From: Alexandria - A Virtual Repository of Knowledge

Volume 8, Number 1
Assembled 2015
February 2015

Lessons from Recruiting Second Life Users with Chronic Medical Conditions: Applications for Health Communications

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Abstract

Second Life (SL) is a virtual world with a number of venues for social interaction. SL integrates various aspects of a user's social life through activities which span both health and non-health related topics. Users visit SL largely for social interaction, entertainment and play, which makes it a powerful platform for health communications as health messages can be integrated in an alternate venue. As part of a larger project, we conducted an online survey of SL users who self-identified as having diabetes, chronic pain, HIV + status or cancer. Lessons learned from recruiting users with these conditions can be used to develop and disseminate health communications in SL.

1. Introduction

Second Life (www.secondlife.com) is a virtual world in which users, who are identified through avatars, can interact with each other in real-time. Because Second Life (SL) is a graphics-intensive virtual world, it provides a richer environment for online interaction than other online venues used for health communications, such as message boards. In addition, there are a variety of places in SL where users can interact, for both health-related and general entertainment purposes. This means there are opportunities to engage SL users in health-related interventions such as health communications in an environment where they are already spending leisure time.

2. What is Second Life?

SL is a 3-dimensional (3D) virtual world in which users create an account and then select or design an avatar. They then use this avatar to interact with others in the virtual environment. In this world, avatars are analogous to user names. Instead of a static user name such as that used in message boards, SL users develop avatars in order to communicate and interact with others. Avatars can be human or non-human forms and can be customized with different clothing, accessories, hairstyles or body types. Figure 1 is an image of the Recruitment Coordinator's avatar for this study.

Figure 1. Recruitment Coordinator's Avatar Giving a Presentation in SL

There are a variety of opportunities for social interaction in SL. Users (also known as "residents") can build virtual property, form intimate partnerships, attend college classes or maintain a part-time job. Avatars search for places of interest to them in SL and can visit these locations to interact with other users. Locations can include art galleries, museums, dance clubs, amusement parks, or colleges and

universities. Some of these locations are unique to SL while others are modeled after places that exist in the real world, outside of SL. There are also a number of communities that provide support and raise awareness on health-related topics. Some of these communities include:

- **Virtual Ability, Inc.** is a nonprofit designed to create a supportive environment in SL for people with a variety of disabilities (www.virtualability.org).

- **Club Accessible** provides disabled (and non-disabled) SL users the ability to socialize at their club which includes a tiki bar and beach (www.secondlife.com/destination/secondability-mentors).

SL differs from other online venues such as health-related forums which require users to make a deliberate effort to access them and may be the only reason users visit these online spaces. SL integrates health and wellness into a recreational online environment, which makes it a powerful online platform when considering its use for a sustained health communications campaign. Once users are logged in, they can search a Destination Guide where locations are grouped into different categories. On the ten year anniversary of SL in 2013, the most popular categories included Games, Events, and Adventure and Fantasy (Linden Labs, 2013). Because Second Life integrates various aspects of a user's virtual life, it provides a unique opportunity for health messaging. In SL there are opportunities to deliver health messages in a different way than other, more traditional, venues. For example, "notecards" can be instant messaged to a group of users that contain information about the importance of exercise. These can be delivered while a user is engaged in a physical activity such as swimming. There is some preliminary evidence that healthy SL behaviors can translate to real life healthy behaviors (Dean, Cook, Keating, & Murphy, 2009). Thus, there is promise that providing health communications in SL can also have an impact in one's real life.

2.1   Who Uses Second Life?

Linden Labs, the San Francisco-based creators of SL, releases very little information about its users. As a result, there is little detail available about users. What is known reveals that there are over 36 million accounts and, as of June 2013, an average of 400,000 new registrations created every month (Linden Labs, 2013).

One study, which collected data from 2,127 SL residents, found that approximately 40 percent of users were U.S. residents, 51.4 percent were female, and 67 percent were 35 years of age or younger. Researchers also reported that 55 percent of the surveyed participants worldwide made less than $20,000 a year and that a majority of them (57%) had stopped their education between the ages of 18 and 25 (Bell, Castronova, & Wagner, 2009). Graduation rates are not known for this demographic. We also collected demographic data from our survey respondents, which we report in the Results section.

