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A Michelle Elton Ahlstrom  
*Brigham Young University - Provo*

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MARITAL SATISFACTION AMONG MARRIED COUPLES IN WHICH  
ONE OR BOTH MEMBERS PLAY A MASSIVELY MULTIPLAYER  
ONLINE ROLE-PLAYING GAME (MMORPG)

by

Michelle Elton Ahlstrom

A thesis submitted to the faculty of

Brigham Young University

in partial fulfillment of the requirements for the degree of

Master of Science

Department of Recreation Management and Youth Leadership

Brigham Young University

August 2009

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BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

of a thesis submitted by

Michelle Elton Ahlstrom

This thesis has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Neil R. Lundberg, Chair

\_\_\_\_\_  
Date

\_\_\_\_\_  
Ramon B. Zabriskie

\_\_\_\_\_  
Date

\_\_\_\_\_  
Gordon B. Lindsay

BRIGHAM YOUNG UNIVERSITY

As chair of the candidate's graduate committee, I have read the thesis of Michelle Elton Ahlstrom in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

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Date

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Neil R. Lundberg  
Chair, Graduate Committee

Accepted for the Department

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Brian J. Hill, Graduate Coordinator  
Department of Recreation Management and Youth  
Leadership

Accepted for the College

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Gordon B. Lindsay, Associate Dean  
College of Health and Human Performance

## ABSTRACT

### MARITAL SATISFACTION AMONG MARRIED COUPLES IN WHICH ONE OR BOTH MEMBERS PLAY A MASSIVELY MULTIPLAYER ONLINE ROLE-PLAYING GAME (MMORPG)

Michelle Elton Ahlstrom

Department of Recreation Management and Youth Leadership

Master of Science

The purpose of this study was to gain a better understanding of the gaming behaviors of married individuals and couples who play Massively Multiplayer Online Role-Playing Game(s) (MMORPGs) including gaming addiction, time spent gaming, satisfaction in gaming participation, gaming interaction (between joint gaming spouses), and socio-demographic variables and the subsequent marital satisfaction levels of both individuals in the couple. Hypotheses were generally supported, excluding the hours spent gaming. 685 couples were separated and analyzed according to whether both individuals in the marriage gamed or just one individual gamed (couple-gaming type). Couples in which only one individual gamed (*individual-gamer couples*) had significantly lower marital satisfaction than all other groups and couples in which both gamed about the same amount of time (*equal-gamers*) held the highest marital satisfaction of the groups. Prediction models of marital satisfaction were determined for

each couple-gaming type. The strongest predictions present in most of the models for marital satisfaction were the frequency that the couple retired to bed at the same time and the frequency that the couple quarreled specifically about gaming. Much MMORPG research has been presented on youth and adults, however to date there is no research on married gamers. Recent research on the video game habits of emerging adults called for further in depth investigation of the implications of video game use in the family formation stage of life.

## ACKNOWLEDGMENTS

I would like to take this opportunity to thank all of those who have helped me in the completion of my thesis. First, I must give deep gratitude to my wonderful husband and greatest supporter Jayson Ahlstrom. His ideas, support encouragement, and devotion to me and to our family made it possible for me to complete this thesis. Thank you to my three beautiful children; JT (6), Grayce (4), and Byron (2) for your patience and support of me returning to school while you were still young. Gratitude must also be given to Marvell and Louise Ahlstrom who selflessly watched my children, did my laundry and took care of my house while I was at school. I couldn't have done it without you! Thanks to my parents for believing in me and helping me "eat this elephant one bite at a time". Great thanks to my committee; Dr. Neil Lundberg, who encouraged me in my ideas and helped me to focus on what was most important for my study, Dr. Ramon Zabriskie, for your enthusiasm in my study, support, and faith in my abilities to perform this degree and thesis, To Dr. Gordon Lindsay, for your insight into the world of addictions and your support and guidance, and to Dr. Dennis Eggett, for working so hard to clean, analyze and re-analyze my data. I am grateful for the insights and advice on specific aspects of gaming from Dale Slabbert. Thank you to my fellow graduate students for your encouragement and help in getting through this program. Finally, I must thank my Heavenly Father for the opportunity to participate in a program, for his support, guidance and many amazing life changing miracles that I have experienced through this process.



## Table of Contents

List of Table .....	x
Marital Satisfaction among Married Couples in which One or Both Members Play a Massively Multiplayer Online Role-Playing Game (MMORPG)	
Abstract .....	2
Introduction .....	4
Review of Literature .....	5
Methods .....	21
Results .....	30
Discussion .....	39
Conclusion .....	54
Implementations .....	57
Suggestions for Future Research .....	58
Limitations .....	60
Reference .....	62
Appendix A Prospectus .....	82
Introduction .....	83
Review of Literature .....	91
Methods .....	106
References .....	113
Appendix A-1a Invitation to Participate in the Study for Gamers .....	119
Appendix A-1b Informed Consent Form .....	121
Appendix A-1c Questionnaire Questions .....	124

## List of Tables

Table	Page
1 Descriptive Demographics .....	69
2 Summary of Stepwise Regression Analysis for Socio-demographic Variables and Marital Satisfaction.....	70
3 RCAS Scores .....	71
4 Group Comparison.....	72
5 Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for <i>Independent-gamers</i> .....	73
6 Percentage Question: What effect do you feel gaming has on your marital relationship?.....	74
7 Percentage Question: How do you feel that gaming has affected your marriage relationship? .....	75
8 Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for <i>Non-gaming Spouses of Independent-gamers</i> .....	76
9 Summary of Stepwise Regression Analysis for Variable Predicting Marital Satisfaction for <i>More-gamers</i> .....	77
10 Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for <i>Less-gamers</i> .....	78
11 Percentage Question: How often do you play an MMORPG at the same time as your spouse? .....	79
12 Question: What amount of your game playing time do you play interacting with your spouse's character in the game? .....	80

13	Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for <i>Equal-gamers</i> .....	81
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Running head: GAMERS AND MARITAL SATISFACTION

Marital Satisfaction among Married Couples in which One or Both Members Play a  
Massively Multiplayer Online Role-Playing Game (MMORPG)

Michelle Ahlstrom CTRS

Brigham Young University

## 2 Gamers and Marital Satisfaction

### Abstract

The purpose of this study was to gain a better understanding of the gaming behaviors of married individuals and couples who play Massively Multiplayer Online Role-Playing Game(s) (MMORPGs) including gaming addiction, time spent gaming, satisfaction in gaming participation, gaming interaction (between joint gaming spouses), and socio-demographic variables and the subsequent marital satisfaction levels of both individuals in the couple. Hypotheses were generally supported, excluding the hours spent gaming. 685 couples were separated and analyzed according to whether both individuals in the marriage gamed or just one individual gamed (couple-gaming type). Couples in which only one individual gamed (*individual-gamer couples*) had significantly lower marital satisfaction than all other groups and couples in which both gamed about the same amount of time (*equal-gamers*) held the highest marital satisfaction of the groups. Prediction models of marital satisfaction were determined for each couple-gaming type. The strongest predictions present in most of the models for marital satisfaction were the frequency that the couple retired to bed at the same time and the frequency that the couple quarreled specifically about gaming. Much MMORPG research has been presented on youth and adults, however to date there is no research on married gamers. Recent research on the video game habits of emerging adults called for further in depth investigation of the implications of video game use in the family formation stage of life.

Key words: Massively Multiplayer Online Role Playing Game (MMORPG), video game, married gamers, marital satisfaction, gaming addiction, individual gamer, marital satisfaction prediction, joint gamer, adult gamer, recreation, Revised Dyadic Adjustment Scale (RDAS), Internet Addiction Test (IAT).

#### 4 Gamers and Marital Satisfaction

##### Marital Satisfaction among Married Couples in which One or Both Members Play a Massively Multiplayer Online Role-Playing Game (MMORPG)

Marriage has been found to be the best predictor of outcomes for adults (Kim & McKenry 2002), as well as children (Seltzer, 2000). Furthermore, research examining the relationships between different types of recreation and the support given from spouses found that marital satisfaction was generally higher in couples who participated in less individual recreation (Orthner, 1975; Baldwin, Ellis & Baldwin, 1999; Barrell, Chamberlain, Evans, Holt, & MacKean, 1989; Goff, Fick, & Oppliger, 1997). Thus, it is of vast importance to study aspects of a marital relationship, such as recreational choices, that may have a positive or negative correlation with marital satisfaction for married couples.

The internet has become a ubiquitous useful and destructive tool in the American society. Internet addictions as well as online gaming addictions have recently emerged in the last decade (Ng & Wiemer-Hastings, 2005; Young, 2004). Ryan, et al. (2006), found that "Participation in video gaming has become the fastest growing form of human recreation" (p. 347) and the largest entertainment medium in the world. Although 36% of online gamers are married and 22.1% have children (Yee, 2006), no studies have specifically examined marital satisfaction as it correlates with online gaming.

Furthermore, no research studies have explicitly studied the number of hours that married Internet gamers spend playing video games and the possible relationship between the gamers' marital satisfaction and their spouses' marital satisfaction. Additionally, no research has been found that discusses the participation in video gaming as an individual,

joint, or parallel activity for the marital dyad, and the plausible correlation with both spouses' level of marital satisfaction. Therefore, the two-fold purpose of the current study was to first examine if prediction model of the marital satisfaction of both members of the dyad could be made using gaming addiction, the number of hours gamed per week, couple gaming type, socio-demographic, and gaming variables specific to the type of gaming group. Second, the study compared the marital satisfaction of couples in which one person games, both partners game, and couples in which neither of the partners game.

#### Review of Literature

##### *Marital Satisfaction*

Research has found that “Marriage is not merely a private relation; it is a public good. As marriage weakens, the costs are borne not only by individual children and families but by all of us” (Waite & Gallagher, 2002, p.186). It has been widely acknowledged that married individuals have higher psychological well-being (Kim & McKenry 2002), better dependent child outcomes, higher economic status (Seltzer, 2000), and better physical health (Carrere, Buehlman, Gottman, Coan, & Ruckstuhl, 2000) as compared to cohabitating, separated, or divorced individuals. The US Census bureau has reported, however, that 90% of US adults will marry at some point in their lives and 50% of these marriages will end in divorce (Kreider & Fields, 2001). Of those marriages that remain in-tact, many will remain in relationships with poor functioning and spousal dissatisfaction (Waldinger, Schulz, Hauser, Allen, & Crowell, 2004) It follows that, “Identifying the factors that help marriages survive has important



## 6 Gamers and Marital Satisfaction

implications” (Carrere, et al., 2000, p.42). Thus it is of great importance to study aspects of a marital relationship, such as recreational choices, that may have a positive or negative correlation with marital satisfaction.

Marital satisfaction has been widely studied in the field of recreation (Baldwin, et al, 1999; Crawford, Houts, Huston, & George, 2002; Holman & Jaquart, 1988; Johnson, Zabriskie, & Hill, 2006; Orthner, 1975). In fact, a general library search reveals that from the year 2001-2009 there are over 2000 articles with marital satisfaction in the title. In order to compare and extend existing marital satisfaction research it is important to pull from a set of standardized instruments and dependent variables used in the existing body of research. Likewise, it is necessary to accurately define the construct being analyzed. Recently, the specific construct of marital satisfaction has been defined as “an individual’s emotional state of being content with the interactions, experiences, and expectations of his or her married life” (Ward, Lundberg, Zabriskie and Berrett 2009, p. 415).

The Revised Dyadic Adjustment Scale (RDAS) originally intended to address marital quality or dyadic adjustment in regard to cohesion, satisfaction, and consensus (Busby et al, 1995); has been widely used to assess marital satisfaction (Ward, et al, 2006). The RDAS was recently compared to the Satisfaction with Married Life Scale (SWML), an instrument designed specifically to measure marital satisfaction, and found to be on par with the SWML in assessing marital satisfaction (Ward et al, 2009). Furthermore, research shows that “longitudinal studies of marriage have found support for a link between marital quality and marital stability” (Karney & Bradburn, 1995, p.

25). Although the effect may not be large in these findings, they are consistently replicated and marital quality continues to be significant as a predictor of divorce (Karney & Bradburn). Due to the ability of the RDAS to assess dyadic adjustment, marital quality, and marital satisfaction, the current study uses the RDAS to specifically assess marital satisfaction. By using this well recognized instrument, the study can effectively support, extend, and compare the findings of the current body of research as well as analyze currently married individuals. Therefore, the marital satisfaction of the sample in the current study may predict the divorce proneness of couples using variables such as gaming that predict their marital satisfaction.

A study by Amato, Johnson, Booth and Rodgers (2003) found that couples married in the 1981-1997 cohort had an increase in their belief and importance of life-long marriage as compared to the couples in the 1964-1980. Therefore, it follows that research that can describe the source of the variance in couples' dissatisfaction can help couples to determine aspects in their marriage that may need attention. In a study looking at the importance of couple leisure, Johnson, et al (2006) found that the "Best predictor of marital satisfaction was leisure satisfaction" (Johnson, et al., 2006, p. 83). This statement coupled with the research on marriage and marital satisfaction justifies the need to look at recreation as a variable in determining marital satisfaction.

#### *Leisure Implications for Marital Satisfaction*

Researchers have attempted to understand marital satisfaction from leisure patterns couples participate in, such as joint, individual, and parallel activities (Crawford, et. al, 2002; Holman & Epperson, 1984; Holman & Jacquart, 1988; Johnson, Zabriskie, &

Hill, 2006; Orthner, 1975; Orthner & Mancini, 1990). A discussion of the research detailing this line of study follows.

*Joint couple leisure.* Researchers exploring marital relationships have consistently found positive relationships between couples' participation in joint leisure activities and marital and/or family life satisfaction (Holman, 1981; Holman & Jacquart, 1988; Miller, 1976; Orthner, 1975; Smith, Snyder, & Monsma, 1988; Zabriskie & McCormick, 2003). According to Orthner 1975, joint activities are characterized by a "high degree of interaction for successful completion of the activity and tend to open communication and encourage role interchange" (p. 93). Holman and Jacquart (1988) add that there must be a high level of perceived communication during joint recreation in order to find a significant correlation with marital satisfaction. They suggest that without communication there may be a negative correlation with marital satisfaction. Johnson et al., (2006) found that it was "not the level or amount of couple leisure involvement or the satisfaction with the amount of time spent together, but the satisfaction with couple leisure that contributed to marital satisfaction" (p. 83). In other words, they found that couples who were not satisfied with their leisure participation with their spouse were less satisfied with their marriage. It is noted that if a couple is experiencing conflict in their marriage, there may consequently be less desire to participate in joint activities, which may prove to increase the level of conflict in the relationship (Orthner). Simply re-stated, couples that do not enjoy the time that they spend together are likely to spend less time together as a result.

*Parallel couple leisure.* Parallel activities are characterized as “little more than individual activities in group settings and a minimum of interaction is allowed among the participants” (Orthner, 1975, p. 93). Parallel activities have been linked to marital satisfaction to a lesser degree than the significant relationships found in joint activity participation (Orthner, 1975). Orthner’s study outlined couples’ leisure interactions from across the marital life span. Parallel activities were found to be positively associated with marital satisfaction for husbands but not wives in the first five years, slightly positive for both partners in the middle years of marriage, positively associated during the 18-23-years-of-marriage cohort, and show a drop in association in the last cohort of marriage studied. Furthermore, Orthner found that husbands and wives do not experience the same levels of marital satisfaction, associated with leisure participation, during the same time periods. Additionally, the level of communication during parallel activities was found to be diminished when compared to joint interactive couple leisure (Orthner & Mancini, 1990).

*Individual leisure.* Orthner and Mancini (1990) found that marital satisfaction is higher for husbands and wives who share leisure time in joint activities, and lower for those with high concentrations of individual leisure activities. Individual activities are characterized as activities which “require no communication with others and may actually discourage interaction” (Orthner, 1975, p. 93), such as playing a video game without the participant’s spouse. Crawford et al. (2002) found a significant negative correlation between individual activities enjoyed by only one spouse and marital satisfaction for both the husbands and wives. Smith et al., (1988) found that their study

“confirms the importance of couples’ use of discretionary time as a predictor of overall relationship satisfaction” (p.11). Furthermore, if couples are not accepting or supportive of their spouses’ individual leisure pursuits, they will likewise experience lower marital satisfaction (Baldwin et al., 1999; Crawford et al., 2002; Holman, & Epperson, 1984; Orthner, & Mancini). This is evident in the research studying the effects of specific types of serious leisure such as serious running.

*The role of support for individual leisure.* Research examining the marital satisfaction of serious individual runners found that runners who were highly supported by their spouses had higher marital satisfaction (Baldwin et al., 1999; Barrell et al., 1989; Goff et al., 1997). Those runners who had lower support from their spouses reported higher leisure-family conflict or marital conflict (Baldwin et al.; Goff et al.). Research also indicated that spouses and families who were runners themselves were often more supportive of their serious runner partners (Stebbins, 1992; Yair, 1990). Other forms of support found in these studies indicated that providing logistical and emotional support of the individual activity correlated with higher marital/leisure-family satisfaction.

In contrast to parallel or supported running, Rudy and Estok (1990) reported that as spouse perception of addiction to running behavior increases, marital adjustment decreases and this negative relation was greater among male spouses. They suggested male spouses might assign a more negative meaning to running activities of their female marital partners. Furthermore, they cited one husband who said that his wife’s running meant she values running more than saving energy for family activities (Goff et al., 1997). This study lends an interesting, preliminary understanding of how a perception of

addiction to a nonchemical activity, such as running or gaming, could lead to marital partners' feelings of marital discord or dissatisfaction. It follows that the research established in the serious runner literature could provide insight on gaming behavior among married adults.

### *Online Gaming Research*

Since the advent of widespread public use of the Internet in the early 1990's (Zakon, 2006), there have been unsurpassed technological advancements in areas such as communication, collaboration and immediate information access. These advancements have introduced a new world of Internet recreation and have come with the cost of introducing new potentially harmful habits and addictions. Heightened awareness of these growing threats, referred to by many researchers and clinicians as *Internet Addiction* or *Internet Addiction Disorder* (Ng & Wiemer-Hastings, 2005; Young, 2004), has been further articulated by the public press and formal research journals. Furthermore, in 2007, The American Medical Association (AMA) made a formal call for more research on video gaming and a request for inclusion of *video game addiction* in the upcoming American Psychological Association's Diagnostic Statistical Manual version V (DSM V), emphasizing the dangers of video game addiction (2007; Grusser, Thalemann, & Griffiths, 2007).

