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From Vitruvian Man to the Avatar: The Second Life of Humanity

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FROM VITRUVIAN MAN TO AVATAR:

THE SECOND LIFE OF HUMANITY

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An Abstract of the Dissertation Presented
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Social Virtual Environments (SVEs) have been in existence for as long as we have communicated with others through the internet. Users of social virtual environments are represented by avatars, virtual representations of the users. As technology has advanced, so have the ways in which users can represent themselves online: from user-names in the beginning to three-dimensional, graphic representations used in many gaming and immersive environments so popular today. User representations in virtual environments (commonly referred to as "avatars) become a part of the user's identity as they interact with others in the virtual environment and with the environment itself. The primary purpose of this study was to create a model of the components that comprise the avatars through an extensive review of current literature on the avatar, virtual environments, human-computer interaction (HCI) as well as theories in virtual identity, user and avatar personality, and the movement of identity between the user, the projective identity, the virtual representation, and the environment. Secondarily, this study examined, using quantitative and qualitative methods, the application of the model in examining personality traits of the user and the virtual representation (the avatar) to predict participation in social virtual activism in the virtual world of Second Life. The study took a mixed method approach through a quantitative survey of the general population of Second Life users (1,001

respondents) and a qualitative case study of a virtual social activist community (Four Bridges Project) in the social virtual world, Second Life. Findings from a review of the literature produced a comprehensive model of the avatar components that effectively describes the movement of identity and personality through the representative components. Findings from the survey and case study indicated that, while there is not a substantial difference in the percentage differences in personality traits of the activist in Second Life when compared to the general population of Second Life, the baseline personality traits of the Second Life activist tend to range higher. The case study revealed that activism in Second Life relies on a community of practitioners that encourage and support each other through shared resources and information building.

DEDICATION

To the Four Bridges Project members who work relentlessly toward building a more peaceful place in all our realities.

ACKNOWLEDGEMENTS

Without a doubt, my greatest strength, ally, and support in my academic journey has been through the efforts of my advisor, Tina Passman. Without her absolute commitment to me and to this work, this wouldn't have been possible. My gratitude to her is endless. My committee has been an incredible source of support in a myriad of ways throughout my PhD work. They have challenged me to best my own efforts and to produce work in which I can take pride. For this I am eternally grateful. I am thankful for the support that I received from the Graduate School at the University of Maine and, particularly Scott Delcourt. As anyone who has pursued an Interdisciplinary degree can attest, these people serve as the cornerstone to our success. To the community of Second Life and especially Four Bridges, thank you for being my place and my peeps. To my mother, I am thankful for giving me courage when I faltered in my step, a shoulder when I cried out of frustration or fear, the tenacity to know that I could, and a cheering section when I reached each landmark. "Thank you" will never be enough. I am forever indebted to my boys, Aska and Hagen, for so graciously and patiently waiting for me to FINALLY finish and for being the rocks upon which my foundation rests. I have been so fortunate to have the support that Keith has always offered selflessly and without condition. He provided the space for me to achieve my lifelong goal. How do I show my gratitude for that? To my siblings, I am thankful for their belief in me and pride in me even though they had no idea what I was working on most of the time. I owe a debt of gratitude to the Drisko family for picking up my slack with the boys, making sure that we had what we needed, and giving me a sense of security. I am grateful to my friends for understanding all the cancelled plans, missed celebrations, forgotten birthdays, and their unending friendship and support despite it. Finally, to Mags, whose eyes have watched my every step, keeping me strong and holding me to my path even when I was faking it.

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CHAPTER 1 INTRODUCTION:

APPROACHING THE ISSUES

"I am a thread too slender
To suspend all this reality..."
~Phillip Pulfrey, From "Madness" In Love Abstraction p29

Are there consistent and distinguishable components to the avatar when used in a Social Virtual Environment (SVE)? What practical conclusions can be drawn about the ways these components impact the user's virtual environment experience in real-world applications such as virtual social activism?

Theories on virtual identity abound in recent literature. Avatars have become a source of curiosity and interest as educators, digital archivists, media specialists, IT professionals, and activists explore the virtual landscape for applications in their fields. Understanding the components of identity and the relationships that are created between the user, the projective identity, the virtual identity, and virtual place play a major role in leveraging the technology to the best possible end.

Research in avatar identity, though a relatively new topic, has become mainstream. Several publications such as Tom Boellstorf's, *Coming of Age in Second Life* and Nick Yee's *The Proteus Paradox* have given rise to academic interest. Academic studies on how the user's virtual representation's appearance affects confidence and the effect of virtual possessions on a user's sense of self have become topics of interest in education, training, and social activism communities. For educators, trainers, and social activists, understanding the avatar, in terms of

self-identity, group identity, and global identity gain importance as the use of social technology increases.

