



Theses and Dissertations

---

2015-07-01

## The Moderating Effect of Attachment Behaviors on the Association Between Video Game Use, Time Together as a Problem, and Relationship Quality

Stella Christine Dobry  
*Brigham Young University - Provo*

Follow this and additional works at: <https://scholarsarchive.byu.edu/etd>



Part of the [Marriage and Family Therapy and Counseling Commons](#)

---

### BYU ScholarsArchive Citation

Dobry, Stella Christine, "The Moderating Effect of Attachment Behaviors on the Association Between Video Game Use, Time Together as a Problem, and Relationship Quality" (2015). *Theses and Dissertations*. 5931.

<https://scholarsarchive.byu.edu/etd/5931>

This Thesis is brought to you for free and open access by BYU ScholarsArchive. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of BYU ScholarsArchive. For more information, please contact [scholarsarchive@byu.edu](mailto:scholarsarchive@byu.edu), [ellen\\_amatangelo@byu.edu](mailto:ellen_amatangelo@byu.edu).

The Moderating Effect of Attachment Behaviors on the Association Between  
Video Game Use, Time Together as a Problem,  
and Relationship Quality

Stella Christine Dobry

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the  
Master of Science

Angela Bradford, Chair  
Jonathan Sandberg  
Sarah Coyne

School of Family Life  
Brigham Young University  
July 2015

Copyright © 2015 Stella Christine Dobry  
All Rights Reserved

## ABSTRACT

### The Moderating Effect of Attachment Behaviors on the Association Between Video Game Use, Time Together as a Problem, and Relationship Quality

Stella Christine Dobry  
School of Family Life, BYU  
Master of Science

The purpose of this study was to test whether video game use is associated with more problems with spending time together among married couples, whether problems with time together are associated with relationship quality, and whether attachment behaviors can moderate the association between time together as a problem and relationship quality. Previous studies have found a negative association between excessive video game use and couple relationship outcomes. Excessive video game use may negatively impact relationships by taking away from time spent on shared leisure and relationship maintenance activities. The Double ABCx model provided a theoretical framework for understanding how attachment behaviors such as accessibility, responsiveness, and engagement may act as protective factors that buffer the stress created by video game use and perceiving time together as a problem on couple relationships. A sample of 415 married couples who took the Relationship Evaluation Questionnaire between 2011 and 2013 and indicated that one or both partners played video games was used. Results indicated that there was a negative indirect effect of women's sports and music game use on women's relationship quality via women's reports of time together as a problem in the relationship. There was also a positive indirect effect of women's exercise game use on relationship quality. There was also a negative association between men's and women's reports of time together as a problem on own relationship quality. Men's attachment behaviors moderated the association between women's reports of time together as a problem and women's relationship quality. Clinical implications include more thoroughly assessing why video game use may be a problem in the relationship and fostering healthy attachment behaviors.

Keywords: attachment behaviors, couple relationships, media, relationship quality, time together, video games

## ACKNOWLEDGEMENTS

I am grateful for Angela Bradford, my thesis advisor, who helped me through every step of this process. She believed in me and put in many hours to help me finish my thesis and be successful in this program. Without her guidance and support, I would not have survived. I would also like to thank my committee members for their dedication and thoughtful comments.

To my cohort, thank you for your kindness and faith in me. It has been a joy to be on this journey with you and to learn from each you.

Thank you to my husband, Jason. He has been supportive of the many personal changes I have been through during the last two years and has been a true partner. I am grateful that he has stuck with me through all the late nights and emotional breakdowns and helped build me back up. Finally, thank you to my sweet baby girl, Cecily. Her smile, enthusiasm for life, and endless curiosity is what keeps me going.

## TABLE OF CONTENTS

Introduction.....	1
Theoretical Underpinnings.....	2
The Role of Attachment.....	5
Attachment behaviors.....	7
Current Study.....	7
Methods.....	8
Participants.....	8
Procedure.....	10
Measures.....	10
Analytic Strategy.....	13
Results.....	14
Preliminary Analyses.....	14
Discussion.....	17
Limitations and Future Directions.....	21
Clinical Implications.....	23
Conclusion.....	24
References.....	26
Appendix.....	34
Extended Literature Review.....	41

## LIST OF TABLES

Table 1.....	34
Table 2.....	35
Table 3.....	37

## LIST OF FIGURES

Figure 1.....	38
Figure 2.....	39
Figure 3.....	40

## Introduction

Over the last decade, video game use has increased significantly. Even despite economic downturn, the video game industry has continued to grow, resulting in almost \$21 billion in revenue during 2012 (Entertainment Software Association, 2013). Some types of video games, including Massively Multiplayer Online Role Playing Games [MMORPGs], demand a great deal of time and commitment from their players. In fact, some players report spending more than 35 hours per week in game play—the equivalent of full-time employment (Hussain & Griffiths, 2009).

While the popularity of video games is certain, researchers have only recently turned their attention to the effects of video game use. Many studies have focused on its effect on individual functioning (see Anderson et al., 2010 and Sublette & Mullan, 2012 for reviews). However, the average age of frequent game players is thirty (Entertainment Software Association, 2013) and thirty-six percent of MMORPG players are married (Yee, 2006). In light of these statistics, recent studies have begun to explore the impact of video game use on relationship functioning. For example, some studies have established an association between gaming and lower relationship satisfaction (Ahlstrom, Lundberg, Zabriskie, Eggett, & Lindsay, 2012; Lo, Wang, & Fang, 2005). In addition, clinicians report that video game use is a problematic factor in many distressed couple relationships (Hawkins & Hertlein, 2013; Mitchell & Wells, 2007). While few studies (e.g. Ahlstrom et al., 2012) have examined the influence of a specific type of video game use on relationship outcomes, most studies have only focused on general video game use (e.g. Coyne et al., 2012) and failed to distinguish between game types. Some studies of general video game use have suggested that video game use may act as a stressor on couple relationships because it takes away from time spent on shared leisure and

relationship maintenance activities (Coyne et al., 2012). Thus, gaming usage presents unique challenges to couples where one or both partners spend an excessive amount of time playing games.

Research and practice would benefit from studies addressing what factors might intervene in and moderate the negative link between video game use and relationship quality. The current study is the first of published studies to conduct an examination of both intervening and moderating variables. Furthermore, it expands on the current literature by distinguishing between different types of video games. Drawing on the Double ABCx model and attachment theory and literature, we test 1) whether video game use is related to reports of time together as a problem in the relationship, and whether time together as a problem is associated with relationship quality, and 2) whether positive attachment behaviors (i.e., accessibility, responsiveness, and engagement; Sandberg, Busby, Johnson, & Yoshida, 2012) can moderate this association.

### **Theoretical Underpinnings**

Spending meaningful time together on a regular basis is critical to maintaining a healthy, bonded relationship (Gager & Sanchez, 2003; Zuo, 1992). According to the “time displacement hypothesis,” spouses who spend a significant amount of time on *individual* leisure activities spend less time with their partners on *shared* leisure and relationship maintenance activities (Coyne et al., 2012; Kraut et al., 1998). Since video game use is often an individual activity, high video game use may act as a stressor on couple relationships by interfering with time that would have otherwise been spent on critical bonding activities. Without as many opportunities to spend time together, non-gaming partners may begin to feel that their gaming partners are not emotionally available and are less securely bonded to them.

The Double ABCx model first developed by McCubbin and Patterson (1983) provides a useful framework for understanding how the stress of not spending enough time together due to video game use might impact couple relationships. The Double ABCx model has been used extensively to explain various associations between stressful events and poor family functioning such as families dealing with autism (Manning, Wainwright, & Bennett, 2011) and divorce (Plunkett, Sanchez, Henry, & Robinson, 1997).

This Double ABCx model proposes that families experience stressors that lead to problems in family relationships and that adaptive resources such as shared values and social support can buffer the negative effects of stressors on family relationships (McCubbin & Patterson, 1983). Adaptive resources or the lack thereof help researchers and clinicians understand why some families become distressed under stressful circumstances while other families avoid crisis. When families do not possess the appropriate resources to cope with particular stressors, families are more likely to experience distress, poor relationship outcomes, and even family crisis. On the other hand, adaptive resources can act as protective factors that help families demonstrate resilience and cope with stressors in healthy ways. For example, attachment behaviors could act as a protective factor for couple relationships experiencing stress from lack of time together due to video game use. Attachment behaviors show one's partner that he or she is open to providing support and comfort, able to respond to emotional needs, and engaged in bonding moments. Even if partners spend significant amounts of time away from each other, partners who demonstrate healthy attachment behaviors during the time that is spent together may succeed in creating a sense of security and emotional safety that leads to positive relationship outcomes. Thus, attachment behaviors may moderate the negative relationship between time spent away from the relationship and relationship outcomes.

## **Gaming and Relationship Quality**

Recent research has begun to explore the effects of video game use and how it may act as a stressor on couple relationships. Several studies have found that gaming has positive effects on social outcomes for individuals including increased social support (Trepte, Reinecke, & Juechems, 2012), more positive social interactions (Hussain & Griffiths, 2009), and, when used together, increased family closeness (Durkin & Barber, 2002; Coyne, Padilla-Walker, Stockdale, & Day, 2010; Padilla-Walker, Coyne, & Fraser, 2012). Only one study (Ahlstrom et al., 2012) found positive effects of gaming on couple relationship outcomes, but only when partners played together. Despite these positive correlates, other studies have identified negative outcomes.

First, video game use has been linked to decreased relationship quality with both friends and parents (Lo et al., 2005; Padilla-Walker, Nelson, Carroll, & Jensen, 2010) and lower relationship satisfaction with romantic partners (Ahlstrom et al., 2012). Moreover, higher levels of video game dependence strongly predict lower use of maintenance strategies in relationships (Chory & Banfield, 2009). In other words, people who display a pathological use of video games may use fewer strategies such as shared tasks and conflict management to maintain their relationships.

Other researchers have established an association between higher levels of gaming and higher levels of conflict in the relationship (Coyne et al., 2012; Hussain & Griffiths, 2009). Because gamers use conflict management techniques less often, it is possible that they not only have more conflicts, but also leave more conflicts unresolved. In addition, these conflicts over media use lead to increased physical and relational aggression in the relationship (Coyne et al., 2012). Furthermore, when video game use is perceived as a problem in the relationship, both partners' attachment behaviors may decrease (Larson, Smith, Busby, & Sandberg, 2013).