2.2   Recruitment Methods Used in Second Life

Reaching participants in SL differs from other online venues, and there are a number of ways to recruit participants (Haque & Swicegood, 2013). Previous studies have utilized various inworld recruitment methods such as classified ads placed in SL (Bell, Castronova, & Wagner, 2009; Dean, Cook, Murphy, & Keating, 2011; Foster, 2011), advertising in a SL newspaper, posting to the SL Forum, and advertising in a virtual mall (Dean, Cook, Murphy, & Keating, 2011). Researchers have also recruited study participants by instant messaging members of selected groups formed in SL (Dean, Cook, Keating, & Murphy, 2009), emailing members of a SL-related listserv, and conducting live

recruitment, or directly inviting avatars to participate in a research study by approaching them inworld (Chesney, Chuah, & Hoffmann, 2009; Foster, 2011).

2.3   Why Use Second Life for Health Communication?

While there has been some exploratory work using SL to provide health communication, little is known about SL users with chronic conditions who might benefit from educational messages about disease management and lifestyle modification (Cowdery, Kindred, Michalaki., & Suggs, 2011). Providing messaging and educational opportunities is of particular importance for those with chronic conditions requiring active management and behavior change because behavior change is difficult to adopt and sustain (Teixeira, P. J. et al, 2010). Thus, messaging that the recipient can relate to and understand can help support healthy behaviors (Kreuter, Farrell, Olevitch, & Brennan, 2013; Skinner, Campbell, Rimer, Curry, & Prochaska, 1999).

SL encompasses various aspects of a user's online life. During a single session, a user can visit a diabetes support group, attend a dance party or shop for accessories for his or her avatar. Thus, there are a number of opportunities to provide health communication, even if a user is not directly engaging in health-related activities. The combination of different ways to deliver the message and providing messages in a recreational environment makes SL promising as a venue to deliver health communication. In order to design and implement these educational messages most effectively, it is important to understand more about those who use SL and the best mechanisms to reach them. This includes learning about their demographics, technology use, and current health status.

Here we describe lessons learned from our work recruiting and surveying SL users who self-identify as currently or previously having one of four chronic medical conditions: diabetes, chronic pain, HIV+ status, and cancer. This was part of a larger study to learn how to recruit users with chronic medical conditions to support the use of SL for health interventions. Lessons from recruiting SL users with these conditions can be used for those wishing to provide health communications for those with chronic conditions.

3. Methods

We developed and conducted two web surveys, first to identify our target population and learn how they heard about our study, next to learn about SL users with chronic medical conditions. The target population was SL users who self-identified as having diabetes, chronic pain, HIV+ status, or cancer. A screener or eligibility survey was administered first to determine whether or not users qualified to take our main survey. Eligibility criteria included being at least 18 years of age, residing in the U.S., and having one or more of our chronic conditions of interest. Responses from the screener survey were checked daily – users that qualified to take our main survey were sent a link to an online questionnaire. The web survey could be accessed via a user's Internet browser. The survey invitation was sent through an inworld chat feature. If a user was not online at the time during which the message was delivered, he or she would receive the survey invite the next time they logged in to SL.

The eligibility survey included questions to determine if a user met our basic criteria for participation in the main study. Respondents were also asked how they had heard about our study – data which are used in our analysis of recruitment methods (see Results section). The main survey included a total of 70 questions. Survey questions were selected to understand participants' technology use in general, their current level of healthcare, and their health status. We also collected basic demographic features such as age, race, education level, and income to better understand the characteristics of SL

users. The technology-related questions came from surveys conducted by the Pew Research Center (Pew Research Center, Internet and American Life Project, 2012). Many of the health-related questions were standard questions used in the National Survey of Drug Use and Health (National Survey of Drug Use and Health, 2012), the National Health Interview Survey (National Health Interview Survey – Questionnaires, Datasets, and Related Documentation, 2012), the National Survey of Family Growth (National Survey of Family Growth – Questionnaires, Datasets, and Related Documentation, 2012), and the National Health and Nutrition Examination Survey (National Health and Nutrition Examination Survey – 2011-2012 National Health and Examination Survey, 2012). Selected questions included items related to specific health conditions and overall health and wellness.