As stated above, video-gaming has increased in participation more than any other form of human recreation (Ryan, et al., 2006). Additionally, the revenues of the video game industry have surpassed those of Hollywood (Yi, 2004). Consequently, video gaming has become the world's largest entertainment medium (Ryan, et al.). Research

## 12 Gamers and Marital Satisfaction

studies found that 36% of online Massively Multiplayer Online Role-Playing Gamers (players of online video games) are married, 22.1% have children, players average 22.71 hours per week (Yee), and 82% of gamers, game from 6-11 pm (Ng & Wiemer-Hastings, 2005). Assuming that this is the time of night free from the constraints of work, when most couples are available to interact, communicate, and participate in leisure, it follows that “Couple time may be displaced if one person in a relationship is a frequent gamer and the other is not” (Ogletree & Drake, 2007, p. 540). Utilizing the research on serious runners as a basis and the couple leisure finding that leisure satisfaction was the strongest predictor of marital satisfaction (Johnson, et al., 2006), it is plausible that unsupported individuals who do not interact with their spouse during game play and/or gamers who are not satisfied with their joint participation in gaming, may experience lower marital satisfaction. It is therefore, imperative to discover the implications of this type of recreation in connection with marital satisfaction.

### *Research on Adult Video Gamers and MMORPG Players*

Yee (2006) reported a study of 30,000 players of MMORPGs where the mean age was 25.71 for males and 31.72 for females. Further findings indicated that 50% of the respondents worked full-time, 22.2% were full time students, 13% were female homemakers, 36% were married and 22.1% had children (Yee). On average, the respondents played their preferred MMORPG for 22.71 hours per week with a median of 20 hours per week; 8%-9% of respondents played for 40 or more hours per week. Yee did not study any detrimental effects of the MMORPGs in the research cited above. The demographic information provided, however, assists future researchers to have a base

line of the wider range of MMORPG gamers for subsequent study. Given these statistics, it follows that if married gamers follow the basic averages reported by Yee (2006), there may be limited time left over to participate in other pursuits with the gamer's spouse or other family members.

Ng and Wiemer-Hastings (2005) compared the difference between MMORPG players and other offline video gamers. Although the demographic information was similar between the two groups, there were statistically significant differences showing higher overuse patterns among MMORPG players than the offline video gamers. Online MMORPG players (83% played 7 hours or longer per week) played much longer than their offline counterparts (15% played 7 hours or more per week) (Ng & Wiemer-Hastings). The study found that "MMORPG users would rather spend time in the game than with friends, have more fun with in-game friends than people they know, found it easier to converse with people while in-game, did not find social relationships as important, and felt happier when in the game than anywhere else" (Ng & Wiemer-Hastings, p.112). Although the MMORPG players in the sample were not labeled as addicted, they did consider themselves to be "happier when in the game" (Ng & Wiemer-Hastings, p. 112). In other words they would rather have social relationships with those in their online virtual world environment than with people or relatives in their real world environment. To understand how this excessive game playing can be justified by the players, it is necessary to understand the characteristics of MMORPGs.



*Understanding MMORPGs*

Games that are labeled as MMORPGs can be played simultaneously with hundreds of thousands of people playing the same game on various servers. These games, or rather three-dimensional virtual worlds, are available worldwide to anyone with access to the Internet and the ability to log onto the game (Kelly, 2004). The player is represented by an avatar, a three-dimensional lifelike (often idealistic) cartoon character representing the player in the game, that can walk, talk, fight, hunt, make friends, form communities, fall in love, and even take part in various economic activities (Whang & Chang, 2004).

While traditional video games, such as console games, become repetitive over time and have an ending goal, MMORPGs never end and are characterized by a continuous “system of goals and achievements” (Ng & Wiemer-Hastings, 2005, p. 111). Furthermore, MMORPGs are highly social and require extensive devotion to character development and large time commitments to other players or team members in a *guild* or *clan* with whom users must collaborate to advance further in the games. These virtual social interactions “often become a substitute for real life social interaction” (Allison, Von Wahlde, Shockley, & Gabbard, 2006, p. 383). In a case study of an 18-year old MMORPG player, Allison et al. found that, “he could put on a new identity like a new suit of clothes, becoming someone who walked on water, healed others, and cast lightning bolts, in stark contrast to his daily experience of himself as inadequate” (p. 381). In other words, when acting as the character, the player is able to be someone else. No one can see what he or she really looks like, what real life accomplishments he/she

has or who he or she really is. This may further influence their desire to spend increased time acting in their alternative persona.

### *MMORPG Addiction*

MMORPGs have been termed *heroinware* instead of software by gamers (Allison et al., 2006; Ng & Wiemer-Hastings, 2005), referring to games such as World of Warcraft (WoW) and Everquest that have been nick named, as *World of Warcrack* and *Evercrack*, (Ng & Wiemer-Hastings, 2005). These terms allude to the comparison of the addictive nature of illegal drugs to the addictive nature of MMORPGs. Because of the continuous nature of these games and the need to continually be online in order to attain higher levels and help other members of the clan or guild, it follows that gamers may feel compelled to spend continuous hours immersed in virtual worlds. The time consuming nature of the game coupled with the built in rewards system may explain the physiological release of dopamine in the brain. (Motluk, 2005) These two factors may feed into addictive behaviors. It is plausible that the MMORPG style of gaming, due to the exorbitant amount of time required and social needs being met in the context of the game, may result in marital disruptions and even dissolution due to the individual nature of the participation. Likewise, it follows that couples that game together may experience heightened marital satisfaction due to their joint interaction within the game.

### *Relationship Disruptions in the Context of a Gaming Addiction*

Researchers have suspected that excessive use of the Internet or gaming may have an adverse effect on relationships. Specifically, Young (1998) discusses relationship disruptions as a result of the excessive use of the Internet:

## 16 Gamers and Marital Satisfaction

Marriages, dating relationships, parent-child relationships, and close friendships were also noted to be poorly disrupted by excessive use of the Internet.

Dependents gradually spent less time with real people in their lives in exchange for solitary time in front of a computer. (p. 240)

The exorbitant number of leisure time hours required to excel at or become addicted to an online role-playing game could reasonably indicate that little time would be available to participate in joint leisure activities with a gamer's spouse or children. The *displacement hypothesis*, referred to by Ogletree and Drake (2007), theorizes that time spent in one activity displaces the time that could be spent in another activity. This argument is further strengthened by the finding that 87% of gamers, on and offline, game from 6-11 pm (Ng & Wiemer-Hastings, 2005). This is logically the time of night when most couples are available to interact, communicate, and participate in leisure with each other. Therefore, it is feasible that the time that the players spend participating in their preferred game displaces the time that may otherwise be spent interacting with other family members.

### *Bedtime Ritual Displacement*

It is also feasible that couples in which one partner spends time at night gaming may not retire to bed at the same time. Research indicates that couples in which one is an "evening person" and the other is a "morning person" reported significantly more marital conflict, less time spent in serious conversation, less time spent in shared activities, less marital adjustment, and less frequent sexual intercourse than couples who are both "evening people" or "morning people" (Larson, Crane, Smith, 1991; Lange, Waterman, & Kerkhof, 1998). Doherty (1997) states "going to bed together is one of the defining

activities of a married or a cohabiting couple” (p. 46). He further suggests that many couples drift apart when their bedtime routines are not spent together as a chance for the couple to reconnect. Furthermore, couples reported better sleep quality when sleeping together (Troxel, Robles, Hall, & Buysse, 2007). Marital therapists working with distressed couples ask about the couple’s bedtime routines and counsel the couple to retire to bed together (Doherty). This time of night should be free from computer and TV use so that the couple can re-connect, talk, cuddle and have a chance for sexual relations (Doherty). Additionally, Doherty states “sleeping together every night brings married couples together” (p. 48). It follows that couples who do not retire to bed together due to a possible displacement effect of an online video game may have lower marital satisfaction than those who deliberately enact their bedtime routine together as a time to be together and re-connect.

### *Internet Addiction*

Young (2004), defining Internet overuse as an impulse-control disorder which does not involve an intoxicant, developed criteria to assess Internet addiction. This criterion uses questions to assess the level of dependence on the Internet. Only one of the questions asks about relationships. It reads: “Have you jeopardized or risked the loss of a significant relationship, job, educational or career opportunity because of the Internet?” (Young, p. 404) with a slightly re-worded question for gamers on Young’s website . (Center for Internet Addiction Recovery, n.d.). Research and online assessments commonly include one question about relationship threats, but seldom elaborate on the relationship problems that may be perpetuated by gaming. Taking the responses of

## 18 Gamers and Marital Satisfaction

MMORPG players, Yee (2002) included this question using the Likert scale: “My playing habits have caused me academic, health, financial, or relationship problems” (Yee, p. 6). The analysis of Yee’s data reported that 18.4% agree or strongly agree, 13.2% reported neutrality to the question and the remainder marked that they disagree or strongly disagree. This question has too many variables to indicate significance for any of the problems individually. It is evident these questions need to be broken up into separate questions in order to understand which problem is accounting for the variance.

Yee (2006) published a demographic study of MMORPG players and documented descriptive data about players who gamed with their romantic partner. It was reported that 26.9% of female players were introduced to the game by their romantic partner (husband/wife, boy/girlfriend, fiancé/e) and 59.8% of female players participated in the environment with a romantic partner. Furthermore, 1.0% of male players were introduced to the game by their romantic partner and merely 15.8% of male players participated with their romantic partner in the game (p. 316). Additionally, the demographics showed that 25.5% of male players and 39.5% of female players played an MMORPG with a family member” (Yee,).

Research presented by Cole and Griffiths (2007) reported on the social interactions of a large international sample of MMORPG players from the players’ unique perspective. The percentage of married players and players with dependent children was not reported. The research found that, "Over one quarter of the sample (26.3%) played MMORPGs with family and real-life friends" (Cole & Griffiths 2007, p. 578). Furthermore, 67.4% of players who played with real life friends and family

believed that the MMORPGs had a positive effect on those relationships. Their report did not distinguish which member of the family or which type of friend gamers tended to participate with. Additionally, Cole and Griffiths (2007) found that "One in five participants (20.3%) believed that playing MMORPGs had a negative effect on their relationships with people with whom they did not play" (Cole & Griffiths 2007, p. 582). The research also found that 39.3% of participants claimed they would discuss sensitive issues, such as family problems, with their MMORPG friends, that they would not relate to their real life friends (p. 579). Furthermore, Cole and Griffiths stated "A significant negative correlation was found between the effect playing the game has had on relationships with those who do not play the same game and number of hours played per week ( $r = -0.221, p < 0.001$ ) (Cole & Griffiths 2007, p. 580). This data further confirms the need for research on married gamers.

Research performed in 2009 by Padilla-Walker, Nelson, Carroll, and Jensen found that for their sample of emerging unmarried adults, relationship quality with parents and friends were negatively correlated with the frequency of time spent gaming. Relationship quality of these individuals was also found to be negatively correlated with violent video game frequency. Their study asked only the frequency, on a likert scale that the participant played any type of video games (game types could range from hand held, consul, internet, etc) and the frequency of violent video games played. Specific hours per week spent gaming were not collected for the participants. These questions were analyzed with various risk behaviors such as alcohol, drug abuse, self-worth, all of which were found to be correlated negatively with video game frequency. Padilla-Walker, et al.

found that “video game use is related to poor relationships with friends and parents. During a developmental period in which the formation of romantic relationships is common, these findings raise the question as to how video game use may affect romantic relationships, including early marital relationships” (2009). Furthermore, when comparing video game behaviors to the drop off rates of pornography use, the authors question whether or not video gaming behaviors will drop off during the first years of marriage.

The demographics provided by Yee (2001 & 2006) and the research done by Cole and Griffiths (2007) and Padilla-Walker et al. 2009, provide a backdrop for the need to further investigate the relationships of gamers and their spouses. These findings, coupled with the facts that on average gamers play for 22.71 hours per week, 36.3% are married, 22.1% have children, 50% have full time jobs, 22% are full time students, and 13% are full time homemakers (Yee, 2006) warrant further investigation into the gaming behaviors of married gamers. Therefore, the purpose of the current study was to create a prediction model of marital satisfaction for both partners in the dyad, separated into their couple gaming type, using (a) the level of addiction, (b) the amount of time spent gaming, (c) the couple gaming type, (d) interaction (e) satisfaction in joint gaming; and (f) basic gaming questions and (g) socio-demographic information. In addition, comparisons of the marital satisfaction levels between the couple gaming type groups were also determined.

## Methods

### *Procedures*

After approval from the Institutional Review Board, Facebook.com ads and invitations to participate were distributed on the Internet. The majority of the sample was collected from several facebook.com advertisements (56.25% from the ads, with 42.58% hearing about it from their spouse, family or friend for a total of 98.83% with the three participants hearing about it from mmorpg.com, and three participants hearing about it through WoW yahoo groups) inviting married gamers and non-gamers to participate in the study. Invitations to participate in the study were also posted on WoW\_widows@yahoogroups.com, World\_of\_Warcraft\_WoW@yahoogroups.com, and gamerwidow.com. It is important to note that several attempts were made to represent all types of married MMORPG players and collect data from *hard-core-gamers* who frequent popular gamer sites such as elitistjerks.com, allakhazam.com, wowguru.com, and mmorpg.com. After the researcher was unable to maintain the placement of the invitation to participate in the study on these sites, a prominent, well-respected, *hard-core-gamer* posted the survey invitation to the sites and was temporarily or permanently banned from the sites within an hour or the same day as posting. One of the sites stated with the removal email “Although your link is for research purposes, members of the site are often skeptical, and will draw conclusions for the end goals of such surveys”. After repeated unsuccessful attempts to communicate with the managers of the sites, attempts were abandoned to solicit participation from this type of gamer. Furthermore, many individuals who participated in the survey commented or emailed the researcher stating



that their spouse would not participate or that there was no way they could get them to participate. Individual participants solicited from [gamerwidow.com](http://gamerwidow.com) and Wow\_widows yahoo group initially completed their portion of the survey, however researchers were unable to link a spouse to their surveys. This indicates that their spouse was unwilling to participate in this research. This may be due to the content of the survey or the already distressed relationship between the couple. Therefore, this sample is likely more conservative in the hours or intensity of the gamers and marital relationships that were usable for analysis, than the full range of gamers that participate in MMORPGs. The invitations to participate gave a short explanation of the pertinent criteria requirements and a link to the questionnaire on Qualtrics.com (See Appendix A).

After a short pilot study, a link to the online questionnaire was posted on selected Web sites for 5 weeks from February 5, 2009 to March 11, 2009. A *consent to participate* form was provided on the first page of the survey with a button to agree or disagree to participate (see Appendix B). Both marital partners were required to participate in separate questionnaires to be included in the study. Upon completion of the survey, participants were redirected to a separate 3-question survey, used to gather the email addresses and made-up code words from each participant, allowing participants to be entered and contacted about the drawing. Participants were assured that their email address would only be used for the purposes of providing the incentive should they be chosen to win. To insure confidentiality, the identifying information did not link to their individual or couple questionnaire and will not be used for any other purposes.

As an incentive, four prize drawings were offered. Specifically, two grand prizes of \$500 each: one gift certificate for the gamer and one for the spouse for \$250 each totaling \$500 per prize drawing; and two other drawings for pairs of \$250 gift certificates: one gift certificate of \$125 for each partner in the couple, totaling \$250 per prize drawing, to Amazon.com were drawn randomly at the end of the data collection process. The incentives were obtained by a university grant.

### *Sample*

The sample of gamers and their respective spouses was delimited to legally married, heterosexual, English speaking couples. Computer and Internet access was assumed given the criteria of playing an MMORPG, which are Internet-based games. The same basic criteria were used for the control group of couples with the requirement that neither partner in the couple play an MMORPG. After a thorough cleaning and matching the participants' surveys to their respective spouse's survey, 685 couples were found to be usable for the analysis. The surveys were matched through the use of their stated marriage date and the first two initials of their last name. The total sample of 685 couples broke down into 4 couple-gaming type groups including: 174 *independent-gamer* couples, in which one person games, and the other does not; 227 *more/less-gaming* couples, in which both members game, but one games more than the other; 123 *equal-gamer* couples, in which both couples game, about the same amount of time; and 161 *control-group* couples in which neither member games, but at least one member uses the internet.

## 24 Gamers and Marital Satisfaction

The participants included mainly English speaking (All participants spoke English, 97.22% reported that English was their first language), Caucasian (91.53%) legally married adults, living in Urban areas (69.91%) of the United States (98.83%, representing every state except for North Dakota) with an average income of \$50-59,000 per year. The average age of the sample was 33.32 years old. Specifically, *independent-gamers* (average age of 34.56 years old) were about the same age on average as the control group (34 years old), but averaged about 2 years older than the *equal-gamers* (average of 32.34 years old) and the *more/less-gamers* (average of 32.38 years old). The *control group* was married the longest with an average of 8.31 years marriage, 62.81% had one or more dependent children; *independent-gamer* couples averaged 7.39 years of marriage, 64.55% had one or more dependent children; the *more/less-gamers couples* reported an average of 6.15 years marriage, 51.86% had one or more dependent children; and the *equal-gamers* averaged 5.58 years marriage, 51.41% had no dependent children. *Individual-gamers* were predominantly male with 146 male gamers (84.39%) and 27 female gamers (15.61%), and in the *more/less-gamers couples* both individuals gamed, however 161 *more-gamers* were male (72.5%) and 61 *more-gamers* were female (26.75%). Due to the nature of the *Equal-gamers* and *control group* these samples could not be split out into gamer vs. non-gamer (See Table 1).