Another reason for decreased relationship quality is that gamers can become extremely involved in relationships established during the game. High levels of intimacy can exist in virtual relationships (Scott, Mottarella, & Lavooy, 2006), possibly leading to jealousy from non-gaming partners, particularly women (Helsper & Whitty, 2010).

Finally, type of video game may be related to relationship quality. For example, Ahlstrom et al. (2012) focused on couples who played MMORPGs and established a negative link between MMORPG use and relationship satisfaction. Furthermore, Larson et al. (2013) found that for men, violent video game use, but not nonviolent, was related to partner's perception of video game use as a problem in the relationship. However, other studies such as Coyne et al. (2012) have examined general video game use and found it to be related to negative relationship outcomes. While video game use may not be harmful to all relationships, it is clearly destructive when couples are unable to manage the relationship stressors associated with it.

### **The Role of Attachment**

While video game use and the time it takes away from relationships may act as a stressor on couple relationships, couple attachment may act as a protective factor for preserving positive relationship quality. Based on Bowlby (1969)'s original observations of the infant and mother relationship, attachment theory has evolved to conceptualize romantic relationships as bonds that aid adults in providing and receiving the basic human needs of comfort, safety, and security (Hazan & Shaver, 1987). Over the last twenty-five years, empirical data has amassed to support the idea that secure attachment is predictive of positive relationship quality (Cassidy & Shaver, 2008; Mikulincer & Shaver, 2007). For example, couples who are securely attached have relationships that exhibit greater interdependence, trust, commitment, and satisfaction (Besharat,

2003). On the other hand, adults in non-secure relationships experience higher conflict and therefore less satisfaction in their relationships (Campbell, Simpson, Boldry, & Kashy, 2005).

In addition to the strong association between secure attachment and high relationship quality, attachment can moderate effects on relationship outcomes. In other words, it can act as a buffer against various stressors on couple relationships. For instance, attachment anxiety and dependency moderate the negative effect of intimate partner violence on Post-Traumatic Stress Disorder [PTSD] symptoms (Scott & Babcock, 2010). Attachment anxiety is related to fears of abandonment and rejection while attachment dependence is related to expectations of trust. Women who experienced intimate partner violence were more susceptible to developing symptoms of PTSD, but especially when they were highly anxiously or dependently attached to their partner. More positively, secure attachment has been shown to successfully moderate the association between depressive symptoms and marital adjustment (Heene, Buysse, & Van Oost, 2005; Scott & Cordova, 2002), where couples who build a secure attachment are more likely to adjust well to marriage despite the presence of depressive symptoms in the relationship. Evidently, attachment factors can have a positive influence on relationship outcomes despite the presence of other negative influences. It is likely that this positive influence can be extended to other relationship stressors such as insufficient time together in the relationship due to excessive video game use.

However, attachment has generally been conceptualized as a global construct or style that remains consistent over time. Attachment *style* is thought to be shaped by internal working models, which are developed in childhood based on a child's relationship with his or her primary caregiver (Bowlby, 1969). On the other hand, attachment *behaviors* are specific actions demonstrated in a relationship that are influenced by these internal working models. In other

words, attachment behaviors reflect more about the current relationship. Less is understood about the role that these relationship-specific attachment behaviors play in moderating negative associations in couple relationships.

**Attachment behaviors.** While attachment style describes a consistent pattern of relating to various attachment figures throughout time, relationship-specific attachment behaviors describe observable behaviors that promote healthy attachment in the current relationship. Attachment behaviors consist of three critical components: emotional accessibility, responsiveness, and engagement (Sandberg et al., 2012). Accessibility is being open and available for emotional support. Responsiveness is the ability to recognize and attend to one's partner's needs (Collins & Ford, 2010). Engagement refers to critical bonding moments that provide comfort and strengthen connection with one's partner (Sandberg et al., 2012). When accessibility, responsiveness and engagement are present in a couple relationship, a secure attachment is formed, and this secure attachment may protect against negative stressors in the current relationship such as insufficient time together.

### **Current Study**

The time displacement hypothesis and extant literature suggest that video game use may act as a stressor in couple relationships because it takes away from time spent on relationship-building activities (e.g., Coyne et al., 2012). The Double ABCx model (McCubbin & Patterson, 1983) proposes that stressors in families lead to crisis events. However, the Double ABCx model also suggests that despite relationship stressors, certain protective factors intervene to buffer relationships from the negative effects of such stressors. Because there is evidence that healthy attachment can moderate the relationship between other stressors and their negative effects (e.g., Heene et al., 2005), it is possible that attachment acts as a protective factor in the

relationship between reports of time together as a problem and relationship quality. The current study uses a sample of married couples and tests the link between video game use, time together as a problem, and relationship quality. It is the first to explicitly examine the indirect effect of video game use on relationship quality via time together as a problem. It also examines whether the effect of time together as a problem is moderated by partner's healthy attachment behaviors. Specific hypotheses to be tested are:

H1: Frequency of video game play will predict problems with time spent together for self and partner, which will predict lower relationship quality for self and partner.

H2a: Partner's more secure attachment behaviors will moderate the association between perceiving time together as a problem in the relationship and one's own relationship quality.

H2b: One's more secure attachment behaviors will moderate the association between perceiving time together as a problem in the relationship and partner's relationship quality.

## **Methods**

### **Participants**

This study used a paired sample of married or remarried, heterosexual couples who volunteered to take the Relationship Evaluation Questionnaire (RELATE; Busby, Holman, & Taniguchi, 2001) between 2011 and 2013. During that time, 680 couples from across the United States completed RELATE. Of those, 431 couples indicated that either one or both partners play video games; however, an additional 16 couples were missing data on one or more of the independent variables, automatically excluding them from analyses. A missing values analysis indicated that these missing data were random. Thus, the final analytic sample comprised 415 couples. Almost half (45.5%) of couples reported that only the husband plays video games;

45.1% of couples reported that both husband and wife play video games; 9.4% of couples reported that only the wife plays video games.

The mean age for males was 32.06 ( $SD = 9.86$ ), and the mean age for females was 30.21 ( $SD = 9.94$ ). For relationship length, the median value for time married was 1 to 2 years for both males and females. For men, 32.0% reported being married 0 to 1 years, 20.7% for 1 to 2 years, 14.5% for 3 to 5 years, 12.8% for 6 to 10 years, and 19.9% for 11 years or more. For women, 31.8% reported being married 0 to 1 years, 21.7% for 1 to 2 years, 14.2% for 3 to 5 years, 12.3% for 6 to 10 years, and 20.0% for 11 years or more. Most (89.9%) male participants were in their first marriage and 10.1% were in a remarriage. Similarly, 89.4% of female participants were in their first marriage and 10.6% were in a remarriage.

For men, 50.6% had not completed a college education, 27.0% had completed either an Associate's or Bachelor's degree and 22.4% were in the process of earning or had already received a graduate or professional degree. For women, 46.0% had not completed a college education, 34.9% had completed either an Associate's or Bachelor's degree and 19.0% were in the process of earning or had already received a graduate or professional degree.

For ethnicity, the majority of the sample was Caucasian. For men, 85.7% reported being Caucasian with 4.6% African/Black, 4.1% Latino, 1.9% Mixed/Biracial, 1.9% Asian, and 1.7% Native American or Other. For women, 83.6% reported being Caucasian with 3.6% African/Black, 3.6% Latino, 4.1% Asian, 2.7% Mixed/Biracial, and 2.4% Native American or Other.

In regards to religious affiliation, 57.3% of men and women reported being Latter-day Saint/Mormon. This was controlled in analyses.

## **Procedure**

The data for analysis was taken from the Relationship Evaluation Questionnaire (RELATE; Busby et al., 2001). Participants voluntarily answered more than 300 questions about themselves and their romantic relationships. Couples were recruited from community advertising, university classes, and referrals from therapeutic professionals. The survey was taken online and couples were provided with their results after completion.

## **Measures**

RELATE was developed in 1997 and data from the questionnaire has been used in numerous peer-reviewed studies (e.g. Busby, Holman & Niehuis, 2009; Coyne, Stockdale, Busby, Iverson, & Grant, 2011). The questionnaire evaluates a couple's relationship within the domains of individual, couple, cultural, and family of origin. The measures included in RELATE have withstood rigorous validity and reliability testing, demonstrating good test-retest and internal consistent reliability and content, construct, and concurrent validity (Busby et al., 2001). The current study will examine RELATE items that measure video game use, reports of time together as a problem, attachment behaviors, and relationship outcomes. For all measures, both husbands and wives provided data, and each spouse's responses were used as variables in the model.

**Video game use.** Participants were asked how often they play the following six types of video games: role playing games, first person shooters, Massively Multi-Player Online Role-playing Games [MMORPGs], sports, music/party games, and exercise/fitness games. For each type of game, they selected one response from a Likert scale ranging from 1 ("More than Once a Day") to 7 ("Never"). Higher scores mean less frequent video game use, and lower scores mean more frequent video game use; however, the data were rescored for statistical analyses so that

higher scores mean higher video game use and lower scores mean lower video game use.

Responses for each of the six game types were used as six observed variables.

**Time together as a problem.** Participants were asked, “How often has the following been a problem in your relationship: Time spent together?” They selected one response from a Likert Scale ranging from 1 (“Never”) to 5 (“Very Often”). Higher scores mean time together is more often a problem. This variable was mean centered to reduce multi-collinearity for the moderation analysis and included as an observed variable in the model.

**Attachment behaviors.** Attachment behaviors was a latent construct, measured by the three subscales of the Brief Accessibility, Responsiveness, and Engagement Scale (BARE; Sandberg et al., 2012). Participants were asked to respond to two statements for each of the three subscales that measure their own accessibility, responsiveness, and engagement. Responses to statements were chosen from a five-point Likert scale varying from 1 (“Never True”) to 5 (“Always True”). Higher scores mean more healthy/secure attachment behaviors. Sample items from each subscale include “It is hard for my partner to get my attention” (Accessibility), “I listen when my partner shares his/her deepest feelings” (Responsiveness), and “I struggle to feel close and engaged in our relationship” (Engagement). Cronbach’s alpha for the subscales were as follows: Accessibility: men  $\alpha=.58$  women  $\alpha=.75$ , Responsiveness: men  $\alpha=.53$ , women  $\alpha=.53$ , Engagement: men  $\alpha=.75$ , women  $\alpha=.73$ . These reliabilities are relatively low which is expected given that each subscale only contained two items. However, because attachment behaviors is a latent construct, measurement error associated with these subscales is not included in the attachment behaviors variable. Measurement model information is in the Results section.

