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ABSTRACT <p>Virtual worlds (VWs), such as Second Life[®] (SL), are increasingly being used by people to meet and create social relationships. However, because these relationships are developed in the VW, as opposed to real life, it is not clear how they are formed and maintained and what role technology plays. We explored this in SL using cultural immersion and interviews. Our findings show that relationships are formed and maintained in SL in ways more similar to online chat than RL, despite the physical representation and interactions provided by avatars in SL. This reveals the need for creating a more realistic virtual environment with a stronger sense of true physicality. We also saw relationships strengthen when users would bridge the gap between the VW and RL. This suggests tools that easily permit this practice while balancing privacy needs.</p>

KEYWORDS Virtual worlds, relationships, friends, partners, Second Life.
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Establishing and Maintaining Relationships in a Social Virtual World

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ABSTRACT

Virtual worlds (VWs), such as Second Life® (SL), are increasingly being used by people to meet and create social relationships. However, because these relationships are developed in the VW, as opposed to real life, it is not clear how they are formed and maintained and what role technology plays. We explored this in SL using cultural immersion and interviews. Our findings show that relationships are formed and maintained in SL in ways more similar to online chat than RL, despite the physical representation and interactions provided by avatars in SL. This reveals the need for creating a more realistic virtual environment with a stronger sense of true physicality. We also saw relationships strengthen when users would bridge the gap between the VW and RL. This suggests tools that easily permit this practice while balancing privacy needs.

Author Keywords

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INTRODUCTION

Virtual worlds (VWs) like Second Life® (SL) are focused less on gaming and more on socializing with others. People enter these social VWs with the typical intention of meeting and interacting with people from around the world. They engage in a variety of activities like chatting, dancing, or traveling. They create friendships and sometimes even find love. It is clear that a rich social culture is developing in these spaces that is unconstrained by many real-world physical and social constraints [10]. For example, people may be able to travel to a different location in a matter of seconds or masquerade as their ideal social self with little or no social inhibitions. This results in new social situations where people are able to develop relationships with an increasingly diverse set of people [10]. This also creates a differing set of social norms that people must learn through online experiences [7]. Our goal was to understand how the tools made available to SL participants and the environment

itself affects the formation and maintenance of dyadic interpersonal relationships. To this end, we describe findings from an ethnographic study of Second Life.

RELATIONSHIPS IN REAL LIFE AND ONLINE CHAT

People seek out relationships in real life (RL) with those people who are similar in attractiveness and ability with the perception of a similar social status [1,4]. Eye gaze is typically the first direct contact between people [3], and it relies on the fact that two people are in close proximity to one another. This is followed by dialogue where people aim to establish common interests [4]. Relationships progress through the sharing of common experiences and more involved forms of interaction [2,4]. This generally involves self-disclosure with the revealing of detailed information about oneself [1,9].

People also form and maintain relationships in online spaces using technologies like instant messaging (IM) or internet relay chat [4]. They go through similar periods of self-disclosure as in offline relationships where people aim to establish common interests. The relative anonymity of people online creates less fear for self-disclosing personal information and fewer gating features (e.g., attractiveness, stuttering) [5]. Together, this causes online relationships to develop more quickly than offline ones [5]. Yet the strength of online relationships lies in presenting one's true self and moving relationships into RL via phone conversations and face-to-face meetings [5]. This is because online spaces do not typically provide multiple modalities of interaction that are needed to strengthen relationships [4].

SECOND LIFE

Second Life is a virtual world launched in 2003 by Linden Labs. Users create a human-like avatar (although some choose to use animal body parts) and navigate the VW by walking, flying, or teleporting. Communication is done via a chat window that broadcasts text to nearby people or through private messages between individuals. Users can also enable an audio link for voice chat, although use of this is less common. SL is a free-form VW where users create and construct the world themselves. Land is for sale and users are able to construct their own buildings on their purchased land. Users can also create other RL objects like furniture or vehicles. The endless creation possibilities have caused SL to have a wide range of places that people can

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visit. There are shopping plazas, dance clubs, coffee houses, universities, museums, and residences.