### *Instrumentation*

The research questionnaire (See Appendix C) included the dependent variable of the 14-item Revised Dyadic Adjustment Scale (RDAS), which measured each individual's level of marital satisfaction. The questionnaire also included the following

independent variables (a) the 20-item Internet Addiction Test (IAT), revised to include online gaming, which measured the independent variable of Internet gaming addiction; (b) the 20-item Internet Addiction Test (IAT), for the non-gaming spouses of gamers, assessed their own self-reported addiction to internet (c) additional gaming questions to determine other important aspects of gaming and (d) basic socio-demographic questions. The questionnaire used for the control group consisted of: (a) the 14-item RDAS, which was the dependent variable assessing marital satisfaction; (b) the independent variable of the 20-item Internet Addiction Test (IAT), in the original format, which asked questions pertaining to Internet addiction; (c) independent variables of questions about Internet use; and (d) independent variables of the same socio-demographic questions as the gaming group.

*RDAS.* The RDAS was intended to measure dyadic adjustment in terms of three separate factors of consensus, cohesion, and satisfaction (Busby et al, 1995). Although the RDAS was not initially intended to be a global measure of marital satisfaction alone, it has been widely used as such and was tested and found to be on parity with the Satisfaction With Married Life (SWFL), a scale designed specifically to measure marital satisfaction (Ward, et al., 2009). The RDAS was chosen due to the ability to show satisfaction or distress on a variety of questions. According to Busby, Christensen, Crane, & Larson (1995), “the reliability coefficients are within acceptable ranges and demonstrate that the RDAS has internal consistency and split-half reliability” (p. 300) with a Cronbach’s Alpha of 0.90. Ward, Lundberg, Zabriskie and Berrett (2009)

confirmed the internal consistency of the RDAS finding a Cronbach's Alpha of 0.943.

The finding for the current study indicated a Cronbach's alpha of .864.

The RDAS uses 4 sets of questions paired by a 6-point likert scale with response options similar to 0 (Always Agree) to 5 (Always Disagree). The response options change slightly, and some are reverse coded to reflect the types of answers being asked. Examples of these sets of questions are: (a) agreements or disagreements on religious matters, demonstrations of affection, and decisions; (b) how often the couples quarrel, discuss separation, get on each others' nerves, (c) if they engage in outside interests together, (d) how often they work together, discuss something calmly, have a or stimulating exchange of ideas. Scores range from 0-69 with higher scores indicating higher marital satisfaction and a cutoff score of 48 between satisfied and dissatisfied (Crane, Middleton, & Bean, 2000).

*IAT.* The IAT (Center for Internet Addiction Recovery, n.d.) was adapted replacing the words Internet or online with gaming or online gaming to assess gaming addiction. An example of the original IAT question follows: "How often do you find that you stay on-line longer than you intended?" To reflect gaming addiction, the words were changed to "How often do you find that you *game online* longer than you intended?" The IAT is a 20-item assessment scored on a 5-item Likert scale with options ranging from 0 (Never) to 5 (Always). The test is rated on a 0-100 point scale with scores of 31 to 49 indicating the existence of a mild level of Internet gaming addiction; 50 to 79 suggest the occurrence of a moderate level; and scores of 80 to 100 denote a severe level of Internet gaming addiction or dependence. Young (2007) states "The IAT is a validated testing

instrument that examines symptoms of Internet addiction such as a user's preoccupation with Internet use, ability to control online use, extent of hiding or lying about online use, and continued online use despite consequences of the behavior" (p. 674). In an in depth analysis of the IAT, Widyanto and McMurrin (2004) found internal consistency within the items in each factor stating that the "Cronbach's alphas were calculated and all were highly to moderately reliable" (p. 446). Additionally, Chang, and Man Law did a confirmatory study on the factor structure on the IAT in 2008 and found that the IAT is a valid and reliable test. Specific Cronbach's Alpha levels were not reported in the cited articles. The finding for the current study indicated a Cronbach's alpha of .90.

*Bedtime ritual question.* One question assessing the frequency that the individual retired to bed at the same time as their spouse was integrated into the questionnaire and placed directly after the RDAS questions. This question was on a 5-point likert scale with responses ranging from *never* to *always*. Each participant in the study completed this question.

*Gaming questions.* Additional questions assessing game playing were included on the questionnaire. Skip logic was used to make sure that applicable questions were asked according to their gaming type classification and how the participant responded to the questions. The content of the gaming questions include: the game they play, hours they play, how often they play for eight hours or more in a single session, if the gamer is supported in their game play, if they played this game before they got married, how they were introduced to the game, if they quarrel specifically about game play, and how they feel gaming has negatively or positively affected their marital relationship, if their partner

plays or not, which partner games more (if they both game), if they are in the same guild, clan or group as their partner, if they interact in the game with their partner, how much of their game playing time they game with their partner, if they are satisfied with their gaming participation, and if their partner participates in another individual leisure activity in the same room at the same time as their spouse. These questions help to determine the prediction models as well as the demographics and descriptive information of this specific sample.

*Socio-demographics.* Socio-demographic questions were included to provide potential controlling factors and identify primary characteristics of the sample. The items included the following: age, gender, ethnicity, marital status, marital length, number of dependent children in the home, annual income, place of residence, population of residence, education level, their native language.

#### *Data Analysis*

After the original 2688 surveys were completed they were imported into SAS statistical program. Individual surveys were matched to their corresponding spouse's survey, and a thorough scoring and cleaning of the data was performed leaving 1370 individual surveys or a total of 685 usable couple data for analysis. About 1318 individual surveys were not usable for the current research due to repeated information or the inability to match the completed survey to a corresponding spouse's survey. Once the usable surveys were ready, couples were divided into their corresponding couple-group types and descriptive statistics were run to describe the underlying characteristics of the research sample using basic demographic information. Mixed models Analysis of Co

Variance (ANCOVA), and multiple regression tests set at  $\alpha$ -levels of .05 were used to determine the relationships between the main variables and hypotheses under investigation.

The study was designed to test the following null ( $H_0$ ) hypotheses:

1.  $H_{01}$ : There is no difference between the marital satisfaction of couples in which one member is a gamer, both members are gamers but one individual in the couple plays more than the other, couples who both game the same amount and couples in which neither member is a gamer.
2.  $H_{02}$ : Socio-demographic factors, gaming questions, the frequency that the couple retires to bed at the same time, game addiction of a gamer, the time a gamer spends gaming individually-unsupported, do not provide a better than chance prediction of marital satisfaction for the *independent-gamer*.
3.  $H_{03}$ : Socio-demographic factors, gaming questions, the frequency that the couple retires to bed at the same time, game addiction of a gamer, the time a gamer spends gaming individually-unsupported, or the time a married gamer spends individually-supported do not provide a better than chance prediction of marital satisfaction for the *non-gaming spouse of an independent-gamer*
4.  $H_{04}$ : Socio-demographic factors, gaming questions, the frequency that the couple retires to bed at the same time, game addiction of a gamer, the time a gamer spends gaming, the time spent gaming together, the level of in-game interaction between the spouses, and the satisfaction in gaming participation do not provide a better than chance



prediction of marital satisfaction for the joint gamers who game *more (more-gamer)* in the couple.

5. H<sub>05</sub>: Socio-demographic factors, gaming questions, the frequency that the couple retires to bed at the same time, game addiction of a gamer, the time a gamer spends gaming, the time spent gaming together, the level of in-game interaction between the spouses, and the satisfaction in gaming participation do not provide a better than chance prediction of marital satisfaction for the joint gamers who game *less (less-gamer)* in the couple.

6. H<sub>06</sub>: Socio-demographic factors, gaming questions, the frequency that the couple retires to bed at the same time, game addiction of a gamer, the time a gamer spends gaming, the time spent gaming together, the level of in-game interaction between the spouses, and the satisfaction in gaming participation do not provide a better than chance prediction of marital satisfaction for couples who both game the same amount (*equal-gamers*).

The conclusions from this analysis were based on the standard cutoff scores found in the quantitative analysis of the RDAS (48 or lower indicating dissatisfaction) and IAT (50 points or higher indicating moderate to severe addiction) results. Finally, the results are interpreted and discussed.

## Results

The results are presented starting with the socio-demographics for the sample as a whole, followed by the differences in the marital satisfaction of the various couple gaming types. The prediction models that were found through the analysis results for

each of the couple gaming types will then be presented starting with the *independent-gamers*, their *non-gaming spouses*, the *more-gamers*, the *less-gamers*, and the *equal gamers*.

#### *Socio-demographics*

A few of the socio-demographic factors were correlated with participant's scores on the RDAS. Specifically, the variable of age correlated with the RDAS results ( $b = -.061$ ,  $F_{1,676} = 4.35$ ;  $p = .0373$ ) with older participants scoring lower on the RDAS, indicating that they were less satisfied with their marriages. The place of residency was also significantly correlated with the RDAS ( $b = 1.17$ ,  $F_{1,676} = 6.19$ ,  $p = .013$ ) with the urban areas correlating to higher marital satisfaction. Gender was not found to be significantly correlated with the RDAS scores of the participants. The number of dependent children living in the homes of the participants suggested a negative correlation with the RDAS scores, but was never statistically significant with p-values around .0648, ( $F_{1,676} = 3.28$ ). No other socio-demographics showed correlations with the RDAS scores (See Table 2).

#### *Couple Gaming Type Results*

Pertaining to all of the couples in the sample, individuals' Revised Dyadic Adjustment (RDAS, see Table 3) scores, accounting for their marital satisfaction, were not found to be significantly different from the scores of their respective spouse. Otherwise stated, if the couple was satisfied or dissatisfied, both individuals in the couple answered similarly on the RDAS and received about the same score, therefore in this analysis the groups are reported on by the couple gaming type they were classified in.

Referencing the first hypothesis, the mixed models ANCOVA comparison of the couple gaming type groups found there was a significant effect between all of the couple gaming type groups ( $F_{3,676} = 10.53, p < .0001$ ). Subsequent pairwise comparisons (see Table 4) showed that *independent-gamer-couples* had an average RDAS score of 49.34 and were found to be significantly lower than *equal-gamer-couples* with an average RDAS score of 53.57 ( $t_{676} = 5.62, p < .0001$ ), significantly lower from *more/less-gamer-couples* with an average RDAS score 51.06 ( $t_{676} = -2.74, p = .032$ ), and suggestively, but inconclusively, lower than the control group (RDAS 50.96) with a *p-value* of .0724 ( $t_{676} = -2.43$ ). The *more/less-gamer-couples* RDAS scores were found to be significantly lower than the *equal-gamer-couples* with a *p-value* of .0028 ( $t_{676} = -3.5$ ) and were not found to be different from the control group with a *p-value* of .9995. The control group data was specifically designed to compare the couple gaming types and was therefore not analyzed further.

#### *Independent-gamer Results.*

*Independent-gamers* were predominantly male (84.39%), with 75% playing World of Warcraft, other games included: 4% Lord of the Rings, 2.7% Eve online, 2.0% Final Fantasy XI, 1.4% Guild Wars, 1.4% City of Heroes, and various other MMORPGs. *Independent-gamers* averaged about 17.89 hours a week playing an MMORPG, 30.89% played the game for 8 hours consecutively a few times a month or more, 72% worked full time, 49.14% had a bachelor's degree or higher, averaged 7.39 years of marriage, and 62.16% had 1 or more dependent children. A stepwise regression analysis ( $F_{2,157} = 10.72, p < .0001$ ) found that the marital satisfaction of an *individual-gamer* could be predicted

explaining 9.4% of the variance using the following variables: the frequency that the couple goes to bed at the same time, according to the gamer ( $b = 1.584, t_{131} = 3.06, \beta = .252, p = .003$ ) and the frequency that the couple quarrels specifically about gaming ( $b = 1.363, t_{131} = 2.71, \beta = .223, p = .008$ , see table 5). It should be noted that the gaming support level given by the spouse of the gamer accounted for nearly the same variance as the frequency that the couple quarreled about gaming. The support level given by the spouse refers to a survey question that asks whether the non-gaming spouse supports the gamer by providing encouragement, praise, and/or buying things for the game. This data confirms that the second null hypothesis was rejected with the variables of support and frequency that the couple retired to bed at the same time predicting the marital satisfaction of the *independent-gamer*. Unexpectedly, the number of hours that the gamer spends gaming, and the gamer's level of gaming addiction were not correlated with the gamers' level of marital satisfaction.

Respondents reported on how often the gamer quarreled with his/her spouse about gaming. The data found that 53.74% of independent-gamers stated that they quarrel about gaming (see table 6). When asked how gaming has affected their marriage, 69.38% of the independent-gamers stated that gaming had negatively affected their marriage (see Table 7).

*Non-gaming spouse of independent-gamer.* In testing hypothesis 3 a stepwise regression showed that the marital satisfaction of *non-gaming spouses of independent-gamers*, as reported by their RDAS scores, correlated significantly with some of the gaming questions asked, explaining 22.6% of the variance ( $F_{3,131} = 14.08, p < .0001$ ),

including the frequency that the couple retired to bed at the same time as reported by the non-gaming spouse ( $b = 2.81, t_{131} = 5.14, \beta = .391, p < .0001$ ), the frequency that the couple quarreled about gaming ( $b = -2.07, t_{131} = -3.82, \beta = -.291, p = .0002$ ) and a suggestive but inconclusive correlation with the amount of household labor displaced by the gamer, from the gamer's perspective ( $b = -.826, t_{131} = -1.88, \beta = -.143, p = .061$ ) (see table 8). This analysis found that the null hypothesis number 3 was rejected with the variables of how often the couple quarreled about gaming and how often they retired to bed at the same time significantly predicting the marital satisfaction of the *non-gaming spouses* of the *independent-gamers*. It is interesting to note that the marital satisfaction of the *non-gaming spouse* of the *independent-gamer* was not significantly predicted by the variables of the number of hours their spouse gamed, the gaming addiction level of their spouse, or the support that the non-gaming spouse gave their gamer.

Participants stated how often the *non-gaming* spouse quarreled with the *independent-gaming* spouse about gaming. The data found that 62.07% of the *non-gaming* spouses of the *independent-gamers* stated that they quarrel about gaming, 24.14% stated that they do not talk positively or negatively about gaming, and the remainder reported that they talk positively about gaming (see table 6). When asked how gaming has affected their marriage, of the *independent-gamers* 74.14% stated that gaming had negatively affected their marriage (see table 7).

*More/less-gamers.*

*More-gamers.* The *more/less-gamers* consisted of couples in which one player (*more-gamers*) played more than the other. The gamers who played more in the couple

were predominantly male (72.5%) players of World of Warcraft (87.3%). Other games included: 2% Darkfall beta, 1.6% Everquest, 1.4% Guild Wars, 1.4% Warhammer Online, and various other MMORPGs. The *more-gamers* averaged 23.8 hours of game play per week, (their spouses averaged 11.6 hours per week), 49.77% played for 8 hours or more in a single sitting monthly or more often (with 10.57% stating that they played for 8 hours or more weekly), 60.09% worked full time, 42.11% had a bachelor's degree or higher, averaged 6.15 years of marriage, 11.4 % were stay at home mothers or fathers and 51.86% had one or more dependent children.

A stepwise regression rejected the null hypothesis number 4, finding that the independent variables significantly explained 33.2% of the variance in marital satisfaction for the *more-gamers* ( $F_{2,157} = 14.45, p < .0001$ , see table 9). The independent variables in the model included: the frequency that the couple goes to bed at the same time, the addiction of the *more-gamer*, the frequency that the couple quarrels about gaming, the frequency of in-game interaction between the spouse's characters, the gaming participation satisfaction of the *less-gamer*, whether or not the couple played in the same guild or clan. The most predictive factor of marital satisfaction was the frequency of time that the couple retired to bed at the same time as reported by the *more-gamer* ( $b = 1.79, \beta = .260, t_{207} = 4.47, p < .0001$ ). The self-reported gaming addiction level of the *more-gamer* also had a highly significant correlation with their marital satisfaction ( $b = -.107, t_{207} = -3.38, \beta = -.197, p = .0009$ ) indicating that as addiction levels increased, marital satisfaction levels decreased. The frequency that the couple quarrels about gaming, according to the individual who games more ( $b = -1.19, t_{207} = -$

3.07,  $\beta = -.185$ ,  $p = .0025$ ) and the amount of game playing time spent interacting with each others' in-game characters, as reported by the spouse who gamed less in the partnership ( $b = 0.942$ ,  $\beta = .169$ ,  $t_{207} = 2.77$ ,  $p = .0060$ ) were also found to be significant predictors in the model. The satisfaction of gaming participation of the spouse who games less, also had a significant correlation ( $b = 1.08$ ,  $\beta = .145$ ,  $t_{207} = 2.31$ ,  $p = .021$ ), indicating that as gaming satisfaction levels decreased for the *less-gamer*, the marital satisfaction of the *more-gamer* decreased as well. Whether or not the couple was in the same guild or group as their spouse ( $b = -3.90$ ,  $\beta = -1.42$ ,  $t_{207} = -2.37$ ,  $p = .0185$ ) indicated that if the couple was in the same guild or clan they were less satisfied with their marriage than if they did not participate in the same guild or clan. Whether or not the gamer gamed before marriage ( $b = .041$ ,  $\beta = .119$ ,  $t_{207} = 2.09$ ,  $p = .0374$ ) also predicted that if gaming was present before the couple married the marital satisfaction was higher for the *more-gamer* than if gaming started after the couple was married. Additionally, as the satisfaction of gaming participation of the spouse who games more decreases their own marital satisfaction decreases with a suggestive but inconclusive prediction of  $p = .071$  ( $b = 0.839$ ,  $\beta = .112$ ,  $t_{207} = 1.81$ ). The amount of time spent gaming was not found to be significantly correlated with the marital satisfaction level of the spouse who gamed more.

*Less-gamers.* *Less-gamers* were predominantly female (71%), gamed about 11.6 hours per week on average, 20.80% gamed for 8 hours or more once a month (3.54% gamed for 8 hours or more weekly), 66.81% worked full time, 10.62% worked part-time, and 12.39% were stay at home mothers or fathers. Using a stepwise regression analysis

the fifth null hypothesis was rejected ( $F_{2,157} = 11.35, p < .0001$ , see table 10) explaining 34.5% of the variance in marital satisfaction for the *less-gamers*.

