shows instantly which friends are playing, which games they have played in the past, and

what their achievements are, and thus allows the gamers to connect and create a social world. While it has been shown that social support helps individuals in other areas of their lives, video game social support and befriending is an area that needs further research.

Marin (2010) commented that individuals have been turning to online gaming as an avenue to explore new social roles and to create new identities. The online gaming environment can be a testing ground for individuals to explore an alternative self (Griffiths et al., 2004). Griffiths et al. (2004) noted that gamers, while playing an MMORPG called *Everquest,* appeared to use online social interaction to test new identities. The creation of avatars and their exploits is governed by the gamer. Gamers can choose to be female or male, human or nonhuman, good or evil. They found that adolescents preferred an avatar that was the same gender (54.5%), while adults appeared to swap genders more often (61.8%) (Griffith et al., 2004). Only 11.5% of the adolescent males had gender swapped compared to 52.5% of adult males. Griffith et al., commented that adolescents might gender swap only when they are secure enough with their real world identity.

Taşdemir (2011) proposed that there is an in-group and out-group aspect to identity formation. Individuals identify with those they consider similar and differentiate from those they see as not part of their group (Taşdemir, 2011). Stryker and Statham (1985) pointed out that social identities play a large part in the individual's motivation to connect with others who are like them, thus reinforcing their social identities.

Satisfaction in Gaming

Shieh and Cheng (2007) explored the concept of satisfaction for gamers who play online. Gamers engaged in situations and scenarios that they could not experience in the real world and experienced an increase in self-esteem (Shieh & Cheng, 2007). Shieh and Cheng used the term *experiential value,* which originally was a concept used for Internet shopping. Specifically, the online shopper has an expectation that retailers know who they are, what they have bought in the past, and will be presented with new options. Moreover, shoppers valued the recreational aspect and visual appeal of the website, and experienced a certain amount of escapism (Shieh & Cheng, 2007). Similarly, in the world of video games, gamers expect to play with a group who knows who they are, to have the amazing visual elements, and to be presented with preferred options on the home screen. For example, Xbox by Microsoft has applied this concept in their *Kinect* sensor. When gamers turn on their console, the *Kinect* sensor scans them and recognizes their specific profile. It then posts on the screen that the particular gamer has signed in. This personal recognition heightens the satisfaction of the gaming experience (Shieh & Cheng, 2007).

Escapism

Escapism is a concept that has been addressed by a number of researchers as a reason for playing video games (Douglas et al., 2008). Douglas et al. (2008) expressed that gamers utilized video games to escape the pressures that they faced in their current life. Gamers escaped their real world problems of shyness, personal hardships, emotional problems, and inability to achieve (Douglas et al., 2008). Engaging in online gaming allowed these gamers to live in a virtual world that was not hindered by their current

problems. It also allowed them to avoid situations that could cause emotional distress such as loneliness, embarrassment, isolation, and anger (Douglas et al., 2008). They were able to gain experiences that helped fulfill the gamer's desire to achieve, gain control, and experience challenges that are conquerable and experience the excitement of victory (Wan & Chiou, 2006).

Summarizing other studies, Cummings and Vandewater (2007) showed that time spent in gaming has increased from 26 minutes per day in 1999 to 32 minutes per day in 2004. The Entertainment Software Association noted that the amount of time playing video games continues to increase, which reduces the amount of time engaged in other activities such as playing board games, going to movies, or watching television (ESA, 2012). Moreover, Cummings and Vandewater expressed that time spent playing video games decreased the amount of time these gamers spent with parents or friends. Third, they showed that as the video game time without parents increased, the amount of time doing other activities with parents decreased. The decrease in time spent with parents was most noticeable for girls who played video games when compared to boys by about 20% or 32 minutes per week (Cummings & Vandewater, 2007). Conversely, the more female gamers played video games *with* their parents, the higher the likelihood of participation together in other activities (Cummings & Vandewater, 2007). Cummings and Vandewater stated that gaming with parents and friends tended to increase time spent together doing other nongaming activities.

As for interaction with friends, Cummings and Vandewater (2007) stated that the more time gamers played video games without their friends, the less time they interacted

with their friends in other activities. Likewise, the more they played video games with friends, the more they interacted together in other activities (Cummings & Vandewater, 2007). Cummings and Vandewater also pointed out that playing video games on weekdays reduced the average amount of time girls spent engaged in homework by 34% or 13 minutes per day, for boys sports was reduced by 12% or eight minutes, and other leisure activities such as reading for boys a reduction of 30% or two minutes.

Resiliency

Resiliency is defined as the ability of a person, when faced with historic, current, or potential adversity, to create or utilize positive patterns of adaption (Evans et al., 2010). Evans et al. (2010) commented that in order to fully understand resiliency, different factors needed to be clarified. They stated that Wright and Matsen listed some measurable risk factors for individuals and groups such as economic status and parental marital problems. Protective factors such as familial relationship and positive peer relations help reinforce a person's resiliency (Eccles & Gootman, 2002; Evans et al., 2010).

Salami (2010) agreed that social support provides a form of protection against risk factors. According to Salami, social support may come in multiple forms such as "emotional, informational or tangible support from significant others, family members and friends," (p. 102) providing a key element for individuals to be psychologically and physically well (Salami, 2010). Evans et al. (2010) highlighted that meaningful social support helped individuals cope with risk factors better than individuals with less social support.

Stott (2010) commented that the military used the social aspects of video games to increase resiliency in its soldiers. Playing realistic-immersive video games provided soldiers with experiences in battlefield tactics and familiarity with advancement in rankings as well as building connections and camaraderie through meeting in-game challenges. Stott reported that the military found video games to be a meaningful way to reduce risk factors and increase individual's resiliency.

Life Satisfaction

Wang et al. (2008) stated that life satisfaction is an area that needs to be considered for adolescents. Life satisfaction can be defined for individuals as their ability to be successful in what they have hoped for compared to what they have achieved (Wang et al., 2008). For many adolescents because of age and knowledge, any significant success may not have been realized at this stage of life. Therefore, life satisfaction for many adolescents appeared to come from their leisure activities, physical health, and work. According to other researchers such as Riddick (1986), life satisfaction might only come from leisure activities and not from other areas of life. Through gaming, adolescents may have found a leisure activity that produced positive life satisfaction ratings. Wang et al. expressed that for many adolescents video games appeared to hold some positives which raised life satisfaction scores such as winning games and the resulting increase in self-esteem, social communication, and skill building (Wang et al., 2008). On the other hand, the results of their study showed that the more adolescents played online, the more negative were their real-world experiences such as deterioration of grades, relationships, and avoidance of real-life problems (Wang et al., 2008). Real

world evidence to the contrary, the majority of adolescents continued to express positive life satisfaction because of online gaming (Wang et al., 2008).

Virtual Social Interaction

Valkenburg and Peter (2007) talked about current use of online communication and mentioned that there was very little research on the effects of online communication on adolescents. They expressed that online communication was not so much for gaining new friends but to help them maintain their current group of friends. They indicated that communicating online while gaming could augment the development of interpersonal skills transitioning from loneliness to sociability. Likewise, adolescents could be influenced positively in another way such as by increasing social connections and more friends through their online relationships.

Valkenburg and Peter (2007) hypothesized that instant messaging and chatting augmented friendships. In particular, those who were lonely or socially anxious utilized the Internet to feel more connected. They surveyed 794 adolescents, with almost a 50/50 gender split, measuring loneliness, social anxiety, closeness to friends, method of communication (instant messaging or chatting), Internet communication with strangers, and a concept called "perceived breadth and depth of online communication" (Valkenburg & Peter, 2007, p. 269). The findings were that individuals who communicated with their real-world friends online become closer. Furthermore, 36% of individuals who scored high on the social anxiety and loneliness measures found that their online communication was more effective than face-to-face communication. Valkenburg and Peter showed that adolescents typically use online communication to

maintain their connection with their existing peer groups, and that online communication are more of a supplement to current offline communication. A positive relation was not manifested for communication with strangers.

On the other hand, Pea et al. (2012) found that even though some researchers reported positive effects, face-to-face and online communication were neither equal nor interchangeable. Online communication, whether it was positive or negative, was not as positive as face-to-face communication for the participants of their study, who were girls between 8 and 12 years of age (Pea et al., 2012). They showed more numerous negative interactions with online connection when compared to face-to-face communication (Pea et al., 2012). Pea et al. stressed that because online communication is mushrooming, it is important to understand the potential impact that it can have on rising generations.

Summary

There are positive and negative effects on individuals who play video games. Adolescents are spending more time playing video games and perceiving that it is positive. Researchers have found numerous negative aspects of video games such as addiction and aggression issues. Other researchers have pointed out positives such as improved visual tracking and stress relief. The positive claims of the gaming population and the negative findings of many researchers are worlds apart. The question that still remains is whether there are benefits to the adolescent population when looking at online communication, or more specifically VOIPing, and video games. The aim of this study was to investigate the potential effects of video game VOIPing on adolescent life

satisfaction ratings, their reasons for playing, and their ability to show resiliency in different situations such as school and home.

Chapter 2 is an overview of the history of video gaming, ratings, who plays video games, the implementation of simultaneous communication with game play, positives and negatives of playing, and potential gamer satisfaction, resiliency, and life satisfaction. Chapter 3 describes the research design, methodology, process for data collection, and the chosen data analysis techniques for this study. Chapter 4 presents the findings, analysis, and results of the data collected. Chapter 5 provides a detailed summary, conclusions, recommendations regarding further research, potential implications for adolescents, and suggestions regarding social change based on the study.

Chapter 3: Research Method

Video gaming has been shown to have many positive and negative effects in adolescent lives, as noted in Chapter 2. This study addressed the potential impact that video game VOIPing has on the adolescent population. The introduction of VOIPing into video games enhances the gaming experience by providing communication among participants (Ekman et al., 2012). Gamers can collaborate regarding the game and can chat about other aspects of their lives (Ekman et al., 2012). However, there are unknown side effects from the gaming experience, and more specifically VOIPing.

This chapter contains information about the research approach, population characteristics and sampling strategy, data collection process, instruments that were used, variables measured, statistical models, research questions, analysis plan, and potential ethical considerations.

Research Approach

This study was guided by quantitative models and research questions. The advantage of using a quantitative research model was that it appeared more rigorous and less subjective in its methodology (Rudestam & Newton, 2007) and that it involved the use of pre-established surveys that had been validated. The impact of video game VOIPing on adolescent life is not well understood, and using pre-established protocols might help fill the gap in the research.

Quantitative data were obtained through the use of Likert-type item response scales from multiple instruments: The PedsQL™ Short-Form 15 Generic Core Scales© (ProQollid, 2012), the Motivations of Play in Online Games Scale created by Yee (2007),

and the Child and Youth Resilience Measure (CYRM; Ungar et al., 2008). Each of these instruments is detailed in the Variables and Measures section of the chapter.

Setting and Sample

This research assessed an adolescent population from the ages of 13 to 18 years. The adolescents were male and female and included all ethnicities who desired to participate. The requirement was that participants play video games on consoles such as Mac, PC, Nintendo Wii, Microsoft Xbox, or Sony Playstation that could access VOIP. Individuals who played games solely on handheld devices such as iPods, iPads, Nintendo Gameboy, or Sony PSP were not included. The selection process for this study was based on previous research within the field done by Holtz and Appel (2011), who gathered information on gamers through interval questions regarding amount of time played, from "no gaming" to "4 h[ours] or more." Other researchers required that their participants played a minimum of once a month (Ravaja et al., 2006) or that individuals had played 3 to 4 days a week over the last 6 months (Green & Bavelier, 2006). However, this study used a selection process similar to that of Holtz and Appel. Target sample size was based on a power analysis of the 10-predictor regression, the most stringent of the analyses described in the Models, Research Questions, and Data Analysis Plan section of the chapter. Power analysis was conducted using G*Power 3.1.5 (Faul, Erdfelder, Buchner, & Lang, 2009) and was based on standard conventions of alpha = .05 and power = .80. The goal of the analysis was not to just achieve a significant multiple-R^2, but a significant individual predictor semipartial r^2 (sr^2) while controlling for other predictors. Analysis was based on a conservative expectation of a medium-sized R^2 of .13 and a sr^2 of .035

(midway between a small .01 and medium .06 effect size), which indicated a target sample size of 198.

The method for sampling the population was one of convenience sampling, in that the sample was drawn from three middle schools and two high schools within local school districts in a surrounding area of San Jose, CA. Access to the adolescent population was gained by addressing the school districts and getting permission to distribute a flyer with a sealable stamped self-addressed envelope to 13- to 18-year-old students and their parents. The flyer contained information about the study, participation requirements for students, informed consent information, and a copy of the informed consent for the family to keep Also included in the flyer was Walden University's Internal Review Boards approval number for this study which is 01-31-14-0276732. The families were asked in the flyer to sign the form, include their email address on it, and seal it in the envelope. The flyer was returned to me through the United States postal mail system. After the students returned the informed consent with a parent's signature and an email address, adolescents received an email link invitation to SurveyMonkey (see Appendix E). The email contained instructions and a weblink for the online questionnaire located at SurveyMonkey. After clicking the link, the participant saw the informed assent page. The adolescent had to click on the *agree* button to move forward with the survey or decline by clicking *disagree*. The page contained instructions on the survey, researcher contact information, and a statement that participation in the survey was voluntary. The adolescent could stop at any time during the survey by clicking a link on the page or closing the web browser.

According to Bonner and Sprinkle (2002), incentives have been encouraged in research in order to have highly motivated participants. At the same time, Bonner and Sprinkle showed that there is evidence that incentives are not usually sufficient to affect the performance of participants. Singer and Couper (2008) stated that it is harder to get participants for a survey if an incentive is not offered. They commented on a theory called *leverage-saliency theory*, which indicates that in survey participation, individuals with high interest in the topic will participate regardless of the incentive. On the other hand, individuals with low interest will require large incentives (Singer & Couper, 2008).

The value of the incentive that was provided by me, a $5.00 iTunes gift card, was not significant. After approval from the IRB, the incentive was changed to $10.00. The first 300 participants who returned the informed consent page were to be given an iTunes gift card number redeemable at the iTunes online store for their time as a thank you. The redeemable codes were sent via Bcc email to all individuals after participants took the survey. For individuals that participated, this was an acceptable incentive for their participation. The fact that I offered an incentive corresponds with the leverage-saliency theory of offering a monetary incentive to compensate for potential lack of interest in the survey.

Data Collection

The data were collected over 4 months in early 2014. Data collection protocols were both identified and followed according to the specific measure being used. Participants were able to go online to access the survey through a website called SurveyMonkey. The collection of data were anonymous, with minimal demographic

information gathered, such as age, gender, and ethnicity. Participants were instructed to follow onscreen prompts for filling out the survey in an estimated time of 20 to 25 minutes. The survey (see Appendix A) was structured with items on demographics, game genre, and VOIPing first, followed by the Quality of Life Scale, the Motivation Scale created by Yee (2007), and the CYRM (Resilience Research Centre, 2009). Data were collected through SurveyMonkey and imported into IBM SPSS. SurveyMonkey uses up-to-date security measures to ensure that all information is protected. The survey was protected using a username and password that only myself and my committee chair had access to. Each session of use was provided with a specific one-time use authentication key to unencrypt the information gathered. All responses to the survey were encrypted using Secure Sockets Layer (SSL) technology, providing a secure and encrypted process to ensure privacy and anonymity for the respondents (SurveyMonkey, 2013). All data were stored on servers in the United States, are backed up daily, and use current software programs to provide the best quality of protection (SurveyMonkey, 2013).

Variables and Measures

Participants were asked their age, gender, and ethnicity. They were also asked about time spent gaming and VOIPing and were asked to respond to items from the quality of life, motivation for gaming, and resilience measures.

Time Spent Gaming and VOIPing

Key to the research was measuring the extent to which participants engaged in VOIPing when gaming. Therefore, two questions were asked in order to calculate the percentage of gaming time that was VOIPing time.

First, a definition of gaming was presented, and participants were asked to indicate how many hours per week they spent gaming. Then, a definition of VOIPing was presented, and participants were asked how many of their gaming hours per week involved VOIPing.

