

# Communication Patterns and Satisfaction Levels in Three-Dimensional Versus Real-Life Intimate Relationships

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## Abstract

The present study compared communication patterns and satisfaction levels between three-dimensional (3D) and real-life intimate relationships using a sample of 71 participants who were concurrently involved in an intimate relationship within Second Life and a separate real-life romantic relationship. Participants indicated that the quality of their communication was significantly better in their Second-Life relationship and that they experienced higher levels of satisfaction with their virtual partners. The more positive or idealized view of the 3D relationships may have been due to higher levels of focused interaction and reduced stressors in the virtual world and the greater length, and associated problems, in participant's real-life relationships. In addition, the presence of a concurrent relationship within Second Life could have negatively affected participant's judgments of their real-life relationships. These data offer the first detailed assessment of communication patterns and satisfaction levels in intimate relationships across the real and 3D virtual realms as the number of users and romantic partners in immersive virtual environments continue to grow.

## Introduction

WHEN THE WORLD WIDE WEB first became an aspect of mass culture in the mid-1990s, it primarily served as an information portal rather than a medium to facilitate social interaction and relationships. However, after the new millennium, Web 2.0 or The Interactive Web came to prominence and created new opportunities for social interaction and online relationships via instant messaging, video chat, and advanced social networking sites. In recognition of Web 2.0's significance as a channel for postmillennial social relationships, a number of empirical studies investigated various aspects of online relationships including their level of commitment,<sup>1</sup> gender roles,<sup>2</sup> influence on self-expression,<sup>3</sup> and their impact on real-life social networks<sup>4-6</sup> and intimate relationships.<sup>7,8</sup>

Now a new phase in the development of cyberspace—The Immersive Internet<sup>9</sup> and Web 3.0/three-dimensional (3D)—is once again expanding the possibilities for online relationships. In this iteration of cyberspace, the entire 3D world, including the human body, is being digitally represented and 3D graphical environments serve as interactive spaces where users, in the form of avatars (3D digital representations of the self), can work, learn, and engage in social interaction and intimate relationships. For the first time, individuals have a sense of “being inside” or “inhabiting” the remote environ-

ment rather than being outside of it, thus intensifying their psychological experience.<sup>10</sup> The most prominent of the virtual environments in the new Immersive Internet is Second Life—a free, downloadable software program where users can create avatars and engage in a variety of activities including socializing, shopping, building virtual objects and structures, and sexual interaction ([www.secondlife.com](http://www.secondlife.com)).

The investigation of relationships occurring within emerging 3D worlds is important because it provides an additional context for social scientists to understand interpersonal processes that are also relevant to real-life relationships. Although avatars are digital entities, their interactions and relationships are ultimately dictated by the thoughts and feelings of a real-life person. The investigation of 3D relationships is also important because a variety of metrics support the view that the rise of 3D virtual platforms represents a new phase in the history of the Internet rather than something ephemeral or faddish. A number of forecasts from major research organizations have predicted that rapid growth of 3D virtual environments will occur in the near future. These include predictions from Gartner Research that, by the end of 2011, 80 percent of Internet users—1.6 billion of 2 billion users worldwide—will have experimented with a presence in a virtual world such as Second Life.<sup>11</sup> If even a fraction of this predicted growth takes place, it is inevitable that the amount

of social interaction and intimate relationships occurring in 3D virtual environments will significantly expand, and engaging in avatar-mediated social relationships may become as commonplace as having a Facebook page and participating in other Web 2.0 modes of social interaction.

A variety of anecdotal and journalistic reports have discussed couples who have begun romantic relationships in Second Life or other immersive environments, cohabited in the 3D world, or formally entered into a virtual marriage with another avatar.<sup>12,13</sup> Some articles speculate about whether 3D virtual relationships are real and whether they are analogous to a long-distance relationship in real life or a different form of relationship or intimacy altogether.<sup>14</sup> Other articles address debates within the legal system,<sup>15</sup> and in the arena of relationship and marital therapy,<sup>16</sup> as to whether 3D intimate relationships constitute the same measure of infidelity as a face-to-face, extramarital relationship. However, few empirical investigations of 3D virtual relationships have been conducted to provide objective data that bear on the important issues considered in these more subjective accounts. The present study responded to this limitation by comparing communication patterns and satisfaction levels across the real and virtual realms using a sample of participants who were involved in an intimate relationship within Second Life as well as a real-life relationship. Data of this nature can contribute to greater understanding of the qualities of 3D virtual relationships and assist in determining how these relationships are viewed in a number of important real-world contexts.

