
"The Togetherness that We Crave": Experiencing Social VR in Long Distance Relationships

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ABSTRACT

In this paper we explore the possibility to leverage the emerging social VR platforms in hopes of addressing the limitations in prior work concerning design technologies to support Long Distance Relationships. Using 650 social media posts and comments, we present three themes emerging in long distance couples' experiences of social VR applications. This study represents our first endeavor to explore how engaging with social VR affects some of the deepest and most meaningful aspects of human experiences such as romantic relationships and emotional connections, so as to inform the design of more socially and emotionally satisfactory VR systems in the future.

INTRODUCTION

Investigating how computing technologies affect the psychological and behavioral dynamics of knowing, loving, and caring for a person has been a long-standing concern in HCI and CSCW, bringing together concerns in computer-mediated intimacy, domestic computing, affective technologies, and experience design [1, 3, 4, 14]. In particular, a body of prior work has pointed to the significance to explore potential design directions for technologies, systems, and technical objects that mediate

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and support long-distance couples' unique social and emotional needs [7, 11–13]. However, prior research reveals two ways that these designs and practices fall short of their promise, namely, 1) the emphasis on communication tends to neglect many other crucial experiential qualities [3, 12]; and 2) the difficulty to offer embodied and immersive experiences that seamlessly replicate couples' everyday activities [6, 11]. Grounded on our prior work on computer-mediated intimacy [3–5], in this paper we explore the possibility to leverage the emerging social VR platforms in hopes of addressing these two limitations concerning design technologies to support Long Distance Relationships (LDRs). This study represents our first endeavor to explore how engaging with social VR affects people's social, intimate, and emotional experiences, such as LDRs, so as to inform the design of more socially and emotionally satisfactory social VR systems in the future.

Table 1: Main Technological features and Experiential highlights of Social VR

Technical Features	Experiential Highlights
1. Real time, high-fidelity 3D immersive virtual spaces with 360 degree content	1. Experience a range of emotional states that is similar to face-to-face interaction [10]
2. Head-mounted displays and sensors to detect bodily movements and gestures	2. Vivid spatial and temporal experiences [8]
3. The affordance of co-existence of multiple users simultaneously and interactions among their avatars	3. Embodied social interaction that affords non-verbal communication [8, 16]
4. Support customizing avatars, friending and blocking, and creating private spaces [9]	4. Engaging in a wide variety of social activities such as chatting, playing games, and attending live events [9]

LONG DISTANCE RELATIONSHIPS, TECHNOLOGY, AND SOCIAL VR

Prior HCI and CSCW studies have shown that maintaining LDRs faces unique sociotechnical challenges due to the complex combination of geographic separation, time difference, the absence of physical contact, and the increasing crave for togetherness. Collectively, this strand of research has proposed two major approaches for maintaining and supporting LDRs: optimizing multi-modal communication (e.g., real time video chat) to enhance awareness and presence (e.g., [7, 12, 15]); and creating intimate objects to simulate physical touch (e.g., [13]). Yet two main issues remain in these designs and systems: 1) the neglect of many other crucial experiential qualities in supporting a romantic relationship, including body language, shared memories, and collaborative activities [3, 12]; and 2) the focus on special "rituals" or occasions to simulate the physical touch (e.g., hugs or saying "good night" [6, 11]) rather than seamlessly replicating couples' everyday activities.

In this paper we use social VR as our research context to explore the above-mentioned two issues regarding technology-supported LDRs. Though Virtual Reality (VR) has been extensively studied in computing, social VR scholarship is at an infant stage. Broadly defined, social VR can be traced back to concept of collaborative virtual environments (CVEs) [2]; it refers to 3D virtual spaces where multiple users can interact with one another through VR head-mounted displays [8]. Such applications offer promising opportunities to bring together the pair of communication and simulation of physical touch in new and immersive ways (Table 1). In addition, while the booming commercial social VR applications have led to an emerging research agenda in HCI/CSCW on multi-user social interaction in real world contexts [8–10, 16], still little is known regarding how engaging with social VR may affect some of the deepest and most meaningful aspects of human experiences such as romantic relationships (Fig. 1).



Figure 1: A Virtual Reality Wedding in the AltspaceVR

METHODOLOGY

We focus on first-person, subjective, and narrative accounts of couples' experiences of using various social VR applications to maintain and support their LDRs. To collect data, we used keyword searches (e.g., "Social VR and long distance couples") on Google to collect couples' self-reports regarding how they experienced social VR applications (e.g., AltspaceVR, Rec Room, and Facebook Spaces) in their LDRs that were posted to active public English language forums and social media platforms, which include Reddit, Yahoo, kotaku.com, and so forth. In total, 650 posts and comments were collected. We then used an in-depth qualitative analysis to code and interpret the data. The data analysis followed the following steps: 1) we closely read through the collected data to acquire a sense of the whole picture regarding couples' experiences of social VR; 2) identified a set of themes emerging in the narratives; and 3) synthesized themes to summarize the fundamental aspects of the role of social VR in long distance couples' social and emotional lives.