Quality of Life

The survey questions for quality of life were pulled from the PedsQL™ Short-Form 15 Generic Core Scales© (ProQollid, 2012) for teens 13 to 18 years old (permission for use is in Appendix B). The PedsQL Short-Form 15 is published in Canada and has been translated and used in 21 languages (ProQollid, 2012). The instrument is scored on a 5-point scale from *never* to *almost always*. The teen-self-report measure has an internal consistency reliability that exceeds 0.70 (Chen, Origasa, Ichida, Kamibeppu, & Varni, 2007). This survey comes under the theoretical framework of ET in that video games provide players with a greater sense of control, the ability to communicate, and an objective to complete. It also meets the framework of PDT in that adolescents do things for specific reasons to improve their social connections and avoid perceived negatives. The survey includes four subcategories—physical, emotional, social, and school—and is an assessment over the past month.

The first subcategory concerns teens' ability to interact with their environment through physical activities and has five statements. Sample statements are "It is hard for me to walk more than one block," "It is hard for me to run," and " It is hard for me to do sports activity or exercise." This subcategory is rated on whether the teen has problems

with the activity using the following scale—0 (*never*), 1 (*almost never*), 2 (*sometimes*), 3 (*often*), 4 (*almost always*), which is the same for all subcategories.

The second category deals with the emotional issues that teens face and contains four items. Sample statements are “I feel afraid or scared,” “I feel sad or blue,” and “ I feel angry.”

The third subcategory involves teen social issues and has three items. The statements are “I have trouble getting along with other teens,” “Other teens do not want to be my friend,” and “Other teens tease me.”

The fourth and last subcategory is about school problems and contains three statements. The statements are “It is hard to pay attention in class,” “I forget things,” and “I have trouble keeping up with my schoolwork.” The higher the score, the more issues the teen perceives with that item or subcategory.

Motivation for Gaming

The 39-item survey on motivation for gaming was drawn from previous research that helped to establish three main areas of motivation for playing video games: achievement, socialization, and immersion (Yee, 2007; permission for use is in Appendix C). The theoretical framework of MT was a good fit for this survey due to the conceptual construction of allowing individuals to immerse themselves in a video game and feel motivated through the achievement and socialization aspects of it. The questionnaire is useable with online gamers of any age range, demographic, and ethnicity. The participants’ information was gathered online from specific sites for gamers who play MMORPGs. Three thousand gamers participated who played games such as *EverQuest,*

Dark Age of Camelot, Ultima Online, and *Star Wars Galaxies*. The questions were answered on a 5-point, fully labeled, construct-specific scale. Each one of the three main areas has subcategories, which are discussed below.

Achievement. The first main category is achievement, which has the following subcategories: *advancement* in the game, *mechanics* of game play, and *competition* within the game (Yee, 2007). *Advancement*, the first subcategory under achievement, contains six questions and detects how important the character's advancement is within a game. Sample questions are "How important is it for you to level up your character as fast as possible?" "How important is it for you to be well-known in the game?" and "How important is it for you to become powerful?" Cronbach's alpha = .79. The one question that needed to be altered was a question concerning a guild. This question was modified from its original form—"How much do you enjoy being part of a serious, raid/loot-oriented guild?"—to "How much do you enjoy being part of a serious *video gaming experience*?"

Mechanics, the second subcategory under achievement, has four questions and assesses the individual's interest in how the game is played. Sample questions are "How interested are you in the precise numbers and percentages underlying the game mechanics?" "How important is it to you that your character is as optimized as possible for their profession/role?" and "How important is it for you to know as much about the game mechanics and rules as possible?" Cronbach's alpha = .68. All questions are considered applicable for the majority of games.

Competition, the final subcategory under achievement, contains four questions on the competitive nature of the playing style. Sample questions are "How much do you enjoy competing with other players?" "How often do you purposefully try to provoke or irritate other players?" and "How much do you enjoy dominating/killing other players?" Cronbach's alpha = .75. All questions were considered applicable for this study.

Socialization. Socialization, the second main category, has three subcategories: *socializing* during game play, *relationship building* when playing, and *teamwork* (Yee, 2007). Socializing during game play has four questions that assess the player's social skills. Sample questions are "How much do you enjoy getting to know other players?" "How much do you enjoy chatting with other players?" and "How much do you enjoy helping other players?" Cronbach's alpha = .74. The one question that needed to be altered was a question about a guild. The question was modified from its original form—"How much do you enjoy being part of a friendly, casual guild?"—to "How much do you enjoy being part of a friendly, casual *video gaming group*?"

The second subcategory, *relationship building*, has three questions about the depth of connection that individuals feel that they have with others. Sample questions are "How often do you find yourself having meaningful conversations with other players?" "How often do you talk to your online friends about your personal issues?" and "How often have your online friends offered you support when you had a real life problem?" Cronbach's alpha = .80. All questions were applicable to the study.

The third and final subcategory for socialization, *teamwork*, contains four questions in an effort to capture the individual's desire to socialize while playing video

games. Sample questions are “Would you rather be grouped or soloing?” “How important is it to you that your character can solo well?” and “How much do you enjoy working with others in a group?” Cronbach’s alpha = .71. All questions were considered appropriate for the study.

Immersion. The final main category is immersion, which is divided into four subcategories: *discovery* of information or items that are within the game, *role-playing* or the ability to create and be something else, *customization* of the character’s appearance, and *escapism* or gaming to forget about current problems (Yee, 2007). *Discovery* of information, the first subcategory of immersion, has four questions concerning the importance of exploration for the player. Sample questions are “How much do you enjoy exploring the world just for the sake of exploring it?” “How much do you enjoy collecting distinctive objects or clothing that have no functional value in the game?” and “Exploring every map or zone in the world?” Cronbach’s alpha = .73. All parts of this subcategory were applicable.

Role-playing, the second subcategory of immersion, contains four questions to uncover the individual’s desire to be someone or something else. Sample questions are “How much do you enjoy trying out new roles and personalities with your characters?” “How much do you enjoy being immersed in a fantasy world?” and “How often do you role-play your character?” Cronbach’s alpha = .87. All questions in this subcategory were useable.

Customization, the third subcategory of immersion, has three questions and captures the enjoyment and immersive aspects of being able to manipulate the character’s

appearance and skills. Sample questions are “How much time do you spend customizing your character during character creation?” “How important is it to you that your character’s armor/outfit matches in color and style?” and “How important is it to you that your character looks different from other characters?” Cronbach alpha = .74. All questions of the subcategory were applicable to this study.

Escapism is the final subcategory of immersion, has three questions, and attempts to identify the avoidance of real world problems through game play. Questions are “How often do you play so you can avoid thinking about some of your real-life problems or worries?,” “ How often do you play to relax from the day’s work?,” and “ How important is it to you that the game allows you to escape from the real world?” Cronbach alpha = .65. All measures of the subcategory were applicable.

Only two questions were modified from their original version to make them more applicable for the prescribed population (see Yee, 2007). The first question under advancement was changed from 8) How much do you enjoy being part of a serious, raid/loot-oriented guild? to 8) How much do you enjoy being part of a serious video gaming experience. The second question that was modified was under *socializing* during game play. It was changed from 7) “How much do you enjoy being part of a friendly, casual guild?” to 7) “How much do you enjoy being part of a friendly, casual *video gaming group*?” These questions were modified to make them more broad-based, generalizable, and applicable to more gaming genres. The questions were answered on a five-point, fully-labeled, construct-specific scale.

Resilience. The quantitative portion of the resilience survey of The Child and

Youth Resilience Measure (CYRM) 28 has one part that was used (permission for use is in Appendix D). It contained 28 questions on a 5-point scale ranging from 1 (*not at all*), 2 (*A Little*), 3 (*Some What*), 4 (*Quite a Bit*), and 5 (*a lot*). This measure was originally used on adolescents ages 12 to 23 years old to explore the resources available to support or increase their resilience. ET, MT, and PDT theories support the understanding of adolescent resilience in dealing with personal problems, issues with peers, and desire to complete objectives. Eleven countries and 14 different communities combined with International Resilience Project (IRP) to create this tool (Resource Center on Child Protection and Child Rights Governance, 2012).

In the survey, participants were asked to choose one response per statement that best fits them or their beliefs (Resilience Research Centre, 2009). The subcategories were individual, relationships, community, and culture.

The first subcategory is *individual* and contains eight statements that help determine what individuals believe about themselves. Sample statements are "I cooperate with people around me," "I try to finish what I start," and "People think that I am fun to be with." This category is built on the construct of an individual's sense of self worth.

The second subcategory, *relationships*, has six statements that explore the beliefs that individuals have about their personal interactions with others. The sample statements are "I have people I look up to," "I know how to behave in different social situations," and "My parents(s)/caregivers(s) know a lot about me." This subcategory is created around the concept that social connection of family, peers, and/or friends have

resiliency determinants affecting the individual's resilience ability as noted by the Resilience Research Center CYRM 28 Manuel on page 23.

The third subcategory is *community* and contains eight statements that look at the teens' connections to their local community. Sample statements are "Getting an education is important to me," " If I am hungry, there is enough to eat," and "I feel I belong at my school." This subcategory helps identify individuals' beliefs about security in and connections with their community.

The fourth and final category is *culture,* which has six statements and assesses the individual's cultural identity. Sample statements are "Spiritual beliefs are a source of strength for me," " I am proud of my ethnic background," and "I enjoy my family's/caregiver's traditions." This subcategory helps detail the individual's cultural beliefs and identity.

The CYRM has been used with adolescents to young adults between the ages 12-23 years old. The original version had 58 statements with a Cronbach alpha for each subcategory of .84 for individual, .66 for relational, .79 for community, and .71 for cultural. According to the Resilience Research Centre (2009), the shorter version with 28 statements still fulfills the goal of identifying the aspects of resiliency for adolescents. However, they do clarify that more research needs to be done in order to validate the claim. A previous study has shown an internal consistency of the CYRM 28 to be Cronbach's alpha = 0.89 (Salami, 2010). Cronbach's alpha for each individual subscale of the 28 item short version has not been reported. Permission for use of the CYRM 28 is in Appendix B.

Models, Research Questions, and Data Analysis Plan

Rather than testing specific hypotheses, the purpose of this research was to construct a series of analytic models to examine explanatory relationships between quality of life, motivation for gaming, and resilience with the proportion of gaming time that includes VOIPing. Similarly, multivariate relationship models between (a) motivation for gaming and quality of life, and (b) motivation for gaming and resilience was examined.

In addition to the specified models, analyses were conducted to examine differences on VOIPing, quality of life, motivation for gaming, and resilience with respect to age, gender, or ethnicity.

Model 1: Quality of Life and VOIPing

This model addressed the research question: What are the combined and relative relationships of the physical, emotional, social, and school quality of life subscale scores with proportion of VOIPing gaming time?

A standard linear regression was conducted with multiple R^2 indexing the combined effect and the squared semi-partial correlations indexing the relative effects of statistically significant (alpha = .05) quality of life variables.

Models 2a-2e: Motivation for Gaming and VOIPing

This model addressed the research question: What are the combined and relative relationships of the three motivation for gaming scales and 10 subscales with proportion of VOIPing gaming time?

Five standard linear regressions were conducted. The first, Model 2a, regressed VOIPing gaming proportion on achievement, socialization, and immersion scale scores. Model 2b examined achievement's three subscales of advancement, mechanics, and competition. Model 2c examined socialization's four subscales of socializing, relationship building, and teamwork. Model 2d examined immersion's four subscales of discovery, role-playing, customization, and escapism. Finally, Model 2e examined all 10 subscales together.

For each model, multiple R^2 indexed the combined effect and the squared semi-partial correlations indexed the relative effects of statistically significant (alpha = .05) motivation for gaming variables.

Model 3: Resilience and VOIPing

This model addressed the research question: What are the combined and relative relationships of the individual, peer and family relationships, community, and culture resiliency subscale scores with proportion of VOIPing gaming time?

A standard linear regression was conducted with multiple R^2 indexing the combined effect and the squared semi-partial correlations indexing the relative effects of statistically significant (alpha = .05) resilience variables.

Model 4: Motivation for Gaming and Quality of Life

This model addressed the multivariate research question: Along how many dimensions are the 10 motivation for gaming subscales related to the four quality of life subscales, and what are the variable patterns that define a dimension?

A multivariate canonical correlation was conducted with canonical R^2 indexing the omnibus effect of a statistically significant dimension and canonical function, structure, and cross load coefficients indexing the relative effects of individual variables from the motivation for gaming set and the quality of life set.

Model 5: Motivation for Gaming and Resilience

This model addressed the multivariate research question: Along how many dimensions are the 10 motivation for gaming subscales related to the four resilience subscales, and what are the variable patterns that define a dimension?

A multivariate canonical correlation was conducted with canonical R^2 indexing the omnibus effect of a statistically significant dimension and canonical function, structure, and cross load coefficients indexing the relative effects of individual variables from the motivation for gaming set and the resilience set.

Informed Consent and Ethical Considerations

Appropriate informed consent forms were provided to the participating individuals in both paper and electronic format. Permission to conduct research was also secured from Walden University's Internal Review Board prior to beginning the research. Due to the fact that the study was anonymous, no names were connected with the data. Participant responses were downloaded from SurveyMonkey and stored on a password protected computer and the paper consent forms are stored in a locked filing cabinet. Only myself and my faculty chair have access to the participant responses on SurveyMonkey and only the researcher has access to the paper consents forms. Parental consent confidentiality and email addresses were protected through password-protected

digital records and through locks. The protection of participant information was a primary concern for me. Minimal incentives were used by myself to encourage participation in the survey as standard practice in academic research.

Chapter 4: Results

Introduction

Myself examined the relationship of video game VOIPing to adolescents' quality of life, motivation for gaming, and life resiliency. VOIP or Voice Over Internet Protocol is defined as a transmission technique and delivery system of a voice over the Internet. More specifically, it involves communication with a microphone and speaker so that the individuals can talk with and hear other players (Halloran, 2011). The grounding hypothesis for the study was that social interaction through VOIPing can influence how adolescents perceive their quality of life, their resilience to problems that they face, and their motivation to play video games.

A dominant force in adolescent lives is video games, which have been identified by some researchers as a negative influence (Ha et al., 2007). Limited research exists regarding video games as a positive influence. VOIPing is identified as a potential positive influence for adolescents (Halloran, 2011). Therefore, determining whether VOIPing positively influences adolescents in areas such as quality of life and resiliency could impact how video games are perceived or even created.

According to entertainment theory (ET), adolescents find entertainment value in playing video games (Klimmt et al., 2008). Moreover, as specified by motivational theory (MT) and psychological distress theory (PDT), adolescents use video games to gain social connection as well as to avoid problems in their real lives (Hart et al., 2009; Klimmt et al., 2008). VOIPing may increase adolescents' social availability, social competency, and general feeling of being more in control of their own lives.

Additionally, gaming may provide adolescents more social time, which helps to reduce stress and to regain emotional control. On the other hand, VOIPing may sustain adolescents' immersion in the game, thereby encouraging teens to avoid or escape the problems they face in daily life.

Social change can occur if adolescents, adults, and families use video game VOIPing to increase positive attributes such as the ability to socialize, to solve problems together, and to demonstrate empathy. Furthermore, when individuals feel connected (which VOIPing can facilitate), they might be more resilient in dealing with everyday problems, impacting their quality of life positively. Also, social change could occur as video game companies use the positive potential of VOIPing to create games that allow prosocial characteristics to be learned and practiced in the lives of adolescents.

The research surveys were developed to examine various aspects of adolescent life. I used the survey results to create five analytic models. Analytic Model 1 concerns the relationship between the amount of time VOIPing and the adolescents' perception, positive or negative, of their quality of life. Analytic Model 2 is a comparison of the three motivation for gaming scales along with their 10 subscales with the amount of time VOIPing. Analytic Model 3 compares the combined and relative relationships of resilience subscales with the amount of time VOIPing. Analytic Model 4 is an examination of the multivariate dimensions and patterns of motivation for gaming and quality of life. Analytic Model 5 focuses on the eight motivation for gaming subscales and the four resilience subscales along multivariate dimensions to determine if there is a pattern.

In this chapter, the procedures used to gather the data and the information gleaned from the surveys are summarized. The findings of the data collected are reviewed for each of the analytic models, and then a summary concludes Chapter 4.

Data Collection

The method for sampling the population was one of convenience sampling. The sample of teens ages 13 to 18 was drawn from three middle schools and two high schools within local school districts in the surrounding area of San Jose, California. Access to the adolescent population was granted by the middle school and high school district designees, along with permission to distribute the informed consent page with a sealable, self-addressed, and stamped envelope. The students took the consent form home to their parents. The consent page contained information about the study, participation requirements for students, informed consent information, and a copy of the informed consent for the family to keep. The families sent the signed form, with their preferred email address on the consent form, to me directly using the United States Postal System. I then sent an electronic initiation with a weblink using Survey Monkey to the email address. Those who clicked the link were directed to the informed assent page. After agreeing, the participants answered the survey questions. At the end of the survey, participants put in their preferred email address in order to receive the $10.00 iTunes incentive. Typically, the incentive electronic gift card was sent to the preferred email within 2 days. All the survey data remained anonymous, and the email addresses were not linked to the individual surveys.