## Methods

### Participants

One hundred ninety-nine participants, all of whom had avatars who were currently involved in an intimate relationship in Second Life, were recruited via posted announcements in the Second-Life Events Calendar, notices sent out by heads of large groups representing major constituencies in Second Life (e.g., social, business, educational, and artist networks), a CNN IReport ([www.ireport.com](http://www.ireport.com), a Web site where citizen journalists can post stories), and word-of-mouth communication. Participants were invited to come to a virtual research laboratory located within Second Life and earn 1,000 Lindens (virtual currency equivalent to slightly less than 4 U.S. dollars) for completing ~40 minutes of measures on intimate relationships in Second Life. The recruitment notices also specified that the participant's avatar must have had at least 6 months residency in Second Life. This "minimal residency requirement" ensured that all data were derived from at least moderately experienced users as opposed to newcomers with unstable patterns of behavior and use of the virtual environment.

Seventy-one of the initial 199 subjects were concurrently involved in a real-life romantic relationship with a person other than the one they were involved within Second Life. Participants who were involved in a relationship with the same person in both worlds (e.g., a married man in real life who extends his relationship with his wife into the 3D virtual realm) were not included in the present sample.

### Measures

**Communications Pattern Questionnaire<sup>17</sup>.** The Communications Pattern Questionnaire (CPQ) is a 35-item measure

with demonstrated reliability and validity<sup>18</sup> that assesses communication patterns that occur when a problem in a relationship arises, during a discussion of the relationship problem, and after the discussion of the relationship problem. For each item, participants rate how they and their partner respond to problems in their relationship on a scale ranging from 1 (*very unlikely*) to 9 (*very likely*). The CPQ contains six subscales. Two of these, Mutual Constructive Communication and Total Demand-Withdraw Communication, are considered the major subscales of the measure (A. Christensen, pers. comm., July 15, 2009) and were used in the present study. Items that comprise the Mutual Constructive Communication subscale assess the extent to which both members of the couple discuss a relationship problem, express their feelings, suggest possible solutions, and avoid blame, threats, or verbal aggression. The Total Demand/Withdraw Communication subscale includes items that assess whether members of the couple adopt dysfunctional, complementary, communication patterns such as demand/withdraw, discussion/avoidance, or criticize/defend.

**Marital Satisfaction Inventory-Revised<sup>19</sup>.** The Marital Satisfaction Inventory-Revised (MSI-R) is a widely used measure of marital satisfaction with demonstrated reliability and validity<sup>20</sup> that can also be validly used to assess satisfaction in unmarried couples.<sup>21</sup> Respondents have to answer true or false to a variety of relationships statements. The measure is composed of 12 subscales; 5 of these subscales were used in the present study: Global Distress assesses overall dissatisfaction in the relationship; Affective Communication examines dissatisfaction with the amount of affection and understanding expressed by one's partner; Problem-Solving Communication looks at dissatisfaction due to ineffectiveness in resolving differences; Time Together focuses on dissatisfaction related to a lack of shared activity, interests, or sense of companionship; and Sexual Dissatisfaction addresses discontent with the frequency and quality of sexual activities in the relationship.

### Procedure

After obtaining informed consent and confirming the 6-month residency requirement, participants linked to an online survey Web site and were asked to provide real-life demographic information (i.e., age, gender, continent of residence, and highest level of education). Participants also completed questions regarding their use of Second Life, and questionnaires regarding communication patterns and relationship satisfaction for both their Second-Life and real-life relationships.

## Results

A total of 71 individuals participated (35 women, 35 men, 1 transgendered individual). Most participants resided in North America (72 percent), with the remaining based in Europe (17 percent), South America (7 percent), and Asia and Australia (4 percent). Most participants were between the ages of 18 and 39 (63 percent), 20 percent were above 50, and 17 percent were 40-49. Many participants had a 2- or 4-year college degree (52 percent), 31 percent had a high-school diploma or equivalent, 18 percent had a graduate degree, and 9 percent did not complete high school. Income varied, with