The marital satisfaction of the spouse who games less in the couple was significantly predicted with the variables of the amount of game playing time spent interacting with their spouse's in-game character, as reported by the *less-gamer* ( $b = 1.65, \beta = .298, t_{207} = 4.50, p < .0001$ ); the joint gaming participation satisfaction levels of the *less-gamer* ( $b = -1.53, \beta = -.206, t_{207} = -3.19, p = .007$ ); the frequency that the *less-gamer* reported retiring to bed at the same time as their spouse ( $b = 1.51, \beta = .225, t_{207} = 3.87, p = .0001$ ); the frequency that the couple quarreled about gaming, according to the *less-gamer* ( $b = -1.07, \beta = .184, t_{207} = -2.90, p = .0041$ ); whether or not the couple was in the same guild or group as their spouse, as reported by the *less-gamer* ( $b = -3.58, \beta = -.162, t_{207} = -2.60, p = 0.010$ ); the level of gaming addiction of the *more-gamer* ( $b = -0.084, \beta = -.155, t_{207} = -2.46, p = .0147$ ); how often the couple games at the same time, as reported by the *more-gamer* ( $b = -0.915, \beta = -.148, t_{207} = -2.29, p = .0229$ ), and whether or not the participant gamed before marriage as reported by the *more-gamer* ( $b = .54, \beta = .132, t_{207} = 2.34, p = .0201$ ). There was a suggestive but inconclusive correlation with the addiction of the less-gamer and their subsequent marital satisfaction ( $b = -0.068, \beta = -.110, t_{207} = -1.79, p = .075$ ). The number of hours that the *more-gamer* spent gaming did not correlate with the marital satisfaction levels of either of the spouses in the couple.

When asked about how the couple talks about gaming, 32.7% of *less-gamers* reported that they *quarrel every once in a while to often* (see Table 6). When asked how



gaming has affected their marriage, 25.66% of the *less-gamers* stated that gaming has *negatively* affected their marriage (see Table 7).

### *Equal-gamers*

Due to the nature of *equal-gamers* playing about the same amount of time and answering the same questions, the data could not be split into a gamer versus non-gamer or more-gamer versus less-gamer in the analysis of the individuals RDAS scores within each couple. Therefore, the data will be presented as an accumulated report of both spouse's questions.

*Equal-gamers* gamed on average for 19.71 hours per week, 53.72% played for 8 hours or more in a single sitting monthly or more often (with 10.74% stating that they played for 8 hours or more daily), 57.02% worked full time, 40.15% had a bachelor's degree or higher, averaged 5.58 years of marriage, 51.41% had one or more dependent children. A large portion (90.36%) of *equal-gamers* gamed in the same guild or group as their spouse, playing at the same time as their spouse (89.16%) interacting with their spouse's in-game character (75.91%).

After a stepwise regression on the sixth null hypothesis was rejected explaining 37.2% of the variance for the marital satisfaction for *equal-gamers* ( $F_{6,242} = 25.55, p < .0001$ , see Table 13). The following model predicting marital satisfaction found significant predictions of marital satisfaction with the variables of the negative effect participants felt that the game had on the marital relationship ( $b = -2.00, \beta = -.286, t_{242} = -5.11, p < .0001$ ), the frequency that the couple retired to bed at the same time ( $b = 1.70, t_{242} = 4.61, p < .0001$ ), the equal-gamers' satisfaction with their joint game playing time

( $b = 2.05, t_{242} = 4.27, p < .0001$ ), the amount of in-game interaction between the spouses ( $b = 1.05, t_{242} = 2.83, p = .0051$ ), and the reporting of household labor displaced by gaming ( $b = -0.53, t_{242} = -2.04, p = .0426$ ).

When asked about how the couple talks about gaming, 8.26% of *equal-gamers* reported that they *quarrel every once in a while*, with 9.09% *not talking positively or negatively about gaming* (see table 6). When asked how gaming has affected their marriage, 7.63% of the *equal-gamers* stated that gaming has *negatively* affected their marriage (see Table 7).

#### Discussion

Anecdotal evidence of marital problems argued to be associated with gaming behaviors are plentiful on blogs, sites dedicated to gamer widows and sites dedicated to addicted gamers. However, until now no formal research assessing married gamers had been conducted to refute or support claims of marital problems in conjunction with gaming behaviors. Comparison findings from the current study indicated that *independent-gamers* had the lowest marital satisfaction and *equal-gamers* had the highest marital satisfaction. The strongest marital satisfaction predictors consistent in the models of all of the different groups were the frequency that the couples retired to bed at the same time, the frequency that couples quarreled about gaming, joint couple interaction and joint gaming satisfaction. Findings support the anecdotal claims voiced from frustrated spouses that gaming variables have a correlation with marital satisfaction. Clearly, gaming is not the only contributor to marital problems and cause and effect cannot be claimed through a correlation study; however this data provides evidence to

support that gaming has a correlation and may play a part in marital distress or dissatisfaction. A discussion of the specific findings presented in the order of the couple gaming classification are presented below. This study presents strong prediction models of the gaming correlation between different gaming couple types and the marital satisfaction of both individuals in the couples.

### *Couple Gaming Type*

Findings support and extend the current body of research on individual, parallel, and joint leisure activities and marital satisfaction (Holman, 1981; Holman & Jacquart, 1988; Miller, 1976; Orthner, 1975; Smith, Snyder, & Monsma, 1988; Zabriskie & McCormick, 2003). Specifically, couples in which one person gamed and the other did not game had significantly, or nearly significant, lower marital satisfaction levels on average than all of the other groups in the study with an average RDAS score of 49.34. The cut off score between marital distressed and non-distressed individuals is a score of 48 out of 69 (Crane, Middleton, & Bean, 2000). The *independent-gaming* couples were the closest to a distressed group when considering the average of the linked couples in this study. MMORPG games are very social in nature with multiple other players participating and interacting in the game at the same time (Cole & Griffiths, 2007). However, *Independent-gaming* easily falls into the category of an individual leisure activity when it is not participated in with one's spouse. It can be assumed that little to no interaction between the couple would take place during gaming, due to the fact that one individual does not play the game. The findings for this specific sample of married

MMORPG gamers introduce a new branch of individual, parallel, and joint leisure activities to be examined.

Couples who were designated as the *more/less-gamer* group both played an MMORPG but did not always play together, with one spouse clearly gaming longer than the other with 23.8 hours per week versus 11.6 hours per week. The marital satisfaction (RDAS: 51.06) of these gamers was significantly higher than that of the *independent-gamer* couples (RDAS: 49.34), about the same as the *control group* (RDAS: 50.97), but significantly less satisfied than the *equal-gamer* group (RDAS: 53.57). Narrowing down *more/less-gamer* couples into a specific leisure category is a relatively complex task as these players may fall into all of the leisure categories at some point in their game playing. However, because both individuals play an MMORPG, it follows that they may have some common ground on which to communicate and they may participate together when they both play. This extends the findings of Stebbins, (1992) and Yair, (1990) that serious runners who are married to individuals who also run, have higher marital satisfaction. Therefore, serious gamers who are married to individuals who also game have higher marital satisfaction compared to *individual-gamers*.

*Control-group* couples were found to be suggestively, but inconclusively, ( $t_{676} = 2.43, p = .0724$ ) more satisfied (RDAS: 50.96) with their marriages than the *independent-gamer* couples (RDAS: 49.34), about the same on average as the *more/less-gamer* couples (RDAS: 51.06), and significantly less satisfied than the *equal-gamers* on average (RDAS: 53.74). There may be a difference between the satisfaction of the *control-group* sampled and the satisfaction of a larger more representative *control-group* of non-gamers,

due to the fact that the sample was mainly gathered from at least one individual in the couple responding to a Facebook.com advertisement. It may also be that these couples or individuals may spend more time on the Internet than other couples do. Marital prediction models were not assessed for this group as it was not part of the study's design.

*Equal-gamer* couples were found to have significantly higher marital satisfaction than all of the other groups. This data further supports the findings of Orthner & Mancinni (1990) and Crawford (2002), as equal-gaming can easily be classified as a joint leisure activity with a high degree of participation, communication and interaction, which yielded the highest satisfaction in the previous studies when couples participated in leisure together. It follows that if these couples mutually enjoy this activity and are satisfied with their joint participation they will have better communication, collaboration and higher marital satisfaction. Married video gaming couples are a new research group that to date has not been studied in recreation articles. Therefore, this study is the first to analyze this population and opens the door for future studies to look at married joint MMORPG gamers.

#### *Prediction Models*

*Independent-gamer couples.* It was found that playing an MMORPG is still a male dominated leisure activity with 80.4% male *independent-gamers* and 15.6% female *independent-gamers*. Given that this sample consisted of only married individuals, it follows that the sample is somewhat older (34.56 years, married for 7.39 years) than the gaming demographics of Yee (2006) 25.71 years old for males and 31.72 years old for females, without the requirement of marriage. Furthermore, 72% of this sample worked

fulltime as compared to 50% of Yee's sample; and 62% had at least one dependent child living in the same home as the participant, as compared to the report that 22% of Yee's sample of gamers had children with 36% of Yee's sample married.

The hours gamed by married individuals (17.89 hours per week) in the *independent-gamer* group was lower than the demographics provided by Yee (22.71 hours per week). A possibility for this finding could be due to some limitations in sampling and the finding that *independent-gamers* only accounted for 33.2% of the sample of gamers with the total sample of 524 couples for *independent-gamers*, *more/less-gamers* and *equal-gamers* combined. Furthermore, the average hours per week reported by the *independent-gamers* in this sample is much lower at 17.89, than the average of 23.8 for the *more-gamers*, and the average of a broad sample of all types of MMORPG gamers according to Yee (2006) of about 22.71 hours per week. This finding indicates that there may be some sampling limitation in representing a true sample for the married *independent-gamers* in the current research. Additionally, couples in which both partners gamed were much easier to collect than the *individual-gamer* couples.

Comments from participants of the study as a whole (over 2600 completed surveys), and the forced removal of the invitations to participate from the hard-core-gamer sites, indicate that some gamers, most likely *independent-gamers*, or more hard-core dedicated gamers would not participate or were not provided with the invitation to participate in the study. Likewise, it is plausible that some spouses simply would not participate in the study or the couple did not have a close enough relationship to request that their spouse complete their portion of the survey. Multiple comments at the end of the surveys and

those emailed to the researcher indicated that the participants felt that, although they would like their spouse to participate, it would be *impossible* to convince their gaming spouse to take the survey, in part because it would interrupt their game playing to complete the survey. Furthermore, because the questionnaire uses the Revised Dyadic Adjustment Scale as the first set of items in the survey, it is plausible that more distressed couples were able to divine what the research would entail and chose not to complete the survey. Thus, the sample was limited to those couples gathered where both individuals were willing to participate. Therefore, the researcher may have not been able to sample couples in the hard-core-gaming group, or those who simply refused to take the survey at the request of their spouse. It is also possible that couples who were willing to participate were more satisfied with their marital relationship and/or gaming participation than those who were unwilling to participate. Therefore, this sample could be classified as a more maritally satisfied and conservative sample of gamers and their spouses and may not capture the full continuum of the more dedicated gamers or distressed marriages.

Interestingly, the prediction models for the marital satisfaction of *independent-gamers* and their non-gaming spouses were very similar. The gamer's and the spouse's marital satisfaction scores on the RDAS were not found to be significantly different from each other. Both the gamer and their spouse were acutely aware of their level of marital satisfaction. Otherwise stated, if the couple was satisfied or distressed it was reflected in the individual scores of both the gamer and their spouse.

The prediction models found that if the couples did not retire to bed at the same time their marital satisfaction was reported to be lower. This finding extends previous

research that couples in which one was a morning person and the other was an evening person had lower marital adjustment, less time spent in shared activities, more marital conflict, less frequent sexual intercourse, and less serious conversation (Larson, Crane, Smith, 1991; Lange, Waterman, & Kerkhof, 1998). However, in this specific sample of *Independent-gamers* and their spouses, it is not known whether or not the couples are *morning* or *night* people, it is only known that if they do not retire to bed at the same time there is a significant prediction of lower marital satisfaction. It is logical that couples who have the opportunity to go to bed at the same time and choose not to, for whatever reason, may have less communication, together time and lower marital satisfaction. The dedication of a section in a family rituals book written by a marital therapist, further supports this finding and asserts that the ritual of retiring to bed at the same time is important to marriage and prescribed for couples having marital difficulties (Doherty, 1997).

The frequency that the couple quarreled about gaming was also found to be a strong significant predictor of marital satisfaction for both the *independent-gamer* group and the *non-gaming* spouse group. Interesting descriptive data found that when participants reported on how often they quarreled about gaming, 53.74% of *independent-gamers*, and 62.07% of the *non-gaming spouses* of the *independent-gamers* stated that they quarrel about gaming (see Table 6). This finding directly indicates that quarrelling over the specific subject of gaming predicts marital satisfaction and is prevalent even among this group of mild *individual-gamers*.



Furthermore, when asked how gaming has affected their marriage, of the *independent-gamers* 69.38%, and 74.14% of the *non-gaming* spouses stated that gaming had negatively affected their marriage (see Table 7). Although not found to be a significant part of the prediction model for the marital satisfaction of *independent-gamers*, it is notable that this gaming type reported the most quarrelling and negativity of all of the other groups, as well as the lowest RDAS scores when comparing the gaming type groups. The finding that *independent-gamers* felt that gaming had *negatively affected* their marriage, could be due to the fact that the couple does not have gaming in common or one partner in the couple may feel that gaming is a waste of time or a distraction from the time that may otherwise be spent together or in a joint activity enjoyed by both members of the couple. This postulation is consistent with the statement that “Couple time may be displaced if one person in a relationship is a frequent gamer and the other is not” (Ogletree & Drake, 2007, p. 540). Likewise, the gamer may feel that their choice for leisure is not respected or supported by their spouse creating feelings of frustration on the part of the gamer. It can be inferred from these findings that disagreements and negativity specifically over gaming have a bearing on the marital relationship. Couples who do not enjoy this activity together may do better to find a joint leisure activity that can be mutually enjoyed on a regular basis by both partners in the couple.

The frequency that the spouse supported their gaming partner, as reported by the *non-gaming* spouse, by encouraging or praising them and/or buying gaming items for them, was found to be significantly correlated with higher RDAS scores for the

*individual-gamer*. It is important to note that this variable accounted for the same variance as the frequency that the couple quarreled about gaming and is not represented in the table or model for this reason. This data confirms the findings that serious runners who were supported by their spouse had higher marital satisfaction (Baldwin et al., 1999; Barrell et al., 1989; Goff et al., 1997). The difference in these findings may hinge on the health factor that serious running offers the individuals, which may lead to a higher tendency of the spouse to lend support to their running partner. Conversely, gaming may not be seen by the *non-gaming* spouse as lending lasting health benefits to their partner as it is not a physical activity and may therefore be less likely to be supported than the leisure choice of running.

*More/less gamer couples*. The gamers who played more in the couple averaged about 23.8 hours per week and their spouses, the *less-gamers*, averaged 11.6 hours per week. In general, *more-gamers* were introduced to the games by a friend (33.92%), a progression from another video game (24.67%), by their spouse (15.42%), by another family member other than their spouse (13.22%) by a co-worker (6.17%) or from an advertisement (3.52%, with 3.08% claiming *other*). *Less-gamers* were predominantly female and were generally introduced to the games by their spouse (53.10%) as compared to Yee's finding of 26% being introduced by a romantic partner, by a friend (19.47%), a progression from another video game (11.6%), by another family member (10.62%), by a co-worker (3.1%) or from an advertisement (.88% and 1.77% claiming *other*). It can be presumed that the *less-gamers* play, for the most part, due to an introduction from and a desire to be with their *more-gamer* spouses.

The prediction models for the individual marital satisfaction of the *more* and *less-gamer* couples contained many of the same variables. Although the strength in the separate models was slightly different, the marital satisfaction of the *more/less gamer couples* could be significantly predicted using the frequency of how often they retire to bed together, quarrel about gaming, interact in during their joint gaming times, how satisfied the *less-gamer* is with their joint gaming time, the level of addiction of the *more-gamer*, if the couple was not in the same guild, and if the *more-gamer* gamed before they were married. Other variables were also present in the separate prediction models for the *more-gamers* and the *less-gamers*.

Consistent with the findings for the *individual-gamer* couples, the strongest predictor of marital satisfaction for the *more-gamers* and the third highest predictor for the *less-gamers* was found in the data that indicates that as the frequency of time that the couple retired to bed at the same time decreased their marital satisfaction also decreased. This finding further supports recommendations from marital therapists and former research on the importance of the shared bedtime ritual (Doherty, 1997; Larson, Crane, Smith, 1991; Lange, Waterman, & Kerkhof, 1998). Although *more/less-gamer couples* share a common leisure activity, one partner clearly games much more on average and may likely continue to game when the opportunity to retire to bed is presented by their spouse. It is logical that if this occurs on a frequent basis it may provoke frustration and resentment from the *less-gamer*.

The second highest predictor of marital satisfaction for the *more-gamer* found that the higher the self-reported level of gaming addiction was for the *more-gamer*, the lower

the corresponding marital satisfaction for both individuals in the couple. The gaming addiction of the *more-gamers* was found to be a moderate predictor of marital satisfaction for the *less-gamers*. This data confirms the findings of Young (1998) that those who were dependent on the Internet had disrupted marriages, while one spouse spent more solitary time in front of the computer. It follows that if the gamer is classified as addicted to their MMORPG, their marital relationship may suffer, even if their spouse is also a gamer. Their inability to pull away from the game in order to pursue other activities may engender feelings of frustration for both the *more-gamer* and the *less-gamer*.

Although the percentage of *more-gamers* who found that they quarreled with their spouse about gaming (34.36%) was much lower than the *independent-gamers* (53.74%) and their *non-gaming* spouses (62.07%), the frequency that the *more-gamers* quarreled with their spouse about gaming significantly predicted lower levels of marital satisfaction. This justifiably indicated that spouses who quarreled over game play were less satisfied with their marriages. It follows that if one individual games much more than the other or that the *less-gamer* games only in an effort to be with their spouse, not because of a genuine interest in the game, that the couple would quarrel about the game. Alternatively, it could be presumed that if both partners enjoy the game, there could be frustration due to resentment that one partner games more while the other takes care of dependent children or everyday household duties.