Descriptive Statistics

Descriptive statistics outline general participant data in the study. The frequency distribution table below (Table 1) illustrates the gender, age, ethnicity, and preferred game genre. This information was gathered to understand the sample population and characteristics.

Table 1

*Sample Characteristics (*N = *103)*

Variable	*n*	%
Sex		
Male	72	69.9
Female	31	30.1
Age[a]		
13	44	42.7
14	32	31.1
15	7	6.8
16	7	6.8
17	6	5.8
18	7	6.8
Race/Ethnicity		
White or European	63	63.6
All others combined	40	36.4
Preferred video game genre		
Puzzle	9	8.7
Party	4	3.9
Racing	9	8.7
Fighting	3	2.9
Sports	10	9.7
Platformer	3	2.9
Real-time strategy	9	8.7
3rd-person shooter	4	3.9
1st-person shooter	23	22.3
Role playing	17	16.5
Massively multiplayer role playing	12	11.7

[a]Age (*M* = 14.22, Median = 14, *SD* = 1.53).

The frequency distribution shows that more than twice as many males as females participated in the survey, nearly three-quarters of participants were 13 or 14 years of age, about two-thirds were White, and first-person shooter was the most-preferred video game genre. Of the 116 initial surveys, 103 were retained for data analysis following standard data cleaning. One survey had substantial missing data (24 items) and was excluded. Three surveys had missing data on game hours (key computation of primary IV), and nine participants reported that they did not play video games and were excluded. Not VOIPing was permitted, but participants were required to play video games. Three cases reported more hours VOIPing than total hours video gaming. Their VOIPing response was changed to equal the total hours gaming response. Where participants had missing data on an item that was part of a scale composite, the participant's mean of the other items that made up the specific scale was used.

Participants' gaming hours per week were reported on a scale of 0 (*1 hour or less a week*) to 4 (*5 hours or more a week*; see Table 2). Results showed that 20.4% of participants played 1 hour or less a week, 23.3% of participants played 1 to 3 hours a week, 19.4% of participants played 3 to 5 hours a week, and 36.9% of participants played 5 or more hours a week. Participants' VOIPing time was indicated on a scale from 0 (*none*) to 4 (*5 or more hours a week*). Of the participants, 48.5% used VOIP none of the time, 16.5% used VOIP 1 hour of less, 18.4% used VOIP 1 to 3 hours, 4.9% used VOIP 3 to 5 hours, and 11.7% used VOIP 5 or more hours.

Due to the creation of the question around video gaming and VOIPing, pseudo-proportion was calculated to help understand the relationship between gaming and VOIP gaming (see Table 2).

Table 2

*Descriptive Statistics for Hours Per Week Video Gaming and VOIPing, and Pseudo-Percentage of VOIP gaming Time (*N *= 103)*

Variable	Mean	*SD*	*n*	%
Hours video gaming per week	2.73	1.16		
1 hour or less			21	20.4
1 to 3 hours			24	23.3
3 to 5 hours			20	19.4
5 or more hours			38	36.9
Hours VOIPing per week	1.15	1.38		
None			50	48.5
1 hour or less			17	16.5
1 to 3 hours			19	18.4
3 to 5 hours			5	4.9
5 or more hours			12	11.7
Pseudo-% VOIP	35.60	39.87		
0.00			50	48.5
25.00			6	5.8
33.33			2	1.9
50.00			15	14.6
66.67			6	5.8
75.00			4	3.9
100.00			20	19.4

[a]Measured on a 1 to 4 ordinal scale. [b]Measured on a 0 to 4 ordinal scale.

The Pediatric Quality of Life Inventory: Version 4.0 Short Form (SF15) TEEN REPORT (ages 13-18), Motivation for Gaming, and the Child and Youth Resilience Measure were taken by all participants. However, as noted earlier, some participants did not respond to all questions. Consequently, wherever a participant had missing data that were part of a composite scale, the participant's mean of the other items that made up the specific scale was used.

Results

A series of analytic models was used to examine explanatory relationships between quality of life, motivation for gaming, and resilience with the proportion of gaming time that included VOIPing. Similarly, multivariate relationship models were used to examine (a) motivation for gaming and quality of life, and (b) motivation for gaming and resilience. The scales and subscale descriptive statistics are listed in Table 3. The teamwork scale was unreliable (Cronbach's alpha = .46) and not used in further analysis. As well, the teamwork items did not work well with the overall socialization scale, so those items were not used in its construction. The role play scale was also unreliable (Cronbach's alpha = .56), but its items did improve the overall immersion scale and were retained in its construction.

Table 3

*Scales and Subscale Descriptive Statistics: Quality of Life, Motivation for Gaming, Resiliency (*N = *103)*

Scale	Items	Mean	*SD*	Min	Max	Inter-Item Correlations Min	Max	α
Quality of Life								
Physical	5	0.46	0.49	0.00	2.20	.07	.77	.64
Emotional	4	1.02	0.72	0.00	3.25	.38	.70	.80
Social	3	0.82	0.70	0.00	3.00	.40	.71	.77
School	3	1.24	0.74	0.00	3.33	.30	.50	.67
Resilience	28							
Individual	8	2.96	0.63	0.75	4.00	.11	.67	.80
Relationships	6	2.69	0.70	0.67	4.00	.16	.54	.72
Community	8	3.08	0.70	0.63	4.00	.25	.61	.84
Culture	6	2.45	0.83	0.33	4.00	.14	.68	.76
Motivation for Gaming								
Achievement	14	1.97	0.75	0.00	3.71	.02	.78	.89
Advancement	6	2.14	0.89	0.00	4.00	.32	.73	.86
Mechanics	4	1.87	0.86	0.00	3.50	.35	.54	.75
Competition	4	1.81	0.99	0.00	4.00	.31	.78	.78
Socialization[a]	7	1.82	0.80	0.00	3.57	.17	.82	.83
Socializing	4	2.34	0.92	0.00	4.00	.27	.82	.81
Relationships	3	1.12	0.94	0.00	3.33	.49	.66	.78
Teamwork	4	1.93	0.71	0.00	4.00	-.07	.47	.46
Immersion	13	1.83	0.68	0.00	3.54	-.02	.70	.82
Discovery	3	2.46	0.96	0.00	4.00	.38	.54	.74
Role Play	4	1.53	0.77	0.00	3.50	.07	.49	.56
Customization	3	1.84	1.04	0.00	4.00	.40	.55	.75
Escapism	3	1.58	0.91	0.00	4.00	.31	.47	.65

[a]Socialization excludes the four Teamwork items because of low internal consistency with other items in the scale.

Model 1: Quality of Life and VOIPing

This model addressed the research question: What are the combined and relative relationships of the physical, emotional, social, and school quality of life subscale scores with proportion of VOIP gaming time?

A standard linear regression was conducted with multiple R^2 indexing the combined effect and the squared semi-partial correlations indexing the relative effects of statistically significant (alpha = .05) quality of life variables to determine if there was a relationship between physical, emotional, social, and school quality of life subscale scores with proportion of VOIP gaming time (see Table 4 and Table 5). The combined effect was not significant, $F(4, 98) = 0.724$, $p = .577$, $R^2 = .029$, and none of the individual predictors were significant in their bivariate relationship with VOIP gaming time or their partial relationship while controlling for the other predictors.

Table 4

Intercorrelations Among VOIP Pseudo-% and Quality of Life Subscales (N = 103)

Variable	1	2	3	4	5
1. VOIP Pseudo-%		-.030	.051	-.046	.112
2. Physical	.380		.225	.106	.377
3. Emotional	.304	.011		.584	.398
4. Social	.321	.143	< .001		.251
5. School	.131	< .001	< .001	.005	

Note. Upper diagonal contains correlations. Lower diagonal contains *p* values.

Table 5

*VOIP Pseudo-% Regressed on Quality of Life Subscales (*N *= 103)*

Quality of Life Subscale	*B*	95%CI	β	*p*	sr^2
Physical	-7.31	[-24.61, 10.00]	-.09	.404	.007
Emotional	4.79	[-9.48, 19.05]	.09	.507	.004
Social	-7.03	[-20.97, 6.90]	-.12	.319	.010
School	7.66	[-4.60, 19.92]	.14	.218	.015
Constant	30.40	[13.32, 47.47]			

Note. $F(4, 98) = 0.724$, $p = .577$, $R^2 = .029$. sr^2 = squared semipartial correlation.

Model 2: Motivation for Gaming and VOIPing

This model addressed the research question: What are the combined and relative relationships of the three motivation for gaming scales and 8 subscales with proportion of VOIP gaming time?

Five standard linear regressions were conducted. The first, Model 2a, regressed VOIP gaming proportion on achievement, socialization, and immersion major scale scores (see Table 6 and Table 7). The combined effect was statistically significant, $F(3, 99) = 12.814$, $p < .001$, $R^2 = .280$, accounting for 28.0% of the variance in VOIP gaming time. All three predictors were bivariately significant with VOIP gaming time, but only the socialization subscale, uniquely accounting for 10.0% of the variance, and the achievement subscale, uniquely accounting for 8.6% of variance, were significant in the regression.

Model 2b used the achievement measure's three minor subscales of advancement, mechanics, and competition. The combined effect was statistically significant, $F(3, 99) = 10.41$, $p < .001$, $R^2 = .240$, accounting for 24.0% of the variance in VOIP gaming time. All three predictors were bivariately significant with VOIP gaming time, but only the mechanics subscale, uniquely accounting for 11.6% of the variance was significant in the regression (see Table 9).

Model 2c examined socialization's two minor subscales of socializing and relationship building. The combined effect was statistically significant, $F(2, 100) = 12.55$, $p < .001$, $R^2 = .201$, accounting for 20.1% of the variance in VOIP gaming time. Both predictors were bivariately significant with VOIP gaming time, and both the socializing

subscale, uniquely accounting for 3.2% of the variance, and the relationships subscale, uniquely accounting for 7.2% of variance, were significant in the regression (see Table 9).

Model 2d examined immersion's three minor subscales of discovery, customization, and escapism. The combined effect was not statistically significant, $F(3, 99) = 2.04$, $p = .114$, $R^2 = .058$. Only the escapism subscale was bivariately significant with VOIP gaming time, but it only approached significance ($p = .086$) in the regression.

Finally, Model 2e examined all 8 motivation for gaming minor subscales together (see Table 8 and Table 9). The combined effect was statistically significant, $F(8, 94) = 5.44$, $p < .001$, $R^2 = .316$, accounting for 31.6% of the variance in VOIP gaming time. Only the mechanics minor subscale, uniquely accounting for 5.5% of the variance was significant in the regression. The relationships minor subscale ($p = .069$, $sr^2 = .025$) and the socializing minor subscale ($p = .087$, $sr^2 = .022$) approached statistical significance.

Table 6

*Intercorrelations Among VOIP Pseudo-% and Motivation for Gaming Major Subscales (*N = *103)*

Motivation for Gaming	1	2	3	4
1. VOIP Pseudo-%		.440	.223	.424
2. Socialization	< .001		.473	.386
3. Immersion	.012	< .001		.507
4. Achievement	< .001	< .001	< .001	

Note. Upper diagonal contains correlations. Lower diagonal contains *p* values.

Table 7

*VOIP Pseudo-% Regressed on Motivation for Gaming Major Subscales (*N = *103)*

Quality of Life Subscale	*B*	95%CI	β	*p*	sr^2
Socialization	18.10	[8.40, 27.80]	.37	< .001	.100
Immersion	-7.33	[-19.59, 4.93]	-.13	.238	.010
Achievement	18.31	[7.73, 28.89]	.35	.001	.086
Constant	-20.01	[-42.43, 2.40]			

Note. $F(3, 99) = 12.814$, $p < .001$, $R^2 = .280$. sr^2 = squared semipartial correlation.

Table 8

*Intercorrelations Among VOIP Pseudo-% and Motivation for Gaming Minor Subscales (*N = *103)*

Motivation for Gaming	1	2	3	4	5	6	7	8	9
1. VOIP Pseudo-%		.348	.480	.246	.359	.411	.138	.141	.217
2. Advancement	<.001		.560	.592	.194	.342	.270	.323	.275
3. Mechanics	<.001	<.001		.379	.389	.478	.395	.294	.431
4. Competition	.012	<.001	<.001		.125	.237	.173	.112	.300
5. Socializing	<.001	.049	<.001	.207		.496	.391	.063	.241
6. Relationships	<.001	<.001	<.001	.016	<.001		.392	.228	.486
7. Discovery	.166	.006	<.001	.081	<.001	<.001		.310	.369
8. Customization	.156	.001	.003	.260	.525	.021	.001		.208
9. Escapism	.028	.005	<.001	.002	.014	<.001	<.001	.035	

Note. Upper diagonal contains correlations. Lower diagonal contains *p* values.

Table 9

*VOIP Pseudo-% Regressed on Motivation for Gaming Minor Subscales (*N = *103)*

	Independent Minor Subscale Models					Combined Minor Subscale Model				
Motivation for Gaming	*B*	95%CI	β	*p*	sr^2	*B*	95%CI	β	*p*	sr^2
Socialization										
Socializing	8.97	[0.08, 17.86]	.21	.048	.032	7.84	[-1.16, 16.85]	.18	.087	.022
Relationships	13.04	[4.40, 21.67]	.31	.003	.072	8.84	[-0.70, 18.38]	.21	.069	.025
Constant	-0.08	[-19.50, 19.35]								
Immersion										
Discovery	1.76	[-7.14, 10.66]	.04	.696	.001	-6.63	[-15.02, 1.76]	-.16	.120	.018
Customization	3.43	[-4.42, 11.28]	.09	.388	.007	0.49	[-6.74, 7.72]	.01	.893	< .001
Escapism	8.00	[-1.17, 17.16]	.18	.086	.029	-2.09	[-11.16, 6.98]	-.05	.648	.002
Constant	12.36	[-10.92, 35.64]								
Achievement										
Advancement	4.44	[-6.42, 15.30]	.10	.419	.005	4.01	[-6.93, 14.95]	.09	.469	.004
Mechanics	19.10	[9.35, 28.84]	.41	<.001	.116	15.05	[4.22, 25.88]	.33	.007	.055
Competition	1.27	[-7.46, 10.01]	.03	.773	.001	1.56	[-7.14, 10.27]	.04	.722	.001
Constant	-11.87	[-31.44, 7.71]				-13.54	[-40.03, 12.95]			

Note. sr^2 = squared semipartial correlation. Independent models represent three separate regressions. Socialization model: $F(2, 100) = 12.55$, $p < .001$, $R^2 = .201$. Immersion model: $F(3, 99) = 2.04$, $p = .114$, $R^2 = .058$. Achievement model: $F(3, 99) = 10.41$, $p < .001$, $R^2 = .240$. Combined model includes all minor subscales: $F(8, 94) = 5.44$, $p < .001$, $R^2 = .316$.

Model 3: Resilience and VOIPing

This model addressed the research question: What are the combined and relative relationships of the individual, peer and family relationships, community, and culture resiliency subscale scores with proportion of VOIP gaming time?

A standard linear regression was conducted with multiple R^2 indexing the combined effect and the squared semipartial correlations indexing the relative effects of statistically significant (alpha < .05) resilience variables. The combined effect was not statistically significant, $F(4, 98) = 1.296$, $p = .277$, $R^2 = .050$. None of the four predictors were bivariately significant with VOIP gaming time, though the culture subscale, $r(101) = .158$, $p = .056$, and the individual subscale, $r(101) = .129$, $p = .096$, approached bivariate statistical significance; however, none were significant nor approached statistical significance in the regression.

Table 10

*Intercorrelations Among VOIP Pseudo-% and Resiliency Subscales (*N = *103)*

Variable	1	2	3	4	5
1. VOIP Pseudo-%		.129	.034	.024	.158
2. Individual	.096		.730	.746	.475
3. Relationships	.368	< .001		.708	.511
4. Community	.404	< .001	< .001		.400
5. Culture	.056	< .001	< .001	< .001	

Note. Upper diagonal contains correlations. Lower diagonal contains *p* values.