3.1   Recruitment Strategy

We developed two main strategies to recruit SL users for this work. One was a *general recruitment* approach to reach the general population of SL users in the event they would be eligible for our main survey. The other strategy involved *targeted recruitment* in which we focused on venues where we were more likely to reach SL users with one of the four chronic medical conditions. We also incorporated venues that existed completely outside of SL, which we termed *real life* methods and ones that were specific to SL, otherwise known as inworld methods. Table 1 highlights our recruitment strategy (general vs. targeted) and setting (real life vs. SL) and lists the recruitment methods used.

Table 1. Recruitment Strategy by Setting*

	Recruitment Strategy	
Recruitment Setting	**General**	**Targeted**
Real Life	Craigslist.com, Facebook Second Life Blog - New World Notes	N/A
Inworld	Second Life Classifieds, Second Life Forum	Referral program, general networking, information sessions

* Table adapted from Haque, S. N., & Swicegood, J. E. (2013). Recruiting participants with chronic conditions in Second Life. In *Social Media, Sociality, and Survey Research.* (pp. 231–252). Hoboken, NJ: John Wiley & Sons, Inc.

Our general and real life recruitment strategies included Craigslist.com, Facebook, and the SL blog New World Notes (NWN). Our general SL recruitment included SL Classifieds and the SL Forum. There were no targeted, real life recruitment activities conducted. Our targeted, SL methods included a survey referral program, general networking with health community leaders, and information sessions held in health-related support communities.

3.2   General Recruitment

3.2.1   Craigslist

During data collection, Craigslist ads were placed successively in Craigslist-specified major metropolitan cities including Boston, Chicago, Los Angeles, New York City, Portland, Sacramento, San Diego, Seattle, San Francisco, and Washington, D.C. Because Craigslist prohibits the simultaneous placement of similar ads in different cities, ads were posted to only one city at a time, in alphabetical order and on a weekly basis. Ads ran for seven days before expiring; they then were posted in the next city. After posting to all the major metropolitan cities, ads were posted weekly to other Craigslist cities.

3.2.2   Social Media

Recruitment messages were sent through a Facebook account on several of SL's Facebook pages including "Games/Toys", "Local Business," and "SL Interest." These were selected due to the high volume of traffic that appeared on the pages.

Participants were also recruited through a permanent ad on an SL-oriented blog—New World Notes (NWN). This ad linked readers to the eligibility survey. This partnership also included three posts advertising the study on their website. Other types of social media were used as part of an advertising contract with NWN including Facebook, Twitter, Plurk, and Google +.