Joint in-game interaction between the individuals in the couple and the *less-gamer's* level of joint satisfaction with gaming participation, were the strongest predictors of marital satisfaction for the *less-gamer*. It was also found that in-game

couple interaction was a moderate predictor of marital satisfaction for the *more-gamer*. The data shows that 65.49% of the *less-gamers* reported that they interact with their spouse's character in the game *more often than not to all of the time* (See Table 12). With this frequency of recreational interaction, it follows that the marital satisfaction was found to be higher on average for *more/less-gamer couples* than the satisfaction of the *independent-gamer couples*. This data further confirms the line of research on joint, parallel or individual leisure, that when the couple interacts together and the activity can be defined as a joint interaction activity, their marital satisfaction is higher (Holman, 1981; Holman & Jacquart, 1988; Miller, 1976; Orthner, 1975; Smith, Snyder, & Monsma, 1988; Zabriskie & McCormick, 2003).

The satisfaction in joint gaming participation of the spouse who games less, held a significant correlation with the marital satisfaction of the both members of the couple. Otherwise stated, when the *less-gamer* is satisfied with their gaming participation, the marital satisfaction levels of the both gamers are higher. Similarly, the satisfaction in gaming participation of the spouse who games more showed a suggestive but inconclusive correlation with their own marital satisfaction. These findings support the previous finding from Johnson, et al., (2006) that the "Best predictor of marital satisfaction was leisure satisfaction" (p. 83). In other words, in regards to marital satisfaction, if one member of the couple games more than the other, although the couple has gaming in common, it is not sufficient that both members of the couple game, they must both be satisfied with their gaming participation. Predicting marital satisfaction is

therefore, contingent upon the level of interaction in their joint game play and the game playing satisfaction of both members in the couple.

Interestingly, it was revealed that according to the *more-gamer*, if the couples were in the same gaming guild or clan as their spouse the marital satisfaction of the *more-gamer* and the *less-gamer* decreased. It is viable that if the *more-gamer* spends an average of 23 hours in the game as compared to their spouse's 11 hours on average, that the *more-gamer* would most likely have a higher level character(s) and be in a more competitive guild or clan than their spouse's skills would allow for. Given these averages of gaming hours per week, close to half of the *more-gamer's* time would be spent gaming independently of their spouse, with 48.9% of *more-gamers* reporting that they play at the same time as their spouse *occasionally to never*. It follows that if the couple plays in the same guild or clan at the same time, frustration and anxiety may occur for both marital partners and other guild members, due to the lower abilities of the *less-gamer*. The *less-gamer* may also be discouraged due to the challenge of the activity superseding their ability to compete at that level. Research on the frustration that occurs in an activity when the challenge level of the activity is above the ability level of an individual has been widely established by Csikszentmihalyi (1991). It is also feasible that some couples could not be in the same guild or clan due to the fact that they have only one computer to share between them and cannot play at the same time.

Interestingly, it was also found that the frequency that the *more-gamer* gamed before the current marriage predicted marital satisfaction for both the *more-gamer* and the *less-gamer*. Otherwise stated, spouses who married a person who was already a

gamer when they entered into their relationship, were more satisfied than couples who married before gaming was introduced into their lives. It can be assumed that the individuals had an understanding of the gaming frequency and importance of this chosen leisure activity to their partner before they chose to marry. It follows that if gaming started after the marriage was established, partners may not understand the new time commitment to the game and show frustration with the change in behaviors of their spouse and dedication to this new activity.

*Equal-gamers.* Both spouses in the *equal-gamers* group gamed for about 19.71 hours per week. A large portion (90.36%) of *equal-gamers* gamed in the same guild or group as their spouse, playing at the same time as their spouse (89.16%) interacting with their spouse's in-game character (75.91%). The marital satisfaction of gamers who gamed about the same amount was predicted by the positive or negative effect that the participant felt that gaming had on their marriage, the frequency that the couple retired to bed at the same time, the satisfaction of their joint gaming participation, the frequency of interaction with their partner in the game, and the reporting of the amount of household labor displaced by gaming.

Gamers were asked how they felt gaming affected their marriage on a 6 point likert scale ranging from *very negatively* to *very positively*. The responses were highly positive with 92.56% of participants marking that gaming *slightly positively* to *very positively* effected their marriage. The reported positive or negative effect of gaming on marriage was the strongest predictor of the marital satisfaction for *equal-gamers*. This finding supports and extends the finding by Cole and Griffiths (2007) that 67.4% of their

sample of gamers felt that gaming positively affected their relationships with real life family or friends who they gamed with. It is logical that if the individuals feel that gaming has positively affected their marriage will be more satisfied with their marriage due to this high interaction and mutually enjoyed activity. These findings also support the joint line of research that holds that couples who participate in joint leisure have higher marital satisfaction (Crawford et al., 2002; Holman, 1981; Holman & Jacquart, 1988; Miller, 1976; Orthner, 1975; Smith, Snyder, & Monsma, 1988; Zabriskie & McCormick, 2003).

Consistent with the findings for the other couple groups, when the *equal-gamers* did not retire to bed at the same time their marital satisfaction was lower. This finding further supports the recommendation of joint bedtime rituals by marital therapists (Doherty, 1997). Even among this group of highly satisfied couples, their satisfaction was contingent on their joint bedtime ritual.

It is interesting to note that higher satisfaction with gaming participation with their spouse was also found to be a strong predictor of higher marital satisfaction for *equal-gamer* couples, sustaining the findings of Johnson et al., (2006). Therefore, both members of the *equal-gamer* couple must be satisfied with their joint gaming experience in order to achieve higher marital satisfaction. The data further indicates that the more often that the couple interacts together in the game, the higher their marital satisfaction is feasibly, due to this joint leisure interest and interaction. It follows that communication and collaboration may be high in this type of interaction supporting and extending the findings by Crawford, et al. (2002) and Orthner & Mancini (1990).



A unique finding for this group was the prediction that the more household labor displaced by gaming, the lower the marital satisfaction for the couple. It follows that if both partners in the couple game on average for 19 hours a week, 57% of whom work full time and 51% of whom have dependent children, household labor may be put off for gaming time and cause problems in the marital relationship. This finding requires further research on couples who both game and the possible effects of gaming on their home life, child rearing and household responsibilities.

### Conclusion

The current research was the first of its kind to take the perspective of both the gamer and their spouse and analyze the individual marital satisfaction scores as they correlated with gaming variables. The difficulty in obtaining a sample representative of hard-core gamers or couples in distressed relationships, who would not participate in this study, implies that this sample is a mild sample of gamers and spouses who may be more satisfied with their marriages than a truly representative sample. Even with this mild sample, implications can be made for mild gamers and assumed for couples with more dedicated gamers or couples in more distressed relationships.

A very strong predictor in all of the prediction models was the frequency of how often the couples retired to bed at the same time. It is therefore important that couples make a conscious effort to retire to bed together and not displace this time with other activities, such as gaming, that may contribute to marital problems. Furthermore, the frequency that the couple quarreled about gaming was a very prevalent predictor in the models and directly implies that quarreling specifically about gaming contributes to

marital distress. Therefore, couples must either discontinue gaming behaviors that are problematic, or come to an understanding and agreement on gaming behaviors in order to maintain high marital satisfaction. Couples with extensive gaming addictions or marital problems stemming from an inability to agree on gaming behaviors, may benefit from professional marriage and/or addiction counseling. Due to the research on individual leisure activities, couples would do well to consider joint leisure activities that they could mutually enjoy with their spouse on a regular basis.

Combined findings for couples where both partners gamed showed that both individuals in the couple must be satisfied with their game playing with their spouse, and their interaction when they play at the same time. It is not enough for both individuals to only play an online video game; they must be satisfied with their joint game play and level of in-game interaction with their spouse to maintain high marital satisfaction. Consideration of displaced household labor must also be addressed within the couples where both partners game.

The average age of this married sample ( $M = 33$  yrs) further supported the assumption made by Padilla-Walker et. Al, (2009) that “video game use may be an activity that does not drop off once adult roles are assumed, and the implications of this for family formation are important” (online reference no page number). Online video gaming was not found to be a leisure activity that dropped off after marriage and this data shows that there are important implications for married gamers. These implications are further highlighted in the prediction models specific to the different types of couple gaming configurations. This study does not claim cause and effect as it is not an

experimental design. Whether the marriage was dissatisfied before gaming came into the relationship or the marriage became more distressed once gaming entered the marriage is unknown, however, gaming variables significantly correlated with marital satisfaction. The fact that this sample reported that 62.07 % of *independent-gamer* spouses and 53.74% of the *independent-gamers* stated that they quarreled about gaming *every once in a while* to *more often*, 34% of the *more-gamers* and 32% of the *less-gamers* claimed to quarrel about gaming, and 8.26% of the *equal-gamers* reported that they quarrel about gaming *every once in a while* implies that there may be contention with spouses who do not participate, value, or enjoy gaming as much as their gaming partner. These findings further support the easily found anecdotal evidence of relationship and marital problems blamed on gaming found on Internet sites and blogs. Likewise, even among this mild sample of gamers and spouses, 74.14% of the *independent-gamer* spouses and 69.38% of the *independent-gamers* stated that gaming has affected their marriage *slightly negatively* to *very negatively*. This finding supersedes the finding of Cole and Griffiths that only 20.3% of the gamers sampled in their study believed that gaming negatively affected their relationships with non-gamers. Furthermore even among couples in which both partners game, 21.58% of the *more-gamers* and 25.66% of the *less-gamers* claimed that gaming has affected their marriage *slightly negatively* to *very negatively*, and 7.44% of the *equal-gamers* reported that gaming has *slightly negatively* to *very negatively* affected their marriage. Taken together with the statistics from the *independent-gamers* and their spouses, these findings directly contradict the report that only 18.4% of Yee's (2002) sample of gamers *agreed* or *strongly agreed* that "My playing habits have caused me

academic, health, financial, or relationship problems” (Yee, p. 6). It follows that a sample of strictly married gamers would find a higher prevalence of relationship problems than gamers who may or may not be in a relationship. However, the average age of gamers from the above cited studies, being in the mid 20s, as emerging adults, would indicate that many would be in or seeking romantic relationships (Padilla-Walker, et al., 2009). Conversely, 74% of *less-gamers*, 78% of *more-gamers*, and 92% of *equal-gamers* in the current sample reported that gaming positively affected their marital relationship, supporting and extending the findings of Cole and Griffiths (2007) that 67.4% of their sample believed that gaming positively affected relationships with those who gamed together. This may be due to the collaboration, joint interaction and communication that would be present in the relationship of couples who game together.

The findings of the current study, in conjunction with the marital satisfaction prediction models for each group, support the need for further marital and family research coupled with gaming behaviors. Furthermore, this research suggests that couples, in which one or both members play an MMORPG, should consider their gaming behaviors in contexts of the marital relationship.

### Implementations

The results of this data can be used in a variety of settings. Marital therapists, addiction counselors, and psychologists can use this data to provide another avenue of possible variables associated with gaming which may be contributing to marital distress or addiction to gaming. Therapeutic Recreation Specialist may be able to provide Leisure Education to couples who do not participate in gaming together or who are not satisfied

with their gaming participation, suggesting and helping to implement and overcome the barriers to alternative leisure activities that both individuals could enjoy together. Upon reading the results, couples may realize the relationship between the leisure choice of gaming and the harmony or discord that it may be contributing to in their marital relationship and choose to make adjustments to participate in activities that are mutually enjoyed by both members of the couple. Couples may also consider the relationship between gaming and household labor and choose to alter their playing habits in order to maintain their home life.

#### Suggestions for Future Research

Qualitative studies interviewing couples who are currently gamers and those who have stopped gaming are warranted and may yield fascinating results to extend this line of research on married gamers. These discussions may be able to tease out the specific aspects of gaming that contribute to lower marital satisfaction. Likewise, themes may arise explaining how couples have overcome gaming problems and made adjustments that have helped them to continue enjoying individual leisure activities, such as gaming, while still maintaining a strong marital relationship. Qualitative and quantitative research on the spouses of gamers or former (divorced) spouses of gamers may also contribute to the body of knowledge as a whole showing the perspective of the non-gamer. A longitudinal study of couples who both game about the same amount could show an interesting progression in marital satisfaction and gaming type as children are introduced into the family. Couples may start out as *equal-gamers*, become *more/less-gamers* and may even become *independent-gamers* or *non-gaming* couples.

Further quantitative studies that could extend this line of research are those that ask questions about married gamers or the spouses of gamers who are part of an active guild that *raids* or spends extended continuous hours in a single prescribed activity with the other gamers in their group. Raiding or extended continuous game play questions should be included in any future research on this subject. Future researchers may also consider asking the gaming hours question from a likert scale rather than allowing the participants to fill in a number of hours. Another suggestion is to ask participants to enter the start date that they began gaming and how many hours the game states that they have played. This may be a little more complex, as most gamers have more than one character and hours gamed are specific to that character. Likewise, many gamers play more than one MMORPG. The best option would be to specify a specific MMORPG in the study or to use a likert scale of the frequency that the player games per week and also per day. Questions about the number of characters that the participants have and the level of their characters in the game would also be helpful additions to future studies.

Furthermore, it may be informative to have the perspective of both of the spouses on the addiction levels and the time their partner spends gaming. For couples who game together, a dependent variable of family cohesion using data from both spouses and a child, who is old enough to answer questions about their family, could examine the home-life of gaming families. Quantitative or qualitative research could also ask questions of married or single individuals or couples who have stopped gaming, in an effort to understand what they did to stop gaming, why they decided to stop and how long it took them to complete the process of discontinuing to game.

More research is needed pertaining to married couples on different types of video games including in-home console games and other types of individual and group online games. Research on non-violent interactive sport games such as those provided by the Wii, may also show different results than found among married MMORPG players. The inclusion of all types of couples in a serious relationship, such as cohabiting couples and couples of different sexual preferences may also yield interesting results and further this line of study.

A specific leisure education program for gamers that could be implemented for couples with gaming behavior problems would also be an important addition to leisure professionals, marital therapists, and addiction counselors. This type of program could help couples to find leisure activities that they could mutually agree upon and enjoy together.

#### Limitations

As this was the first research of this kind, the wording of some of the gaming questions could have been a limitation and may need to be reworked in subsequent studies to provide better understandability for the participants. As discussed above, the limitation of this sample of more mild *independent-gamers*, reflected in the lower average number of hours gamed, may be due to the inability to get a more representative sample of gamers on both ends of the gaming time continuum. The largest limitation of this study is the mild sample that was collected. This factor will continue to challenge future researchers as the hard-core-gaming community seems resistant to answer surveys with the coupled subjects of their marriages and their gaming behaviors. It is also

possible that findings may have been different had the number of hours gamed per week been asked on a Likert scale similar to that used by Paddilla-Walker et.al (2009) instead of allowing the participants to enter a number of hours. The use of the IAT could have been a slight hindrance to the study, as many participants complained about questions specific to that scale claiming that the questions were biased. The creation and or use of a better scale specific to gaming that also mirrors the DSM IV conditions for compulsive gambling and substance dependence may yield better results. Results may have also been different had the sample included all types of couples in serious relationships, such as same sex or cohabitating couples. Finally, as in all online questionnaire style research, it is conceivable that individuals who could not get their spouse to respond may have taken the survey falsely representing their spouse.