**Relationship quality.** The relationship quality construct was a latent construct measured using measures of relationship satisfaction, stability, and problem areas. To measure relationship

satisfaction, participants were asked how satisfied they are with seven aspects of their relationship, such as how conflicts are resolved and communication quality. Responses were chosen from a five-point Likert scale ranging from 1 (“Very Dissatisfied”) to 5 (“Very Satisfied”). Higher scores mean higher relationship satisfaction. Cronbach’s  $\alpha=.91$  for men and  $.92$  for women. The relationship stability scale asked partners how often they have thought their marriage might be in trouble, how often they have discussed ending their marriage, and how often they have separated and then gotten back together. Responses were chosen from a five-point scale ranging from 1 (“Never”) to 5 (“Very Often”). Higher scores mean more relationship stability. Cronbach’s  $\alpha=.75$  for men and  $.77$  for women. For problem areas, participants are asked, “How often have the following areas been a problem in your relationship?” to eight items. Sample problem areas include intimacy/sexuality and roles (who does what). Responses are chosen from the same scale as the stability measure. Higher scores mean more relationship problems. Cronbach’s  $\alpha=.74$  for men and  $.76$  for women. Measurement model information for this construct is in the Results section.

**Controls.** The majority of participants in this sample reported their religious affiliation as Latter-day Saint (Mormon). Because the percentage of LDS participants is not representative of the population as whole and religious affiliation may influence relationship outcomes, analyses controlled for the effect of being LDS (e.g. Mahoney, Pargament, Tarakeshwar, & Swank, 2008). Similarly because relationship length (e.g. Arriaga, 2001; Doyle, & Molix, 2014; Kirkpatrick, & Davis, 1994) and socioeconomic status (e.g. Choi & Marks, 2013; Clark-Nicolas & Gray-Little, 1991) have been linked to relationship outcomes, these variables were included as covariates and controlled.

### **Analytic Strategy**

Because partners' video game use, time together, and relationship quality variables are likely related, the data analyzed were considered to be non-independent. The Actor-Partner Interdependence Model (APIM; Kenny, Kashy, & Cook, 2006) assumes that there are two levels of data (individual and couple) and is therefore an appropriate method of data analysis. The APIM allows for both actor effects (e.g., the effect of the participant's video game use on his/her own time together as a problem) and partner effects (e.g., the effect of the participant's video game use on the spouse's time together as a problem).

Preliminary analyses were conducted in SPSS to examine univariate and bivariate statistics for the measured variables in the study (Field, 2013). Then, the hypothesized APIM model (see Figure 1) was examined as a Structural Equation Model (SEM) using Mplus, version 7.1 (Muthén & Muthén, 2009). SEM allows for a stringent test of the full model by testing each path while controlling for the effects of the others, and it removes measurement error by creating latent constructs that underlie observed, measured variables (Kline, 2010). Additionally, bootstrapping was used to estimate indirect effects of video game use on relationship quality. Finally, the moderating effect of attachment behaviors was tested by estimating the main effect of attachment behaviors and an interaction effect of time together as a problem and attachment behaviors. Two moderation models were tested (separately to avoid multicollinearity of interaction terms). The first tested the moderating effect of partner's attachment behaviors on the actor effect of time together as a problem and relationship quality (see Figure 2), and the second tested the moderating effect of own attachment behaviors on the effect of (own) time together as a problem and (partner's) relationship quality (see Figure 3).

## Results

### Preliminary Analyses

Descriptive statistics (Table 1) and bivariate correlations (Table 2) were calculated for all observed variables in the model. Overall, participants reported relatively low levels of video game use and moderate-to-high levels of attachment behaviors and indicators of relationship quality. The measurement model for relationship quality showed excellent fit to the data ( $\chi^2(7) = 9.49, p = .22$ ; RMSEA = .03,  $p = .76$ ; TLI = 1.00; CFI = 1.00) and partial measurement invariance for men and women (factor loadings were equivalent). Similarly, the measurement model for attachment behaviors showed excellent fit to the data ( $\chi^2(10) = 18.68, p = .04$ ; RMSEA = .05,  $p = .48$ ; TLI = .98; CFI = .99) and partial measurement invariance for men and women. For both constructs, men and women's latent constructs were correlated. Measurement model factor loadings for both latent constructs are in Table 3.

### **Hypothesis 1: Frequency of video game play will predict problems with time spent together for self and partner, which will predict lower relationship quality for self and partner**

For the hypothesized model (see Figure 1), there was excellent model fit ( $\chi^2(135) = 238.38, p < .001$ ; RMSEA = .04, 90% CI: .03 .05,  $p = .90$ ; TLI = .94; CFI = .95). The only significant actor effects of video game use on time together as a problem were for women. Results indicated that higher frequency use of music ( $b=.21, SE=.07, p=.005 / \beta = .18$ ) and sports games ( $b=.20, SE=.10, p=.044 / \beta = .10$ ) were related to more problems with time spent together, and higher frequency use of exercise games ( $b=-.24, SE=.07, p=.001 / \beta = -.25$ ) was related to fewer problems with time spent together. There were no significant partner effects of video game use on time together as a problem for men or women. The model explained 3.8% of the variance in men's and 5.6% of the variance in women's reports of time together as a problem.

For men, time together as a problem was associated with lower relationship quality for self ( $b=-.27, SE=.04, p<.001 / \beta = 0.40$ ) and partner ( $b=-.11, SE=.04, p=.001 / \beta = -.14$ ). For women, time together as a problem was also associated with lower relationship quality for self ( $b=-.35, SE=.03, p<.001 / \beta = -.47$ ) and partner ( $b=-.16, SE=.03, p<.001 / \beta = -.24$ ). The test of indirect effects using bootstrapping confirmed that women's higher frequency sports ( $b=-.08, SE=.04, p=.036 / \beta = -.06, SE = .03, p = .03$ ) and music ( $b=-.08, SE=.03, p=.006 / \beta = -.10, SE = .04, p = .006$ ) game playing was associated with lower relationship quality for women, whereas higher frequency exercise game use ( $b=.09, SE=.03, p=.001 / \beta = .13, SE = .04, p = .001$ ) was associated with higher relationship quality. Similarly, women's higher frequency music use had a negative indirect effect ( $b=-.06, SE=.03, p=.034 / \beta = -.08, SE = .03, p = .03$ ), and their higher frequency use of exercise games had a positive indirect effect ( $b=.06, SE=.02, p=.008 / \beta = .10, SE = .04, p = .006$ ) on men's relationship quality. The model explained 43.7% of the variance in men's relationship quality and 44.6% of the variance in women's relationship quality.

**Hypothesis 2a: Partner's more secure attachment behaviors will moderate the association between perceiving time together as a problem in the relationship and one's own relationship quality.**

The first moderation model tested the moderating effect of partner's attachment behaviors on the actor effect of time together as a problem and relationship quality (see Figure 2). Results indicated that there was a significant main effect of men's attachment behaviors on women's relationship quality ( $b = 1.93, SE = .36, p < .001$ ). There was also a significant interaction effect between women's perception of time together as a problem and men's attachment behaviors on women's relationship quality ( $b=.18, SE=.09, p=.03$ ). Additionally, the effect of men's time together as a problem on women's relationship quality became non-

significant ( $b = -.02$ ,  $SE = .03$ ,  $p = .58$ ). Thus, men's attachment behaviors moderate the association between women's perception of time as a problem and women's relationship quality.

This moderation was further probed by plotting the simple slope of time together as a problem at the mean ( $M = 0$ ) and  $\pm 1$  standard deviation. Figure 3 shows the slopes and 95% confidence bands for each slope as generated by Mplus. Because latent variable means are automatically constrained to zero in Mplus, an additional model was fit to probe the regression. This was a mixture model of two groups, where the interaction term was removed and men's attachment behaviors were constrained to one in the first group (representing one standard deviation above the mean) and freely estimated (at the default of zero) in the second group. For both groups, the effect of women's time together as a problem on their own relationship quality was still significant ( $b = -.27$ ,  $SE = .05$ ,  $p < .001$  /  $\beta = -.43$ ,  $SE = .07$ ,  $p < .001$  and  $b = -.34$ ,  $SE = .07$ ,  $p < .001$  /  $\beta = -.48$ ,  $SE = .08$ ,  $p < .001$ , respectively). Taken together, results suggest that for all groups, time together as a problem is negatively associated with relationship quality for women; however this relationship is weaker when husbands report higher attachment behaviors.

For men, there was a significant main effect of women's attachment behaviors on men's relationship quality ( $b = .77$ ,  $SE = .16$ ,  $p < .001$ ). There was no significant interaction effect of men's perception of time as a problem and women's attachment behaviors on men's relationship quality ( $b = .04$ ,  $SE = .05$ ,  $p = .37$ ).

**Hypothesis 2b: One's more secure attachment behaviors will moderate the association between perceiving time together as a problem in the relationship and partner's relationship quality.**

The second moderation model tested the moderating effect of own attachment behaviors on the effect of (own) time together as a problem and (partner's) relationship quality (see Figure

2). Results again indicated that there was a significant main effect of men's attachment behaviors on women's relationship quality ( $b=1.90$ ,  $SE=.36$ ,  $p<.001$ ) and a main effect of women's attachment behaviors on men's relationship quality ( $B=1.63$ ,  $SE=.59$ ,  $p=.006$ ). There were no significant interaction effects; however, the partner effects of time on relationship quality were both non-significant in this model ( $b=-.04$ ,  $SE=.03$ ,  $p=.08$  for women, and  $b=-.02$ ,  $SE=.03$ ,  $p=.59$  for men).

### Discussion

Research shows that video game use is associated with various outcomes in couple relationships. While some studies have shown positive effects (Ahlstrom et al., 2012), other studies have found negative effects (Coyne et al., 2012; Larson et al., 2013). The time displacement hypothesis suggests that one reason for negative effects is that individuals who spend time on individual leisure activities may spend less time on shared relationship maintenance activities, leading to negative relationship outcomes (Coyne et al., 2012; Kraut et al., 1998). However, the double ABCx model proposes that the stress on relationships created by video game use may be buffered by protective factors such as spouse's attachment behaviors (McCubbin & Patterson, 1983). The purpose of this study was to examine two hypotheses. The first addressed the time displacement hypothesis by examining whether frequency of video game play predicts more problems with time together in the relationship, and whether more problems with time together are related to lower relationship quality for self and partner. The second hypothesis addressed whether more secure attachment behaviors moderate the association between video game use and relationship quality.