3.2.3   SL Classifieds

SL Classifieds (www.secondlife.com/community/classifieds/) is a website SL users use to post ads to other SL users. The concept is similar to other online classifieds sites such as Craigslist. Ads are keyword-driven and appear when certain searches are done after a user logs into the website. The more users pay for an ad, the higher ranked the ad is in the search results. Users can also see how much other people are paying and price ads strategically. All ads were posted weekly and the cost for both studies was approximately L$150 Linden dollars or $0.60 per week. Linden dollars are the currency in Second Life. $1 USD is the equivalent of approximately L$250 Linden dollars. Recruitment messages were posted in the "Employment," "Personal" and "Wanted" sections of the SL Classifieds. Figure 2 displays findings from a search of the word "survey" in the SL Classifieds. Our study posting is listed first.
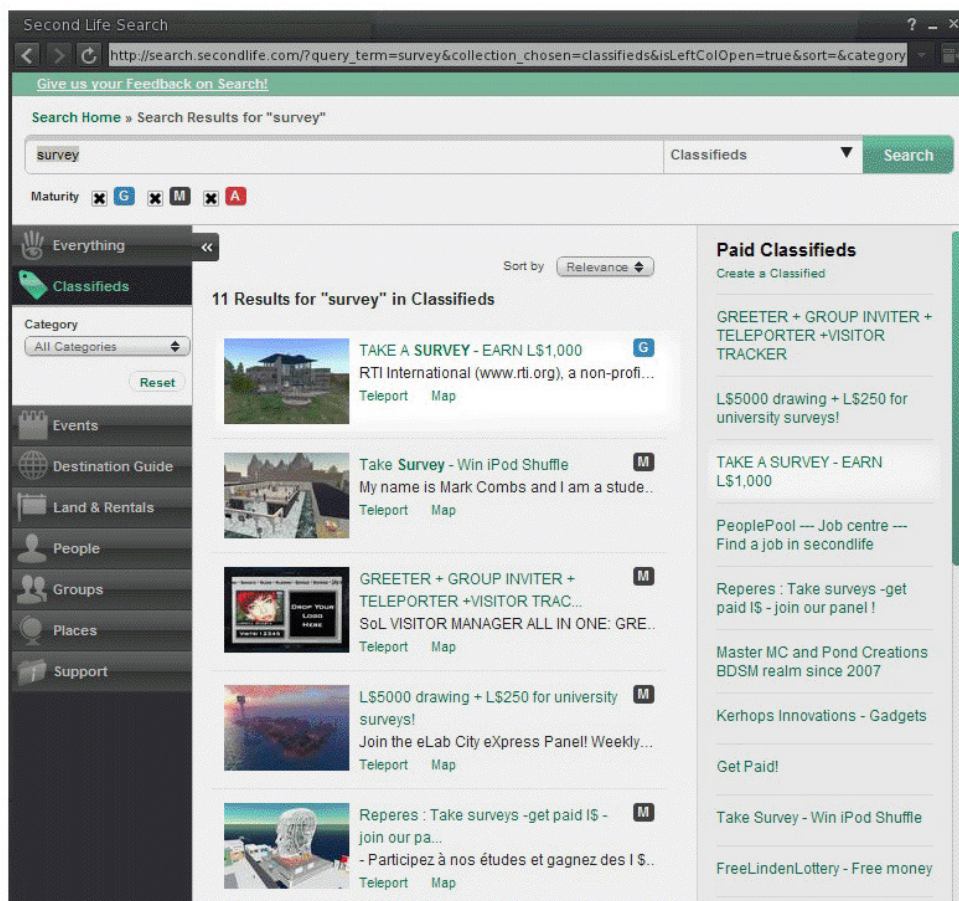
Figure 2. Second Life Classified Search Results

3.2.4   SL Forum

The SL Forum is an online community discussion board for SL users. We initially experienced difficulty posting messages without posts being flagged for removal. Because our recruitment materials contained information about the research institute's website, phone numbers, and contact information, all of our initial SL forum posts were removed as solicitations. To overcome this barrier, our posts were revised so that they were more informal and casual; we used the first person pronoun and did not mention the name of the institute or any contact information. After our initial posts, SL users posted questions and comments, which we answered.

3.3   Targeted Recruitment

3.3.1   Information Sessions

As part of a targeted recruitment effort, the Recruitment Coordinator's avatar held 13 real-time virtual information sessions in two health-related support communities in SL—HealthInfo Island and the Chilbo Community. HealthInfo Island is a health and wellness community that provides information and raises awareness on a variety of health-related topics. Topics include new research, medical conditions, surgeries and drug effects (HealthInfo Island, 2014). This community was chosen because it directly supports members of our target population. The Chilbo Community is dedicated to helping users explore