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68 Gamers and Marital Satisfaction

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Table 1

*Descriptive Demographics*

Group	Age	Years Married	% who have Children	Gaming hrs/wk	% Male	Work Fulltime	% Caucasian	Bachelors Degree +
Control	34	8.31	62.81%	0	50%	60.14%	88.4%	53.38%
Independent	34.56	7.39	64.55%	17.89	84.39%	72%	92.51%	49.14%
Gamer Couples								
More Gamer	32.38	6.15	51.86%	23.8	72.50%	60.09%	91.63%	42.11%
Couples								
Less Gamers	32.38	6.15	51.86%	11.6	27.50%	66.81%	91.63%	50.44%
Equal-Gamer	32.34	5.58	51.41%	19.71	50%	57.02%	93.98%	40.15%
Couples								



Table 2

*Summary of Stepwise Regression Analysis for Socio-demographic variables and Marital Satisfaction*

Variable	<i>b</i>	<i>SE b</i>	<i>t</i>	<i>p</i>
Age	-.061	0.029	-2.09	0.0373
Residency Rural or Urban	1.17	0.470	2.50	.013

Table 3: *RDAS scores*

Group	RDAS Score
Control Group Couples	50.96
Independent-Gamer Couples	49.34
More/Less-Gamer Couples	51.06
Equal-Gamer Couples	53.57

Table 4

*Group Comparisons*

Group 1	Group 2	Difference	Std Error	t-value	Df	Adj. p-value
Control	Equal-gamers	-2.611	0.7623	-3.43	676	0.0036
Control	Independent-G	1.62	0.6687	2.43	676	0.0724
Control	More/Less	-0.095	0.6528	-0.15	676	0.9989
Equal-Gamers	Independent-G	4.236	0.7539	5.62	676	< .0001
Equal-Gamers	More/Less	2.515	0.7198	3.50	676	0.0028
Independent-G	More/Less	-1.720	0.6286	-2.74	676	0.0322

Table 5

*Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for Independent-gamers*

Variable	<i>b</i>	<i>SE b</i>	$\beta$	<i>t</i>	<i>p</i>
Retire to bed at the same time	1.548	.506	.252	3.06	0.003
Quarrel about gaming	-1.363	.503	-.223	-2.71	.008

*Note:  $R^2 = .108$ ,  $adjR^2 = .094$ ,  $n = 132$*

Table 6

*Question: What effect do you feel gaming has on your marital relationship?*

Responses	Independent-spouse	Independent-gamer	More-gamer	Less-gamer	Equal-gamer
Always quarrel	4.60%	4.76%	0.88%	0.00%	0.00%
Often quarrel	14.94%	12.93%	1.32%	3.54%	0.00%
Every once in a while Quarrel	42.53%	36.05%	32.16%	29.20%	8.26%
Don't talk positively or Negatively	24.14%	32.65%	13.66%	10.62%	9.09%
Often talk positively	8.62%	12.24%	40.97%	38.94%	52.07%
Always talk positively	5.17%	1.36%	11.01%	17.70%	30.58%

Table 7

*Question: How do you feel that gaming has affected your marriage relationship?*

Responses	Independent- spouse	Independent- gamer	More- gamer	Less- gamer	Equal- gamer
Very negative	9.77%	1.36%	0.88%	0.88%	0.83%
Negative	12.07%	7.48%	1.32%	5.31%	0.00%
Slightly negative	52.30%	60.54%	19.38%	19.47%	6.61%
Slightly positive	14.94%	23.13%	38.77%	30.97%	20.66%
Positive	8.62%	7.48%	31.28%	35.40%	47.93%
Very positive	2.30%	0.00%	8.37%	7.96%	23.97%

Table 8

*Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for Non-gaming Spouses of Independent- Gamers*

Variable	<i>b</i>	<i>SE b</i>	$\beta$	<i>t</i>	<i>p</i>
Retire to Bed at the Same Time	2.81	.547	.391	1.609	< .0001
Quarrel about Gaming	-2.07	.543	.291	3.82	.0002
Household Labor Displaced by Gamer	-.826	-.438	.143	-1.88	.061

*Note:  $R^2 = .243$ ,  $adjR^2 = .226$ ,  $n = 135$*

Table 9

*Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for More-gamers*

Variable	<i>b</i>	<i>SE b</i>	$\beta$	<i>t</i>	<i>p</i>
Retire to Bed at the Same Time	1.793	.401	.260	4.47	< .0001
Gaming Addiction of More-Gamer	-1.107	0.031	-.197	-3.38	0.0009
Quarrel About Gaming	-1.19	.388	-.185	-3.07	0.0025
In-game Interaction Between Spouses	0.942	0.339	.169	2.77	0.0060
Gaming Satisfaction of Less-Gamer	1.084	0.469	.145	2.31	0.0218
Same Guild or Clan	-3.906	1.645	-.142	-2.37	0.018
Gaming Frequency Before Marriage	0.418	0.199	.119	2.09	0.034
Gaming Satisfaction of More-gamer	0.839	0.463	.112	1.81	0.071

*Note:  $R^2 = .357$ ,  $adjR^2 = .3325$ ,  $n = 217$*



Table 10

*Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for Less-gamers*

Variable	<i>b</i>	<i>SE b</i>	$\beta$	<i>t</i>	<i>p</i>
In-game Interaction between Spouses	1.659	0.369	.298	4.50	< .0001
Gaming Satisfaction of <i>Less-Gamer</i>	1.532	0.480	.206	-31.9	0.0017
Retire to Bed at the Same Time	1.511	0.390	.225	3.87	0.0001
Quarrel About Gaming	-1.077	0.371	-.184	-2.90	0.0041
Same Guild or Clan	-3.585	1.380	-.162	-2.60	0.010
Gaming Addiction of <i>More-gamer</i>	-0.084	0.034	-.155	-2.46	0.014
Simultaneous Gaming Time	.916	.399	-.148	-2.293	.023
Frequency Gamed Before Marriage	.545	0.232	.132	2.34	0.020
Gaming Addiction of <i>Less-gamer</i>	-0.068	0.038	-.110	-1.79	0.075

Note:  $R^2 = .378$ ,  $adjR^2 = .345$ ,  $n = 217$

Table 11

*Question: How often do you play an MMORPG at the same time as your spouse?*

Responses	More-gamer	Less-gamer	Equal-gamer
All of the time	3.52%	7.08%	14.88%
Most of the time	23.79%	40.71%	60.33%
More often than not	26.87%	25.22%	14.05%
Occasionally	32.60%	17.26%	7.44%
Rarely	9.25%	4.87%	1.65%
Never	3.96%	4.87%	1.65%

Table 12

*Question: What amount of your game playing time do you play interacting with your spouse's character in the game?*

Responses	More-gamer	Less-gamer	Equal-gamer
All of the time	3.08%	7.52%	14.88%
Most of the time	24.67%	33.63%	42.15%
More often than not	22.91%	24.34%	19.83%
Occasionally	31.72%	22.12%	14.88%
Rarely	11.01%	6.19%	4.96%
Never	6.61%	6.19%	3.31%

Table 13

*Summary of Stepwise Regression Analysis for Variables Predicting Marital Satisfaction for Equal-gamers*

Variable	<i>b</i>	<i>SE b</i>	$\beta$	<i>t</i>	<i>p</i>
Negative effect of Gaming on Marriage	-2.00	.392	-.286	-5.11	< .0001
Retire to Bed at the Same Time	1.70	0.370	.259	4.61	< .0001
Gaming Satisfaction	2.05	0.480	.246	-4.27	< .0001
In-game Interaction Between Spouses	1.050	0.371	.211	2.83	0.0051
How much household labor is displaced by gaming	-0.537	0.263	-.104	-2.04	0.0426

*Note:  $R^2 = .387$ ,  $adjR^2 = .372$ ,  $n = 249$*

Appendix A

Prospectus

## Chapter 1

### Introduction

#### *Origin of Interest*

Understanding potentially harmful recreational activities within a marital relationship has recently become a keen interest of mine. I have become aware of marital relationships that have dissolved, citing MMORPG playing as a major factor of their decision to divorce. Others have lamented similar stories in which their spouse was so entrenched in online game playing that they would emerge only to eat dinner and then return to their game. These conversations have become more frequent and I have realized the need to research and build awareness around MMORPG playing and marital satisfaction.

Video game playing has been generally associated with youth populations; however, recent research has found that the average age of MMORPG players is 25.71 for males and 31.72 for females (Yee, 2006). Studies found that on average gamers play for 22.71 hours per week, 36% of gamers are married, 22.1% have children (Yee), and 82% of gamers, game from 6-11 pm (Ng & Wiemer-Hastings, 2005). This is generally the time of night, free from the constraints of work, when most couples are available to interact, communicate, and participate in leisure with each other and/or their children. Ogletree and Drake, (2007) stated “Couple time may be displaced if one person in a relationship is a frequent gamer and the other is not” (p. 540). These studies highlight the need for research discussing marital satisfaction among married gamers’ as well as the perceptions of the gamer’s spouse.

As a recreation professional, I believe it is essential to examine recreational activities that are becoming ubiquitous in our society. "Participation in video gaming has become the fastest growing form of human recreation" (Ryan, Rigby, & Przybylski, 2006, p. 347). Furthermore, the video game industry's revenues have surpassed those of Hollywood (Yi, 2004). Therefore, video gaming has become the world's largest entertainment medium (Ryan et al.). It follows that Youth and Family Recreation Professionals should be at the forefront of this research, discovering the positive and negative effects of such participation in relationship to youth, couples, and families.

#### *Statement of the Problem*

The problem of the study is to create a better than chance prediction model of the marital satisfaction of both individuals in the dyad, using the amounts of time spent playing an MMORPG, the level of gaming addiction, the couple gaming type, and the socio-demographic information. In addition, comparisons between the couple gaming type groups will also be determined.

#### *Purpose of the Study*

The purpose of the study is to provide awareness, research, and predictability information about the recreational choice of MMORPG gaming and the relationship with marital satisfaction. Useful marital satisfaction predictions and comparisons may assist couples, individuals and therapists in making meaningful changes in their gaming behavior when needed.

*Importance of the Study*

As recreation evolves and new recreational activities compete for a couple's time, it is important to understand potential positive and negative correlations that certain recreational choices may have with marital satisfaction. The reality of marital dissatisfaction among spouses of gamers becomes apparent, when a simple Web search on the topic of gaming widows, returns hundreds of nonscientific Web sites, blogs, and support groups. Families, and, subsequently, the marital relationship, which traditionally forms a family, are "still considered to be the fundamental units of society" (Zabriskie & McCormick, 2001, p. 281). Couples making informed decisions as to how they will spend their joint and individual leisure time may be more capable of strengthening their marital relationships.

No scientific studies to date, however, have examined the relationship between excessive gaming and marital satisfaction. Furthermore, no studies have performed research on joint interactive gaming, parallel gaming or individual gaming and the subsequent relationship with marital satisfaction. Research examining the possible relationship between the amount of time spent individually gaming or gaming together as a couple and the subsequent marital satisfaction may provide useful information to the couple and help them to make changes, if needed, to strengthen their marital relationship.

*Delimitations*

The scope of this study was delimited to the following:



1. Due to the limited time and resources of this study and the lurking variables of researching same sex relationships (Ogletree & Drake, 2007), this study will only sample heterosexual married couples living in the same home.
2. Due to the research that cohabitating and married couple outcomes differ (Kim & McKenry, 2002), this study will only explore the relationships of legally married couples.
3. This study will be limited to those couples who are still married will not take into account couples that have dissolved their relationship with a factor of that choice being the gaming of one of the members in the dyad.
4. The instruments used in this study are the Revised Dyadic Adjustment Scale (RDAS) to test for marital satisfaction and the Internet Addiction Test (adapted for Internet gaming). Basic demographics and background gaming questions will also be included.
5. Data collection will begin in January 2009, and run for six weeks or until 200 couples from each couple group have completed the online survey.
6. The statistical procedures that will be used will be ANOVA tests for differences and multiple regression analyses.

#### *Limitations*

1. This study will not use a simple random sample. Participants will self-select and choose to participate in the study. Therefore, the results may not include couples who perceive the results to be overly negative.

2. Additionally, because of the sampling technique, results will be limited in the ability to generalize the outcome of the study to other gaming couples outside of those who participate in this sample.
3. The researchers cannot control for participants who may misrepresent their spouse and answer on behalf of them.
4. In the consent form the participants are asked not to discuss their individual responses with their spouse, prior to the submission of the survey by both members of the couple. Due to the fact that the researchers will not be present during the completion of the questionnaire, the researchers recognize there is a possible limitation of the influence of sharing responses.

#### *Assumptions*

1. Marital satisfaction, as studied in this research, is assumed to be an indication of how satisfied one is with various aspects of their marriage. This indication is derived from the answers given in the Revised Dyadic Adjustment Scale (RDAS) with a score of above 48 indicating that the individual was generally satisfied or nondistressed and a score below 48 indicating that the individual was not satisfied with their marriage or would be considered in a distressed relationship. An average satisfied score on the RDAS is 3.4 and would range between answer choices similar to *Occasionally Agree* (3 points) and *Almost Always Agree* (4 points) or *Always Agree* (5 Points) for most items.

#### *Hypotheses*

The study was designed to test the following null ( $H_0$ ) hypotheses:

## 88 Gamers and Marital Satisfaction

H<sub>01</sub>: There is no relationship between the game addiction of a gamer, the time a gamer spends gaming individually-unsupported, or the time a married gamer spends individually-supported and the nongaming spouse's level of marital satisfaction.

H<sub>02</sub>: There is no relationship between the game addiction of a gamer, the time a married gamer spends gaming individually-unsupported, or the time a married gamer spends individually-supported and the gamer's level of marital satisfaction.

H<sub>03</sub>: There is no relationship between the time a married couple spends gaming together, interactively and first gamer's level of marital satisfaction.

H<sub>04</sub>: There is no relationship between the time a married couple spends gaming together, interactively and second gamer's level of marital satisfaction.

H<sub>05</sub>: Socio-demographic factors combined with couple gaming type, level of addiction and time spent gaming do not provide a better than chance prediction of marital satisfaction.

H<sub>06</sub>: There is no difference between the marital satisfaction of couples where one member of the couple is a gamer and couples in which both members of the couple play the same game.

H<sub>07</sub>: There is no difference between the marital satisfaction of couples in which one member is a gamer or both members are gamers and couples in which neither member is a gamer.

*Definition of Terms*

*Avatar-* A three-dimensional lifelike (often idealistic) cartoon character representing the player in the game, that can walk, talk, fight, hunt, make friends, form communities, fall in love, and even take part in various economic activities (Whang & Chang, 2004).

*Gamer-* A person who plays video games regularly.

*Nongamer-* Someone who does not participate in MMORPGs.

*Couple gaming interaction type-* Refers to the different types of gaming interaction namely: independent-unsupported, independent- supported, parallel couple gaming, and joint interactive couple gaming.

*Individual gaming-*It is recognized that MMORPG playing is highly social and interactive with in-game friends or family members. Therefore, for the purposes of this study, *individual gaming* will mean gaming without interaction and game communication specifically with one's spouse.

*Individually-unsupported gamer-* Refers to a spouse who games without the interaction, communication or support of their spouse.

*Individually-supported game-*. Refers to a spouse who does not interact in the game with their spouse, but has the support through encouragement, praise, or economic support for buy things for the game, etc.).

*Joint gaming-* Refers to participation in the same game at the same time as one's spouse, interacting with each other's in-game characters. Communication and collaboration is frequent in joint gaming.

*Married*- Refers to heterosexual legally married couples.

*Marital Satisfaction*- Whether or not an individual considers themselves to be satisfied with their marriage according to their responses and score on the Revised Dyadic Adjustment Scale (RDAS).

*MMORPG*- Massively Multiplayer Online Role-Playing Game.

*Parallel Gaming*- Gaming that is done in the same room at the same time, but not interacting with each other's in-game characters. Some communication may happen in parallel play.

*Partner*- Refers to heterosexual legally married spouse.

*Spouse*- Refers to heterosexual legally married spouse.

*World of Warcraft*- Considered the most popular, and top MMORPG on the market. (Griffith, 2007).

Research indicates that there are a growing number of adult, married gamers who game for extended periods of time. It is important to discover the correlations between the popular recreation choice of playing an MMORPG and couple relationships. This proposed research has the potential to answer some of the questions about married gamers and marital satisfaction of both partners in the dyad that are missing from the research to date.

## Chapter 2

## Review of Literature

Marriage has been found to be the best predictor of outcomes for adults (Kim & McKenry 2002), as well as children (Seltzer, 2000). Thus, it is of vast importance to study aspects of a marital relationship, such as recreational choices, that may have a positive or negative correlation with marital satisfaction for married couples. Research performed to study the relationships between different types of recreation and the support given from spouses found that marital satisfaction was generally higher in couples who participated in less individual recreation (Orthner, 1975; Baldwin, Ellis & Baldwin, 1999; Barrell, Chamberlain, Evans, Holt, & MacKean, 1989; Goff, Fick, & Oppliger, 1997).

The internet has become a ubiquitous useful and destructive tool in the American society. Internet addictions as well as online gaming addictions have recently emerged in the last decade (Ng & Wiemer-Hastings, 2005; Young, 2004). Although 36% of online gamers are married and 22.1% have children (Yee, 2006), no studies have specifically examined marital satisfaction as it correlates with online gaming. Furthermore, no research studies have been found that explicitly study the number of hours that married Internet gamers spend playing video games and the possible relationship between the gamers' marital satisfaction and their spouses' marital satisfaction. Additionally, no research has been found that discusses the participation in video gaming as an individual, joint, or parallel activity for the marital dyad, and the plausible correlation with both spouses' level of marital satisfaction. Therefore, the two-fold purpose of the current research study is to first examine if there is a better than chance predictability of the

marital satisfaction of both members of the dyad using gaming addiction, the number of hours gamed per week, and couple gaming type. Second, the study will compare the marital satisfaction of couples in which one person games, both partners game, and couples in which neither of the partners game.

### *Marital Satisfaction*

In the field of Youth and Family Recreation, it is imperative to examine marital and family interactions within recreational activities that may affect such relationships. Research has found that “Marriage is not merely a private relation; it is a public good. As marriage weakens, the costs are borne not only by individual children and families but by all of us” (Waite & Gallagher, 2002, p.186). It has been widely acknowledged that married individuals have higher psychological well-being (Kim & McKenry 2002), dependent child outcomes, economic status (Seltzer, 2000), and physical health (Carrere, Buehlman, Gottman, Coan, & Ruckstuhl, 2000) as compared to cohabitating, separated, or divorced individuals. The US Census bureau has reported, however, that 90% of US adults will marry at some point in their lives and 50% of these marriages will end in divorce (Kreider & Fields, 2001). Of those marriages that remain in-tact, many will remain in relationships with poor functioning and spousal dissatisfaction (Waldinger, Schulz, Hauser, Allen, & Crowell, 2004). It follows that, “Identifying the factors that help marriages survive has important implications” (Carrere, et al., 2000, p.42). Thus it is of great importance to study aspects of a marital relationship, such as recreational choices, that may have a positive or negative correlation with marital satisfaction.

A study by Amato, Johnson, Booth and Rodgers (2003) found that couples married in the 1981-1997 cohort had an increase in their belief and importance of life-long marriage as compared to the couples in the 1964-1980. If couples desire life long marriage, it is imperative to discover what variables may be contributing to dissatisfaction and dissolution of marriages. Research that can help describe the source of the variance in couples' dissatisfaction can be useful in helping couples to determine aspects in their marriage that may need attention. Orthner (1975) found that "Overall, the data support the conclusion that the leisure factor is most critical in determining marital satisfaction" (p. 101) during the marital career periods of 0-5 years of marriage and the 18-23 years of marriage. This statement justifies the need to look at recreation as a variable in marital satisfaction.

#### *Leisure Implications for Marital Satisfaction*

Marital satisfaction has been widely researched in the context of leisure activities (Crawford, Houts, Huston, & George, 2002; Holman & Epperson, 1984; Holman & Jacquart, 1988; Johnson, Zabriskie, & Hill, 2006; Orthner, 1975; Orthner & Mancini, 1990). Specifically, researchers have attempted to understand marital satisfaction from the patterns of leisure that couples participate in, such as joint, individual, and parallel activities (Orthner, 1975).

*Joint couple leisure.* Researchers exploring marital relationships have consistently found positive relationships between couples' participation in joint leisure activities and marital and/or family life satisfaction (Holman, 1981; Holman & Jacquart, 1988; Miller, 1976; Orthner, 1975; Smith, Snyder, & Monsma, 1988; Zabriskie & McCormick, 2003).