Previous examinations have included time together as a problem as an intervening variable between video game use and relationship outcomes (Coyne et al., 2012). The current

study adds to the literature by explicitly testing the indirect effects of video game use on relationship quality. Somewhat surprisingly, video game use was only associated with lower relationship quality via time together as a problem for women. When women played music and sports games more frequently, they reported more problems with time together. However, playing exercise games more frequently was associated with less problems with time together. There was no effect on partner's report of time together as a problem, and men's game use was not related to self or partner's reports of time together as a problem. This result partly contradicts findings by Coyne and colleagues (2012), who found that video game use was associated with more problems around time together for men and women. This may be because Coyne and colleagues used a sample of partnered adults without differentiating couples by relationship status, whereas this study used a sample of married couples. Additionally, whereas Coyne and colleagues looked at more general video game use, this study addressed the effects of each type of video game. It may be that combining all game types into one confounds findings by allowing the effects of specific games to drive results. Thus, the current findings may be a better reflection of the effect of gaming on time together as a problem because they disentangle the effects of specific games. Still, the finding that the games that require the highest time commitment were not related to time together as a problem is interesting. It could be that among married couples who play relatively infrequently, even the most time-demanding video games are not as threatening to time spent together as other demands on time may be (such as child-rearing or careers). Still, Ahlstrom and colleagues (2012) found a direct link between playing MMORPGs and lower marital satisfaction. Thus, the current findings may need to be replicated using higher frequency player samples to test the time displacement hypothesis more thoroughly among all types of players.

The one finding that was consistent with the hypothesis that gaming is related to more problems with time together and lower relationship quality was in sports and music game-playing among women. Music games were among the most frequently played by women. Because how much effort one puts into the relationship is associated with satisfaction (Shafer, Jensen, & Larson, 2014), and women tend to assume much of the responsibility for the emotional climate of the relationship (e.g., Duncombe & Marsden, 1993), it is possible that when they take the time to play video games—an individual pursuit—they feel stretched or otherwise recognize that their relationship is not being nurtured as it would otherwise. This would help explain why findings were significant among women, rather than men. Conversely, due to the cross-sectional nature of the data, this finding may be inverted. It is possible that women who are more unhappy in the relationship tend to avoid spending time with their husbands and engage in more individual pursuits. With either explanation, it appears that when women play sports and music games, it may be a signal that the relationship is weakened.

Interestingly, the more women played exercise games, the less time together was a problem and the higher their relationship quality was. There has been some indication that playing games together can have positive effects on relationships (Ahlstrom et al., 2012; Padilla-Walker et al., 2012). Although this was not specifically asked of study participants, bivariate correlations indicate a moderate to strong correlation for men and women, suggesting that they may be playing exercise games together. It follows, then, that playing games together would be less related to time together as a problem. It is also possible that women are playing exercise games as a way of maintaining an active lifestyle (rather than going to the gym, for example), and so it does not take away from time together beyond typical daily activities. Additionally, exercising leads to better health (e.g. Warburton, Nicol, & Bredin, 2006), which is associated

with better moods among women (Janisse, Nedd, Escamilla, & Nies, 2004), which may lead to higher marital satisfaction.

As expected, when either husband or wife reported that time together was a problem, it negatively predicted their own and their partner's relationship quality. This finding provides support for one element of the time displacement hypothesis because it suggests that couples who spend less time together than they would like report lower quality relationships. Other studies have found similar support for the impact of time together on marital quality. For example, Gager and Sanchez (2003) found that husband's perception of time together as too little was significantly related to divorce rates, and Zuo (1992) found that the time a couple spends on mutual activities is related to marital happiness. Although it is certainly not the only factor related to marital quality, spending time together creates opportunities for bonding and expressing affection (Zuo, 1992).

For the second hypothesis, results indicated that both spouses' reports of attachment behaviors play an important role in the relationship between reporting time together as a problem and relationship outcomes. For husbands, the interaction between reporting time together as a problem and wives' attachment behaviors was not significant, but there was nonetheless a main effect of wives' attachment behaviors. For wives, their report of time together as a problem in the relationship was moderated by husbands' attachment behaviors.

The moderation by attachment behaviors provides further support for the Double ABCx model, which suggests that stressors on family relationships may be buffered by various protective factors (McCubbin & Patterson, 1983). Other studies have found that attachment style buffers against the negative effects of things that impact relationship outcomes. For instance, Heene et al. (2005) found that secure attachment style moderated the association between

depressive symptoms and marital adjustment for women. The current study moves beyond previous literature by indicating that secure attachment *behaviors* in addition to an overall attachment *style* can protect against stressors on a couple relationship. This means that a partner might not necessarily have to possess an overall secure attachment style to mitigate potential negative effects if the partner engages in secure relationship-specific attachment behaviors. These findings expand on the Double ABCx model by showing that specific, positive behaviors of family members may act as a resource to draw on when relationships are stressed.

Although this study did not find a moderating effect of female attachment behaviors on male relationship quality when time was a problem, the study *did* find that female attachment behaviors were still related to men's relationship quality, independent of time together being a problem. Like other studies have proposed (Larson et al., 2013; Schade et al., 2013), this finding supports the conclusion that attachment behaviors are positively related to relationship quality and expands on this previous work by showing that attachment behaviors may matter regardless of other contextual factors in the relationship.

### **Limitations and Future Directions**

The average video game user in this study indicated that he or she plays video games once a month or less. Thus, the sample is of couples who play video games relatively infrequently. Because many other studies' most concerning findings about video game use are associated with high frequency and/or pathological video game users (Sublette & Mullan, 2012), and this study actually found a positive effect of more frequent exercise game use among women, these findings may not be generalizable to those situations in which video game use truly is problematic. Future studies can build on this study by targeting greater use populations

to gain a more accurate picture of the role of time together and attachment behaviors in the relationship between high frequency video game use and relationship quality.

Another limitation to this study was the measurement used to assess frequency of video game use. The highest frequency response that participants could indicate was, “Daily” (see Table 1). This did not allow for a distinction between people who play for less than an hour per day versus those who play for multiple hours every day. Studies have found that negative effects of video game use are most pronounced for players who engage in play for multiple hours per day (Lo, Wang, & Fang, 2005; Padilla-Walker, 2010). Future studies should assess for number of hours played per day and total number of hours played per week versus frequency.

Although this study found that time together as a problem was an intervening variable in the effect of women’s video game use on relationship quality, the overall effect size was very small. Therefore, it appears that other mediators (such as conflict surrounding video game use) may be most responsible for the negative effects of gaming. Future research should include other known mediators in the model in order to analyze how video game use has a meaningful impact on one’s own and partner’s relationship quality.

Finally, as noted earlier, this study used cross-sectional data to analyze the relationship between video game use and relationship outcomes. It is possible that the direction of effects found here can be inverted. Perhaps couples who already have low relationship quality are more likely to report that various aspects of the relationship such as time together are a problem. Moreover, it is possible that high relationship quality predicts high attachment behaviors. In the future, researchers should consider collecting longitudinal data to address these questions.

## Clinical Implications

The findings of this study are encouraging for clinicians who encounter couples where one or both partners play video games. While there is an indirect effect between video game use and relationship outcomes via perception of time together as a problem in the relationship, it was relatively small. It seems that many couples can incorporate video game use into their lives without any significant effect on the couple relationship. However, clinicians continue to encounter couples who report video game use as a problem (Hawkins & Hertlein, 2013). When clinicians hear partners express dissatisfaction about video game use in the relationship, it may be important to conduct a thorough assessment of video game use frequency, what games are specifically played, and *why* video game use is perceived as a problem. For some couples, it may actually be conflict around use, a lack of time together, or something altogether different that is contributing to negative relationship outcomes rather than the video game use itself.

Instead of focusing on typical treatment strategies for video game users that involve reducing or eliminating video game use (Winkler, Dorsing, Rief, Shen & Glombiewski, 2013), other approaches based on increasing time together in the relationship and increasing positive attachment behaviors may prove beneficial for creating positive relationship outcomes. For example, Hawkins and Hertlein (2013) utilize an integrated approach including changing boundaries and rules, improving relationship intimacy, and increasing relationship maintenance activities. When time together is a concern in the relationship, couples will likely benefit from therapeutic interventions informed by attachment-based models of therapy such as Emotionally-Focused Therapy that focus on increasing attachment behaviors (Johnson, 2004). For example, enactments that help partners share their own attachment needs and softly respond to each other's needs could help couples become more emotionally accessible, responsive, and engaged.

Since part of the positive impact of spending time together is more opportunity to bond, these enactments facilitate critical bonding experiences in the relationship. Enactments may also help mitigate time together as a problem in the relationship through facilitating discussions that help couples address their concerns, or simply as a reinforcement for the importance of spending time talking with one another.

Furthermore, clinicians may want to look for cyclical patterns of behavior in the relationship related to video game use and time spent together. Once these cycles of behavior are identified, the clinician may find it helpful to explore each partner's underlying emotions at each point in the cycle. Clinicians can then encourage partners to identify the attachment needs that are not being met and engage in appropriate attachment behaviors to meet those needs. When both partners demonstrate attachment behaviors at various points in the cycle, partners may be less likely to fall into cycles that perpetuate the problems associated with not spending enough time together.

### **Conclusion**

Although many studies have indicated that video game use is associated with negative outcomes (Sublette & Mullan, 2012), few studies have looked at its effect on romantic relationships. This study was the first to examine the role of attachment behaviors in married couple relationships where video games are used. This study found that women's video game use was indirectly associated with lower relationship quality via time together as a problem. Additionally, time together as a problem area was negatively associated with relationship quality for self and partner; however, this association was moderated by partner's report of attachment behaviors for women. Therefore, if women reported time together as a problem in the relationship, but husbands reported high attachment behaviors, women reported more positive

relationship outcomes. Attachment behaviors served as protective factors that buffered the stress of time together as a problem on the couple relationship. These findings are useful for clinicians who work with couples involved in video games. First, it appears that video game use itself is not inherently harmful, so clinicians should explore with partners why video game use seems to be a problem. If clinicians find that a lack of time together negatively impacts the relationship, then clinicians can intervene in the relationship by increasing attachment behaviors. Future research should explore how high frequency video game use and time spent playing video games together impact the couple relationship and their attachment behaviors.