SL's potential and was also supportive of this study. This provided us with an additional venue to recruit SL users who might be interested in our study. Recruitment involved sending out group notices through instant messaging inworld and adding all sessions to the SL Community Events Calendar inworld. Community leaders facilitated recruitment by placing "notecard givers" at each location, which provided general information about the study and dates and times for the sessions as indicated in Figure 3.
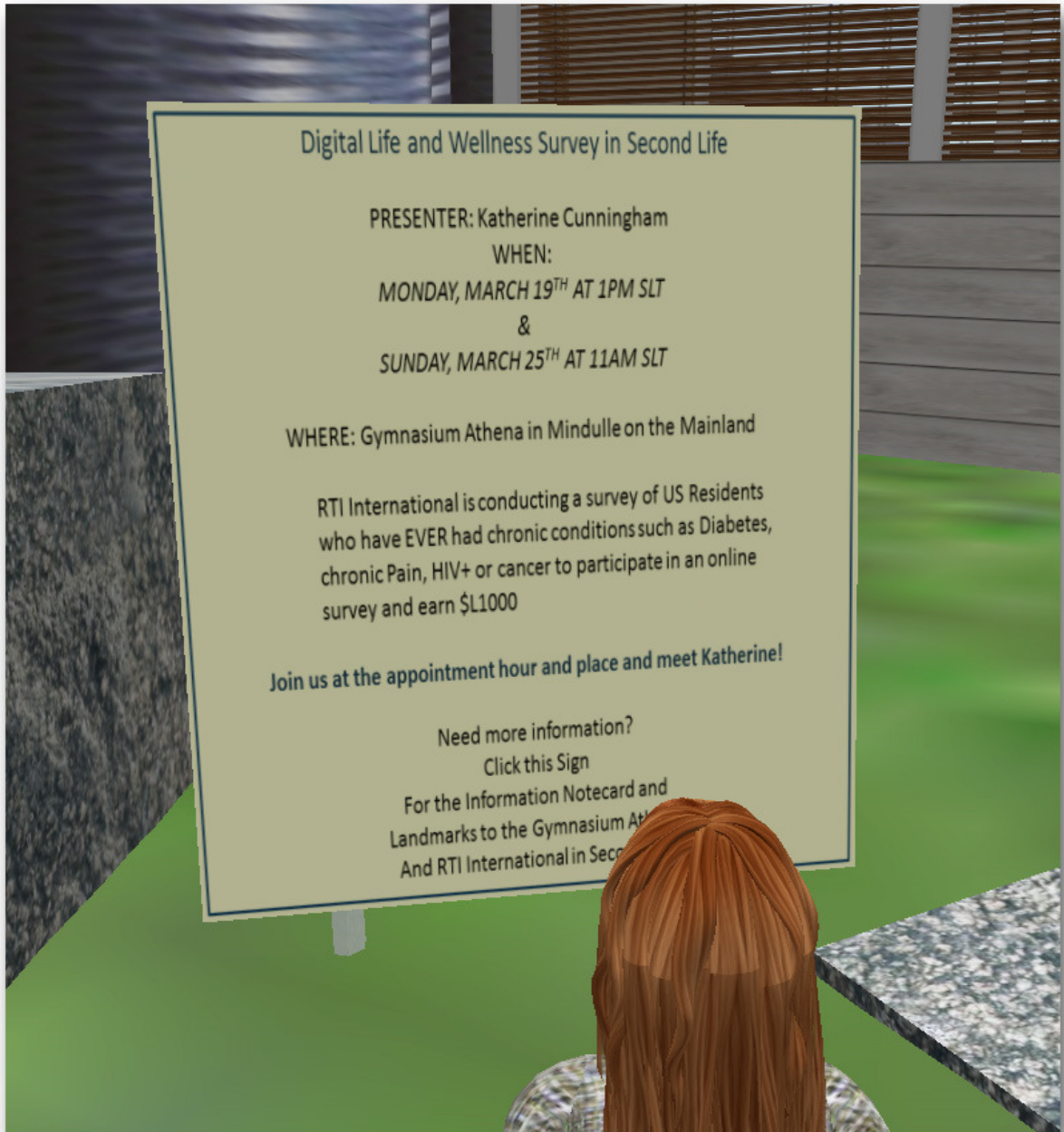

Figure 3. Notecard Giver at the Chilbo Community

Notecard givers are inanimate objects that exist inworld and are able to pass information in the form of a notecard to an avatar once engaged or "clicked."

Presentations lasted approximately 10-15 minutes, during which time the Recruitment Coordinator introduced attendees to the research institute and described the purpose of the study. Other topics covered included eligibility requirements and basic Informed Consent information. At the end of the session, virtual attendees asked questions and were given the option of completing the eligibility survey. On average, 6-8 SL users were present at each session.