According to Orthner 1975, joint activities are characterized by a “high degree of interaction for successful completion of the activity and tend to open communication and encourage role interchange” (p. 93). Holman and Jacquart (1988) add that there must be a high level of perceived communication during joint recreation in order to find a significant correlation with marital satisfaction. They suggest that without communication there may be a negative correlation with marital satisfaction. Johnson et al., (2006) found that it was “not the level or amount of couple leisure involvement or the satisfaction with the amount of time spent together, but the satisfaction with couple leisure that contributed to marital satisfaction” (p. 83). In other words, they found that couples who were not satisfied with their leisure participation with their spouse were less satisfied with their marriage. It is noted that if a couple is experiencing conflict in their marriage, there may consequently be less desire to participate in joint activities, which may prove to increase the level of conflict in the relationship (Orthner). Simply re-stated, couples that do not enjoy the time that they spend together are likely to spend less time together as a result.

*Parallel couple leisure.* Parallel activities are characterized as “little more than individual activities in group settings and a minimum of interaction is allowed among the participants” (Orthner, 1975, p. 93). Parallel activities have been linked to marital satisfaction to a lesser degree than the significant relationships found in joint activity participation (Orthner, 1975). Orthner’s study outlined couples’ leisure interactions from across the marital life span. Parallel activities were found to be positively associated with marital satisfaction for husbands but not wives in the first five years, slightly positive for

both partners in the middle years of marriage, positively associated during the 18-23-years-of-marriage cohort, and show a drop in association in the last cohort of marriage studied. Furthermore, Orthner found that husbands and wives do not experience the same levels of marital satisfaction, associated with leisure participation, during the same time periods. Additionally, the level of communication during parallel activities was found to be diminished when compared to joint interactive couple leisure (Orthner & Mancini, 1990).

*Individual leisure.* Orthner and Mancini (1990) found that marital satisfaction is higher for husbands and wives who share leisure time in joint activities, and lower for those with high concentrations of individual leisure activities. Individual activities are characterized as activities which “require no communication with others and may actually discourage interaction” (Orthner, 1975, p. 93). Crawford et al. (2002) found a significant negative correlation between individual activities enjoyed by only one spouse and marital satisfaction for both the husbands and wives. Smith et al., (1988) found that their study “confirms the importance of couples’ use of discretionary time as a predictor of overall relationship satisfaction” (p.11). Furthermore, if couples are not accepting or supportive of their spouses’ individual leisure pursuits, they will likewise experience lower marital satisfaction (Baldwin et al., 1999; Crawford et al., 2002; Holman, & Epperson, 1984; Orthner, & Mancini). This is evident in the research studying the effects of specific types of serious leisure such as serious running.

*The role of support for individual leisure.* Research examining the marital satisfaction of serious individual runners found that runners who were highly supported

by their spouses had higher marital satisfaction (Baldwin et al., 1999; Barrell et al., 1989; Goff et al., 1997). Those runners who had higher leisure-family conflict or marital conflict reported lower support from their spouses (Baldwin et al.; Goff et al.). Research also indicated that spouses and families who were runners themselves were often more supportive of their serious runner partners (Stebbins, 1992; Yair, 1990). Other forms of support found in these studies indicated that providing logistical and emotional support of the individual activity correlated with higher marital/leisure-family satisfaction.

In contrast to parallel or supported running, Rudy and Estok (1990) reported that as spouse perception of addiction to running behavior increases, marital adjustment decreases and this negative relation was greater among male spouses. They suggested male spouses might assign a more negative meaning to running activities of their female marital partners. Furthermore, they cited one husband who said that his wife's running meant she values running more than saving energy for family activities (Goff et al., 1997). This study lends an interesting, preliminary understanding of how a perception of addiction to a nonchemical activity, such as running or gaming, could lead to marital partners' feelings of marital discord or dissatisfaction. It follows that the research established in the serious runner literature could provide insight on gaming behavior among married adults.

#### *Online Gaming Research*

Since the advent of widespread public use of the Internet in the early 1990's (Zakon, 2006), there have been unsurpassed technological advancements in areas such as communication, collaboration and immediate information access. These advancements

have introduced a new world of Internet recreation and have come with the cost of introducing new potentially harmful habits and addictions. Heightened awareness of these growing threats, referred to by many researchers and clinicians as *Internet Addiction* or *Internet Addiction Disorder* (Ng & Wiemer-Hastings, 2005; Young, 2004), has been further articulated by the public press, formal research journals, and most recently by the American Medical Association 2007 (AMA) emphasizing the dangers of video game addiction (2007; Grusser, Thalemann, & Griffiths, 2007).

According to Ryan, et al. (2006), "Participation in video gaming has become the fastest growing form of human recreation" (p. 347). Additionally, the revenues of the video game industry have surpassed those of Hollywood (Yi, 2004). Consequently, video gaming has become the world's largest entertainment medium (Ryan, et al.). Research studies found that 36% of online Massively Multiplayer Online Role-Playing Gamers (players of online video games) are married, 22.1% have children, play for 22.71 hours per week (Yee), and 82% of gamers, game from 6-11 pm (Ng & Wiemer-Hastings, 2005). Assuming that this is the time of night free from the constraints of work, when most couples are available to interact, communicate, and participate in leisure, it follows that "Couple time may be displaced if one person in a relationship is a frequent gamer and the other is not" (Ogletree & Drake, 2007, p. 540). Utilizing the research on serious runners as a basis and given that the "Best predictor of marital satisfaction was leisure satisfaction" (Johnson, et al., 2006, p. 83), it is plausible that unsupported-individual gaming may have a negative correlation with marital satisfaction, especially when

participants game for long periods of time. It is therefore, important to discover the implications on this type of recreation in connection with marital satisfaction.

*Research on Adult Video Gamers and MMORPG Players*

Yee (2006) reported a study of 30,000 players of MMORPGs where the mean age was 25.71 for males and 31.72 for females. Further findings indicated that 50% of the respondents worked full-time, 22.2% were full time students, 13% were female homemakers, 36% were married and 22.1% had children (Yee). On average, the respondents played their preferred MMORPG for 22.71 hours per week with a median of 20 hours per week; 8%-9% of respondents played for 40 or more hours per week. Yee also found that 60.9% of respondents spent 10 or more hours continuously on an MMORPG. Yee did not study any detrimental effects of the MMORPGs in the research cited above. The demographic information provided, however, assists future researchers to have a base line of the wider range of MMORPG gamers for subsequent study. Given these statistics, it follows that if married gamers follow the basic averages reported by Yee (2006), there may be limited time left over to participate in other pursuits with the gamer's spouse or other family members.

Ng and Wiemer-Hastings (2005) compared the difference between MMORPG players and other offline video gamers. Although the demographic information was similar between the two groups, there were statistically significant differences between the offline video gamers and MMORPG gamers referring to all of the questions pertaining to overuse tendencies. The study found that "MMORPG users would rather spend time in the game than with friends, have more fun with in-game friends than

people they know, found it easier to converse with people while in-game, did not find social relationships as important, and felt happier when in the game than anywhere else” (Ng & Wiemer-Hastings, p.112). Online MMORPG players (83% played 7 hours or longer per week) played much longer than their offline counterparts (15% played 7 hours or more per week) (Ng & Wiemer-Hastings). Furthermore, the research found that 87% of the MMORPG players and offline video game players played between the hours of 6-11pm (Ng & Wiemer-Hastings). Although the MMORPG players in the sample were not labeled as addicted, they did consider themselves to be “happier when in the game” (Ng & Wiemer-Hastings, p. 112). In other words they would rather have social relationships with those in their online virtual world environment than with people or relatives in their real world environment. To understand how this excessive game playing can be justified by the players, it is imperative to understand the characteristics of MMORPGs.

#### *Understanding MMORPGs*

Games that are labeled as MMORPGs can be played simultaneously with hundreds of thousands of people, playing the same game on various servers. These games, or rather three-dimensional virtual worlds, are available worldwide to anyone with access to the Internet and the ability to log onto the game (Kelly, 2004). The player is represented by an avatar, a three-dimensional lifelike (often idealistic) cartoon character representing the player in the game, that can walk, talk, fight, hunt, make friends, form communities, fall in love, and even take part in various economic activities (Whang & Chang, 2004).

While traditional video games, such as console games, become repetitive over time and have an ending goal, MMORPGs never end and are characterized by a continuous “system of goals and achievements” (Ng & Wiemer-Hastings, 2005, p. 111).

Furthermore, MMORPGs are highly social and require extensive devotion to character development and large time commitments to the other players or team members in a *guild* or *clan* with whom users must collaborate to advance further in the games. These virtual social interactions “often become a substitute for real life social interaction” (Allison, Von Wahlde, Shockley, & Gabbard, 2006, p. 383). In a case study of an 18-year old MMORPG player, Allison et al. found that, “he could put on a new identity like a new suit of clothes, becoming someone who walked on water, healed others, and cast lightning bolts, in stark contrast to his daily experience of himself as inadequate” (p. 381). In other words, when acting as the character, the player is able to be someone else. No one can see what he or she really looks like or who he or she really is. This may further influence their desire to spend increased time acting in their alternative persona.

#### *MMORPG Addiction*

Additionally, MMORPGs have been termed *heroineware* instead of software by gamers (Allison et al., 2006; Ng & Wiemer-Hastings, 2005), referring to games such as World of Warcraft (WoW) and Everquest that have been nick named, as *World of Warcrack* and *Evercrack*, respectively, (Ng & Wiemer-Hastings, 2005). These terms allude to the comparison of the addictive nature of illegal drugs to the addictive nature of MMORPGs. Because of the continuous nature of these games and the need to continually be online in order to attain higher levels and help other members of the clan or guild, it

follows that gamers may feel compelled to spend continuous hours immersed in virtual worlds. This time consuming nature of the game coupled with the built in rewards system may explain the physiological release of dopamine in the brain. (Motluk, 2005) These two factors may feed into addictive behaviors. It is plausible that the MMORPG style of gaming, due to the exorbitant amount of time required and social needs being met in the context of the game, may result in marital disruptions and even dissolution due to the individual nature of the participation. Likewise, it follows that couples that game together may experience heightened marital satisfaction due to their joint interaction within the game.

#### *Relationship Disruptions in the Context of a Gaming Addiction*

Researchers have suspected that excessive use of the Internet or gaming may have an adverse effect on relationships. Specifically, Young (1998) discusses relationship disruptions as a result of the excessive use of the Internet:

Marriages, dating relationships, parent-child relationships, and close friendships were also noted to be poorly disrupted by excessive use of the Internet.

Dependents gradually spent less time with real people in their lives in exchange for solitary time in front of a computer. (p. 240)

The exorbitant number of leisure time hours required to excel at or become addicted to an online role-playing game could reasonably indicate that little time would be available to participate in joint leisure activities with a gamer's spouse or children. The *displacement hypothesis*, referred to by Ogletree and Drake (2007), theorizes that time spent in one activity displaces the time that could be spent in another activity. This argument is further



strengthened by the finding that 87% of gamers, on and offline, game from 6-11 pm (Ng & Wiemer-Hastings, 2005). This is generally the time of night when most couples are available to interact, communicate, and participate in leisure with each other. Therefore, the time that the players spend participating in their preferred game displaces the time that may otherwise be spent interacting with other family members.

Young (2004), defining Internet overuse as an impulse-control disorder which does not involve an intoxicant, developed criteria to assess Internet addiction or impulse-control disorder. This criterion uses questions to assess the level of dependence on the Internet. Only one of the questions asks about relationships. It reads: "Have you jeopardized or risked the loss of a significant relationship, job, educational or career opportunity because of the Internet?" (Young, p. 404). This series of questions was slightly reworded to include online games on Young's Web site "Have you jeopardized or lost a significant relationship, or even risked your marriage because of your online gaming habit?" (Center for Internet Addiction Recovery, n.d.). Research and online assessments commonly include one question about relationship threats, but seldom elaborate on the relationship problems that may be perpetuated by gaming. Yee (2002) included this question using the Likert scale: "My playing habits have caused me academic, health, financial, or relationship problems" (Yee, p. 6). The analysis of Yee's data reported that 18.4% agree or strongly agree, 13.2% reported neutrality to the question and the remainder marked that they disagree or strongly disagree. This question has too many variables to indicate significance for any of the problems individually. It is evident that these questions need to be broken up into separate questions in order to

understand which problem is accounting for the variance. Furthermore, Yee's study took the perspective of the gamer and not the gamer's spouse. Orthner (1975) found that in four out of the five marital periods that he studied the husband's level of marital satisfaction was higher than the wife's marital satisfaction. It follows that differences may exist between perceptions of conflict between members of a couple during the participation of online gaming independently or in an interactive joint manner.

Yee (2006) published a demographic study of MMORPG players and documented descriptive data about players who gamed with their romantic partner. It was reported that 26.9% of female players were introduced to the game by their romantic partner (husband/wife, boy/girlfriend, fiancé/e) and 59.8% of female players participated in the environment with a romantic partner. Furthermore, 1.0% of male players were introduced to the game by their romantic partner and merely 15.8% of male players participated with their romantic partner in the game (p. 316). Additionally, the demographics showed that 25.5% of male players and 39.5% of female players played their preferred MMORPG with a family member" (Yee, 2006, p. 317).

Research presented by Cole and Griffiths (2007) reported on the social interactions of a large international sample of MMORPG players from the players' unique perspective. The percentage of married players and players with dependent children was not reported. The research found that, "Over one quarter of the sample (26.3%) played MMORPGs with family and real-life friends" (Cole & Griffiths 2007, p. 578). Furthermore, 67.4% of players who played with real life friends and family believed that the MMORPGs had a positive effect on those relationships. The mean

number of real-life friends that gamers played their MMORPGs with was found to be 4.4 and the mean number of family members was found to be 1.4 for males and 1.7 family members for females. Their report did not distinguish which member of the family gamers tended to participate with. The number of gamers who gamed with a spouse or significant other was not reported.

Additionally, Cole and Griffiths (2007) found that "One in five participants (20.3%) believed that playing MMORPGs had a negative effect on their relationships with people with whom they did not play" (Cole & Griffiths 2007, p. 582). The research also found that 39.3% of participants claimed they would discuss sensitive issues, such as family problems, with their MMORPG friends, that they would not relate to their real life friends (p. 579). Furthermore, Cole and Griffiths stated: "To support the possibility that playing MMORPGs for many hours a week has a negative effect on relationships with those who do not play the same game, a significant but weak negative correlation was found between the effect playing the game has had on relationships and the number of hours played per week" (Cole & Griffiths 2007, p. 582).

The demographics provided by Yee (2001 & 2006) and the research done by Cole and Griffiths (2007) provide a backdrop for the need to further investigate the relationships of gamers and their spouses in and out of the game. These findings, coupled with the facts that on average gamers play for 22.71 hours per week, 36.3% are married, 22.1% have children, 50% have full time jobs, 22% are full time students, 13% are full time homemakers (Yee, 2006) warrant further investigation into the time displacement, addiction, couple gaming, type, and marital satisfaction of gamers and their spouses.

Therefore, the purpose of the current research study is to create a better than chance prediction model of marital satisfaction for both partners in the dyad using the level of addiction, the amount of time spent gaming, the couple gaming type, and basic socio-demographic information. In addition, comparisons between the couple gaming type groups will also be determined.

### Summary

Research abounds on the topic of excessive or addictive use of MMORPGs, taking into account the gamer's perspective. Additionally, research has shown that marital satisfaction is higher for couples that participate in joint leisure and lower for those who participate in primarily individual leisure (Orthner, 1975). Furthermore, couples that participate in independent leisure, that is not supported, experience lower marital satisfaction (Baldwin et al., 1999). Some studies have asked general questions about relationship problems resulting from gaming (Yee, 2002). No studies to date, however, have examined the relationship between excessive gaming and marital satisfaction. Furthermore, no studies have performed research on joint interactive gaming, parallel gaming or individual gaming and the subsequent relationship with marital satisfaction. Likewise, no research to date, has taken the perspective of both partners in a marriage relationship in the context of gaming.

## Chapter 3

### Methods

#### *Study Sample*

Due to the limited nature of this Master's Degree thesis study, the sample of gamers will be drawn from players of an MMORPG who speak English and frequent MMORPG forum and user Web sites. To participate in the study, the subjects will need to meet other specific criteria. First, one or both of the partners in the marital dyad must be a current MMORPG player with an active MMORPG account. Second, the partners will need to be heterosexual and legally married. Third, both partners in the dyad must be willing to complete a questionnaire. Computer and Internet access is assumed given the criteria of playing an MMORPG, which is an Internet-based game. The control group of couples will fulfill the same criteria as the gamers with a requirement that neither partner in the couple play an MMORPG.

An invitation and an advertisement to participate in the study will be posted on [www.Facebook.com](http://www.Facebook.com) and [www.mmorpg.com](http://www.mmorpg.com), a popular site for gamers. Invitations to participate will be posted on the forums at [www.7MMO.com](http://www.7MMO.com), an MMORPG forum site, [www.wowforum.com](http://www.wowforum.com), a World of Warcraft forum. The control group will be gathered in a similar manner on popular sites such as Google and Yahoo. These invitations to participate will give pertinent criteria requirements and a link to the questionnaire on [Qualtrics.com](http://Qualtrics.com) (See Appendix A).

*Data Collection Procedures*

Questionnaires will be created using the Qualtrics survey software found on the Web site [www.qualtrics.com](http://www.qualtrics.com). A consent to participate will be provided and clicking on the survey will indicate the agreement to the terms of the consent (see Appendix B). Both marital partners will participate in separate questionnaires. Each marital partner's questionnaire will be linked to his or her spouse's questionnaire using a password, to protect identifying information. This will ensure matched questionnaires for data analysis.

The questionnaire link will be posted on selected Web sites for 6 weeks from January 6, 2009 to February 17, 2009. From a population of over nine million players of MMORPGs with 36% married (Yee, 2006), based on a power analysis a sample of 578 couples (193 couples for each of the three groups) is needed with a 95% confidence level and a margin of error of 5%.