STUDY METHODOLOGY

We studied SL through cultural immersion and interviews. We created two avatars (one male, one female) and participated in observations and interactions over a period of four months, which involved several hours of use per week. This provided us with a first-hand account of the ways people experience SL and how they form and maintain relationships. We also conducted semi-structured interviews with 23 SL participants (10 males, 13 females) about the formation and maintenance of their virtual relationships. Participants ranged in age from 20-48 years old (median 35). Avatars also ranged from 1 to 31 months old. Frequency of time in SL ranged from daily to weekly visits where users spent anywhere from a few minutes to several hours. We logged all of our chat transcripts, kept field notes of our activities, and then analyzed our data using grounded theory and an open-coding process. Our results focus on qualitative aspects of our data where avatar names refer to fictitious pseudonyms.

RESULTS

We found that people have a wide variety of relationships in SL. Friends typically have a range of interests, geographical distribution, and age. In fact, several people told us that their range of friends in SL is much more diverse than in RL. People also find particular comfort in having friends who are online for long durations of time because they are always there when you need them. Some relationships are weak, while others grow much stronger and sometimes people even become intimate. Next we describe the ways in which people establish and maintain these relationships.

Determining Suitability and Availability for Interaction

Despite people having a virtual representation that is most-often human-like, gating features based on appearance are not easy to use for determining the suitability of others for interaction. Most, if not all, avatars in SL appear attractive with what could be considered idealized images of humanity. Therefore it is easy to find others who appear are similar in attractiveness (like one would in RL [1,4]).

```
L: there are no ugly or old avatars here
L: not to mention fat ones.....
L: we're all supermodels, lol
```

We did find one exception where appearance can act as a gating feature however. When users first enter SL, they start out with a default avatar. This means they have a default look, walk, and set of automated body poses. Most will update these defaults at some point, yet while they remain a default avatar, an interesting social stigma arises. People in SL recognize what a default avatar looks like and assume the person is new to SL and that any conversations with this person will tend to be about SL itself and not other conversational topics. They also assume that the avatar has less online prowess and it may be difficult to interact with the person. This equates to a “teaching” conversation where

experienced SL users explain to newcomers (or “newbies”) how to do things in SL.

```
Y: looks are important, as in RL
Y: shallow, but true ...
Y: me, I am not even interested in newbies anymore
Y: sounds stupid...but that is how it works
Researcher: interesting
Researcher: how come?
Y: being with a newbie means that you are 'teaching' all the time
Y: ppl who are here longer, have seen everything and done everything
Y: so it comes more to conversation
```

Many people also rely heavily on user-created profiles in SL to decide who is interesting to them and suitable for interaction. Each avatar has a publicly viewable profile that can be viewed by right-clicking on the avatar. This typically contains details about oneself such as interests, favorite locations, details about one’s 1st Life, etc. Although not everyone populates all of these fields, profiles provide SL users with a means to see if someone would be a suitable candidate for a relationship/friendship before they actually converse with an individual. This contrasts RL though is similar to many other online spaces. For example, we met one SL user, *Larry*, sitting on a couch at the side of the dance floor in a jazz club. Larry had specifically picked this location because it allowed him to see each avatar’s profile as they entered the club (he simply needed to right click on each visible avatar). Larry told us that he uses profiles to find interesting people with which to converse. This method naturally comes with the caveat that there is no means to determine the reliability of profile information. Yet even still, many SL users find this to be a valuable feature in an environment where few other gating features.

Once users determine the suitability of others for interaction, they aim to actually initiate interaction. However, in SL, it is not possible to determine the availability of others for this interaction through eye gaze like one would in RL [3,6]. The direction that one’s avatar faces will indicate the general view of the avatar, but it does not contain enough information to discern eye contact. One could easily be looking at any area of their visible screen. The only visible signs of availability come from seeing people who are explicitly paired up. For example, two people may be dancing, which would suggest that both are not available for interaction. If people are simply standing around it is more difficult to tell. People may easily be engaged in private messaging that is invisible to others. In these situations, people determine availability by sending a greeting message another avatar, e.g., “Hey”, “How are you?” Some people may also bring their avatar within a close range of the other person, but this is not always the case. Greetings are sometimes made publicly where users within close proximity can hear or they may be sent privately to an individual. Availability is then determined based on a positive response to the greeting. In this way, we see initiating interaction is much more explicit than in RL [3,6] and more similar to other online spaces.