Table 11

*VOIP Pseudo-% Regressed on Resiliency Subscales (*N = *103)*

Quality of Life Subscale	*B*	95%CI	β	*p*	sr^2
Individual	15.90	[-4.90, 36.71]	.25	.133	.022
Relationships	-8.15	[-26.28, 9.98]	-.14	.375	.008
Community	-7.26	[-25.24, 10.71]	-.13	.424	.006
Culture	7.75	[-3.29, 18.80]	.16	.424	.019
Constant	13.76	[-25.51, 53.04]			

Note. $F(4, 98) = 1.296$, $p = .277$, $R^2 = .050$. sr^2 = squared semipartial correlation.

Model 4: Motivation for Gaming and Quality of Life

This model addressed the multivariate research question: Along how many dimensions are the 8 motivation for gaming subscales related to the four quality of life subscales, and what are the variable patterns that define a dimension?

A multivariate canonical correlation was conducted with canonical R^2 indexing the omnibus effect of a statistically significant dimension; and canonical function, structure, and cross load coefficients indexing the relative effects of individual variables from the motivation for gaming set and the quality of life set. All pairwise correlations among the 12 variables are shown in Table 12, and the canonical results are shown in Table 13 and Figure 1

Although 3 functions were extracted, only the first was statistically significant, Wilks $\Lambda(32, 337) = .55$, $p = .005$, squared canonical correlation = .31. As can be concluded from the size of the canonical coefficients detailed in Table 13 and graphically depicted in Figure 1, those individuals with high scores on each of the relationships, customization, and escapism motivation for gaming subscales tended to also have high scores on each of the emotional, social, and school quality of life subscales.

Table 12

*Intercorrelations Among Quality of Life (QOL) and Motivation for Gaming (MOT) Subscales (*N = *103)*

	1	2	3	4	5	6	7	8	9	10	11	12
1. QOL_Physical		.225	.106	.377	-.138	.027	-.100	-.045	-.004	.154	.212	.155
2. QOL_Emotional	.022		.584	.398	.100	.162	.210	.081	.359	.117	.288	.309
3. QOL_Social	.286	<.001		.251	.069	.123	.125	-.020	.302	.148	.195	.326
4. QOL_School	<.001	<.001	.010		.044	.118	.149	.107	.260	.271	.209	.307
5. MOT_Advancement	.164	.316	.489	.656		.560	.592	.194	.342	.270	.323	.275
6. MOT_Mechanics	.787	.101	.217	.234	<.001		.379	.389	.478	.395	.294	.431
7. MOT_Competition	.317	.033	.207	.133	<.001	<.001		.125	.237	.173	.112	.300
8. MOT_Socializing	.655	.418	.844	.281	.049	<.001	.207		.496	.391	.063	.241
9. MOT_Relationships	.969	<.001	.002	.008	<.001	<.001	.016	<.001		.392	.228	.486
10. MOT_Discovery	.120	.238	.137	.006	.006	<.001	.081	<.001	<.001		.310	.369
11. MOT_Customization	.032	.003	.049	.034	.001	.003	.260	.525	.021	.001		.208
12. MOT_Escapism	.117	.001	.001	.002	.005	<.001	.002	.014	<.001	<.001	.035	

Note. Upper diagonal contains correlation coefficients. Lower diagonal contains *p* values.

Table 13

*Canonical Correlation Results for Quality of Life (QOL) and Motivation for Gaming (MOT) Subscales (*N = *103)*

		Canonical Coefficient		
Subscale	Standardized[a]	Correlation[b]	Cross Load[c]	VIF[d]
QOL_Physical	.080	.375	.209	1.33
QOL_Emotional	.449	.856	.477	1.91
QOL_Social	.389	.762	.425	1.65
QOL_School	.407	.713	.398	1.45
MOT_Advancement	-.446	.141	.079	2.20
MOT_Mechanics	-.119	.306	.171	1.93
MOT_Competition	.355	.351	.196	1.72
MOT_Socializing	-.249	.123	.069	1.56
MOT_Relationships	.587	.689	.384	1.99
MOT_Discovery	.089	.417	.233	1.52
MOT_Customization	.453	.550	.307	1.37
MOT_Escapism	.437	.722	.402	1.33

Note. Wilks $\Lambda(32, 337) = .55$, $p = .005$, squared canonical correlation = .31. [a] Standardized coefficient represents relative contribution of a subscale within its own variate set. [b]Correlation represents correlation of a subscale with its own variate set. [c]Cross Load represents correlation of a subscale with the other variate set. [d] VIF = variance inflation factor, and index of multicollinearity (issues can arise if VIF is much greater than 2.0).

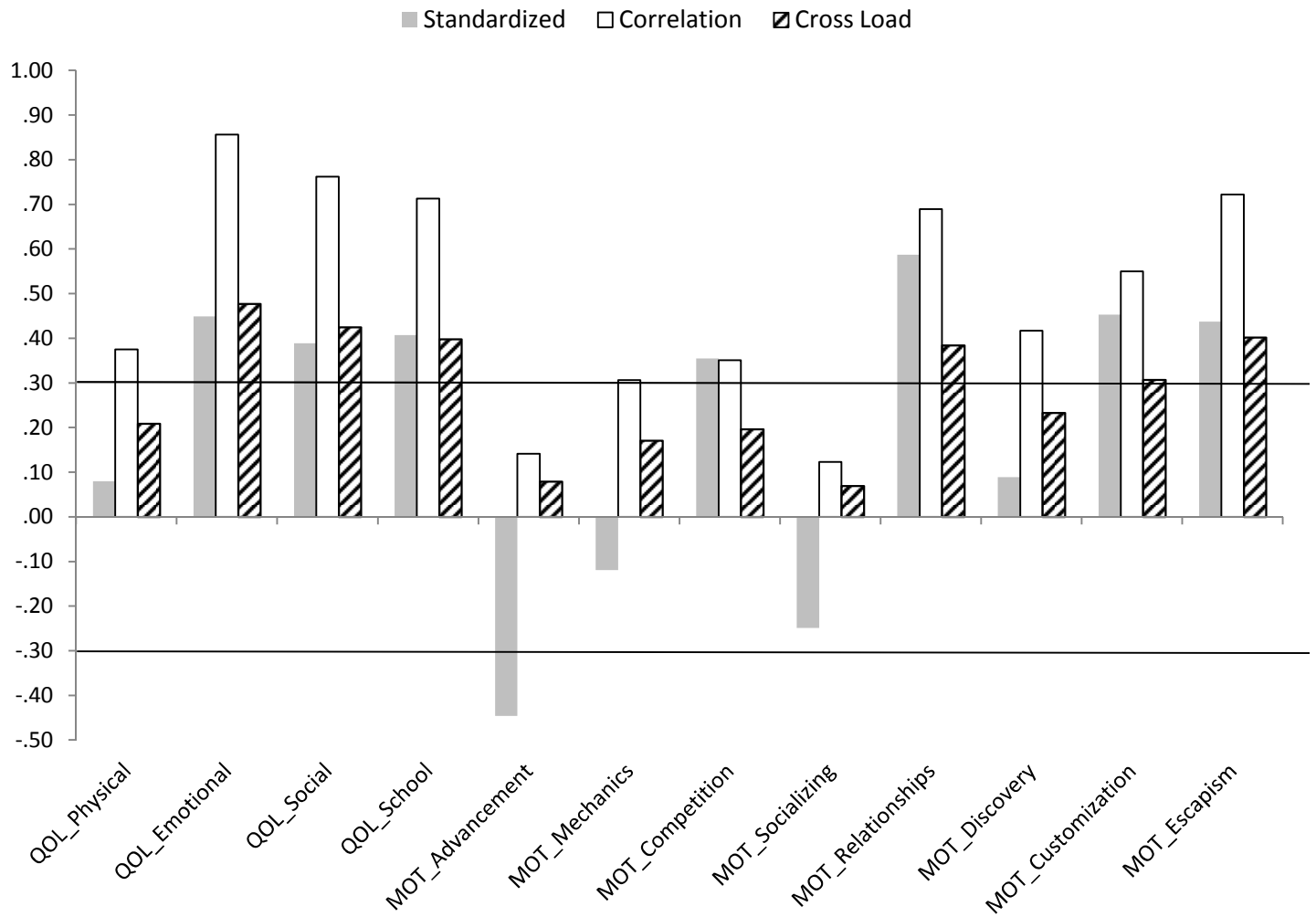

Figure 1. Canonical coefficients for Quality of Life (QOL) and Motivation for Gaming (MOT) subscales. Subscales with all three coefficients ≥ ± .30 are major contributors to the multivariate relationship.

Model 5: Motivation for Gaming and Resilience

This model addressed the multivariate research question: Along how many dimensions are the 8 motivation for gaming subscales related to the four resilience subscales, and what are the variable patterns that define a dimension?

A multivariate canonical correlation was conducted with canonical R^2 indexing the omnibus effect of a statistically significant dimension and canonical function, structure, and cross load coefficients indexing the relative effects of individual variables from the motivation for gaming set and the resilience set. All pairwise correlations among the 12 variables are shown in Table 14, and the canonical results are shown in Table 15 and Figure 2.

Although 3 functions were extracted, only the first was statistically significant, Wilks $\Lambda(32, 337) = .55$, $p = .003$, squared canonical correlation = .31. As can be concluded from the size of the canonical coefficients detailed in Table 15 and graphically depicted in Figure 2, those individuals with low scores on the escapism motivation for gaming subscale tended to also have high scores on the individual, relationships, community resilience subscales.

Table 14

*Intercorrelations Among Resilience (RES) and Motivation for Gaming (MOT) Subscales (*N = *103)*

	1	2	3	4	5	6	7	8	9	19	11	12
1. RES_Individual		.730	.746	.475	.073	.045	-.103	.176	-.037	.120	.040	-.330
2. RES_Relationships	<.001		.708	.511	.046	.004	-.113	.136	-.056	.132	-.027	-.281
3. RES_Community	<.001	<.001		.400	-.046	.021	-.110	.118	-.192	.004	.046	-.428
4. RES_Culture	<.001	<.001	<.001		.015	.005	-.110	.151	.041	.062	.142	-.182
5. MOT_Advancement	.467	.642	.644	.878		.560	.592	.194	.342	.270	.323	.275
6. MOT_Mechanics	.655	.965	.831	.957	<.001		.379	.389	.478	.395	.294	.431
7. MOT_Competition	.301	.255	.267	.267	<.001	<.001		.125	.237	.173	.112	.300
8. MOT_Socializing	.076	.172	.234	.127	.049	<.001	.207		.496	.391	.063	.241
9. MOT_Relationships	.707	.576	.052	.681	.000	<.001	.016	<.001		.392	.228	.486
10. MOT_Discovery	.228	.185	.970	.535	.006	<.001	.081	<.001	<.001		.310	.369
11. MOT_Customization	.688	.788	.646	.152	.001	.003	.260	.525	.021	.001		.208
12. MOT_Escapism	.001	.004	<.001	.066	.005	<.001	.002	.014	<.001	<.001	.035	

Note. Upper diagonal contains correlation coefficients. Lower diagonal contains *p* value.

Table 15

*Canonical Correlation Results for Resiliency (RES) and Motivation for Gaming (MOT) Subscales (*N = *103)*

	Canonical Coefficient			
Subscale	Standardized[a]	Correlation[b]	Cross Load[c]	VIF[d]
RES_Individual	.172	.773	.431	3.00
RES_Relationships	-.301	.614	.343	2.88
RES_Community	.994	.976	.545	3.30
RES_Culture	.166	.492	.275	1.49
MOT_Advancement	-.123	-.080	-.045	2.22
MOT_Mechanics	.394	.051	.028	2.02
MOT_Competition	-.023	-.200	-.112	1.68
MOT_Socializing	.443	.237	.132	1.59
MOT_Relationships	-.311	-.311	-.174	1.86
MOT_Discovery	.077	-.009	-.005	1.53
MOT_Customization	.292	.151	.084	1.37
MOT_Escapism	-.940	-.766	-.428	1.91

Wilks $\Lambda(32, 337) = .55$, $p = .003$, squared canonical correlation = .31. [a] Standardized coefficient represents relative contribution of a subscale within its own variate set. [b]Correlation represents correlation of a subscale with its own variate set. [c]Cross Load represents correlation of a subscale with the other variate set. [d] VIF = variance inflation factor, and index of multicollinearity (issues can arise if VIF much greater than 2.0).

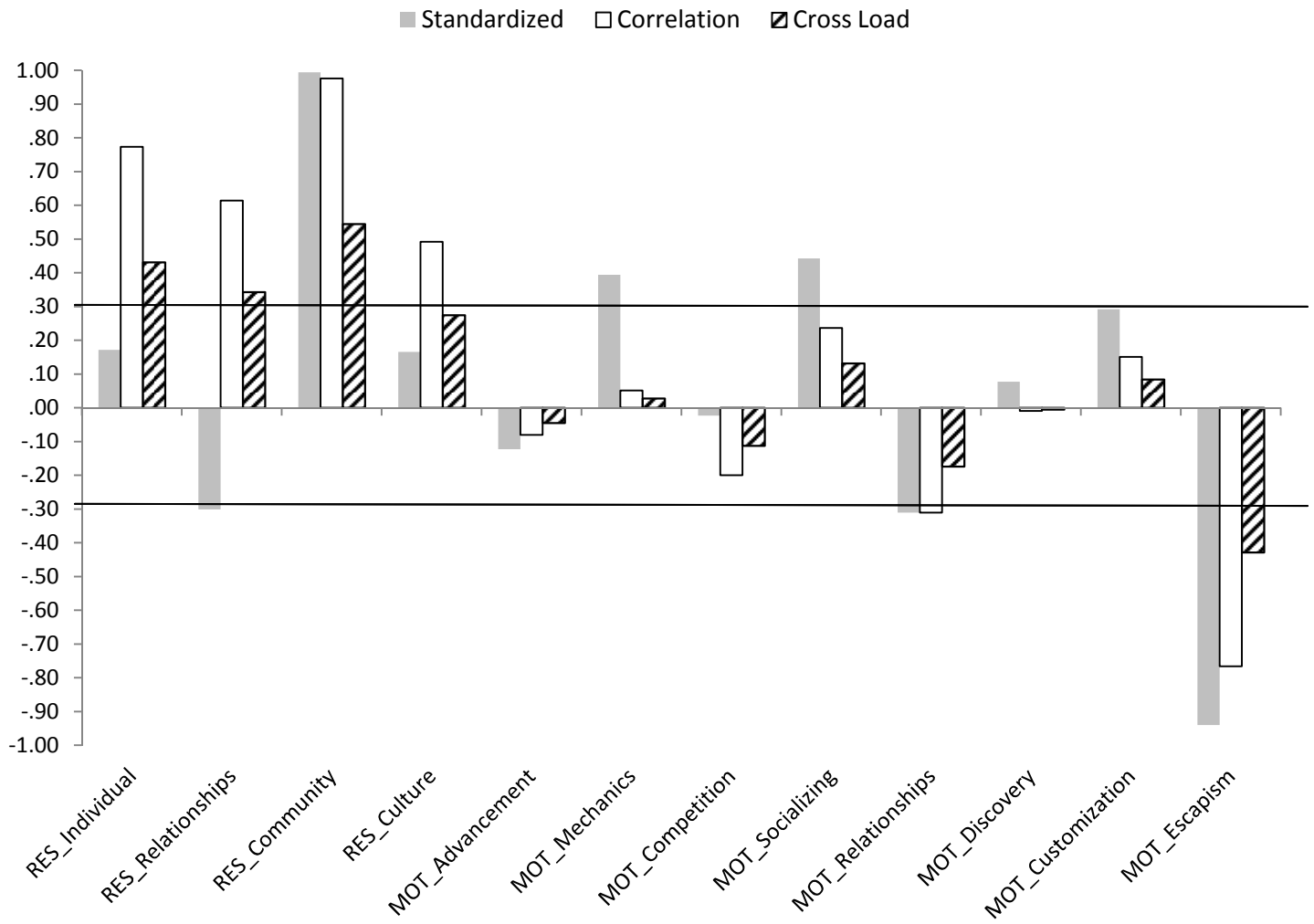

Figure 2. Canonical coefficients for Resiliency (RES) and Motivation for Gaming (MOT) subscales. Subscales with all three coefficients ≥ ± .30 are major contributors to the multivariate relationship.

Summary

Using correlational, regression, and canonical analysis, several models explored the relationships between percent of VOIP gaming time, motivation for gaming, resilience, and quality of life. A Pseudo-% for VOIP gaming index was calculated and analyzed because the precise number of hours per week of VOIPing and video game playing were not known due to the structure of the questions asked.