3.3.2   General Networking

We also identified health-related support communities in SL, such as Virtual Ability, Inc., and contacted their leaders. Of the 84 community leaders we contacted, several expressed an interest in helping to advertise the study. This included instant messaging group members about our study and placing notecard givers in their inworld locations.

3.3.3   Referral Program

Study participants had the opportunity to earn an additional incentive in SL currency by referring others to the study. This equated to about $0.41 in USD per referral.

3.3.4   Word-of-Mouth

From interacting with participants, researchers learned that some respondents also advertised the study on their personal Facebook accounts and Twitter feeds, in addition to referring their real life and SL friends. We do not know the extent to which word-of-mouth impacted exposure to the surveys.

Recruitment materials included the avatar name of the Recruitment Coordinator for the study. While it is common to include IRB contact information in recruitment materials, including an SL identity conveyed to other users that researchers respected the division between real life and SL.

4. Results

One of the findings of the study was understanding the characteristics of those who replied to our survey. Another finding is the success of various methods of recruitment.

4.1   Respondents' Characteristics

The survey collected basic demographic items such as age, sex, race, education, and income. This gave us a better understanding of the characteristics of SL users. Table 2 displays these demographic data. Percentages do not add up to 100% in all demographic categories due to incomplete responses.

A majority of our study participants were female (64.1%) and almost half reported being 45 years of age or older. 93.4 percent of participants identified themselves as non-Hispanic and 92.3 percent reported their race as White. The highest percentage (32.0%) reported they had some received some college credit, but did not receive a degree and 27.0 percent reported earning between $20,000 and $40,000 a year.

Table 2. Demographics

Demographic Items		n	%
Age			
18-24		14	7.7
25-34		32	17.7
35-44		48	27.0
45+		86	48.0
Sex			
Male		62	34.2
Female		116	64.1
Hispanic			
Yes		10	5.5
No		169	93.4
Race			
White		167	92.3
Black or African American		8	4.4
American Indian or Alaska Native		10	5.5
Asian		2	1.1
Other		6	3.3
Education			
Less than HS		3	1.7
HS Degree		23	12.7
Some College, No Degree		58	32.0
Associate's Degree		26	14.4
Bachelor's Degree		36	19.9
Graduate Degree		34	18.8
Income			
Under 20k		47	26.0
20-40k		48	27.0
40-60k		34	18.8
60-80k		21	12.0
80-100k		12	6.6
Over 100k		15	8.3

The number and percent of SL users recruited by each method are included in Table 3. These data were self-reported and represent the number of users that completed our first survey to determine eligibility, not the number that responded to our main survey.

4.2   Recruitment Methods

Table 3. Response to Eligibility Survey

Mode	n	%
Craigslist	18	3.1
RTI Avatar	22	3.8
Second Life Classifieds	39	6.8
Second Life Facebook Post	18	3.1
Second Life Forum	98	17.1
Second Life Friend	6	1
Second Life Support Community	57	10
Survey Referral Program	69	12
New World Notes Blog	210	36.7
False Answer	5	0.9
Other	74	12.9
Total:	**616/573**	**107.5[a]**

The first number in the total column represents the total based on the recruitment data; however, respondents were allowed to select more than one answer option for how they heard about the survey. The second number represents the total number of respondents recruited for the eligibility survey.

[a] Figures exceed 100 percent as respondents were allowed to select more than one response for this question.

[b] False Answer represents responses that were options in the eligibility screener, but that were not actually used for recruitment. False answers were used to determine a survey taker's truthfulness and as an overall measure of data quality.

Our most successful method of recruitment was an online blog called New World Notes (NWN). We recruited 210 respondents or 36.7 percent for our eligibility survey. The next most successful venue was the SL Forum where we received 17.1 percent or 98 total respondents. The SL Forum proved to be a highly visible venue for targeting users for our survey. We only posted one study advertisement, which yielded 441 views and twelve unique responses.

We successfully recruited 573 SL users to complete our eligibility survey, and of those respondents 236 were eligible for our main study and 181 completed our main survey. Table 4 highlights the overall findings for each mode of recruitment throughout the full study.