PRELIMINARY RESULTS

In this section we present three themes emerging in long distance couples' experiences of social VR.

The Focus on Embodied Physical Contacts Similar to other avatar-centric virtual environments (e.g., online gaming), couples pointed out the central role of how their intimate interactions were mediated by avatars in social VR. However, they specifically highlighted the importance of unique embodied physical experiences through their avatars' bodies: *"While other people were talking, we got close, held hands, and looked into each other's soulless virtual eyes. My brain filled in the gaps, and for the briefest of moments, it felt like she was there. All her unique motions were there, the familiar little quirks I love. In front of me was a floating ball robot that I'd taken to calling Ball-E, but in that moment, her robot face was just her face. It was astounding."* (an AltspaceVR user, male). Another user added, *"Her avatar blinked, her eyes and eyebrows fluidly guided her face as it transitioned through expressions. I didn't just feel like she was there: She was there, with me, in the glowing virtual wilderness. I still, today, believe I could have touched her. (I actually tried. My hand went through her, because of course it did.) The togetherness that long-distance couples crave, I realized, could be found in this place."* (a Facebook Spaces user, male). In both quotes, it is evident that the VR users especially value how they could enjoy embodied physical contacts with their long distance partner (e.g., "held hands," reading facial expressions, and touching"). For them, such experiences are genuine and transformative – *"her robot face was just her face."*

Sense of Co-presence Maintaining and enhancing couples' relationships do not only rely on the couple themselves (as a dyad). Instead, many of them pointed out the importance of a sense of co-presence with other people, which was also vital for supporting their LDRs: *"We eventually formed a merry band of explorers and it was mostly through the social experience of other people that I began to*

appreciate what VR did for my relationship. We were doing what we couldn't do with Netflix and Skype – we were hanging out with other people together." (an AltspaceVR user, gender unknown). Another highlight is that other users could also witness how others develop their relationships, which became part of a collective memory. Sometimes this was a positive experience of a public acknowledgement of intimate relationships: *"I was in a Rec Royal lobby today and this one guy was so excited to see his girlfriend. He ran up to her and gave her a hug and they started high-fiving with both hands over and over. He complimented her new outfit and talked about how much he missed her because of summer break. It was really sweet."* (a Rec Room user, female). Yet some other times this public acknowledgement may become a negative and awkward social interaction with other users: *"Yeah I saw a couple making out on a couch at the taco bar doing the kissing noises and everything. I proceeded to troll them with my drum sticks while they awkwardly stared at me."* (a Rec Room user, gender unknown)

Replicating Real Life Activities Many couples also appreciated the affordance in social VR to conduct everyday real life like activities with their partners. For them, this may be the most beneficial part of engaging in social VR – experiencing relationships in a mundane and natural manner, as a female Facebook Spaces users said, *"my experience with social VR showed me that it can be a way to fill the hole I feel sinking inside me whenever my boyfriend and I are apart."* Another one echoed this view: *"the benefit is that you finally do get body language and can (over time) replicate most real life activities that you would do together"*(an anonymous Reddit post). However, some users also expressed their concerns, for example, *"will that cause the distance to widen indefinitely because it's "good enough" and not worth the effort to actually close the gap?"* (an anonymous Reddit post). For them, how the over-reliance on technology such as social VR affects LDRs is uncertain.

IMPLICATIONS AND FUTURE WORK

From our data, engaging with social VR in LDRs seems to be a dilemma. On the one hand, couples highly praised its technical affordance and considered their experiences of social VR positive, beneficial, and emotionally satisfied for making them feel "being together" in a LDR. Yet on the other hand, there appears to be a tension between the simulated "virtual proximity" [16] and the actual emotional distance. Would the high fidelity virtual proximity in social VR in fact negatively affect their relationships (e.g., only relying on technologies rather than making real life efforts to maintain their relationships)? Would experiencing social VR so realistic and engaging that they would eventually give up face-to-face meetings? All these questions highlight the importance to further investigate the complex effects of social VR on profound human experiences and relationships. For future work, we plan to conduct semi-structured in-depth interviews and diary studies with couples to further study how they perceive, experience, and interpret the use of social VR in their LDRs. We may also extend our study to other computer-mediated domestic experiences/relationships, such as senior citizens living in nursing homes and their children or grandchildren who desire to connect via social VR.

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