There was not a statistically significant multiple correlation between VOIPing and the set of four quality of life subscales (Model 1), and there were not any statistically significant bivariate correlations of any of these subscales with VOIPing.

In the examinations of VOIPing and motivation for gaming, there was a statistically significant multiple correlation of the three major subscales (socialization, immersion, and achievement) with VOIPing (Model 2a) in which all three subscales had significant bivariate correlations with VOIPing, but only socialization and achievement were significant in the regression. In followup analysis of achievement's three minor subscales (advancement, mechanics, and competition) with VOIPing (Model 2b), there was a statistically significant multiple correlation with advancement and competition each contributing significant individual effects in the regression. In followup analysis of socialization's two minor subscales (socializing and relationships) with VOIPing (Model 2c), the multiple correlation was statistically significant with both subscales contributing significant effects in the regression. In the immersion minor subscale followup (Model 2d), the multiple correlation was not significant, but the escapism subscale approached significance ($p = .086$) in the regression. The final motivation for gaming model in which

all 8 minor subscales were examined simultaneously (Model 2e) with VOIPing, the multiple correlation was statistically significant, but only the mechanics minor subscale was significant in the regression, with both the socializing and relationships minor subscales approaching significance. There were, however, statistically significant bivariate correlations with VOIPing for 6 of the 8 minor subscales—advancement, mechanics, competition, socializing, relationships, and escapism. Neither the discovery nor customization minor subscales had significant bivariate correlation with VOIPing.

There was not a statistically significant multiple correlation between VOIPing and the set of four resiliency subscales (Model 3), and there were not any statistically significant bivariate correlations of any of these subscales with VOIPing, although the culture subscale and the individual subscale approached significance.

The multivariate canonical correlation analysis of the four quality of life subscales with the eight motivation for gaming minor subscales (Model 4) yielded one statistically significant function that indicated those individuals with high scores on each of the relationships, customization, and escapism motivation for gaming subscales tended to also have high scores on each of the emotional, social, and school quality of life subscales.

The multivariate canonical correlation analysis of the four resilience subscales with the eight motivation for gaming minor subscales (Model 5) yielded one statistically significant function that indicated those individuals with low scores on the escapism motivation for gaming subscale tended to also have high scores on the individual, relationships, and community resilience subscales.

Interpretation and discussion of these findings with respect to prior research, theory, and potential positive social change at individual and societal levels is presented in chapter 5 along with a understanding of the strengths and limitations of this study and recommendations for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

Overview

Video games impact the lives of individuals who play them in many positive and negative ways. Even though electronic games generally require the user to focus only on the task at hand, these games teach additional skills in the process. Studies have shown that electronic games can improve the user's ability to follow directions, problem solve, multitask, and think quickly. Other positives include expanded visual attention, increased processing speed, improved cognitive function, and enhanced spatial cognition. Additionally, the Greitemeyer and Osswald (2010) research indicates that playing games that model prosocial behaviors such as feeling concern and empathy for the welfare and rights of others and acting in ways that benefit others can actually improve social skills in everyday life.

On the other hand, the negatives of video gaming include detrimental impacts on real-world friendships, school, work, the individual's physical and emotional health, and the individual's ability to function on a daily basis. Gentile et al. (2004) found that there is a significant association between exposure to violent games and aggressive behavior. Demonstrable negatives such as increased aggression and avoidance of problems can pose a problem for individuals and society. However, it is not known whether video game VOIPing—players communicating with each other over the Internet during game play—positively or negatively impacts adolescent lives.

In order to determine the relationships between VOIPing and adolescents' lives, three questions were posed to examine possible relationships:

1. Is there a relationship between the amount of time spent VOIPing and an adolescent's physical, emotional, social, and school quality of life?
2. Is there a relationship between the amount of time VOIPing and an adolescent's motivation to play video games?
3. Is there a relationship between VOIPing and an adolescent's relationship with family, peers, community, and culture?

Two additional questions were posed to examine the relationship among the three models themselves—Motivation for Gaming, Quality of Life, and Resilience, along with their attendant subscales—without including the VOIPing variable.

4. Along how many dimensions are the 10 Motivation for Gaming subscales related to the four Quality of Life subscales, and what are the variable patterns that define a dimension?
5. Along how many dimensions are the 10 Motivation for Gaming subscales related to the four Resilience subscales, and what are the variable patterns that define a dimension?

I conducted a survey of 116 adolescents ages 13 to 18. Parent consent pages were sent home with self-selected students from three middle schools and two high schools in the San Jose, California, metropolitan area. The forms were returned to me through the United States Postal Service. After the parental consent forms that indicated a preferred email address had been received, 139 email invitations were sent from SurveyMonkey to the students to finalize their participation. Three reminder emails were sent out over a

period of 4 months. In all, 116 individuals participated in the survey, and each received a $10.00 iTunes gift card as a participation acknowledgment.

Upon closing the survey, the participant data were analyzed for inconsistencies and exclusions. Of the 116 individuals, only 103 of the participants' surveys were used. One response had substantial missing data and were excluded from analysis. Three responses had missing data on "gaming hours," which is a key to computing the primary independent variable, VOIPing. Nine responders reported that they did not play video games and were excluded. Answering "none" for VOIPing was allowed, but participants in the study had to actually *play* video games. Also, of the 103 participants, three reported VOIPing more time than the amount of time spent playing video games. Their time spent VOIPing responses were changed to equal their total gaming time responses. Other responses had missing data on items that were part of a scale composite. Therefore, the participant's mean of the other items that made up the specific scale was used.

A quantitative standard linear regression analysis was used to determine the survey results for Questions 1 through 3. A multivariate canonical correlation was conducted to determine the survey results for Questions 4 and 5.

Interpretation of Findings

In the data pertaining to respondents themselves, the ratio of males to females who responded was 3 to 1. The greatest number of participants was in the 13- and 14-year-old category (73.8%). There was a larger percentage of White or European participants (63.6%) than all other stated ethnicities combined (36.4%). The most popular game genres played were first-person shooters (22.3%), followed by role-playing games

(16.5%), and massively multiplayer role-playing games (11.7%). With regard to playing time, the largest portion of individuals played video games 5 or more hours a week (36.9%). A slight majority of participants VOIPed while playing video games (51.5%).

Three of the five models demonstrated statistically significant effects. First, Model 2 showed significance between VOIPing and Motivation for Gaming's three major subscales: achievement, socialization, and immersion. Six of the 10 minor subscales within Motivation for Gaming, viz. *advancement, mechanics, socializing, relationships, competition,* and *escapism*, also demonstrated significance. However, even though *competition* and *escapism* were significant, they showed low correlation when compared to VOIPing. The seventh minor subscale, *teamwork*, was determined to be unreliable and therefore was not tested further for significance. The eighth subscale, *role-play*, was also unreliable, but its items did improve the overall immersion scale and were retained in that scale's construction. Finally, of the 10 subscales, the two that were not significant with VOIPing were *discovery* and *customization*. The four significant subscales in Model 2 and their relationship to VOIPing will be discussed later in this chapter.

The second model that had statistically significant effects, Model 4, demonstrated that individuals with high scores in the Motivation for Gaming subscales of *relationships, customization,* and *escapism* tended also to have high scores in the *emotional*, *social*, and *school* Quality of Life categories. The third model that had statistically significant effects was Model 5, which showed that individuals who had high scores in individual resilience, relationship resilience, and community resilience conversely tended to have low scores in

escapism as a motivation for gaming. The findings of both Model 4 and Model 5 are discussed in greater detail later in this chapter. The two models that did not show significance were Model 1, VOIPing compared to Quality of Life, and Model 3, VOIPing compared to Resilience.

Model 2: VOIPing and Motivation for Gaming's Achievement Scale

The data for Model 2 comparing VOIPing and Motivation for Gaming showed significance in two main areas, achievement and socialization. The first area, achievement, includes two subscales *advancement* and *mechanics*. *Advancement* pertains to the player moving through increasingly challenging levels while collecting items, advancement points, and awards. The ability to VOIP and thereby discuss pertinent information such as game knowledge, tactics, and the locations of items may positively impact the player's advancement. *Mechanics*, the second subscale of achievement, assesses the individual's concern with *how* the game is played, that is knowledge of underlying rules, levels of offensive and defensive strength, various options in weaponry, and so on. *Mechanics* was the only subscale that remained significant after the regression analysis of the combined eight Motivation for Gaming subscales. VOIPing is relevant to achievement because players can discuss a great deal of information that their partner or teammates may not otherwise know. Since one of the primary reasons for playing video games is to advance through levels and score the most points, it stands to reason that players who VOIP will achieve more and therefore be motivated to play more.

Motivation Theory, which explains what inspires individuals to extend their abilities in order to perform according to expectation, is likewise applicable to VOIPing

and achievement during game play. Klimmt et al. (2008) applied Motivation Theory to game playing using the concepts of control and effectence. Control involves three elements: knowing the attributes of the situation, being able to anticipate the optimum dynamics for play, and having influence in order to achieve a goal. VOIPing can improve the player's capability in all three aspects. It allows the players to discuss the features of their immediate situation such as hazards or assets in the environment, location of items, and become familiar with the virtual environment. With that information voiced, the partners or teams can discuss what dynamics will assist their advancement to the next step, ultimately progressing together as a team toward their desired goal. It follows that being able to talk with teammates enhances a player's ability to achieve the three elements of control. In turn, that increased control through VOIPing heightens a player's motivation to play.

Effectance, the second part of Klimmt et al.'s (2008) discussion of Motivation Theory, is defined as "experiencing competence." Video game effectance is the ability to respond immediately and constantly to a given situation, which establishes competence and a sense of enjoyment. When people interact through VOIPing, they give immediate feedback to other players that their actions are influencing the events of the game. If the feedback is positive, then players' feelings of competence increase. If the feedback is negative, other players through VOIPing can provide information that improves their teammate's performance, likewise increasing competence over time. Halloran (2011) confirmed that VOIPing allows experienced players to coach novices, helping them to learn how to take appropriate actions. VOIPing also supports the rapid integration of new

players, improving their competence more quickly than without VOIPing. Halloran summarized that VOIPing is very effective in coaching players, discussing goals, coordinating the play, communicating about needs, and identifying problems. Ultimately, through the lens of Motivation Theory, this study confirmed that VOIPing can improve both control and effectence during game play.

Finally, regarding motivation to play, Durkin (2010) found that dopamine release is closely associated with reward-seeking behavior. He stated that the more performance improves, the more dopamine is released. As has been explained, VOIPing improves effectence and control, thereby helping players accomplish more goals during game play. Therefore, it stands to reason that as performance improves because of VOIPing's positive effect, more dopamine is likely released and the players are likely to experience a stronger motivation to play video games.

Model 2: VOIPing and Motivation for Gaming's Socialization Scale

The second Motivation for Gaming scale that correlated with VOIPing was socialization, which is sub-scaled into *socializing*, *relationships*, and *teamwork*. (As mentioned earlier the *teamwork* scale was determined at the beginning of analysis to be unreliable and was not used.) The results for the minor subscales, *socializing* and *relationships*, were significant with VOIPing. With regard to *socializing*, Taşdemir (2011) proposed an in-group and out-group aspect to socialization and its relationship to identity formation. He concluded that the more individuals have in common with each other, the more they socialize with them and create their particular in-group. Conversely, the less individuals have in common with each other, the more they avoid interacting

with them, creating the out-group. With video games the same appears to be true. As individual players participate in video game challenges, they often have much in common: they work on the same team, create similar avatars, and work towards similar advancements. Individuals identify with those they consider similar and differentiate from those they see as not part of their gaming group. The added aspect of VOIPing, the ability to talk, set goals, and plan strategies may help players develop a stronger in-group commonality. Moreover, with regard to *socializing*, Stryker and Statham (1985) pointed out that social identities play a large part in the individual's motivation to connect with others who are similar. With regard to game playing, the specific identity can be those who VOIP while playing video games. Games that allow or require VOIPing are often more socially interactive than those that don't. The significant correlation between VOIPing and *socializing* demonstrates that VOIPing is a factor in creating a player's social identity and is therefore correlated with a player's motivation to play video games more often.

The second subcategory of socialization, *relationships*, assesses the depth of connection the individuals feel they have with others (ie. meaningful conversation, talking about personal issues, support offered for real life problems, etc.). As Seay (2006) pointed out, social groups are an important resource for dealing with issues that arise in an individual's life and are positively correlated with a person's sense of wellbeing. VOIPing may help adolescents connect with others in a more in-depth way. Oft times players chat with each other while waiting for games to start or might even chat about life situations or activities while simultaneously blowing up alien invaders. The results of the

study showed that VOIPing during game play may help individuals build stronger and potentially closer friendships. This is in line with Frostling-Henningsson's (2009) study, which found that communication in an online environment allowed gamers to connect with others in unexpected ways such as befriending gamers based on their gaming style without regard for physical appearance, age, or social ineptitudes. Gamers who VOIP can expand their relationships based on gaming style, skill, or conversation without fear of being judged and ostracized because of their outward limitations.

In the final analysis of Model 2, VOIPing demonstrated significance with all eight Motivation for Gaming minor subscales combined. Apparently, players who can talk to each other seem to be more deeply immersed in the video game, experience the satisfaction of more achievements, and feel more connected with other gamers. As they feel more socially connected and are successful in achieving their gaming goals in the aggregate, their motivation to play video games increases. I believe that this is the significant relevant element that can lead to a new way of creating therapeutic modalities that can be very important in the lives of adolescents.

Model 4: Motivation for Gaming Relative to Quality of Life

Regarding Model 4, the relationship between Motivation for Gaming and Quality of Life is complex and significant. The canonical analysis showed that there was one dimensions on each variable set that showed correlational cross loads: the *emotional*, *social*, and *school* variables on the Quality of Life scale and the *relationships*, *customization [of avatars]*, and *escapism variables* on the Motivation for Gaming scale. The pattern that became evident was that individuals with high scores on the *emotional*,

social, and *school* subscales of the Quality of Life survey also had high scores on the *relationships, customization,* and *escapism* subscales in the Motivation for Gaming survey.

When looking at the results of the Quality of Life *emotional*, *social*, and *school* subscale questions, between 60 and 80% of respondents reported that they were "not afraid," were "almost never sad" or "angry," and "almost never worried about what will happen to them." Additionally, up to 80% reported that they had "no trouble getting along with other teens," that they felt "most teens want to be their friends," and they "almost never get teased." Furthermore, approximately 60% reported that they do not "find it hard to pay attention in school" and almost never "have trouble keeping up with homework." However, up to 50% reported that they sometimes or often "forget things." Based on the forgoing data, the study respondents' emotional, social, and school quality of life appears to be positive. I then evaluated the relationships segment of the Motivation for Gaming scale. An analysis of the data from individual questions revealed that close relationships and communication about personal problems was apparently not important to the respondents. Approximately 50% "never" have meaningful conversation, and up to 75% "seldom" or "never" talk about personal issues. Up to 60% reported that their online friends "seldom" or "never" offered support for their real life problems. This population appears to have minimal need to communicate about personal issues, perhaps because they view their quality of life positively as can be concluded by the afore-mentioned Quality of Life statements.

Regarding the *customization* of avatars and the Quality of Life correlation, approximately 33% of the time, study respondents customize their characters very little, 29% customize a little, and 34% customize a lot. That evenly-distributed result seems to indicate that the game players had no strong preference for avatar customization. It was also found that 39% of respondents did not care if their avatars' armor matched in style or color; 25% cared somewhat, and 34% cared a lot. Approximately 42% cared slightly or not at all that their avatar looked different from others, while 29% cared somewhat, 28% cared a lot. In summary, there appears to be a pattern of no strong preferences regarding customization of avatars. Perhaps the positive quality of life assessments of the sample population made the creation of a unique avatar less important. Could the opposite be true—that a poor quality of life in the real world might spur game players to make their avatars unique and special, perhaps the creation of a pseudoself which has characteristics that the player wishes he or she had? This is an interesting question and perhaps a subject for future research.

Concerning the Motivation for Gaming subscale of *escapism* and its negative correlation with Quality of Life, according to their questionnaire responses up to 60% of respondents did not use gaming to escape their real life problems. They did, however, use gaming up to 70% of the time to relax. An assumption can be made that as the adolescents in the study perceived their quality of life to be positive, they did not need to use video games to escape their real-world problems, but used video game play more often for relaxation purposes. This concept is aligned with Entertainment Theory

(Vorderer, 2003) in that video games provide something that they are seeking, in this case relaxation, to the individuals who play them.