As an incentive four prize drawings will be offered. Specifically, two grand prizes of \$500 each (one gift certificate for you and one for your spouse for \$250 each totaling \$500 per prize drawing) and two other drawings for pairs of \$250 gift certificates (one gift certificate of \$125 for each partner in the couple, totaling \$250 per prize drawing) to Amazon.com will be drawn randomly at the end of the data collection process. The incentives will be obtained by a university grant. After completion of the questionnaire each couple will be redirected to a separate link that will ask for their email address to be eligible to receive the incentive. They will be assured that their email address will only be used for the purposes of providing the incentive should they be chosen to win the gift

certificates. To insure confidentiality, the identifying information will not link to their individual or couple questionnaire and will not be used for any other purposes.

### *Instrumentation*

The research questionnaire includes the following instruments (See Appendix C): (a) the 14-item Revised Dyadic Adjustment Scale (RDAS), which measures the individual's level of marital satisfaction; (b) the 20-item Internet Addiction Test (IAT), revised to include online gaming, which measures Internet addiction; (c) the 20-item Internet Addiction Test (IAT), adapted for the spouses of gamers, to assess the perception of addiction in their partner's game playing behavior; (d) additional gaming questions to determine other important aspects of gaming (e) basic socio-demographic questions. The questionnaire used for the control group consists of: (a) the 14-item RDAS, to assess marital satisfaction; (b) the 20-item Internet Addiction Test (IAT), in the original format, used to assess Internet addiction; (c) questions about Internet use; and (d) the same socio-demographic questions as the gaming group.

*RDAS.* The RDAS is a revised version of the Dyadic Adjustment Scale (DAS) originally developed by Spanier in 1976. Busby, Christensen, Crane, & Larson (1995), revised the DAS to "reduce and balance the number of items used to measure each construct that contributed to dyadic adjustment" (Ward Ward, Lundberg, Zabriskie, & Barrett, in press). The RDAS was intended to measure dyadic adjustment in terms of three separate factors of consensus, cohesion, and satisfaction (Busby et al, 1995). Although the RDAS was not initially intended to be a global measure of marital satisfaction alone, it has been widely used as such and was tested and found to be on

parity with the Satisfaction With Married Life (SWFL), a scale designed to specifically measure marital satisfaction (Ward, et al., in press).

The RDAS uses 4 sets of questions paired by a 6-point likert scale with response options similar to 0 (Always Agree) to 5 (Always Disagree). The response options change slightly to reflect the types of answers being asked. Examples of these sets of questions are: (a) agreements or disagreements on religious matters, demonstrations of affection, and decisions; (b) how often the couples quarrel, discuss separation, get on each others' nerves, (c) if they engage in outside interests together, (d) how often they work together, discuss something calmly, have a or stimulating exchange of ideas. Scores range from 0-69 with a cutoff score of 48 between satisfied and dissatisfied (Crane, Middleton, & Bean, 2000).

*IAT.* The IAT (Center for Internet Addiction Recovery, n.d.) was adapted replacing the words Internet or online with gaming or online gaming to assess gaming addiction. The IAT was also adapted replacing the word you with your spouse to include gaming addiction of one's spouse from their partner's perspective. The IAT scores range from is scored on a 5-item likert scale with options ranging from 1 (Rarely) to 5 (Always) with a no score option to mark "does not apply." The IAT uses a scale of 20-100 with the higher scores indicating higher levels of addiction to the Internet. Questions ask items ranging from complaints about usage; usage patterns; neglect of work, school or family responsibilities; attempts to quit; and physical manifestations of online use. Young (2007) states "The IAT is a validated testing instrument that examines symptoms of Internet addiction such as a user's preoccupation with Internet use, ability to control online use,



extent of hiding or lying about online use, and continued online use despite consequences of the behavior” (p. 674).

*Gaming questions.* Additional questions assessing game playing will be included on the questionnaire. Examples of the content of the gaming questions include: the game they play, hours they play, if their partner plays or not, which partner games more, if they play together, if they are supported in their game play, if they played this game before they got married, how they were introduced to the game, if they quarrel specifically about game play, etc. These questions will help to determine the demographics of this specific sample.

*Socio-demographics.* Socio-demographic questions were included to provide potential controlling factors and identify primary characteristics of the sample. Examples of the items include the following: age, gender, ethnicity, marital status, marital length, number of dependent children in the home, annual income, place of residence, and population of residence etc.

#### *Validity and Reliability of Instruments*

According to Busby, Christensen, Crane, & Larson (1995), “the reliability coefficients are within acceptable ranges and demonstrate that the RDAS has internal consistency and split-half reliability” (p. 300) with a Cronbach’s Alpha of 0.90. Ward, Lundberg, Zabriskie and Berrett (in press) confirmed the internal consistency of the RDAS finding a Cronbach’s Alpha of 0.943.

In an in depth analysis of the IAT, Widyanto and McMurrin (2004) found internal consistency within the items in each factor stating that the “Cronbach’s alphas were

calculated and all were highly to moderately reliable” (p. 446). Additionally, Chang, and Man Law did a confirmatory study on the factor structure on the IAT in 2008 and found that the IAT is a valid and reliable test. Specific Cronbach’s Alpha levels were not reported in the cited articles.

### *Variables*

This study intends to discover predictions and comparisons between the independent variables related to online video gaming on the dependent variable of marital satisfaction for both of the partners in the marital dyad. Specifically, independent variables used are socio-demographic information, gaming addiction, the type of couple gaming type, the time spent gaming.

### *Data Analysis*

The data will be collected and organized in a systematic fashion. First, the data will be generally organized using Qualtrics.com which is the program that will collect the initial data. Second, the quantitative data collected from the questionnaire items will be uploaded into the SPSS statistical analysis program. Third, the individual surveys will be matched to their corresponding spouse’s survey using the password they provide at the beginning of the questionnaire. Fourth, a thorough scoring and cleaning of the data will be performed. Fifth, descriptive statistics will be used to describe the underlying characteristics of the research sample using the basic demographic information, and the couples will be placed in their corresponding couple type group. Sixth, a mixed models Analysis of Co Variance (ANCOVA) set at an  $\alpha$ -level set at .05 will be used to determine the relationships between the main variables under investigation. Specifically, the

separate differences in the partners' marital satisfaction scores will be compared with a mixed models Analysis of Co Variance (ANCOVA). This test will enable the individuals in each couple to be assessed separately without removing their natural dependence as a married couple. This test will also make it possible to determine the differences, correlations, and predictions of marital satisfaction using the independent variables of couple gaming type, the time a gamer games, gaming addiction scores (scores from the IAT), and socio-demographic information. The conclusions from this analysis will be based on the cutoff scores found in the quantitative analysis of the RDAS and IAT results. Finally, the results will be interpreted and written up in a formal document.

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Appendix A-1a

Invitation to Participate in the Study for Gamers

### Invitation to Participate

You are invited to participate in a study about the recreational habits of married gamers and their spouses. The questionnaire will take about 10 minutes or less. We need responses for you and your spouse. A separate questionnaire will be given to you and one to your spouse. The questionnaires will be linked for analysis, but you will not be able to see what your partner has marked and we will not link any personal information with your responses. If you are a heterosexual, legally married and an active MMORPG (game like World of Warcraft) gamer, (or your spouse is a MMORPG gamer, or you are both MMORPG gamers), please participate in this study! Four random drawings will take place after the sample is collected. Specifically: two drawings for \$500 Amazon.com gift certificates and two \$250 Amazon.com gift certificates will be raffled. We anticipate a sample of about 600 couples, so the odds of winning are 1 out of 150. Please answer the survey only once, duplicate answers will not be entered into the drawing. Both you and your spouse must complete your individual surveys in order to be entered into the drawing. Thank you!

Click here [www.qualtrics.com](http://www.qualtrics.com) (the link to start the survey will go here.)

If you have any questions, contact [mmorpgcouples@gmail.com](mailto:mmorpgcouples@gmail.com). Please forward this link on to any of your friends that meet the qualifications or place it on other forums as well.

Thank you!

Appendix A-1b  
Informed Consent Form

### Informed Consent Form

**Introduction** The purpose of this web-based research is to identify the recreational and marital habits of married gamers (MMORPG players) and their spouses. The study is being conducted by, Michelle Ahlstrom CTRS, a Master's Degree student from Brigham Young University's Youth and Family Recreation program. You have been invited to participate in this study because you are a heterosexual, legally married gamer (MMORPG player), your spouse is a gamer, or you are both gamers.

**Procedures** Participation in the study typically takes 20-30 minutes and is anonymous. You will answer a multiple choice questionnaire with optional spaces to add any comments at the end. Your survey will be linked to your spouse's survey; however, your spouse will not be able to see the way you answer the survey. Please be honest and answer to the best of your knowledge.

**Confidentiality** All responses are treated as confidential, and in no case will responses from individual participants be identified. Rather, all data will be pooled and published in aggregate form only. Participants should be aware, however, that the experiment is not being run from a "secure" https server of the kind typically used to handle credit card transactions, so there is a small possibility that responses could be viewed by unauthorized third parties (e.g., computer hackers).

**Risks** This study carries some potential risks, which include, but are not limited to, possible conflict within the marital relationship.

**Benefits** There are no direct benefits for participating in this survey.

**Compensation** As an incentive four prize drawings will be offered. Specifically, two

grand prizes of \$500 each (one gift certificate for you and one for your spouse for \$250 each totaling \$500 per prize drawing) and two other drawings for pairs of \$250 gift certificates (one gift certificate of \$125 for you and one for your spouse totaling \$250 per prize drawing) to Amazon.com will be drawn randomly at the end of the study.

**Participation** Participation is voluntary, refusal to take part in the study or withdrawal from the study involves no penalty or loss of benefits to which you are otherwise entitled.

**Questions about the Research** If you have questions concerning the study, contact the principal investigator, Michelle Ahlstrom email: [mmorpgcouples@gmail.com](mailto:mmorpgcouples@gmail.com)

**Rights as a Research Participant** If you have further questions or concerns about your rights as a participant in this study, contact the Christopher Dromey, PhD, IRB Chair at (801) 422-6461, [dromey@byu.edu](mailto:dromey@byu.edu).

If you are 18 years of age or older, understand the statements above, and freely consent to participate in the study, click on the "I Agree" button to begin the questionnaire.

Appendix A-1c  
Questionnaire Questions

Questionnaire Questions

Revised Dyadic Adjustment Scale (RDAS)

Most persons have disagreements in their relationships. Using the scale below, please indicate the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

	Always Agree	Almost Always Agree	Occasionally Agree	Frequently Disagree	Almost always Disagree	Always Disagree
Religious Matters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrations of Affection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Making major decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sex relations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conventionality (correct or proper behavior)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Career decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Using the scale below, please indicate the approximate level of occurrence for each item on the following list.

	All of the time	Most of the time	More often than not	Occasionally	Rarely	Never
How often do you discuss or have you considered divorce, separation, or terminating your relationship?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you and your partner quarrel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you ever regret that you married (or lived together)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you and your mate get on each other's nerves?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Using the scale below, please indicate the approximate level of occurrence between you and your partner for each item on the following list.

	Every day	Almost every day	Occasionally	Rarely	Never
Do you and your mate engage in outside interests together?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Using the scale below, please indicate the approximate level of occurrence between you and your partner for each item on the following list.

	Never	Less than Once a Month	Once or twice a Month	Once or twice a Week	Once a day	More often
Have a stimulating exchange of ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work together on a project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calmly discuss something.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Every day	Almost every day	Occasionally	Rarely	Never
How often do you and your spouse go to bed at the same time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Internet Addiction Test (IAT)

Using the following scale please choose the most appropriate answer for each question

	Rarely	Occasionally	Frequently	Often	Always	Does not apply
How often do you find that you game online longer than you intended?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you neglect household chores to spend more time in the game?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

prefer the excitement of the online game to intimacy with your partner?

How often do you form new relationships with fellow on-line gamers?

How often do others in your life complain to you about the amount of time you spend gaming?

How often do your grades or school work suffer because of the amount of time you spend gaming?

How often do you check to see which of your friends is in the game before something else that you need to do?

How often does your job performance or productivity suffer because of game playing?

How often do you become defensive or secretive when anyone asks you what you do on-line?

How often do you block out disturbing thoughts about your

life with soothing thoughts of your online game?

Using the following scale please choose the most appropriate answer for each question

	Rarely	Occasionally	Frequently	Often	Always	Does not apply
How often do you find yourself anticipating when you will get back in your game again?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you fear that life without your online game would be boring, empty, and joyless?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you snap, yell, or act annoyed if someone bothers you while you are in your game?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you lose sleep due to late-night gaming sessions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you feel preoccupied with gaming when off-line, or fantasize about being back in the game?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you find yourself saying "just a few more minutes" when in your game?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you try to cut down the amount of time you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

spend gaming and fail?

How often do you try to hide how long you've been gaming?

How often do you choose to spend more time gaming over going out with others?

How often do you feel depressed, moody, or nervous when you are not gaming, which goes away once you are back gaming?

#### Other Questions

Are you currently legally married to a heterosexual partner?

- Yes  
 No

Please enter the first three numbers of your street address followed by the first three letters of your last name. If you and your spouse have different last names, please enter the first three letters of the husband's last name on both surveys. If you are the husband please enter this information for yourself. This will serve as the link between your survey and your spouse's survey.

Example: Address: 12345 Main Street, Last name: Brown: Enter 123BRO

How did you hear about this questionnaire?

- Facebook  
 Google Add  
 WoW site  
 Gamingsucks.com  
 Friend, family member, or word of mouth

Do you or your spouse play a Massively Multiplayer Online Role-Playing Game

(commonly known as MMORPG or RPG examples: World of Warcraft, Everquest, Habbo Hotel)?

- I play an MMORPG
- My spouse plays an MMORPG- But I do not play an MMORPG
- We both play an MMORPG
- Neither of us play an MMORPG

Which online role-playing game(s) (MMORPG) do you currently play? (Please select all that apply)

- World of Warcraft
- Everquest
- Habbo Hotel
- Other
- Second Life

How many hours per week do you spend on the Internet for non-work purposes?

What is your primary Internet hobby during non-work Internet use?

- Internet Gaming
- Email
- Facebook/Myspace
- Internet Surfing
- Auction (Ebay or similar)
- Online Gambling
- Pornography Sites
- Other \_\_\_\_\_

Please check the answer which best describes your gaming with your spouse the majority of the time.

- My spouse games, but I do not
- I game, but my spouse does not
- I usually game without my spouse, but when my spouse plays we usually play together, interacting with each other's characters

- I usually game without my spouse, but when my spouse plays we do NOT interact with each other's characters
- We usually play in the same game at the same time, interacting with each other's characters
- We usually play at the same time in the same game, but NOT interacting with each other's characters
- We both play but at different times
- Other

Using the scale below, please indicate the approximate level of occurrence between you and your partner for each item on the following list. Please choose the most appropriate answers.

	Extensively	Somewhat	Not really	Not at all
Do you support your partner's game playing? (Encourage, praise, buy things for the game, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you participate in other personal recreational activities at the same time in the same room with your spouse (eg read, watch TV, other online activities, etc) while your spouse is gaming?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Using the scale below, please indicate the approximate level of occurrence between you and your partner for each item on the following list. Please choose the most appropriate answers.

	Extensively	Somewhat	Not really	Not at all	Does not apply to me
Does your partner support your game playing? (Encourage, praise, buy things for the game, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does your spouse participate in other personal recreational activities at the same time in the same room with you (eg read, watch TV, other online activities, etc) while you are gaming?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which online role-playing game(s) (MMORPG) do you and your spouse/partner currently play together? (Please select all that apply)

- World of Warcraft
- Everquest
- Habbo Hotel
- Other
- Second Life

Are you in the same guild, clan or group as your spouse?

- Yes
- No

How satisfied are you with your participation in gaming with your spouse?

- Very Satisfied
- Satisfied
- Somewhat Satisfied
- Somewhat Dissatisfied
- Dissatisfied
- Very Dissatisfied

How many hours a week do *you* game (play an MMORPG)?

How often do *you* game 8 or more hours in a single day?

- Never
- Rarely (A few times a year)
- Sometimes (A few times a month)
- Often (A few times a week)
- Always (Daily)

What effect do you feel gaming has on your marital relationship?

- We always quarrel about gaming
- We often quarrel about gaming
- Every once in a while we quarrel about gaming

- We don't talk positively or negatively about gaming
- We often talk positively about gaming
- We always talk positively about gaming

How do you feel that gaming has affected your marriage relationship?

- Very negatively
- Negatively
- Slightly negatively
- Slightly positively
- Positively
- Very positively

How often did you play MMORPGs before you married your spouse?

- I did not play before I was married
- rarely before marriage
- less before marriage
- same amount of time as I do now
- slightly more before marriage
- much more before marriage

How were you introduced to MMORPGs?

- Spouse
- Co-worker
- Friend
- Advertisement
- Progression from other video games
- Other

#### Socio-demographics

How do you classify your race or ethnicity?

- Asian
- Black or African American
- Hispanic or Latino



134 Gamers and Marital Satisfaction

- American Indian or Alaska Native
- Pacific Islander
- White
- Other

What is your gender?

- Male
- Female

What is your age? (Please enter a numeric value)

How long have you been married?

Please indicate the number of dependent children currently living in your home.

What country do you live in?

- United States
- United Kingdom
- Canada
- Other

What is your native language (first language)?

- English
- Spanish
- Chinese
- German
- Hindi
- Bengali
- Portugese
- Russian
- Korean

Japanese

Other

What is the name of the state you are currently living in?

Population of your place of residency:

Urban/Suburban (>50,000)

Rural (<50,000)

Please indicate the estimated annual income for your family.

What is your employment status?

Full time

Part time

I am not employed

Full time stay at home mom or dad

Retired

Full time student

Other

What is your spouse's employment status

Full time

Part time

My spouse is not employed

Full time stay at home mom or dad

Retired

Full time student

Other

What is the highest level of education you have obtained?

Some high school

136 Gamers and Marital Satisfaction

- High-school Diploma or GED
- Some College
- Bachelor's Degree
- Some Graduate work
- Graduate (Master's) Degree
- Graduate (PhD) Degree

Please feel free to elaborate on any of the above questions, make any comments you would like to make or provide any other information that you feel would be useful to this research. Thank you for your participation.