A recurring theme in theories of identity has been the importance of the user's sense of belonging to a place and a community (Boellstorff, 2008; Castronova, 2007; Evans, 2011). The transference of identity and the effect of the virtual on the offline user has been discussed through current research, which confirms that, although the effects vary according to specific processes and stages, there is agreement that the virtual and projective identities play a role in users' offline identities (Bailenson & Segovia, 2010; Bellman & Landauer, 2000; Van Looy, 2015).

Theories on the role of place, Human-Computer Interaction, Embodiment, Presence, and Immersion clarify and define the role these attributes play in creating and defining identity in virtual environments. Current research focuses mainly on the effects of the avatar in specific environments and under prescribed conditions. Several studies tout the advantages of employing gaming strategies and virtual environments in the fulfillment of psychological needs such as a sense of competence, self-efficacy and the acquisition of new skills, goal-directed behavior and in social interactions (Petrakou, 2009, Przybylski & Ryan, 2010, Warburton, 2009). It has also been shown that the use of video games in training can lead to an improvement in cognitive performance (Basak, Boot, Voss, & Kramer, 2008, Green & Bavelier, 2012) and in health-related behaviors (Baranowski, et al, 2008; Cross, 2016; Primack, et al., 2012).

While research continues to grow in virtual technology and the effect of the avatar, there is still much to be learned about what defines an avatar and there is also only passing research being conducted on the avatar in virtual social activism activities. The purpose of this research lies primarily in describing the components of the avatar and secondarily, in relating these

components to their role in digital activism in the Social Virtual Environment of Second Life. Also, of importance is the role of social movements in virtual environments. These movements, mediated through technology, focus on the role of the collective identity in new digital movements.

As issues of social concern such as environmental change, violent conflicts, and inequalities continue to demand our attention, the integration of virtual technology in confronting these issues has the potential to reach an international audience. Learning how to build bridges of understanding across cultures is just one way that the technology can be utilized in social and personal activism.

Methodology has always been a contentious subject when researching virtual environments. Quantitative research in the form of surveys has been the go-to methodology with a strong combination of ethnographic, auto-ethnographic, and other qualitative methods as support. Much of the current research on Social Virtual Environments is of an ethnographic or auto-ethnographic nature. There is a difference in research conducted by the anthropologist in the field, and research from the perspective of an already active and immersed resident of the community and virtual environment. Both have their uses but understanding the dynamics of a virtual community and approaching identity from the "inside" offers a new perspective that can serve as a foundation for additional and future researchers.

This study draws on research in Neuro-Information Systems, (NeuroIS)[1], a subfield especially used in the field of Information Systems (Riedl & Léger, 2016), and combines neuroscience and neurophysiological perspectives to understand the impact that the development

[1] NeuroIS is an emerging field that draws on neuroscience and neurophysiological tools to better understand the development and use of technological advances and the impact on neurology. For a complete description of the work being done in this area, see http://www.neurois.org/neuro-is/.

and use of technology have on the user. It examines the interconnection between human and non-human entities, once an interface has been established, examining theories in human-computer interaction.

In combination with the quantitative data collected, the Four Bridges Project is considered as a case study of an activist and ongoing social movement community. Examples of community projects, community responses to disruption and a "post-mortem" of the lessons to be learned provide a background and a foundation upon which research for this dissertation rests.

As the founder of the Four Bridges Project (a community of activists and NGO's discussed in a subsequent segment) in the SVE (Social Virtual Environment) Second Life, a long-time user of virtual environments (since 1995), and first a student, then faculty member in Peace and Reconciliation Studies, I have a strong foundational understanding of the research for this dissertation study which is unlike any that is currently available.

In setting the stage for the three-part feedback loop of identity uncovered through my research, in the next section, I shall summarize the history of Social Virtual Environments and go through each component of the "avatar"; the user, the projected identity, the virtual representation, and the place that the virtual representation inhabits. I will detail the environmental elements of the virtual world and address issues of identity, transference of identity and explore relevant aspects of human-computer interaction (HCI).

Chapter 2 ends with a discussion of social movements in SVEs and introduces the Four Bridges Project as a case study in social virtual activism.

Chapter 3 will discuss the methodology used in this study of the avatar components and their relationship to virtual social movements. The results will then be presented in Chapter 4

followed by a discussion of the impact of the research and ideas and suggestions for potential future research and applications in Chapter 5.