## 3D VERSUS REAL-LIFE INTIMATE RELATIONSHIPS

3

TABLE 1. COMMUNICATION PATTERNS AND SATISFACTION LEVELS BETWEEN SECOND-LIFE AND REAL-LIFE RELATIONSHIPS

Measure	Relationship				t(70)	Cohen's d
	Second life		Real life			
	M	SD	M	SD		
CPQ subscale						
Mutual constructive communication	12.06	10.23	2.42	11.73	6.44**	0.88
Total demand/withdraw communication	20.24	10.28	25.99	9.81	-4.12**	-0.57
MSI-R subscale						
Global distress	4.99	4.23	10.51	7.25	5.87**	0.93
Affective communication	2.80	2.29	5.44	3.68	5.38**	0.86
Problem-solving communication	4.51	4.33	9.49	5.90	5.99**	0.96
Time together	2.08	2.31	4.54	3.35	5.62**	0.85
Sexual dissatisfaction	3.70	2.84	6.85	3.52	6.33**	0.98

Note: Cohen's *d* was calculated directly from the means, standard deviations, and number of participants.<sup>25</sup>

CPQ, Communications Pattern Questionnaire (Christensen and Sullaway<sup>17</sup>); MSI-R, Marital Satisfaction Inventory-Revised (Snyder<sup>19</sup>).

\*\**p* < 0.01.

13 percent earning under \$10,000 (U.S. dollars), 23 percent earning between \$10,000 and \$24,999, 25 percent earning between \$25,000 and \$49,999, 20 percent earning between \$50,000 and \$74,999, and 20 percent earning above \$75,000.

With respect to duration of residence in Second Life, 44 percent had been in Second Life from 6 months to a year, 34 percent were in Second Life for 1–2 years, and 23 percent had been in Second life for 2 years or longer. The vast majority (93 percent) reported logging onto Second Life on a consistent basis (i.e., daily, almost every day, or several times a week).

Paired-samples *t*-tests were used to compare the average scores for Second-Life and real-life relationships on the CPQ subscales of Mutual Constructive Communication and Total Demand-Withdraw Communication. The results, presented in the upper section of Table 1, indicate that participants' mean ratings for constructive communication were significantly higher, and their mean ratings for problematic demand/withdraw communication were significantly lower, for their Second-Life relationships than their real-life relationships.

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Paired samples *t*-tests were used to compare the average MSI-R subscale. For each subscale, higher scores indicate greater levels of dissatisfaction. The results, presented in the lower section of Table 1, indicate that participants' mean ratings for all five areas of dissatisfaction were significantly higher for their real-life than their Second-Life relationships.

Demographic variables and duration of Second-Life residency were tested as possible moderators of communication and satisfaction effects with a series of repeated measures analysis of variance comparing Second-Life scores and real-life scores on each CPQ and MSI subscale. No significant main effects were found.<sup>A</sup>

<sup>A</sup>There were two significant interaction effects: (a) between gender and CPQ subscale scores for mutual constructive communication and (b) between age and MSI subscale scores for sexual dissatisfaction. These significant interactions were primarily driven by *in-realm differences* (e.g., males having significantly higher mutual constructive communication scores compared with females in Second-Life relationships) rather than the *cross-realm differences* that were the subject of the present investigation. In addition, there were low *N*s in the age groups (which reduces the reliability of such findings). As such, we do not discuss these findings further.

### Discussion

The comparative data on communication patterns and satisfaction levels suggest that participants have a more idealized view of Second-Life relationships than those occurring in real life. Participants indicated that the quality of their communication was significantly better in their Second-Life relationships than in their real-life relationships on both the constructive communication and the total demand/withdraw scales of the CPQ. In comparing their ratings of constructive communication to the average score reported by Christensen et al.<sup>22</sup> for an international sample (9.25), the average rating for constructive communication in the Second-Life relationships (12.46) was higher than the norm, whereas the average rating for the real-life relationships (2.42) was much lower than the norm. A similar but less-extreme pattern was found with respect to scores on demand/withdraw communication. Participants' average rating of demand/withdraw communication in Second Life (20.90) was better than the norm (23.98), whereas the rated level of demand/withdraw communication in real life (26.60) was more problematic. However, these real-life ratings were still well below the mean of 29.84 for even moderately distressed real-life couples on the demand/withdraw pattern.<sup>23</sup> Thus, the finding of robust differences in the perceived quality of communication across the two realms appears to be due to a more positive or idealized view of Second-Life relationships accompanied by somewhat lower than normal, but not distressed, ratings of the participant's real-life relationships.