Table 4. Results from Eligibility & Main Survey

Mode	Number Recruited*	Number Eligible	Number Completed
SL Classified	39	16	14
SL Forum	98	39	26
Referral Program	69	32	26
RTI Avatar	22	14	9
Facebook Post	18	4	1
Craigslist	18	7	1
SL Support Community	57	36	30
New World Notes Blog	210	71	55
Word-of-mouth	17	5	4
False Categories	5	1	0
Other	63	30	26
Total:	**573****	**236****	**181****

*   Number that completed the eligibility survey.
**   Number of unique respondents. Respondents could select more than one response option when asked how they heard about the study.
*** Table adapted from following source: Haque, S. N., & Swicegood, J. E. (2013). Recruiting participants with chronic conditions in Second Life. In *Social Media, Sociality, and Survey Research*. (pp. 231–252). Hoboken, NJ: John Wiley & Sons, Inc.

When considering completed surveys, the NWN blog was still our most successful method of recruitment with 55 total completed surveys, followed by a SL Support Community at 30 completes. The success of the NWN blog in yielding the highest number of completes is likely the result of driving the highest number of SL users to our eligibility survey rather than any strategized recruitment effort on our part. The second most successful method in terms of completed surveys was the SL Support Communities where 13 information sessions were held between two venues: HealthInfo Island and the Chilbo Community. SL users recruited through a SL support community were 26% more likely to complete our main survey than those recruited from the SL Forum – our second most successful recruitment method for our eligibility survey. These findings suggest that for our target population, our targeted recruiting methods worked better at securing responses to our main survey (i.e. greater likelihood of eligibility) than general approaches such as the SL Forum. The referral program, as a targeted recruitment method, also yielded a higher percentage of completed surveys than did other methods. 38 percent of respondents recruited via this method completed our main survey.

More SL users reported chronic pain (at 201 total respondents) than any other of our four chronic conditions. We were able to recruit 78 SL users with diabetes, 27 with cancer, and 8 with HIV+ status. These numbers represent those that completed our eligibility survey, and all data were self-reported. It is assumed that 100 percent of study participants that completed our main survey had one or more of these four chronic conditions of interest.

5. Discussion and Recommendations

Recruiting SL users who self-identify as having diabetes, chronic pain, HIV+ status, or cancer yielded insight into how to reach these populations in SL. Monitoring the recruitment methods that were successful in reaching these populations for an online survey yields important insight for reaching these populations in other ways, such as providing health communication. Two important considerations include the importance of the avatar in SL and understanding SL communities.

5.1   Avatar Engagement in SL

Because SL is a virtual world predicated on interaction between avatars, properties of the avatar that communicates with participants are important. This "research avatar" must establish credibility and legitimacy so that other avatars that serve as potential recipients of health communications will be open to the message the research avatar is sending. SL culture may differ from the norms and social conventions of the organizations in which the person behind the research avatar operates in the real world. Thus, research avatars should adapt to the SL culture so that their target audience will trust the source of their message.

Not only do SL users have to trust the source of messaging from a content perspective, but also from a SL perspective. For example, SL users not only need to be assured of a research avatar's professional qualifications in the real world, but also the researcher's ability to understand SL and use it as a communication platform knowledgably. There are several ways to demonstrate an understanding of SL and its norms. One way is to use an avatar with a long history of positive interactions in SL. Because the date an account is created is visible in an avatar's profile, creating an avatar and using that avatar to engage in the community should occur well before starting health messaging efforts. SL users often refer to this date as confirmation of being both well-established and invested in the SL community.

In addition to the length of time a research avatar has been active, the appearance of the avatar is important. Avatar customization is one way to demonstrate an understanding of the environment. Customization and development can be done through observation of social norms or through the use of inworld stylists. Attire in SL is generally more fashion-forward and risqué than standard professional dress. Our research avatar sought to balance the goals of maintaining a professional appearance, while not sticking out in the SL environment. For example, rather than wearing a suit such as one might wear in a professional setting in real life, the female recruitment avatar would wear a more stylish, fashion-forward suit with a shorter hemline and high heels. Another aspect of social norms is social interactions in SL. Other avatars can view public profiles and look for assurance that the avatars are associated with real people and not groups of people or automated vehicles for spam, such as what exists in email. In our interactions with the community, those were not looked upon favorably. One way to build trust is by creating and updating public profiles. Information to consider incorporating in the profile includes a SL (or real life) profile picture and biography. For our study, the main avatar responsible for engaging participants provided information about the study in her avatar's profile, including a description of the study, a description of the types of questions asked, and basic eligibility requirements. A link to the eligibility survey was also provided.