Model 5: Motivation for Gaming's Correlation With Resilience

Regarding Model 5, Resilience was correlated with only one Motivation for Gaming subscale – *escapism,* and that was a negative correlation. The canonical analysis showed cross load correlation between Resiliency subscales of *individual, relationships,* and *community* with the Motivation for Gaming subscale of *escapism*. The pattern that was evident between the two scales was that as the three Resiliency subscales went up, the single Motivation for Gaming subscale *escapism* went down. Analyzing the respondents' answers to the Resilience questions further, I saw consistent patterns of adolescent resilience in dealing with personal problems, in being connected with family friends and peers, and in feeling connected to their community. For example, more than 70% of respondents answered "quite a lot" to "a lot" to these questions: "I know my own strengths," "I am supported by my friends," "Family stands by me in difficult times," and "I am able to solve my own problems." Such a strong resilient nature in the survey respondents may explain once again why they seldom had a need to escape their life problems by playing video games. Because they were able to manage and work through the struggles that they face, escaping their problems was not their motivation to play video games.

Implications for Social Change

With electronic video games advancing at a rapid pace, many parents, professionals, and researchers are challenged to understand the impact that gaming has on

adolescents and society. Many studies have shown the negative effects video games have on adolescents such as in-game teasing, unhealthy sense of competition, lessening of self-esteem, negative social interactions, exclusion of players from a team, and escaping from real-world problems (Ha et al., 2007). VOIPing, on the other hand, can contribute many positives such as improved teamwork skills, increased social interaction, lessening of social anxieties, and a positive self-perception of being cooperative, dependable, and fun.

Considering that VOIPing itself is strongly correlated with adolescents' motivation to play video games, it follows that clinicians can use VOIPing and video games to help adolescents who aren't socially adept or appropriate and also those youth who would normally avoid social situations. This includes persons on the autism spectrum, socially-avoidant young people, those who have difficulty regulating their emotions, and youth who stutter or have other speech difficulties. When handled appropriately in a clinical setting, the motivation to play video games combined with the speech and social aspects of VOIPing can be a tool to coach youngsters in social appropriateness, to teach social skills, and to practice speech remediation exercises.

More specifically, clinicians can use VOIPing while playing video games to treat adolescents who are struggling with peer interactions and social skills. For example, the technology is currently available that will allow a clinician and an adolescent to VOIP privately with each other during actual game play. Using this private communication, clinicians can coach their clients in appropriate social skills and model how to deal with negative peer interactions while a game is in progress. In like manner, for individuals

who lack emotional control, clinician and client VOIPing sessions can provide practice in building the needed skills and coping stratagems to facilitate stronger emotional control.

Greitermeyer and Osswald (2010) demonstrated that playing prosocial video games is positively related to increases in real-world prosocial behavior. For example, a game called Mass Effect by Electronic Arts uses challenges that ask gamers to decide between prosocial and antisocial options. The consequences of the choices results in positive or negative reputation points and additionally show in the avatars' actual appearance. Moreover, the technology currently exists that punishes gamers who are verbally abusive such as teasing, name calling, or taunting. Therefore, it follows that games can be created to reward positive verbal interaction. In such ways, video games can employ VOIPing to teach productive problem-solving skills using supportive language and encouraging prosocial verbal behavior. As Greitermeyer and Osswald affirmed, practicing in the gaming environment can produce prosocial behaviors and language in the adolescents' real world environment. Game developers can use this concept along with VOIPing, to provide games that are focused on working through adolescents' everyday problems.

Moreover, adolescents who are socially inhibited may benefit from VOIP coaching sessions that teach ways that shy youth can extend themselves in a social situation. By using the high-interest activity of playing video games and VOIPing, support personnel can potentially provide positive support to teach, model social relationships skills, and ameliorate relationship problems. The private VOIPing technology is presently available. What is needed now is to educate professionals that

there is a strong correlation between VOIPing and the socializing and relationship aspects of young people's motivation to play video games. These study results seem to indicate that when therapy includes playing video games and VOIPing, adolescents will be more motivated to participate in their therapy.

Speech and language development is another area for which VOIPing can contribute to social change. The remediation of communication disorders such as stuttering, phonological disorders, or expressive language disorder can be a long and tedious process. Speech therapy requires consistent practice in saying words correctly, improving language skills in daily conversation, improving speech sound awareness and other such activities to improve their individuals understanding of language. Currently, speech therapists or pathologists use an assortment of exercises designed to break previous speech patterns, establish new ones, or develop new articulation in pitch and tone. Audiovisual tools are also used to help individuals in the therapy setting as well as with assigned homework. However, these tools are not often intrinsically interesting. Video games on the other hand include compelling animation, music, and progressive challenges that can be perfectly fitted to therapeutic practice sessions. Currently video games "respond" to one- or multi-word commands. For example, when the player says, "Open," a door opens. It stands to reason that video games can be created which emphasizes the phonemes and words that are more commonly troublesome for people with speech problems. Levels of difficulty and rewards should be incorporated so that clients can experience immediate success as well as the thrill of advancement. As this study has shown, advancement because of VOIPing motivates the young person to play

more. It follows, then, that advancements that occurs as a reward for speaking the challenging word or phrase will likewise be a motivator to play the instructional game more often and for longer periods of time.

Vasic and Wijnen (2005) conducted a three-part study to develop an alternative treatment for individuals who stutter. They demonstrated that doing two tasks, one of which is related to speech such as storytelling, and the other one unrelated to speech, such as a task on the computer, which in their study was playing a video game called Pong, may help decrease speech issues such as stuttering. Video gaming includes many tasks that are unrelated to speech, which can provide the appropriate distraction from the speech task. As has been shown in this study, VOIPing is positively correlated with an individuals' desire to play video games. Hence, when VOIPing is paired with video games that have been created for speech therapy purposes, children and adolescents will likely be more motivated to participate in the speech therapy treatment plan.

Sheh-Tse et al. (2008) pointed out that the more enjoyable the activity is, the more stress is released. Stress reduction in speech therapy is also a goal. Moreover, the serotonin that is produced when players reach their gaming goals is a reward for participating in speech therapy. For all of these reasons, using an enjoyable activity such as video game VOIPing to practice speech skills will logically motivate speech clients to be more compliant in their speech training.

Recommendations for Action

Video games are an ever-present and powerful force in the lives of many adolescents. This study showed that the ability to VOIP during game play positively

correlated with adolescents' motivation to play more. The risks and potential advantages of video game VOIPing are important to recognize. Helping adolescents understand the impact of video games and VOIPing can help them make informed decisions regarding their personally-invested time and money. In addition, many parents have an intrinsic fear of video games without having a basis of facts which support their concerns. Few parents know where or how to search out the facts about video gaming that validate or disprove their apprehensions.

My principal recommendation for action is to apply the premise that using high-interest activities is one of the best learning platforms. If the information in this study can be presented in an exciting, media-friendly way, using animation and lively music, adolescents and parents will be more motivated to watch and thereby learn specifically the positive and negative ways that video games and VOIPing impact their lives. The details of this research can provide important subject matter for high school and college animation class projects.

However, if the animation proposal doesn't come to fruition, informing parents and students can still be accomplished in the following less-engaging ways:

1. Contact local parenting groups to provide a summary of the study findings.
2. Present the information to school principals, providing a copy of the dissertation, a brief power point presentation, and a single-page handout with key highlights of the results for dissemination to the student body.
3. Submit an article regarding the findings to schools for publication in their monthly newsletters.

4. Submit an article to local newspapers.
5. Submit an article to a psychological journal for publication.
6. Submit conference papers and presentations to local and state organizations such as California Marriage and Family Therapist (CAMFT) to facilitate better understanding regarding video games, VOIPing, and their potential relationship to the adolescent's life.
7. Send a summary of the dissertation to gaming companies and game developers such as Electronic Arts and Ubisoft.
8. Connect with national Internet parenting groups who can disseminate the study information to their members.

Recommendations for Further Study

A study focusing on VOIPing while playing video games and its potential impact on adolescent quality of life, motivation for gaming, and resiliency is relatively new to the field. Therefore, this study of VOIPing provides several indications for additional research such as the following:

1. This study looked at all major genres of video games, whether or not VOIPing was intrinsic to the game. Future studies could narrow the focus to the specific game genres that employ VOIPing such as First Person Shooter, Role Playing, and Massively Multiplayer Role Playing games to determine the specific positive or negative impacts of VOIPing itself.
2. This study sample was primarily of adolescents of European descent and was conducted in a fairly affluent area. By gathering information from a broader

sample population, particularly from a less-affluent area, the data may provide a clearer understanding of a possible relationship between VOIPing and quality of life and resilience.

3. Positive online social skills are becoming more important in this digital age. As shown in the results of this study, VOIPing had a strong relationship with the Motivation for Gaming subscale of *relationships*. A study into video game VOIPing and social skills learning in a therapeutic setting could be conducted. Understanding the relationship between VOIPing and the ability to learn social skills while gaming could provide the needed incentive for adolescents to incorporate healthier social skills, which in turn may be beneficial for the individual and for society.
4. VOIPing and quality of life across different economic levels is another area of study. The majority of participants in this study came from a relatively affluent area, allowing them to game and VOIP in a more stress-free atmosphere. Is there a difference in the way adolescents VOIP during game play if they are more economically challenged and does that difference influence their Quality of Life scores?

Study Limitations

One limitation to this study was the incentive used. The initial incentive was a $5.00 gift card from iTunes. After a minimal response was received, with approval of the IRB the incentive was changed to a $10.00 gift card from iTunes. This incentive was somewhat more appealing to the adolescent population; however, not all potential

participants wanted an iTunes gift card, possibly because they do not use iTunes. Using a different incentive and thereby getting a larger study population may have changed the results for Models 1 and 3.

Another limitation to this study was the in-class self-selection process. This process primarily attracted the individuals who were willing to speak up in their classes to ask for a survey. That consideration possibly left out individuals who play video games and VOIP, but were reticent to identify themselves. Increasing the study population of gamers who possibly don't see their quality of life in the same positive ways as the gamers who volunteered might change the results for Models 1 and 3.

A primary purpose of this research was to examine the effect of the proportion of time gaming that is spent VOIPing. The study subjects were asked to indicate a *range* of VOIPing and gaming hours per week instead of the *specific* number of each. The actual number of hours per week VOIPing and the total hours per week gaming (including VOIPing) was not known; consequently, a proportion of gaming time that included VOIPing could not be calculated. As a result, the best way to compute the relative VOIP response was with an ordinal value of the response to hours VOIPing (possible range from 0 to 4) divided by the ordinal value of the response to hours gaming (possible range from 1 to 4) to yield a pseudoproportion of VOIP gaming. The pseudo calculation regarding game time and VOIPing created a more challenging process of calculation to determine relevance.

Conclusion

Since the inception of video games in the 1940s and 1950s, they have become a dominant force in many adolescents' lives today. Video games are constantly changing and becoming more immersive (Zyda, 2005). Video game designers purposefully provide a great playing experience which captures a larger share of the video game market and generates more revenue for their company. VOIPing is one of the aspects that enhances the experience of playing video games. Prior to this study, I believed that VOIPing while playing video games provided a unique and potentially positive social experience for those who VOIP. I also believed that in spite of some of the potential negatives that exist with video games, video game VOIPing could support adolescents in improved self-esteem, development of problem-solving skills through verbal communication, and stronger relationships with current friends.

This study supports previous research that has shown that those who play video games can benefit from positive social connections. Additionally, the current study demonstrated a positive relationship between VOIPing and the Motivation for Gaming subscale of *relationships,* which confirms that VOIPing augments gamers' social connections.

The more significant result of this study pertains to VOIPing and motivation to play video games. I determined that as VOIPing increases, so does motivation for gaming. This finding supports the premise that VOIPing can be useful in many therapeutic modalities such as working with individuals who suffer from language disorders or social impairments. Interest in the motivation for gaming aspect of video

game VOIPing is heightened by the potential application—that adolescents may be drawn to do their therapy more often and for a longer period of time when the therapy includes an intrinsically interesting activity such as gaming. Supporting the compliance aspect of therapy and the desire of adolescents to engage in the therapeutic process is a meaningful and potentially compelling application of the information garnered from this study.

References

Achtman, R. L., Green, C. S., & Bavelier, D. D. (2008). Video games as a tool to train visual skills. *Restorative Neurology and Neuroscience*, *26*(4-5), 435-446.

Arias-Carrión, Ó., & Pöppel, E. (2007). Dopamine, learning, and reward-seeking behavior. *Acta neurobiologiae experimentalis, 67*(1), 481-488.

Blizzard (2010, October 7). World of Warcraft® subscriber base reaches 12 million worldwide. Retrieved from http://us.blizzard.com/en-us/company/press /pressreleases.html?101007

Bonner, S. E., & Sprinkle, G. B. (2002). The effects of monetary incentives on effort and task performance: Theories, evidence, and a framework for research. *Accounting, Organizations and Society*, *27*(4), 303-345.

Brown, E. S., Varghese, F. P., & McEwen, B. S. (2004). Association of depression with medical illness: Does cortisol play a role? *Biological Psychiatry*, *55*(1), 1-9.

Buchanan, T. W., & Lovallo, W. R. (2001). Enhanced memory for emotional material following stress-level cortisol treatment in humans. *Psychoneuroendocrinology*, *26*(3), 307-317.

Chappell, D., Eatough, V., Davies, M. N. O., & Griffiths, M. (2006). EverQuest—It's just a computer game right? An interpretative phenomenological analysis of online gaming addiction. *International Journal of Mental Health and Addiction*, *4*, 205-216. doi:10.1007/s11469-006-9028-6

Chen, X., Origasa, H., Ichida, F., Kamibeppu, K., & Varni, J. (2007). Reliability and validity of the Pediatric Quality of Life Inventory (PedsQL) Short Form 15

Generic Core Scales in Japan. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation, 16*(7), 1239-1249.

Cole, H., & Griffiths, M. D. (2007). Social interactions in massively multiplayer online role-playing gamers. *CyberPsychology & Behavior, 10*(4), 575-583.

Computer Graphic Timeline. (2008). Computer graphic timeline 1945-2000. Retrieved from http://web.archive.org/web/20090608155835/http://www.webbox.org/cgi/1949-50%20Whirlwind%20applications.html

Cummings, H., & Vandewater, E. (2007). Relation of adolescent video game play to time spent in other activities. *Archives of Pediatrics & Adolescent Medicine, 161*(7), 684-689. doi:10.1001/archpedi.161.7.684

de Quervain, D. F., Roozendaal, B., & McGaugh, J. L. (1998). Stress and glucocorticoids impair retrieval of long-term spatial memory. *Nature, 394*(6695), 787-790. doi:10.1038/29542

Douglas, A., Mills, J., Niang, M., Stepchenkova, S., Byun, S., Ruffini, C. … Blanton, M. (2008). Internet addiction: Meta-synthesis of qualitative research for the decade 1996–2006. *Computers in Human Behavior, 24*(1), 3027-3044. doi:10.1016/j.chb.2008.05.009

Durkin, K. (2010). Videogames and young people with developmental disorders. *Review of General Psychology, 14*(2), 122-140. doi:10.1037/a0019438

Eccles, J., & Gootman, J. A. (2002). *Community programs to promote youth development*. Washington, DC: National Academies Press.

Ekman, I., Chanel, G., Järvelä, S., Kivikangas, J. M., Salminen, M., & Ravaja, N. (2012). Social interaction in games measuring physiological linkage and social presence. *Simulation & Gaming*, *43*(3), 321-338.

Engelhardt, C. R., Bartholow, B. D., Kerr, G. T., & Bushman, B. J. (2011). This is your brain on violent video games: Neural desensitization to violence predicts increased aggression following violent video game exposure. *Journal of Experimental Social Psychology*, *47(5)*, 1033-1036. doi:10.1016/j.jesp.2011.03.027

Entertainment Software Association. (2012). Game player data: Essential facts. Retrieved from http://www.theesa.com/facts/gameplayer.asp

Entertainment Software Rating Board. (2012). Frequently asked questions: Are all games and apps required to have a rating? Retrieved from http://www.esrb.org/ratings/faq.jsp#2

Evans, W., Marsh, S. C., & Weigel, D. J. (2010). Promoting adolescent sense of coherence: Testing models of risk, protection, and resiliency. *Journal of Community & Applied Social Psychology*, *20*(1), 30-43. doi:10.1002/casp.1002

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160.