Participants also indicated significantly less dissatisfaction with their Second-Life relationships than with their real-life relationships on all five subscales of the MSI-R. These dissatisfaction ratings were then compared with the *t*-score norms cited by Snyder.<sup>19</sup> This comparison indicated that the dissatisfaction ratings for the Second-Life relationships were in the low range for Affective Communication, Time Together, and Sexual Dissatisfaction and in the moderate range for Problem-Solving Communication, and Global Distress. For the real-life relationships, scores were in the moderate to high moderate range for all five subscales.

A number of factors may have contributed to the more positive ratings of communication and relationship satisfaction. For one, when members of Second-Life couples enter the environment, they usually do so with the intent of socializing and communicating. In contrast to real life, where couples can more easily be together without interacting, communication and socializing are the centerpieces of Second Life and there is not a great deal to do in-world other than interact. This environmental pull toward social interaction and focused attention on the couple may serve to enhance the level of communication, closeness, and satisfaction between couples in the 3D virtual domain. Second, there are a number of core areas of couple conflict, including disagreements over finances or childrearing that are less relevant in the virtual world. Although the MSI-R subscales corresponding to these more domain-specific problem areas were not included in the current study, real-life problems related to these issues may have indirectly affected satisfaction levels on subscales that were used such as Global Dissatisfaction. Thus, the reduced number of areas for relationship conflict and stress in Second Life, coupled with the previously mentioned environmental pull for enhanced interaction, may underlie the more positive ratings of the virtual world as context for satisfying couple interaction.

The findings of superior communication and satisfaction levels in 3D virtual relationships may also be due to factors unrelated to the specific qualities of virtual relationships. It is possible that these differences were related to the greater length of participant's real-life relationships (with about two-thirds of the Second-Life relationships being <6 months long and over half of the real-life relationships being over 2 years long), as it is well documented that problems in close relationships often increase with time.<sup>24</sup> It is important to note that, however, this difference is affected by the newness of Second Life, which restricts the amount of time that participants have had to form and develop intimate relationships in the virtual world relative to real life. Only 23 percent of the present sample had been in Second Life for over 2 years, let alone had an intimate relationship for this length of time. Therefore, researchers may need to wait until the 3D virtual world achieves greater longevity to equitably compare time-sensitive variables such as relationship length across the two contexts. Finally, the data may have been affected by the fact that all of the participants who provided the comparative data were currently involved in an intimate relationship in both Second Life and real life. It is possible that the presence of an intimate relationship in Second Life could have negatively affected the judgments of participants regarding their real-life relationships.

In sum, differences in communication patterns and satisfaction levels are in line with a more positive or idealized view of relationships in the virtual world (based upon some combination of enhanced interaction, reduced stressors, and the relative newness of the virtual setting and relationship) and a somewhat more negative, but not distressed, view of the participant's real-life relationships. Thus, in considering how to view these relationships in real-world contexts such as couples counsel or legal proceedings, the data indicate that many participants in 3D intimate relationships perceive positive qualities and levels of satisfaction in these relationships that go beyond the character of a game and, in some

instances, may rise to the level of an emotional competitor to a co-occurring real-world relationship.

### Limitations and Conclusion

This initial study confined itself to intimate heterosexual relationships. Although no data were obtained on the number of participants who were excluded because of homosexual relationships, the collective impression of the research assistants who screened potential participants was that it was not an inconsequential amount. In the future, it would be important to extend the present study to include same-sex couples.

Another limitation of the study is that the order in which participants completed the measures was not counterbalanced for those who were in intimate relationships in both Second Life and real life. Participants always completed the questionnaires for their Second-Life relationship first. It is possible that completing the measures for their Second-Life relationship first may have shaded how they later responded to the measures assessing their real-life relationship. Future research comparing virtual and real-life relationships could benefit by counterbalancing the order of measures assessing relationships in the two realms.

In conclusion, the present study provides an empirical examination of intimate relationships in the 3D Internet and emerging Web 3D and compares them to similar relationships in real life. These data expand our understanding of these next-generation online relationships and bear on how these relationships may be viewed in a variety of real-world contexts. As immersive virtual worlds continue to increase their user base, realism, and accessibility, additional attention will likely be directed toward investigating this new context and form of human intimacy.

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## 3D VERSUS REAL-LIFE INTIMATE RELATIONSHIPS

5

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