## References

- Ahlstrom, M., Lundberg, N. R., Zabriskie, R., Eggett, D., & Lindsay, G. B. (2012). Me, my spouse, and my avatar: The relationship between marital satisfaction and playing massively multiplayer online role-playing games (MMORPGs). *Journal of Leisure Research, 44*(1), 1-22.
- Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., & ... Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin, 136*(2), 151-173. doi:10.1037/a0018251
- Arriaga, X. B. (2001). The ups and downs of dating: Fluctuations in satisfaction in newly formed romantic relationships. *Journal of Personality and Social Psychology, 80*(5), 754-765. doi:10.1037/0022-3514.80.5.754
- Besharat, M. (2003). Relation of attachment style with marital conflict. *Psychological Reports, 92*(3), 1135-1140. doi:10.2466/PR0.92.3.1135-1140
- Bowlby, J. (1969). *Attachment and loss: Vol. I. Attachment*. New York, NY: Basic Books.
- Busby, D. M., Holman, T. B., & Niehuis, S. (2009). The association between partner enhancement and self-enhancement and relationship quality outcomes. *Journal of Marriage and Family, 71*(3), 449-464. doi:10.1111/j.1741-3737.2009.00612.x
- Busby, D. M., Holman, T. B., & Taniguchi, N. (2001). RELATE: Relationship evaluation of the individual, family, cultural, and couple contexts. *Family Relations: An Interdisciplinary Journal of Applied Family Studies, 50*(4), 308-316. doi:10.1111/j.1741-3729.2001.00308.x
- Campbell, L., Simpson, J. A., Boldry, J., & Kashy, D. A. (2005). Perceptions of conflict and

- support in romantic relationships: The role of attachment anxiety. *Journal of Personality and Social Psychology*, 88(3), 510-531. doi:10.1037/0022-3514.88.3.510
- Cassidy, J., & Shaver, P. R. (2008). *Handbook of attachment: Theory, research, and clinical applications (2nd ed.)*. New York, NY: Guilford Press.
- Choi, H., & Marks, N. F. (2013). Marital quality, socioeconomic status, and physical health. *Journal of Marriage and Family*, 75(4), 903-919.
- Chory, R. M., & Banfield, S. (2009). Media dependence and relational maintenance in interpersonal relationships. *Communication Reports*, 22(1), 41-53.  
doi:10.1080/0893421090279850
- Clark-Nicolas, P., & Gray-Little, B. (1991). Effect of economic resources on marital quality in Black married couples. *Journal of Marriage and the Family*, 53(3), 645-655.  
doi:10.2307/352740
- Collins, N. L., & Ford, M. B. (2010). Responding to the needs of others: The caregiving behavioral system in intimate relationships. *Journal of Social and Personal Relationships*, 27(2), 235-244. doi:10.1177/0265407509360907
- Coyne, S. M., Busby, D., Bushman, B. J., Gentile, D. A., Ridge, R., & Stockdale, L. (2012). Gaming in the game of love: Effects of video games on conflict in couples. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 61(3), 388-396.  
doi:10.1111/j.1741-3729.2012.00712.x
- Coyne, S. M., Padilla-Walker, L. M., Stockdale, L., & Day, R. D. (2010). Game on... girls: Associations between co-playing video games and adolescent behavioral and family outcomes. *Journal of Adolescent Health*, 49, 160-165.
- Coyne, S. M., Stockdale, L., Busby, D., Iverson, B., & Grant, D. M. (2011). "I luv u :)!": A

- descriptive study of the media use of individuals in romantic relationships. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 60(2), 150-162.  
doi:10.1111/j.1741-3729.2010.00639.x
- Creasey, G. (2002). Associations between working models of attachment and conflict management behavior in romantic couples. *Journal of Counseling Psychology*, 49(3), 365-375. doi:10.1037/0022-0167.49.3.365
- Doyle, D., & Molix, L. (2014). Love on the margins: The effects of social stigma and relationship length on romantic relationship quality. *Social Psychological and Personality Science*, 5(1), 102-110. doi:10.1177/1948550613486677
- Duncombe, J. & Marsden, D. (1993). Love and intimacy: The gender division of emotion and 'emotion work' A neglected aspect of sociological discussion of heterosexual relationships. *Sociology*, 27, 221-241. doi:10.1177/0038038593027002003
- Durkin, K., & Barber, B. (2002). Not so doomed: Computer game play and positive adolescent development. *Journal of Applied Developmental Psychology*, 23(4), 373-392.  
doi:10.1016/S0193-3973(02)00124-7
- Entertainment Software Association. (2013). *Sales, demographic and usage data: Essential facts about the computer and video game industry*. Retrieved from [http://www.theesa.com/facts/pdfs/ESA\\_EF\\_2013.pdf](http://www.theesa.com/facts/pdfs/ESA_EF_2013.pdf).
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. New York: SAGE Publications.
- Gager, C. T., & Sanchez, L. (2003). Two as one?: Couples' perceptions of time spent together, marital quality, and the risk of divorce. *Journal of Family Issues*, 24(1), 21-50.  
doi:10.1177/0192513X02238519

- Hawkins, B. P., & Hertlein, K. M. (2013). Treatment strategies for online role-playing gaming problems in couples. *Journal of Couple & Relationship Therapy, 12*(2), 150-167.  
doi:10.1080/15332691.2013.779100
- Hazan, C. & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*(3), 511-524.
- Heene, E. D., Buysse, A., & Van Oost, P. (2005). Indirect pathways between depressive symptoms and marital distress: The role of conflict communication, attributions, and attachment style. *Family Process, 44*(4), 413-440. doi:10.1111/j.1545-5300.2005.00070.x
- Helsper, E. J., & Whitty, M. T. (2010). Netiquette within married couples: Agreement about acceptable online behavior and surveillance between partners. *Computers in Human Behavior, 26*(5), 916-926. doi:10.1016/j.chb.2010.02.006
- Hertlein, K. M., & Hawkins, B. P. (2012). Online gaming issues in offline couple relationships: A primer for marriage and family therapists (MFTs). *The Qualitative Report, 17*, 1-48.  
Retrieved from <http://www.nova.edu/ssss/QR/QR17/hertlein.pdf>.
- Hussain, Z., & Griffiths, M. D. (2009). Excessive use of massively multi-player online role-playing games: A pilot study. *International Journal of Mental Health and Addiction, 7*(4), 563-571. doi:10.1007/s11469-009-9202-8
- Janisse, H., Nedd, D., Escamilla, S., & Nies, M. (2004). Physical activity, social support, and family structure as determinants of mood among European-American and African-American women. *Women Health, 39*, 101-116.
- Johnson, S. (2004). *The practice of emotionally-focused couples therapy: Creating connection* (2<sup>nd</sup> ed.). New York, NY: Brunner-Routledge.
- Johnson, S., & Greenman, P. (2013). Commentary: Of course it is all about attachment!. *Journal*

- of Marital & Family Therapy*, 39(4), 421-423.
- Kenny, D.A., Kashy, D.A., & Cook, W.L. (2006). *Dyadic data analysis*. New York, NY: The Guilford Press.
- Kirkpatrick, L. A., & Davis, K. E. (1994). Attachment style, gender, and relationship stability: A longitudinal analysis. *Journal of Personality and Social Psychology*, 66(3), 502-512.  
doi:10.1037/0022-3514.66.3.502
- Kline, R.B. (2010). *Principles and practice of structural equation modeling (3<sup>rd</sup> edition)*. New York, NY: The Guilford Press.
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being?. *American Psychologist*, 53(9), 1017-1031.  
doi:10.1037/0003-066X.53.9.1017
- Larson, J., Smith, J., Busby, D., & Sandberg, J. (2013, October). *The relationship between video game use and couple attachment behaviors in committed romantic relationships*. Poster presented at the annual conference of the American Association of Marriage and Family Therapy, Portland, OR.
- Lo, S., Wang, C., & Fang, W. (2005). Physical interpersonal relationships and social anxiety among online game players. *Cyberpsychology & Behavior*, 8(1), 15-20.  
doi:10.1089/cpb.2005.8.15
- Mahoney, A., Pargament, K. I., Tarakeshwar, N., & Swank, A. B. (2008). Religion in the home in the 1980s and 1990s: A meta-analytic review and conceptual analysis of links between religion, marriage, and parenting. *Psychology of Religion and Spirituality*, S(1), 63-101.  
doi:10.1037/1941-1022.S.1.63

- Manning, M. M., Wainwright, L., & Bennett, J. (2011). The Double ABCX model of adaptation in racially diverse families with a school-age child with autism. *Journal of Autism and Developmental Disorders, 41*(3), 320-331. doi:10.1007/s10803-010-1056-1
- McCubbin, H. I., & Patterson, J. M. (1983). The family stress process: The double ABCX model of adjustment and adaptation. *Marriage & Family Review, 6*(1-2), 7-37. doi:10.1300/J002v06n01\_02
- Mikulincer, M. & Shaver, P. (2007). *Attachment in adulthood: Structure, dynamic, and change*. New York, NY: The Guilford Press.
- Mitchell, K. J., & Wells, M. (2007). Problematic internet experiences: Primary or secondary presenting problems in persons seeking mental health care?. *Social Science & Medicine, 65*(6), 1136-1141. doi:10.1016/j.socscimed.2007.05.015
- Muthén, L.K. & Muthén, B.O. (2009). *Mplus user's guide* (5<sup>th</sup> ed.). Los Angeles, CA: Muthen & Muthen.
- Padilla-Walker, L. M., Coyne, S. M., & Fraser, A. M. (2012). Getting a high-speed family connection: Associations between family media use and family connection. *Family Relations: An Interdisciplinary Journal of Applied Family Studies, 61*(3), 426-440. doi:10.1111/j.1741-3729.2012.00710.x
- Padilla-Walker, L. M., Nelson, L. J., Carroll, J. S., & Jensen, A. C. (2010). More than a just a game: Video game and internet use during emerging adulthood. *Journal of Youth and Adolescence, 39*(2), 103-113. doi:10.1007/s10964-008-9390-8
- Plunkett, S. W., Sanchez, M. G., Henry, C. S., & Robinson, L. C. (1997). Double ABCX Model and children's post-divorce adaptation. *Journal of Divorce & Remarriage, 27*(3-4), 17-37. doi:10.1300/J087v27n03\_02