Ferguson, C. (2007). The good, the bad and the ugly: A meta-analytic review of positive and negative effects of violent video games. *Psychiatric Quarterly*, *78*(4), 309-316. doi:10.1007/s11126-007-9056-9

Ferguson, C. J. (2008). The school shooting/violent video game link: Causal relationship or moral panic?. *Journal of Investigative Psychology & Offender Profiling, 5*(1-2), 25-37. doi:10.1002/jip.76

Frostling-Henningsson, M. (2009). First-person shooter games as a way of connecting to people:“Brothers in blood”. *CyberPsychology & Behavior*, *12*(5), 557-562.

Funk, J. B., Baldacci, H., Pasold, T., & Baumgardner, J. (2004). Violence exposure in real-life, video games, television, movies, and the internet: Is there desensitization?. *Journal of Adolescence, 27*(1), 23-39. doi:10.1016/j.adolescence.2003.10.005

Gentile, D. A., Lynch, P. J., Linder, J. R., & Walsh, D. A. (2004). The effects of violent video game habits on adolescent hostility, aggressive behaviors, and school performance. *Journal of Adolescence*, *27*, 5–22. doi:10.1016/j.adolescence.2003.10.002

Green, C., & Bavelier, D. (2006). Effect of action video games on the spatial distribution of visuospatial attention. *Journal of Experimental Psychology: Human Perception and Performance, 32*(6), 1465-1478. doi:10.1037/0096-1523.32.6.1465

Greitemeyer, T., & Osswald, S. (2010). Effects of pro-social video games on pro-social behavior. *Journal of Personality And Social Psychology*, *98*(2), 211-221. doi:10.1037/a0016997

Griffith, C. (2012). Diablo gamer dies after 40-hour session. *The Australian.* Retrieved from http://www.theaustralian.com.au/australian-it/diablo-gamer-dies-after-40-hour-session/story-e6frgakx-1226430398803

Griffiths, M. D. Davies, M., & Chappell, D. (2004). Online computer gaming: a comparison of adolescent and adult gamers. *Journal of Adolescence, 27*(1), 87-96. doi:10.1016/j.adolescence.2003.10.007

Guerrero, H. A. G. (2011). Using video game-based instruction in an EFL program: Understanding the power of video games in education. *Colombian Applied Linguistics Journal, 13*(1), 54-70.

Ha, J., Kim, S., Bae, S. C., Bae, S., Kim, H., Sim, M. … Cho. S. (2007). Depression and internet addiction in adolescents. *Psychopathology, 40*(6), 424-30.

Halloran, J. (2011). Game changer? How VoIP is impacting the way we play. *International Journal of Interactive Worlds, 2011. doi:10.5171/2011.144197*

Haninger, K., Ryan, M. S., & Thompson, K. M. (2004) Violence in teen-rated video games. *Medscape General Medicine. 6*(1), 1.

Hart, G. M., Johnson, B., Stamm, B., Angers, N., Robinson, A., Lally, T., & Fagley, W. H. (2009). Effects of video games on adolescents and adults. *Cyberpsychology & Behavior, 12*(1), 63-65. doi:10.1089/cpb.2008.0117

He´bert, S., Be´land, R., Dionne-Fournelle, O., Creˆte, M., & Lupien, S. (2005) Physiological stress response to video-game playing: the contribution of built-in music. *Life Sciences, 76*(20), 2371–2380. doi:10.1016/j.lfs.2004.11.011

Holtz, P. P., & Appel, M. M. (2011). *Associations between Internet use and playing video games with internalizing and externalizing problems*. Washington, DC: American Psychological Association.

IGN. (2012). Super Mario World: About this game. Retrieved from

http://www.ign.com/games/super-mario-advance-2-super-mario-world/snes-6885

Kato, P. M., Cole, S. W., Bradlyn, A. S., & Pollock, B. H. (2008). A video game improves behavioral outcomes in adolescents and young adults with cancer: A randomized trial. *Pediatrics*, *122*(2), e305-e317.

Kaiser Family Foundation. (2010). *Generation M: Media use in the lives of 8-18 year-olds.* Menlo Park, CA: Kaiser Family Foundation. Retrieved from http://kaiserfamilyfoundation.files.wordpress.com/2013/04/8010.pdf

Klimmt, C., Hartmann, T., & Frey, A. (2007). Effectance and control as determinants of video game enjoyment. *Cyberpsychology & Behavior*, *10*(6), 845-847. doi:10.1089/cpb.2007.9942

Klimmt, C., Hefner, D., Vorderer, P., & Roth, C. (2008). Exploring the complex relationships between player performance, self-esteem processes, and video game enjoyment. *Conference Papers -- International Communication Association* (2008 Annual Meeting), 1-30.

Ko, C., Yen, J., Yen, C., Lin, H., & Yang, M. (2007). Factors predictive for incidence and remission of Internet addiction in young adolescents: A prospective study. *CyberPsychology & Behavior*, *10*(4), 545-551. doi:10.1089/cpb.2007.9992

Koepp, M. J., Gunn, R. N., Lawrence, A. D., Cunningham, V. J., Dagher, A. A., Jones, T. T. ... Grasby, P. M. (1998). Evidence for striatal dopamine release during a video game. *Nature*, *393*(6682), 266-268. doi:10.1038/30498

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and

psychological well-being?. *American Psychologist, 53*(9), 1017-1031. doi:10.1037/0003-066X.53.9.1017

Limperos, A. M., Schmierbach, M. G., Kegerise, A. D., & Dardis, F. E. (2011). Gaming across different consoles: Exploring the influence of control scheme on game-player enjoyment. *Cyberpsychology, Behavior, and Social Networking, 14*(6), 345-350. doi:10.1089/cyber.2010.0146

Li, N., Jackson, M. H., & Trees, A. R. (2008). Relating online: Managing dialectical contradictions in massively multiplayer online role-playing game relationships. *Games and Culture: A Journal of Interactive Media, 3,* 76-97.

Lin, S. (2010). Gender differences and the effect of contextual features on game enjoyment and responses. *Cyberpsychology, Behavior, and Social Networking, 13*(5), 533-537. doi:10.1089/cyber.2009.0293

Lucas, K., & Sherry, J. L. (2004). Sex differences in video game play: a communication-based explanation. *Communication Research, 31*(5), 499–523.

Marin, J. (2010). *An examination of social anxiety, relationship support, self-esteem, personality traits, and motivations for online gaming and Internet usage* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3426670).

Mentzoni, R., Brunborg, G., Molde, H., Myrseth, H., Skouverøe, K., Hetland, J., & Pallesen, S. (2011). Problematic video game use: Estimated prevalence and associations with mental and physical health. *Cyberpsychology, Behavior & Social Networking, 14*(10), 591-596. doi:10.1089/cyber.2010.0260

Moore, M. E.; Novak, J. (2010). Game development essentials: *Game industry career guide*. Clifton Park, NY:Delmar: Cengage Learning.

Pea, R., Nass, C., Meheula, L., Rance, M., Kumar, A., Bamford, H. ... Zhou, M. (2012). Media use, face-to-face communication, media multitasking, and social well-being among 8- to 12-year-old girls. *Developmental Psychology, 48*(2), 327-336. doi:10.1037/a0027030

Pinel, P. J. P. (2011). *Biopsychology* (8th ed.). Boston, MA: Pearson Education, Inc.

Polman, H., de Castro, B., & van Aken, M. G. (2008). Experimental study of the differential effects of playing versus watching violent video games on children's aggressive behavior. *Aggressive Behavior, 34*(3), 256-264. doi:10.1002/ab.20245

ProQollid (2014) Pediatric Quality of Life Inventory™. Retrieved from http://www.proqolid.org/proqolid/instruments/pediatric_quality_of_life_inventory_pedsql

Ravaja, N., Saari, T., Salminen, M., Laarni, J., & Kallinen, K. (2006). Phasic emotional reactions to video game events: A psychophysiological investigation. *Media Psychology, 8*(4), 343-367. doi:10.1207/s1532785xmep0804_2

Raymond, J. E., Shapiro, K. L., & Arnell, K. M. (1992). Temporary suppression of visual processing in an RSVP task: An attentional blink?. *Journal of Experimental Psychology: Human Perception and Performance, 18*(3), 849.

Resilience Research Centre. (2009). The Child and Youth Resilience Measure-28: User manual. Halifax, NS: Resilience Research Centre, Dalhousie University.

Resource Center on Child Protection and Child Rights Governance. (2012). The Child and Youth Resilience Measure (CYRM) – 28. Retrieved from http://resourcecentre.savethechildren.se/content/library/documents/child-and-youth-resilience-measure-cyrm-28

Rheingold, H. (2000). *The virtual community: Homesteading on the electronic frontier*. Cambride, MA: MIT Press.

Riddick, C. C. (1986). Leisure satisfaction precursors. *Journal of Leisure Research, 18*(4), 259-265.

Rudestam, K. E., & Newton, R. R. (2007). *Surviving your dissertation: A comprehensive guide to content and process* (3rd ed.). London: Sage

Salami, S. O. (2010). Moderating effects of resilience, eelf-esteem and social support on adolescents' reactions to violence. *Asian Social Science, 6*(12), 101-110.

Seay, A. F. (2006). *Project massive: The social and psychological impact of online gaming* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3241590).

Sharer, N. (2012). *Examining social anxiety and depression among excessive online gamers.* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3509794)

Shieh, K., & Cheng, M. (2007). An empirical study of experiential value and lifestyles and their effects on satisfaction in adolescents: An example using online gaming. *Adolescence, 42*(165), 199-215.

Singer, E., & Couper, M. P. (2008). Do incentives exert undue influence on survey

participation? Experimental evidence. *Journal of Empirical Research on Human Research Ethics*, *3*(3), 49-56 doi:10.1525/jer.2008.3.3.49

Spence, I., & Feng, J. (2010). Video games and spatial cognition. *Review of General Psychology*, *14*(2), 92-104. doi:10.1037/a0019491

Squire, K., Giovanetto, L., Devane, B., & Durga, S. (2005). From users to designers: Building a self-organizing game-based learning environment. *TechTrends*, *49*(5), 34-42.

Stott, N. (2010). *Anticipating military work; digital games as a source of anticipatory socialization?*. Paper presented the British International Studies Association American Foreign Policy Conference, University of Leeds, UK.

Stryker, S., & Statham, A. (1985). Symbolic interaction and role theory. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (pp. 311-378). New York, NY: Random House.

Sun D. L., Ma N, Bao M, Chen X. C., & Zhang, D. (2008). Computer games: a double-edged sword?. *Cyberpsychology & Behavior: The Impact of The Internet, Multimedia And Virtual Reality On Behavior And Society*, *11*(5), 545-548.

SurveyMonkey. (2013). Security statement. Retrieved from http://www.surveymonkey.com/mp/policy/security/

Thompson, K., & Haninger, K. (2001). Violence in E-rated video games. *JAMA*, *286*(5) 591–598. doi:10.1001/jama.286.5.591

Taşdemir, N. (2011). The relationships between motivations of intergroup differentiation as a function of different dimensions of social identity. *Review of General*

Psychology, *15*(2), 125-137. doi:10.1037/a0022816

Valkenburg, P. M., & Peter, J. (2007). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental Psychology*, *43*(2), 267–277. doi:10.1037/0012-1649.43.2.267

Vasiç, N., & Wijnen, F. (2005). 13 Stuttering as a monitoring deficit. In R. J. Hartsuiker, R. Bastiaanes, A. Postma, & F. Wijnen (Eds.). *Phonological encoding and monitoring in normal and pathological speech* (pp. 226-247). New York, NY: Psychology Press. 226.

Vorderer, P. (2003). Entertainment theory. In J. Bryant, D. R. Ewoldsen, & J. Cantor (Eds.). *Communication and emotion: Essays in honor of Dolf Zillmann* (pp. 131-153). Mahwah, NJ: Lawrence Erlbaum Associates.

Wan, C., & Chiou, W. (2006). Why are adolescents addicted to online gaming? An interview study in Taiwan. *CyberPsychology and Behavior*, *9*(6), 762–766.

Wang E. S., Chen L. S., Lin J. Y., & Wang, M. (2008). The relationship between leisure satisfaction and life satisfaction of adolescents concerning online games. *Adolescence*, *43*(169), 177-184.

Wolf, M. (2001). *The medium of the video game*. Austin, TX: University of Texas Press

Wolf, M. (2008). *The video game explosion: A history from PONG to PlayStation and beyond.* Westport, CT: Greenwood Press.

Wolf, O., Schommer,N., Hellhammer, D., McEwen, B., & Krischbaum, C. (2001). The relationship between stress induced cortisol levels and memory differs between men and women. *Psychoneuroendocrinology*, *26*(1), 711–720. Retrieved from

http://www.cog.psy.rub.de/papers/2001/Wolf(2001)_Psychoneuroendocrinology.pdf

Yee, N. (2007). Motivations of play in online games. *CyberPsychology and Behavior, 9*, 772-775.

Zyda, M. (2005). From visual simulation to virtual reality to games. *Computer, 38*(9), 25-32. doi:10.1109/MC.2005.297

Appendix A: Surveys

Demographics:

What is your gender?

- ○ Male
- ○ Female

What is your age?

- ○ 15
- ○ 16
- ○ 17
- ○ 18

Which race/ethnicity best describes you? (Please choose only one.)

- ○ Aboriginal or Native
- ○ South Asian (e.g., East Indian, Pakistani, Punjabi, Sri Lankan)
- ○ South East Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese)
- ○ West Asian to Middle Eastern (e.g., Armenian, Egyptian, Iranian, Lebanese)
- ○ Asian (e.g., Korean, Chinese, Japanese)
- ○ Black (e.g., African or Caribbean descent)
- ○ White or European
- ○ Filipino
- ○ Latin American (e.g., Mexican, South American, Central American)
- ○ Other
- ○ Prefer not to state

Video gaming is defined as playing a video game on an electronic device such as a computer or console including Mac, PC, Nintendo Wii, Microsoft Xbox, or Sony PlayStation. Moreover, this definition does not include handheld devices such as iPods, iPads, Nintendo Gameboy, or Sony PSP.

How many hours of video games do you play each week? _____

VOIPing is defined as communicating over the internet with other individuals using a microphone and speaker so that the individuals can talk with and hear other players.

How many hours do you VOIP while playing video games over a week? _____

What is your preferred genre of video game? (Please select only one)

- Educational Games
- Puzzle Games
- Party Games
- Racing Games
- Fighting Games
- Sports Games (fantasy and/or realistic)
- Platformer Games
- Real-time Strategy Games
- Third-Person Shooter Games
- First-Person Shooter Games
- Role Playing Games
- Massively Multiplayer Online Role Playing Games

PedsQL ™ Pediatric Quality of Life Inventory: Version 4.0 Short Form (SF15)
TEEN REPORT (ages 13-18)

DIRECTIONS

On the following page is a list of things that might be a problem for you.
Please tell us **how much of a problem** each one has been for you
during the **past ONE month** by circling:

0 if it is **never** a problem
1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem
4 if it is **almost always** a problem

There are no right or wrong answers.

*In the past **ONE month**, how much of a **problem** has this been for you …*

About My Health and Activities *(PROBLEMS WITH…)*	Never	Almost Never	Some-times	Often	Almost Always
1. It is hard for me to walk more than one block	0	1	2	3	4
2. It is hard for me to run	0	1	2	3	4
3. It is hard for me to do sports activity or exercise	0	1	2	3	4
4. It is hard for me to lift something heavy	0	1	2	3	4
5. It is hard for me to do chores around the house	0	1	2	3	4

About My Feelings *(PROBLEMS WITH…)*	Never	Almost Never	Some-times	Often	Almost Always
1. I feel afraid or scared	0	1	2	3	4
2. I feel sad or blue	0	1	2	3	4
3. I feel angry	0	1	2	3	4
4. I worry about what will happen to me	0	1	2	3	4

How I Get Along with Others *(PROBLEMS WITH…)*	Never	Almost Never	Some-times	Often	Almost Always
1. I have trouble getting along with other teens	0	1	2	3	4
2. Other teens do not want to be my friend	0	1	2	3	4
3. Other teens tease me	0	1	2	3	4

About School *(PROBLEMS WITH…)*	Never	Almost Never	Some-times	Often	Almost Always
1. It is hard to pay attention in class	0	1	2	3	4
2. I forget things	0	1	2	3	4
3. I have trouble keeping up with my schoolwork	0	1	2	3	4

Motivation for Gaming (Yee, 2007)

The following questions focus on your general game-play preferences. (13 questions)

1) How interested are you in the precise numbers and percentages underlying the game mechanics? (i.e, chance of dodging an attack, the math comparing dual-wield to two-handed weapons, etc.)