Figure 1. Two avatars sit while chatting in Second Life.

Interaction and a Lack of True Physicality

Through conversations, people learn many details about each other. For many, these conversations are the most enjoyable part of SL. Here a period of self-disclosure [1,9] also exists in SL. In fact, people perceive that this process is more rapid in SL than in RL. This could be explained by the anonymity of VWs. Yet this anonymity in itself presents a conflict because people may not reveal information about their true identity. People want self-disclosure from others that is genuine and consistent. This lets them trust others and predict their actions [1,9]. Yet they do not always want to reveal information about themselves.

In RL, conversation is tightly coupled with body language and gestures [4]. SL has features to support gestures and body language, but this is routinely done through text commands. For example, to make one's avatar smile, they could type `\smile` in the chat window. Of course, this is not an involuntary mechanism akin to someone smiling in RL. Because of this, most conversations in SL involve few gestures, if any at all, and avatars can be seen mostly standing or sitting idle while they converse (Figure 1).

```

Researcher: how is conversation here different than RL?
Y: hmmm
Y: good question
Y: it is much different
Y: it can create a problem very easy also
Researcher: how come?
Y: you do not see facial expression...body language
Y: typed words can be easily misinterpreted
  
```

Other interaction modalities exist in addition to chat and can be valuable. The most prominent are user-created “pose balls” that can be found throughout SL. For example, the bottom of Figure 2 shows two pose balls. Right-clicking on them causes one's avatar to be automatically controlled according to a script associated with the pose ball. Both of the balls shown in Figure 2 are dancing pose balls: the pink one is for women and the blue one is for men. When two avatars have selected these pose balls, they will dance together automatically. Pose balls are used to enable sitting postures on furniture and also intimate acts such as cuddling, kissing, and even sexual intercourse. Generally, though, the most widely used interaction modality in SL is textual conversation through the chat window. In fact, even if avatar actions are being generated by a pose-ball, this is often ignored while one focuses on chatting. There is little need for users to monitor automated pose-ball behavior.

One of our participants, *Helena*, had a SL boyfriend that she “lived with” in her virtual home. This meant that it was a location where the two could commonly be found at. It was also where they would go to change clothing and hold

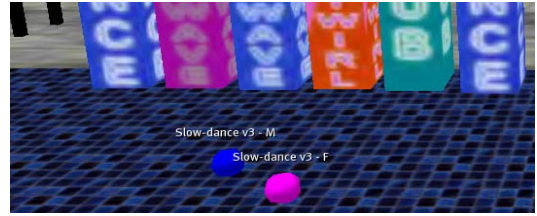


Figure 2. Pose balls create automated avatar interactions.

social functions. Helena describes her relationship:

```

H: [The relationship lasted] 7 months
H: very intense
H: very painful too
Researcher: how come?
H: well. its more thinking, is this desire to be with
some that you cant touch
H: wanting
H: always on your mind
  
```

Despite the variety of features in SL for providing additional interaction modalities beyond chat, the lack of true physicality in SL affected Helena's relationship. Helena wanted more from her boyfriend than just conversation and pre-scripted actions. Like Helena's relationship, we learned about many that were also focused on chat, thus creating somewhat one-dimensional relationships. The focus on chat also means that collocated presence is not necessary for conversing with others. Chat interactions can occur over any distance and in some cases they do. Thus, despite having a virtual environment with human-like avatars, SL becomes similar to online chat.

Keeping Track of Friends through a Contact List

Each user in SL has a Friends List that they can use to keep track of social contacts. This is very similar to buddy or contact lists in IM clients. In SL, the Friends List allows users to easily find others and interact with them again; thus, the Friends List provides them with multiple opportunities for interaction. This is a necessary component for establishing relationships in RL [2,4]. From one's contact list, users can send a message to another avatar, regardless of how physically close they are in SL, or they may even offer to teleport the person to their location.