- Sandberg, J. G., Busby, D. M., Johnson, S. M., & Yoshida, K. (2012). The Brief Accessibility, Responsiveness, and Engagement (BARE) Scale: A tool for measuring attachment behavior in couple relationships. *Family Process, 51*(4), 512-526.  
doi:10.1111/j.1545-5300.2012.01422.x
- Schade, L. C., Sandberg, J., Bean, R., Busby, D., & Coyne, S. (2013). Using technology to connect in romantic relationships: Effects on attachment, relationship satisfaction, and stability in emerging adults. *Journal of Couple & Relationship Therapy: Innovations in Clinical and Educational Interventions, 12*(4), 314-338.  
doi: 10.1080/15332691.2013.836051
- Scott, R. L., & Cordova, J. V. (2002). The influence of adult attachment styles on the association between marital adjustment and depressive symptoms. *Journal of Family Psychology, 16*(2), 199-208. doi:10.1037/0893-3200.16.2.199
- Scott, S., & Babcock, J. C. (2010). Attachment as a moderator between intimate partner violence and PTSD symptoms. *Journal of Family Violence, 25*(1), 1-9.  
doi:10.1007/s10896-009-9264-1
- Scott, V. M., Mottarella, K. E., & Lavooy, M. J. (2006). Does virtual intimacy exist? A brief exploration into reported levels of intimacy in online relationships. *Cyberpsychology & Behavior, 9*(6), 759-761. doi:10.1089/cpb.2006.9.759
- Shafer, K., Jensen, T. M., & Larson, J. H. (2014). Relationship effort, satisfaction, and stability: Differences across union type. *Journal of Marital and Family Therapy, 40*(2), 212-232.  
doi: 10.1111/jmft.12007
- Sublette, V., & Mullan, B. (2012). Consequences of play: A systematic review of the effects of online gaming. *International Journal of Mental Health and Addiction, 10*(1), 3-23.

doi:10.1007/s11469-010-9304-3

- Trepte, S., Reinecke, L., & Juechems, K. (2012). The social side of gaming: How playing online computer games creates online and offline social support. *Computers in Human Behavior, 28*(3), 832-839. doi:10.1016/j.chb.2011.12.003
- Warburton, D.E., Nicol, C.W., & Bredin, S.S. (2006). Health benefits of physical activity: the evidence. *CMAJ, 174*(6), 801–809.
- Winkler, A., Dorsing, B., Rief, W., Shen, Y. & Golembiewski, J. (2013). Treatment of internet addiction: A meta-analysis. *Clinical Psychology Review, 33*(2), 317-329.  
doi:10.1016/j.cpr.2012.12.005
- Yee, N. (2006). The demographics, motivations and derived experiences of users of massively-multiuser online graphical environments. *PRESENCE: Teleoperators and Virtual Environments, 15*, 309-329.
- Zuo, J. (1992). The reciprocal relationship between marital interaction and marital happiness: A three-wave study. *Journal of Marriage and the Family, 54*(4), 870-878.  
doi:10.2307/353168

## Appendix

Table 1

*Descriptive Statistics of Observed Study Variables*

Variable	N	M	SD
Men			
Relationship Quality			
Satisfaction	415	3.70	.87
Stability	415	4.22	.75
Problem Areas	415	2.34	.59
Attachment Behaviors			
Accessibility	353	3.92	.67
Responsiveness	353	4.09	.65
Engagement	353	3.89	.86
Time Together as a Problem	414	2.70	1.01
Video Game Use			
RPG	415	2.09	1.67
FPS	415	2.35	1.66
MMORPG	415	1.40	1.20
Sports	415	1.85	1.34
Music	415	1.77	1.10
Exercise	415	1.76	1.15
Women			
Relationship Quality			
Satisfaction	415	3.61	.96
Stability	415	4.16	.83
Problem Areas	415	2.36	.67
Attachment Behaviors			
Accessibility	353	4.19	.67
Responsiveness	353	4.28	.63
Engagement	353	3.91	.90
Time Together as a Problem	415	2.69	1.09
Video Game Use			
RPG	415	1.25	.87
FPS	415	1.13	.54
MMORPG	415	1.11	.60
Sports	415	1.15	.56
Music	415	1.57	.95
Exercise	415	1.64	1.15

*Note.* Time together was mean centered for analyses; however, uncentered descriptive statistics are presented here to ease interpretability. RPG- Role-playing games, FPS- First-person shooters, MMORPG- Massively Multi-player Online Role-playing games.



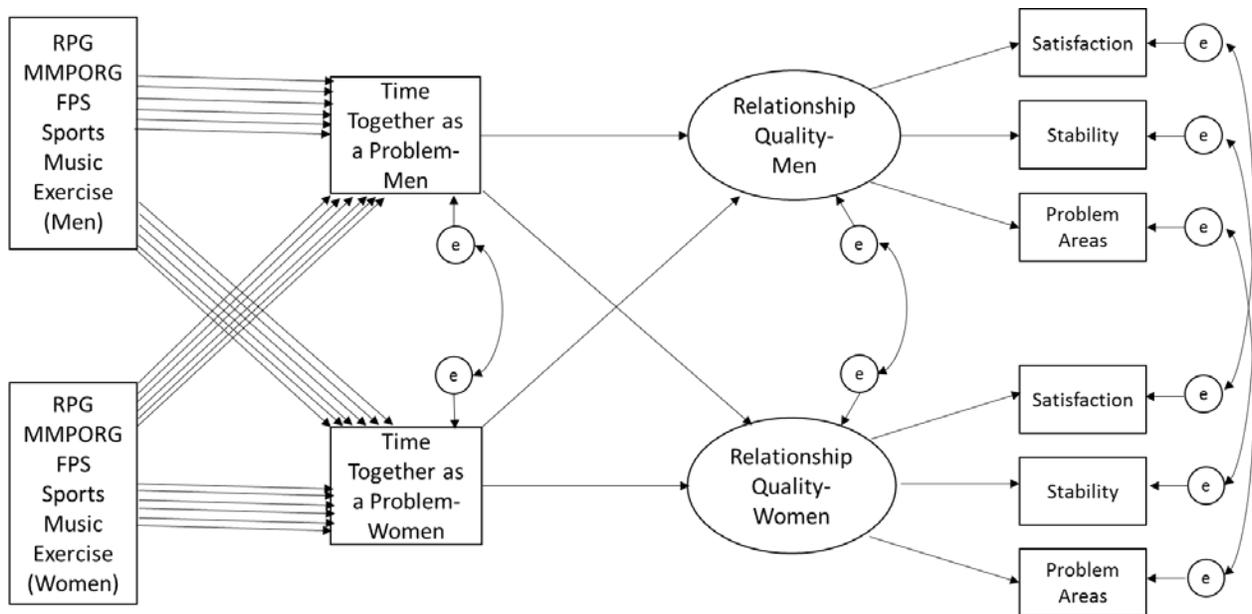


Table 3

*Unstandardized and Standardized Factor Loadings for Latent Variable Measurement Models*

	Men		Women	
	Unst.	St.	Unst.	St.
<b>BARE</b>				
Accessibility	1.00(.00)	.58(.01)***	1.00(.00)	.60(.03)***
Responsiveness	1.21(.08)***	.71(.03)***	1.21(.08)***	.78(.03)***
Engagement	1.91(.13)***	.86(.03)***	1.91(.13)***	.86(.03)***
<b>Relationship Quality</b>				
Satisfaction	1.00(.00)	.86(.02)***	1.00(.00)	.90(.02)***
Stability	.74(.04)***	.75(.03)***	.74(.04)***	.78(.02)***
Problem Areas	-.63(.03)***	-.77(.02)***	-.63(.03)***	-.82(.02)***

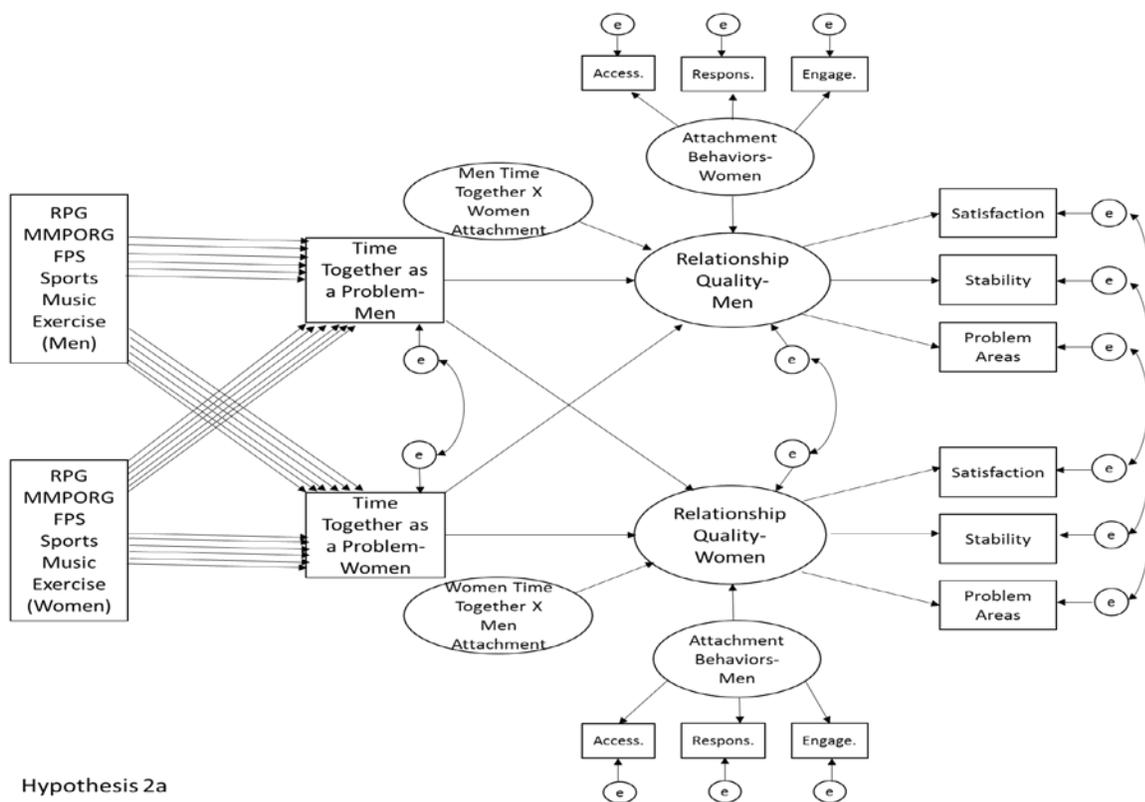
*Note.* \*\*\*  $p < .001$ .