5.2   The Importance of Communities

Health-related communities were a successful recruitment venue for the survey. The main avatar identified several health-related communities through general searches and networking within SL. Community leaders asked questions of the main recruitment avatar prior to allowing us to use the community as a recruitment vehicle. We found that if the community leader vouched for the recruitment avatar or provided the recruitment avatar with a forum within the community, then community members tended to trust the leader's judgment. Recruitment methods in the community included holding information sessions, passing out notecards in the community about the study and putting up "notecard givers," where users could access study information on a continual basis. Notecards contained additional information about the study and could be saved in a user's account to be referenced later. They can be shared between avatars as well as instant messaged to users in a group. Notecard givers operate like automated kiosks which pass out information when prompted. These are less time-intensive, but allow users to access information about the study at any time. Real-time information sessions are time-intensive and are much like giving a web-presentation, but through richer media. Similar methods could be used for health communication.

5.3   Applications for Health Communication

Based on our experience recruiting, we have several recommendations for those wishing to provide health communications to SL users with health conditions. One relates to using the avatar to demonstrate adherence to cultural norms. Avatars used to provide health communications should have a history of positive interactions in SL. In addition, while many SL users are private and prefer to keep their identity anonymous, the identity of an avatar of a user providing health communication or conducting research should be tied to a real-life individual. Tying an avatar to a team rather than to an individual is not in line with social norms in SL. Part of social norms also includes how the avatar appears inworld.

Understanding the community is an important component of providing health communication. We found that establishing relationships with the community leaders and having them introduce the recruitment avatar immediately put community members at ease. Similarly, those providing health communications should look to community members to help confer legitimacy inworld. This involves spending time with community leaders. In addition, communities may have their own social norms, so community leaders can be helpful in structuring communication messages and providing input about where to deliver communications and how best to approach providing health communications.

We had a higher number of respondents from general recruitment, but greater response to our main survey from our target recruitment efforts. This suggests that health communications relating to the general population would be well-received by our most successful general recruitment methods. These methods are not as time-consuming as more targeted methods. Targeted methods are more useful for specific conditions. However, these methods require significant time and effort.

6. Recommendations for Future Studies

This chapter reports on findings from recruitment of SL users who self-identified as having one of four conditions and speculates that recruitment lessons could be applied to providing health communication for those communities in SL. However, this work stops short of using these methods and practices to communicate in SL or learn about how the messages were received. Future studies could apply these principles in provision of health communication.

7. Limitations

      This work was based on self-reported data from SL users. We had no way of verifying health conditions of users in real life. In addition, SL users sometimes conflate their avatars with their real life. While we were clear in the recruitment materials that we were asking if users had a medical condition in real life, it is possible that some responded on behalf of their avatar.

      This work had a short recruitment period of approximately four and a half months. Thus, the sample sizes are small and the statistics are limited to descriptive statistics. As this work was exploratory, many of the recruitment methods were developed during our data collection period. A longer recruitment period with a larger sample size would provide more insight into recruitment methods.

      Learning from recruiting SL users with diabetes, chronic pain, HIV+, and cancer coupled with demographic information about those users, yields important insights for disseminating health communications for those with chronic conditions. This information can be used to develop health education and promotion programs for individuals who, for whatever reason, cannot be reached through more traditional means. In addition, it provides a mechanism to reach individuals in a way that may resonate with them and their already established online habits. Based on our results recruiting survey participants, we have developed several recommendations for these types of messages and how to disseminate them within SL. Those in health promotion, public health, and health literacy can use these findings to effectively develop communication strategies to reach patients with chronic illness. Social science researchers in SL should be interested by the applied sampling methodology and the relative success of the various strategies.

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