Users request friendship from one another by clicking a button in the SL interface and, if accepted, *both* parties have the other person's name added to their Friends List. The list may grow large because people are often trying to meet others and establish relations. Over time, the list is pruned.

```

K: I kinda add ppl to my friends list that I am
mintersted in takling more to
K: and then spend ages removing them lol
K: when I can't remember who they are , or they don't
contact me for ages
  
```

Sometimes the contact list becomes more exclusive and there are several levels of friendships, though all are kept within the same list (grouping of contacts in the Friends List is not permitted). For example, *Yaleen* has 15 friends on her list, of which she says half are “special.”

Timing is a concern when “offering friendship.” Some find it rude to ask too soon and others feel they should wait for the other person to ask (e.g., a man waiting for a woman):

Researcher: who do you add to the list?
L: I don't
L: I make a rule to wait for the woman to ask . . .
L: most do not
L: but some do
L: and those are the ones who want to be your friend

The removal of a person from the Friends List can cause distress because contact lists are reciprocal and this visible act is sometimes offensive:

T: well, some people get SO offended if you remove them from your friends list, even if you never speak. . . .
T: I used to a lot more, now I just don't care if people get offended if I have to remove them from my friends list because I don't remember who they are.
T: If I wouldn't mind running into them again, I offer friendship anyway :)

Bridging the Gap between Virtual and Real Life

When people begin to bring aspects of their RL into the VW, or vice versa, they provide additional levels of trust and modalities for communication and interaction [4]. Thus, relationships can develop in the VW, but their strength comes from the ability to bridge the gap between the VW and RL. We found several SL participants that try to do just that. Users can setup their SL account so that if they are not in-world, messages sent to them will be forwarded to their email. Yet replying to these messages still requires users to return to SL. Some people get around this and further bridge the VW/RL gap by utilizing technologies outside of SL's features. For example, *Helena* told us that she reveals her RL e-mail address and phone number to her close contacts in SL, and they do the same. This lets them contact each other outside SL.

H: most of the ppl i know most come to SL everyday
Researcher: do you meet up with them much then?
H: everyday we say HI
H: and if dont met we let each othe rknow, that we are not online
H: i also have a email acount, wher i can reach them
H: some have my RL phone number, just in case something happen

Some people choose to not bridge the VW/RL gap though. This is often because they try to separate their RL from their SL existence. For example, *Leila* told us about her SL boyfriend who disappeared from SL for several weeks. He was no longer present in-world, and Leila had no way of contacting him or knowing why he was no longer present. Leila's boyfriend eventually returned to SL, but their relationship ended because he was unwilling to move their relationship beyond SL. *Kayla* also experienced a similar situation. She desired to separate her RL from her virtual existence and this separation caused relationship problems:

K: I had a guy fall in love with me. he left sl eventually because he could not stand to just have me in sl. It was invading his rl world

DISCUSSION AND CONCLUSION

Relationship formation and maintenance in SL is more similar in nature to relationships developed through online chat (e.g., IRC, IM) [5] than those developed purely in RL [1-4]. This is despite the fact that SL provides a physical representation in the form of an avatar and an environment in which users can explore a variety of additional forms of

interaction that are unavailable in online chat forums. In online chat, people move their relationships outside of the chat channel as a result and meet face-to-face to engage in new experiences [5]. Yet in SL, the existence of a physical representation and sophisticated environment causes some people to try and keep their relationships within the VW. The problem with this is the technological limitations of the VW. The experiences one can have in the VW are not yet a real replacement for RL activities. Actions like gestures and body language are difficult to control and sophisticated actions like dancing or intimate acts are scripted.

This reveals opportunities for technology design. Here a key focus should be placed on user control over features that provide true physicality. For example, rather than providing completely automated actions, pose-balls could provide a set of user controlled actions that enable one to engage in a complex activity (e.g., dancing) with simplified input. This would ensure that users focus on the action itself in order for it to be effective. We also see a need for tools that bridge the gap between RL and the VW where users can still maintain their desired RL privacy. Contact lists could also be improved to provide a multi-dimensional view on the varying levels of friendships that people have. These ideas and more could provide solutions to address the challenges that people face with VW relationships.

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