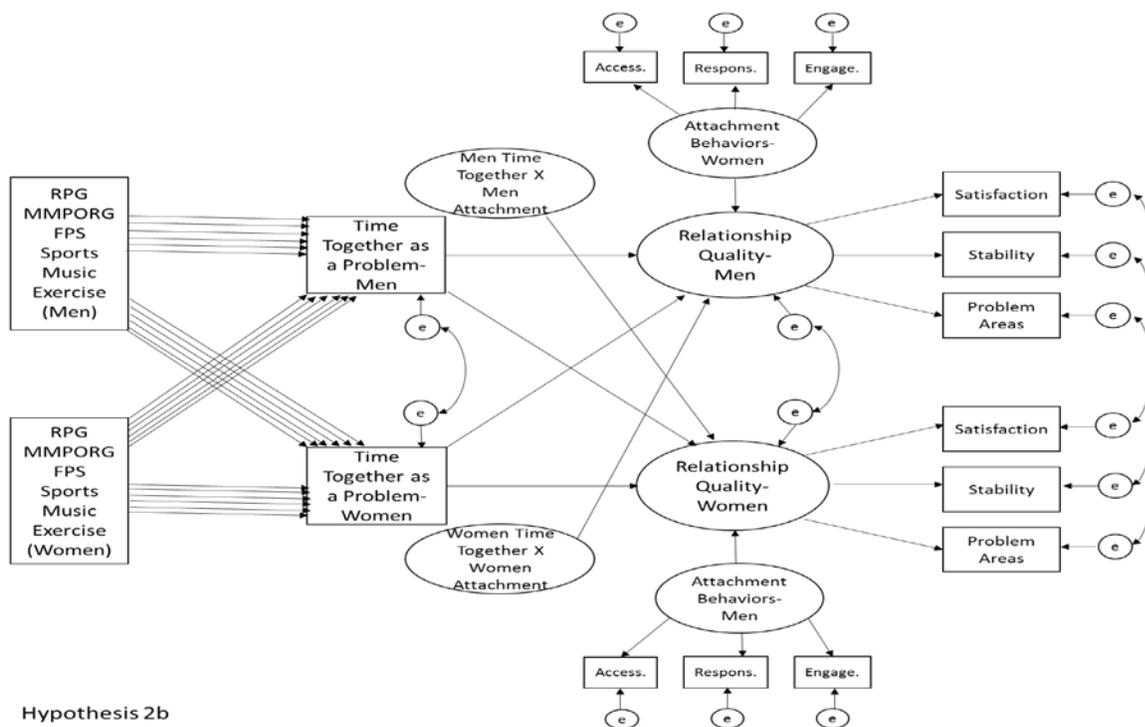
*Figure 1.* Hypothesized model of the effect of video game use on relationship quality via time together as a problem for self and partner.

*Note.* Six different video games were used as independent variables for men and also for women.

RPG- Role-playing games, FPS- First-person shooters, MMORPG- Massively Multi-player Online Role-playing games.



Hypothesis 2a



Hypothesis 2b

Figure 2. Hypothesized moderation models (for hypotheses 2a and 2b).

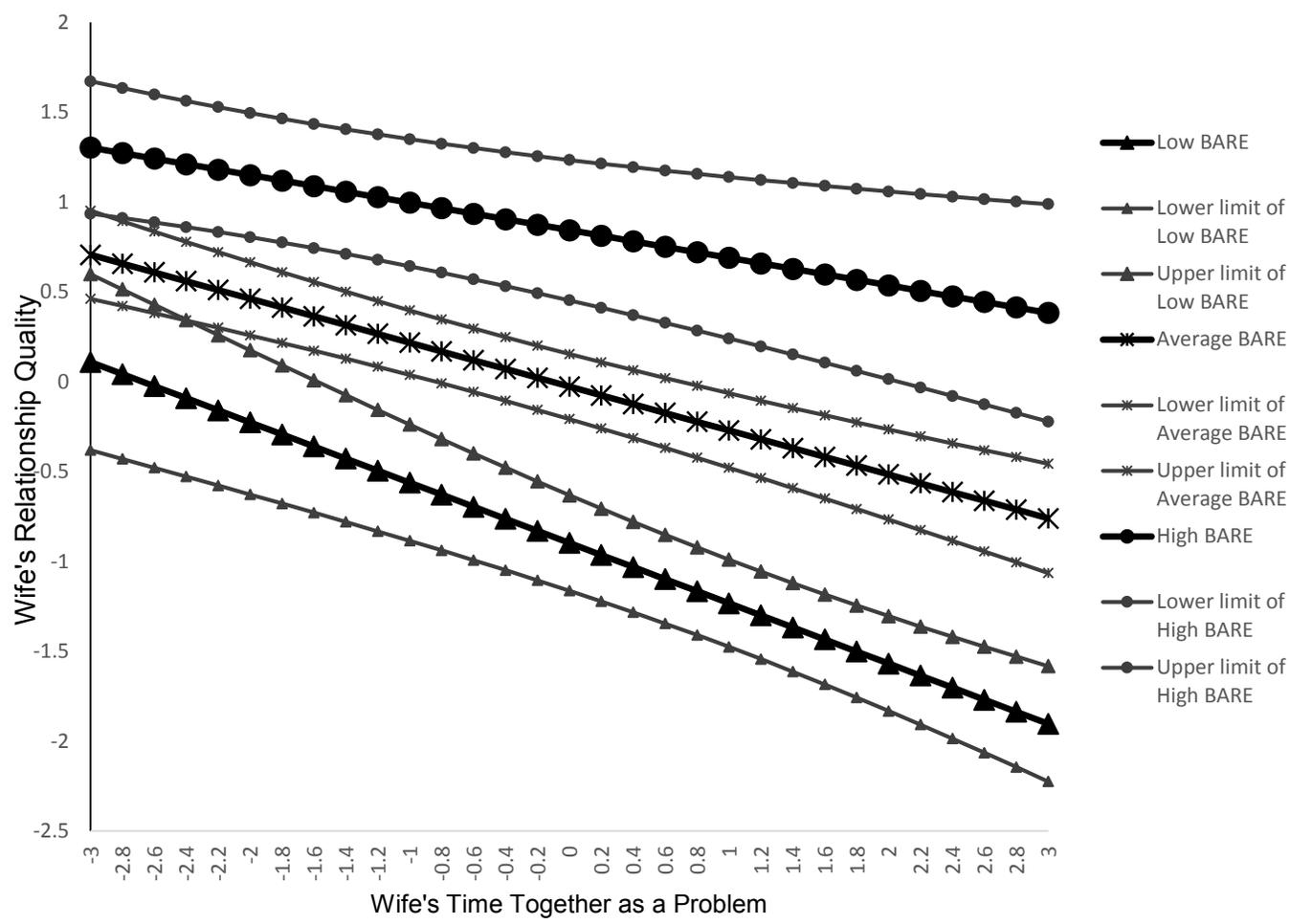


Figure 3. Simple slopes of the moderating effect of husband's attachment behaviors.  
Note. BARE= attachment behaviors. Low is 1 standard deviation below the mean (0), and high is 1 standard deviation above the mean. 95% confidence bands are shown around each slope.

## Extended Literature Review

While the body of research examining the effect of video game use on individual functioning is extensive (see Anderson et al., 2010 and Sublette & Mullan, 2012 for reviews), less attention has been focused on its effect on relationship outcomes. Furthermore, results have been mixed. In a review of the published literature related to online gaming and interpersonal relationships, Hertlein and Hawkins (2012) propose that “online gaming might add to and/or interfere with a couple’s life.” Clearly the topic is receiving more attention, but still lacks definitive conclusions from empirical work.

### Gaming and Positive Relationship Outcomes

Some researchers have identified positive effects of video game use on individual outcomes in interpersonal relationships. For example, in a survey of 811 members of e-sports clans in various countries, Trepte et al. (2012) found that online gaming could increase social support offline. Online gaming acted as a bridge to forming connections with others beyond the game when gamers engaged in offline activities with other members of their gaming clan. However, the association was strongest when gamers were already familiar with each other and had high physical proximity. Furthermore, the results of this study are limited in their generalizability because the participants were all involved in a specific type of online gaming: e-sports clans.

In addition to increased social support, Hussain and Griffiths (2009) found an association between online gaming and more positive social interactions in their survey of 119 online gamers. However, this association pertained only to social interactions *in the context of the game*. Over half (57.1%) of gamers who were classified as dependent and 21.3% of non-dependent gamers said that socializing with other gamers during video game use was more

pleasant and satisfying than socializing offline. Thus, while online gaming may contribute to increased positive interactions for some players, it is unclear whether this association extends beyond in-game play.

Finally, there is some evidence that playing video games is related to increased family closeness. In a study of 1304 Michigan high school students, adolescents that played computer games reported higher levels of family closeness (Durkin & Barber, 2002). The effects were significant whether the adolescents reported high or low levels of computer game use. A later study by Coyne et al. (2010) extended these findings. They found that adolescent girls who played video games with their parents displayed fewer internalizing and externalizing behaviors and were more connected to their parents. Padilla-Walker et al. (2012) corroborated these findings. They examined video game use in families with both male and female adolescents. Families who played video games *together* showed higher levels of family connection. Apparently, playing video games, particularly when shared with family members, is correlated with positive family functioning. While all of these studies have found positive effects for playing video games together, each focuses on adolescent populations and findings may not generalize to adult couple relationship dynamics. Furthermore, Durkin and Barber (2002)'s study focused solely on computer game use and used data collected in 1988 before personal computers were widely available in people's homes. It seems unlikely that adolescents who were classified as computer game users had much opportunity to actually use computer games.

Although there is some evidence that video game use can have positive effects on interpersonal relationships by increasing social support, positive social interactions and family closeness, no published studies have specifically examined positive effects on romantic relationships. Moreover, it is important to note that the majority of participants in studies that

found positive effects were relatively low frequency video game users. Several studies of video game use concluded that negative effects are most pronounced for individuals who are classified as high users or dependent on game use. For example, in a review of sixteen studies of online gaming, Sublette and Mullan (2012) found that many players across several studies experienced positive effects and only individuals who were classified as engaged in “problematic game play” experienced negative effects. However, these conclusions are limited to individual functioning and may not extend to relationship functioning.

### **Gaming and Negative Relationship Outcomes**

Despite some evidence for positive effects, several studies have indicated that there are negative consequences to gaming. For example, clinicians report that some clients present with problems related to online gaming. Mitchell and Wells (2007) examined clinical reports of over 1000 American youth and adults who had been treated for internet-related problems. They found that clinicians identified online gaming, gambling or fantasy role-playing as a primary or secondary presenting problem for 11% of adults and 25% of youth in the study. Moreover, for clients whose online gaming, gambling or fantasy role-playing were identified as secondary issues, the authors suggest that clinicians may consider other treatment issues such as “relationship problems” as the primary presenting problem.