- ○ Not Interested At All
- ○ Slightly Interested
- ○ Somewhat Interested
- ○ Very Interested
- ○ Extremely Interested

2) How important is it to you that your character is as optimized as possible for their profession / role?

- ○ Not Important At All
- ○ Slightly Important
- ○ Somewhat Important
- ○ Very Important
- ○ Extremely Important

3) How often do you use a character builder or a template to plan out your character's advancement at an early level?

- ○ Never
- ○ Seldom
- ○ Sometimes
- ○ Often
- ○ Always

4) Would you rather be grouped or soloing?

- ○ Much Rather Group
- ○ Rather Group
- ○ In-Between
- ○ Rather Solo
- ○ Much Rather Solo

5) How important is it to you that your character can solo well?

- ○ Not Important At All
- ○ Slightly Important
- ○ Somewhat Important
- ○ Very Important
- ○ Extremely Important

6) How much do you enjoy working with others in a group?

- Not At All
- A Little
- Some
- A Lot
- A Great Deal

7) How important is it to you to be well-known in the game?

- Not Important At All
- Slightly Important
- Somewhat Important
- Very Important
- Extremely Important

8) How much time do you spend customizing your character during character creation?

- Not At All
- A Little
- Some
- A Lot
- A Great Deal

9) How important is it to you that your character's armor / outfit matches in color and style?

- Not Important At All
- Slightly Important
- Somewhat Important
- Very Important
- Extremely Important

10) How important is it to you that your character looks different from other characters?

- Not Important At All
- Slightly Important
- Somewhat Important
- Very Important
- Extremely Important

11) How much do you enjoy exploring the world just for the sake of exploring it?

- Not At All
- A Little
- Some

A Lot

A Great Deal

12) How much do you enjoy finding quests, NPCs or locations that most people do not know about?

Not At All

A Little

Some

A Lot

A Great Deal

13) How much do you enjoy collecting distinctive objects or clothing that have no functional value in the game?

Not At All

A Little

Some

A Lot

A Great Deal

How important are the following things to you in the game? (8 Questions)

1) Leveling up your character as fast as possible.

Not Important At All

Slightly Important

Moderately Important

Very Important

Tremendously Important

2) Acquiring rare items that most players will never have.

Not Important At All

Slightly Important

Moderately Important

Very Important

Tremendously Important

3) Becoming powerful.

Not Important At All

Slightly Important

Moderately Important

Very Important

Tremendously Important

4) Accumulating resources, items or money.

Not Important At All

Slightly Important

Moderately Important

Very Important

Tremendously Important

5) Knowing as much about the game mechanics and rules as possible.

Not Important At All

Slightly Important

Moderately Important

Very Important

Tremendously Important

6) Having a self-sufficient character.

Not Important At All

Slightly Important

Moderately Important

Very Important

Tremendously Important

7) Being immersed in a fantasy world.

Not Important At All

Slightly Important

Moderately Important

Very Important

Tremendously Important

8) Escaping from the real world.

Not Important At All

Slightly Important

Moderately Important

Very Important

Tremendously Important

How much do you enjoy doing the following things in the game? (10 Questions)

1) Helping other players.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

2) Getting to know other players.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

3) Chatting with other players.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

4) Competing with other players.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

5) Dominating/killing other players.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

6) Exploring every map or zone in the world.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

7) Being part of a friendly, casual video gaming.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

8) Being part of serious video gaming experience.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

9) Trying out new roles and personalities with your characters.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

10) Doing things that annoy other players.

Not Enjoyable At All

Slightly Enjoyable

Moderately Enjoyable

Very Enjoyable

Tremendously Enjoyable

How often do you do the following things in the game? (8 Questions)

1) How often do you find yourself having meaningful conversations with other players?

Never

Seldom

Sometimes

Often

Always

2) How often do you talk to your online friends about your personal issues?

Never

Seldom

Sometimes

Often

Always

3) How often have your online friends offered you support when you had a real life problem?

Never

Seldom

Sometimes

Often

Always

4) How often do you make up stories and histories for your characters?

Never

Seldom

Sometimes

Often

Always

5) How often do you role-play your character?

Never

Seldom

Sometimes

Often

Always

6) How often do you play so you can avoid thinking about some of your real-life problems or worries?

Never

Seldom

Sometimes

Often

Always

7) How often do you play to relax from the day's work?

Never

Seldom

Sometimes

Often

Always

8) How often do you purposefully try to provoke or irritate other players?

Never

Seldom

Sometimes

Often

Always

The Child and Youth

Resilience Measure

Section Three

To what extent do the statements below DESCRIBE YOU? Circle <u>one</u> answer for <u>each</u> statement.

	Not at All	A Little	Some-what	Quite a lot Bit	A Lot
1. I have people I look up to	1	2	3	4	5
2. I cooperate with people around me	1	2	3	4	5
3. Getting an education is important to me	1	2	3	4	5
4. I know how to behave in different social situations	1	2	3	4	5
5. My parent(s)/caregiver(s) watch me closely	1	2	3	4	5
6. My parent(s)/caregiver(s) know a lot about me	1	2	3	4	5
7. If I am hungry, there is enough to eat	1	2	3	4	5
8. I try to finish what I start	1	2	3	4	5
9. Spiritual beliefs are a source of strength for me	1	2	3	4	5
10. I am proud of my ethnic background	1	2	3	4	5
11. People think that I am fun to be with	1	2	3	4	5
12. I talk to my family/caregiver(s) about how I feel	1	2	3	4	5
13. I am able to solve problems	1	2	3	4	5
14. I feel supported by my friends	1	2	3	4	5
15. I know where to go in my community to get help	1	2	3	4	5
16. I feel I belong at my school	1	2	3	4	5
17. My family stands by me during difficult times	1	2	3	4	5
18. My friends stand by me during difficult times	1	2	3	4	5
19. I am treated fairly in my community	1	2	3	4	5
20. I have opportunities to show others that I am becoming an adult and can act responsibly	1	2	3	4	5
21. I am aware of my own strengths	1	2	3	4	5
22. I participate in organized religious activities	1	2	3	4	5
23. I think it is important to serve my community	1	2	3	4	5
24. I feel safe when I am with my family/caregiver(s)	1	2	3	4	5
25. I have opportunities to develop skills that will be					

useful later in life (like job skills and skills to care for others)	1	2	3	4	5
26. I enjoy my family's/caregiver□s cultural and family traditions	1	2	3	4	5
27. I enjoy my community's traditions	1	2	3	4	5
28. I am proud to be (Nationality: _____)?	1	2	3	4	5

Citation: The International Resilience Project (2007). *The Child and Youth Resilience Measure (CYRM) - 28*. Retrieved [date], from http://www.resilienceresearch.org

Appendix B: Permission for Use of PedsQL ™ Pediatric Quality of Life Inventory

Dear Geoff,

Thank you for your message.

You have only to send me your completed and signed User Agreement.

I hope this is clear for you. Please do not hesitate to contact me should you need any additional information or may have any other questions.

I look forward to hearing from you.

Best regards,

Farah MEBARKI
Project Assistant - PRO Information Support

MAPI Research Trust
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Please visit our websites | www.mapigroup.com<http://www.mapigroup.com/> | www.mapi-trust.org<http://www.mapi-trust.org> | www.proqolid.org<http://www.proqolid.org/> | www.mapi-prolabels.org<http://www.mapi-prolabels.org/> | www.mapi-store.com<outbind://76-000000002EC2163916895843AA6F8468E6FD62B907000881AB39F65BB848ACE271641F671CF100000002B13000000881AB39F65BB848ACE271641F671CF10000004EDFF00000/www.mapi-store.com> | www.mapi-pmr.org<http://www.mapi-pmr.org>

-----Message d'origine-----

De : Geoff Nugent [mailto:Geoffnugent@yahoo.com]

Envoyé : mercredi 27 février 2013 18:09

À : Andrea MURISON

Objet : PedsQL short Form

Dear Andrea Murison

My name is Geoff Nugent. I am a student in a psychology Ph.D. Program at Walden University. I am contacting you in regards to the PedsQL Short Form. I would like to use it in my study of Adolescents and Video games. I have downloaded the user agreement form, will fill it out, and send it in but was wondering if there is anything else i need to do to get permission according to the copyright.

You can respond to either geoffnugent@yahoo.com or geoff.nugent@waldenu.edu Thank you Geoff Nugent, M.A., Walden University, Health Psychology Program.

Appendix C: Permission for Motivation for Gaming Survey by Yee (2007)

Hi Geoff,

You are most welcome to use the scale for your research. Also, there is a newer (2012) version of the scale that uses 12 items to measure just the 3 high level factors:
http://nickyee.com/pubs/2012%20CHI%20-%20Motivations%20Scale.pdf

You are welcome to use either scale for your research. All the best!

Nick

Dear Dr. Yee
My name is Geoff Nugent and I am in a Psychology Ph.D. program at Walden University. I am contacting you because i have found you 40 item survey on motivation published in 2007. I would like to you this instrument for my research on adolescents and video game. This instrument could help in excreting information from the dependent variables within the study. Please let me know what i need to do in order to gain permission for its use.

I can be reached at either geoffnugent@yahoo.com or geoff.nugent@waldenu.edu

Thank for you time
Geoff Nugent. M.A.
Walden University, Health Psychology

Appendix D: Permission for Child and Youth Resilience Measure

Amber

Is this sufficient for the agreement or do I need something more. Is there a form that you can send stating that I have permission to use the CYRM.
Geoff

Hello,

Thank you so much for enquiring about the Child and Youth Resilience Measure (CYRM). We are happy to share the CYRM. For our own files, we do have a few questions regarding your work. If you could complete the following and return it to us, that would be most helpful.

Your Name: Geoffrey Nugent

Title of the Study: (Working Title) Voice Over Internet Protocol (VOIP), Video Games, and the Adolescent's Perceived Experience)

Focus or goal of the study: Adolescents, video game VOIPing, and their perceived quality of life, motivation, and resilience.

Name of lead researcher, principal investigator, or main coordinator: Geoffrey Nugent

What organization or institution will the study be conducted through: Walden University

Which, if any, review board will the study be submitted through: The review board at Walden University

Sample population of the study/ who will be asked to participate: 13 to 18 years adolescents.

Anticipated end date of the study: Between 6-2013 and 9-2013

Your responses will be sent to Dr Linda Liebenberg, Director of Research here at the Resilience Research Centre. She will then also be better able to answer any questions you may have regarding the CYRM and its use.

Thank you,
Amber Raja,
Administrator,
Resilience Research Centre,
School of Social Work
Dalhousie University
6420 Coburg Road,
PO Box 15,000
Halifax, Nova Scotia
B3H 4R2
Phone: (902) 494-3050
Fax: (902) 494- 6709
Email: RRC@dal.ca
http://www.resilienceresearch.org/

On Feb 28, 2013, at 4:14 AM, Amber Raja <amber.raja@DAL.CA> wrote:

Hello,

Thank you so much for enquiring about the Child and Youth Resilience Measure (CYRM). We are happy to share the CYRM. For our own files, we do have a few questions regarding your work. If you could complete the following and return it to us, that would be most helpful.

Your Name:

Title of the Study:

Focus or goal of the study:

Name of lead researcher, principal investigator, or main coordinator:

What organization or institution will the study be conducted through:

Which, if any, review board will the study be submitted through:

Sample population of the study/ who will be asked to participate:

Anticipated end date of the study:

Your responses will be sent to Dr Linda Liebenberg, Director of Research here at the Resilience Research Centre. She will then also be better able to answer any questions you may have regarding the CYRM and its use.

Thank you,
Amber Raja,
Administrator,
Resilience Research Centre,
School of Social Work
Dalhousie University
6420 Coburg Road,
PO Box 15,000
Halifax, Nova Scotia
B3H 4R2
Phone: (902) 494-3050
Fax: (902) 494- 6709
Email: RRC@dal.ca
http://www.resilienceresearch.org/

From: Michael Ungar [mailto:Michael.Ungar@dal.ca]
Sent: February-27-13 6:23 PM
To: Geoff Nugent
Cc: linda.liebenberg@dal.ca; Amber Raja
Subject: Re: The CYRM -28

Hi, great to hear from you. I've copied in here Amber Raja, our administrator who can arrange for you to get the measure.
Hope the research goes well,
Mike

Michael Ungar, Ph.D.
Network Director, CYCC Network
Co-Director, Resilience Research Centre
Dalhousie University
6420 Coburg Road, PO Box 15000
Halifax, Canada, B3H 4R2
Ph: (902) 494-3445 (Office) | (902) 229-0434 (Cell)
www.cyccnetwork.org | www.michaelungar.com | www.resilienceresearch.org
@CYCCNetwork | @MichaelUngarPhD

From: Geoff Nugent <geoffnugent.lmft@gmail.com>
Date: Wednesday, February 27, 2013 1:17 PM
To: Michael Ungar <Michael.Ungar@Dal.Ca>
Cc: Linda Liebenberg <linda.liebenberg@dal.ca>
Subject: The CYRM -28

Dear Dr. Ungar

My name is Geoff Nugent and I am in a psychology Ph.D. Program at Walden University. I am contacting you because i would like to use the **The Child and Youth Resilience Measure**
(CYRM) - 28 that you created for my research. I am researching adolescents and video games. This scale has the potential to help in drawing out information on key dependent variables in the study. What is the protocol that i need to fulfill in order to use this tool in my research.

You can respond to me at either geoffnugent@yahoo.com or geoff.nugent@waldenu.edu
Thank for you time and response.

Geoff Nugent, M.A.
Walden University, Health Psychology

Appendix E: SurveyMonkey e-mail Invite

To: [Email]
From: "geoff.nugent@waldenu.edu via surveymonkey.com" <member@surveymonkey.com>
Subject: Voice Over Internet Protocol (VOIP), Video Games, and the idea of social interaction for adolescents
Body: You are receiving this email because I received a parental consent form signed with this email address attached. I am conducting a survey on Voice Over Internet Protocol (VOIP), Video Games, and the idea of social interaction for adolescents, and your response would be appreciated.

Here is a link to the survey:
https://www.surveymonkey.com/s.aspx

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thank you for your participation!

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx

Curriculum Vitae

Geoffrey J. Nugent, Ph.D., LMFT, LPCC

CREDENTIALS

California Licensed Marriage Family Therapist – MFCC #47549
California Licensed Professional Clinical Counselor- LPC #221

EDUCATION

Doctorate in Health Psychology, 2010 - 2015

Master of Arts: Counseling Psychology,
Registered Intern #IMF 53415
Graduated from John F. Kennedy University, March 2007

Bachelor of Science: Psychology
Graduated from Brigham Young University, April 2004

PROFESSIONAL EXPERIENCE

Private Practice intern/ licensed Therapist Aug 07 to present
Psychotherapy with individuals, couples, families
Intern supervision by Linda Williams MFCC # 39074

On-Call Crisis Clinician July 09 to 2011
EMQ Families First, Mobile Crisis Unit
Safety Assessments for Children and Adolescents, WIC 5105 (72 hour psychiatric holds), Safety contracts, working with other community supports.

Mental Health Clinician/Therapist Sept 06 to present
Campbell union school District, Rolling Hills Middle School
Special Education program (ED)
Psychotherapy working one on one and Group

School based program- Trainee/counselor Oct 05 to June 06
John F. Kennedy University Counseling Center
Hyde Middle School Cupertino, CA
Psychotherapy working one on one

Family specialist May 04 to May 06
EMQ Child and Family Service, Los Gatos, CA
Work one on one with adolescent implementing therapeutic treatment plans

Nov 02 to Dec 03
Brigham Young University, Provo, Utah
Research assistant, head teacher assistant

	Data collection and analysis, supervision of five teacher assistants Classroom instruction
PROFESSIONAL Memberships:	American Psychological Association (APA) Member of California Association of Marriage and Family Therapist (CAMFT) Member of American Psychotherapist Association - Board Certified Psychotherapist Counselor (BCPC) Member of Association of Mormon Counselors and Psychotherapist (AMCAP)
Training:	Training in Social Thinking Therapy Training in Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) Training in Cognitive Behavioral Brief Therapy (CBBT) Training in Solution Focused/ Client Informed Outcome Therapy. Trainer for Pro-Act Restraint Certification program 2013 to present
ORGANIZATIONS	
	Psi Chi National Honor Society in Psychology, Walden University, **Golden Key National Honor Society**, Walden University,
PRESENTATIONS	
	Campbell Union Elementary School district, Presented mental health seminar to Campbell Union Elementary School Educators

References Available Upon Request