In addition to clinical reports of distressed clients, several studies have linked video game use to decreased quality of interpersonal relationships. First, Lo, Wang, and Fang (2005) surveyed 174 college-age gamers in Taiwan. Individuals who were identified as heavy users engaged in online gaming for an average of 4.70 hours per day, 7 days per week. These heavy users reported lower quality interpersonal relationships as compared to light or non-gaming users. Furthermore, light users who gamed for an average of 2.45 hours per day, 1-3 days per

week reported lower quality interpersonal relationships as compared to non-gaming users. Padilla-Walker et al. (2010) replicated this link between video game use and interpersonal relationship quality in their survey of 813 undergraduate students in the United States. In this study, the authors did not make a distinction between high and low video game users, but rather used a continuous variable to measure time spent playing video game use. They found that higher levels of video game use was related to lower relationship quality with both friends and parents. Evidently, though high users may be most susceptible to the harmful effects of video game use, even light use may negatively impact interpersonal relationships.

One possible contributor to video gamers' low interpersonal relationship quality could be lower use of maintenance strategies that sustain and support relationships. Chory and Banfield (2009) found that higher levels of video game dependence predicted lower use of relationship maintenance strategies. Relationship maintenance strategies that were measured included positivity, openness, assurances, social networks, sharing tasks, advice giving, and conflict management. In their study of 163 undergraduate students, video game dependence predicted lower use of all strategies except positivity and social networks. Although this study focused on the use maintenance strategies in various types of interpersonal relationships, the authors note that these strategies are also used to maintain romantic relationships.

Beyond effects on relationship quality with friends and parents, Ahlstrom et al. (2012) found a correlation between online gaming and decreased satisfaction in romantic relationships. Marital satisfaction was measured in 349 couples where at least one spouse engaged in online gaming. In couples where only one spouse engaged in online gaming, relationship satisfaction was significantly lower than in couples where both used video games. Furthermore, in couples where only one spouse gamed, 70% of gaming spouses and 75% of non-gaming spouses reported

that “gaming had either a very negative, negative, or slightly negative effect on their marital relationship.” The authors examined possible influences of video game use on relationship satisfaction, determining that low relationship satisfaction was related to retiring to bed at different times and fighting about the gaming. In contrast to other studies, they found no correlation between hours spent gaming and relationship satisfaction. However, a significant limitation of this study is the lack of a non-gaming control group. Scores were compared between couples where only one partner gamed and couples where both partners gamed. With the inclusion of a non-gaming control group, the effect of time spent playing games on relationship outcomes could be better examined. For instance, couples where either one or both partners game may be more likely to displace shared time together with gaming activities versus couples where neither partner games.

Conflict over gaming may be explained by differing attitudes toward its acceptability. In a descriptive study of 920 married couples, Helsper and Whitty (2010) assessed attitudes about various online behaviors. Thirty-five percent of couples disagreed about whether online gaming was acceptable. That is, one partner indicated that gaming was acceptable, while the other partner indicated that it was unacceptable. Perhaps incongruent attitudes about gaming’s acceptability play a role in disagreements over gaming.

In line with Ahlstrom et al. (2012) and Helsper and Whitty (2010)’s findings, Hussain and Griffiths (2009) found support for increased relationship conflict among MMORPG players. They assessed 119 gamers for factors related to behavioral addiction and created two categories: dependent and non-dependent gamers. Dependent gamers reported higher levels of conflict with family members or significant others about time spent gaming than non-dependent gamers. On average, both groups reported some conflict over gaming. However, a major limitation of this

study is that no distinction was made between conflict in family relationships and conflict in romantic relationships. Perhaps there is something different about conflicts that arise in romantic relationships.

While the previous study asked about conflict in both family and romantic relationships, Coyne et al. (2012) examined whether gaming is related to conflict specifically in romantic relationships. A large sample of couples ( $N = 1,333$ ) were asked about the time they spend playing various types of video games including first person shooters, MMPORGs, role-playing, music, exercise, and sports games. The authors determined that for men, time spent playing video games predicted relationship conflict over time spent using the media and the content of the game. In other words, the more time men spent playing video games, the more often they argued with their partner about the time they spent using the games and the content of the games. Apparently conflict over time spent playing video games occurs for various types of games, not just MMPORGs, and does occur in the context of romantic relationships. Another strength of this study is its use of a large sample size which included couples where neither partner reported playing video games.

Coyne et al. (2012) also examined aggression in these relationships. Video game use was not directly related with aggression. However, reports of problems over media in the relationship were related to both physical and relational aggression for both men and women. The authors propose that conflict over playing video games may be an intervening factor in aggression levels in romantic relationships where one partner uses video games.

In addition, Larson et al. (2013) examined how partners' reports of video game use as a problem in the relationship are related to couple attachment behaviors. In their sample of 2,112 couples, video game use was not directly related to attachment behaviors. However, perception

of video game use as a problem in the relationship predicted fewer positive attachment behaviors. Clearly, video game use can act as a stressor on couple relationships by reducing the amount of attachment behaviors used by both partners. One limiting factor of their work is that their study focused on the mediating role of the perception of video game use as a problem in the relationship and did not specifically examine the effect of time spent playing games.

Furthermore, the authors used attachment behaviors as an outcome variable rather than a moderating variable, which limits our understanding of attachment as a possible protective influence for relationship outcomes as a whole.

### **Attachment as Moderator**

In addition to time spent together, attachment is related to relationship outcomes. While attachment in romantic relationships has been directly linked to relationship outcomes (see Mikulincer & Shaver, 2007 for a review), attachment has also been shown to moderate negative associations in romantic relationships. For example, Scott and Babcock (2010) examined the development of PTSD symptoms in women in violent and non-violent relationships. With a sample of 202 couples, the authors found that intimate partner violence was positively associated with PTSD symptoms. However, women's attachment anxiety—related to fears of abandonment and rejection—moderated this association. In other words, women who were physically abused but also reported low attachment anxiety were less likely to develop symptoms of PTSD than women who reported high attachment anxiety. This study lends support to the moderating influence of attachment; however, it focused on individual functioning and may not apply to relationship functioning.

However, a few studies show support for attachment as a moderator of relationship outcomes in romantic relationships. First, Scott and Cordova (2002) examined the relationship

between marital adjustment and depressive symptoms. The authors hypothesized that poor marital adjustment would lead to an increase in depressive symptoms, but this relationship would be moderated by attachment style. Both husbands and wives who rated themselves as high on secure attachment did not show any association between marital adjustment and depressive symptoms. On the other hand, both husbands and wives who rated themselves as low on secure attachment showed an association between marital adjustment and depressive symptoms.

In a similar study, Heene et al. (2005) found further evidence that attachment may moderate the association between marital adjustment and depressive symptoms. However, their model used depressive symptoms as a predictor of marital adjustment. They surveyed 415 couples and examined whether certain variables moderated this relationship. The authors concluded that both secure and avoidant attachment styles moderated the association between depressive symptoms and marital adjustment for women. In other words, for women, depressive symptoms predicted poorer marital adjustment, but this relationship was weaker among women with a secure attachment. Although each study used a different predictive model, results from both studies (Heene et al., 2005; Scott & Cordova, 2002) support the hypothesis that secure attachment can moderate the association between marital adjustment and depressive symptoms.

Another study examined how internal working models of attachment predicted conflict management behavior in romantic relationships. Creasey (2002) used an experimental design to observe couple interactions in both a “normal” context and while discussing a common problem in their relationship. In a sample of 145 young adult couples, attachment security predicted more positive behavior in women while attachment insecurity predicted more negative behavior in men. Results also indicated that individuals who were both unresolved about previous loss or trauma and were insecurely attached displayed more controlling behaviors during the conflict

management interaction. Although this study did not conduct a moderating analysis, its conclusions support the notion that differences in individual attachment models can influence behavior in romantic relationships.

These three studies demonstrate that differences in attachment can influence outcomes in romantic relationships. However, each of these studies measured attachment in terms of global attachment style (e.g. anxious, avoidant, or secure) and only two looked at attachment as a moderator. Recently more attention in the area of attachment has turned to the importance of measuring relationship specific attachment. Johnson and Greenman (2013) argue that changing “specific, emotionally charged bonding interactions” promotes increased satisfaction in adult romantic relationships. Rather than focusing on global attachment, fostering changes in relationship-specific behaviors such as accessibility, responsiveness, and engagement may significantly impact romantic relationships.

**Attachment behaviors.** Accessibility, responsiveness, and engagement have been identified in the literature as key constructs of relationship-specific attachment behaviors (Sandberg et al., 2012). These behaviors have been linked to various relationship outcomes. For example, Schade, Sandberg, Bean, Busby, and Coyne (2013) surveyed 276 young adults in committed relationships about their use of technology in the relationship, attachment behaviors, and other relationship outcomes including satisfaction and stability. They found that reports of partner attachment behavior were positively associated with self-reports of relationship satisfaction and stability for both men and women. In other words, individuals who reported their partner’s attachment behaviors as high tended to report their own relationship satisfaction and stability as high. Furthermore, Schade et al. (2013) found that for men, reports of partner attachment behaviors mediated the association between using technology to hurt a partner and

self-reported relationship satisfaction. Apparently, partner attachment behaviors may mediate some negative effects on relationship outcomes.

In addition, as discussed previously, Larson et al. (2013) examined the role of attachment behaviors in romantic relationships where video game use was present. While video game use by itself did not predict attachment behaviors, attachment behaviors were predicted by the couple's perception of video game use as problem in the relationship. Findings from these two studies demonstrate that attachment behaviors are related to relationship outcomes. However, neither study examined attachment behavior as a moderating variable. Although the role of attachment behaviors in couple relationships has begun to be understood, it is still unclear whether attachment behaviors moderate links within romantic relationships as attachment style seems to.

### **Current Study**

As the Double ABCx model proposes, time displacement theory says that engagement in media activities acts as a stressor in relationships by taking away from time spent on relationship building activities. The extant literature has found support for this notion (Coyne et al., 2012; Kraut et al., 1998); however, according to the Double ABCx model and emerging research, it is also likely that couples can draw on resources to buffer them from the negative effects of video game use (e.g. Ahlstrom et al., 2012; Heene et al., 2005). Thus, the purpose of this study is to examine the possible moderating role of attachment behaviors on the effect of video game use on relationship outcomes among married couples. Specific hypotheses to be tested are:

H1: Frequency of video game play will predict problems with time spent together for self and partner, which will predict lower relationship quality for self and partner.

H2a: Partner's more secure attachment behaviors will moderate the association between perceiving time together as a problem in the relationship and one's own relationship quality.

H2b: One's more secure attachment behaviors will moderate the association between perceiving time together as a problem in the relationship and partner's relationship quality.