CHAPTER 2 BACKGROUND AND HISTORY:

SOCIAL VIRTUAL ENVIRONMENTS

"Commentators frequently blame MMORPGs for an increasing sense of isolation in modern life. But virtual worlds are less a cause of that isolation than a response to it. Virtual worlds give back what has been scooped out of modern life. The virtual world is, in important ways, more authentically human than the real world. It gives us back community, a feeling of competence, and a sense of being an important person whom people depend on."
~Jonathan Gottschall, The Storytelling Animal: How Stories Make Us Human p195

History

Social virtual environments (SVE's) have been in existence since the earliest computers connected to one another. Humans are social creatures and, as such, we find ways to use our tools and technologies to connect with others. Our social existence and social circles help to form our identities (Cabiria, 2011; Edgar, 2016; Froese, Iizuka, & Ikegami, 2014). It naturally follows that we would use our technologies to connect with others around our shared interests.

The earliest SVE (known as a "chatroom") was Talkomatic created in 1973. Part of the Programmed Logic for Automatic Teaching Operations (PLATO), a computer-based education program at the University of Chicago, Talkomatic's messages were displayed letter-by-letter as the participants (only five allowed at one time) typed their messages to one another. Still, it was a revelation in its time. It was designed to be used in the classroom but as more people logged in, social connections that had nothing to do with education began to take place. People wanted to chat with one another. Intimate relationships formed as online identities developed. This had a profound effect on the creators and users (Wooley, 2016). Creators added a "term-talk" feature which gave participants the ability to speak privately, the original instant or private message service. Although mostly concentrated in Illinois in its beginning, Talkomatic's popularity soon became worldwide as businesses, government, and the military began using the platform for

training and communication (Wooley, 2016). This was two solid decades before the World Wide Web.

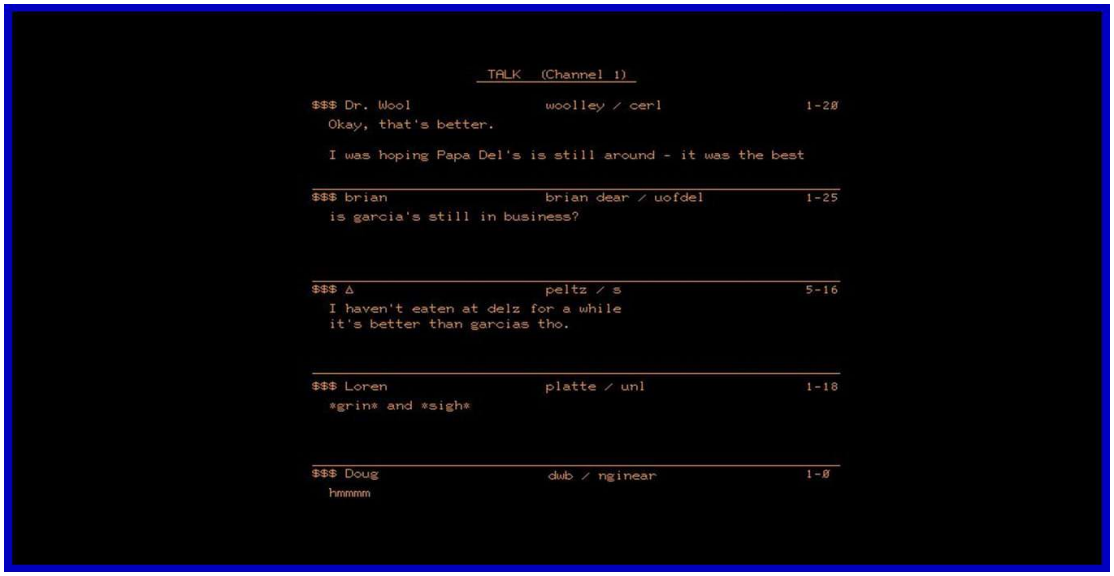

Figure 1: PLATO Talkomatic.
Talkomatic screenshot 1973

As technology developed and more people logged in to the internet, chat programs advanced, and new commercial chat programs were introduced rapidly. The first dedicated, widely available, public chat program was the CB Simulator introduced by CompuServe in 1980. Although the world wide web was still a decade away, CB Simulator provided an opportunity for a growing number of people to log in from around the world and communicate. CB Simulator users held parties in the physical world to meet one another which led to the first "offline wedding" between online users. ChrisDos and Zebra3 met in CB Simulator and were subsequently married in the early 80's (Weiner, 1985). At the time, only a few academics and government people had access, so chatrooms were small in number compared to the chat environments that are available in 2017/2018.

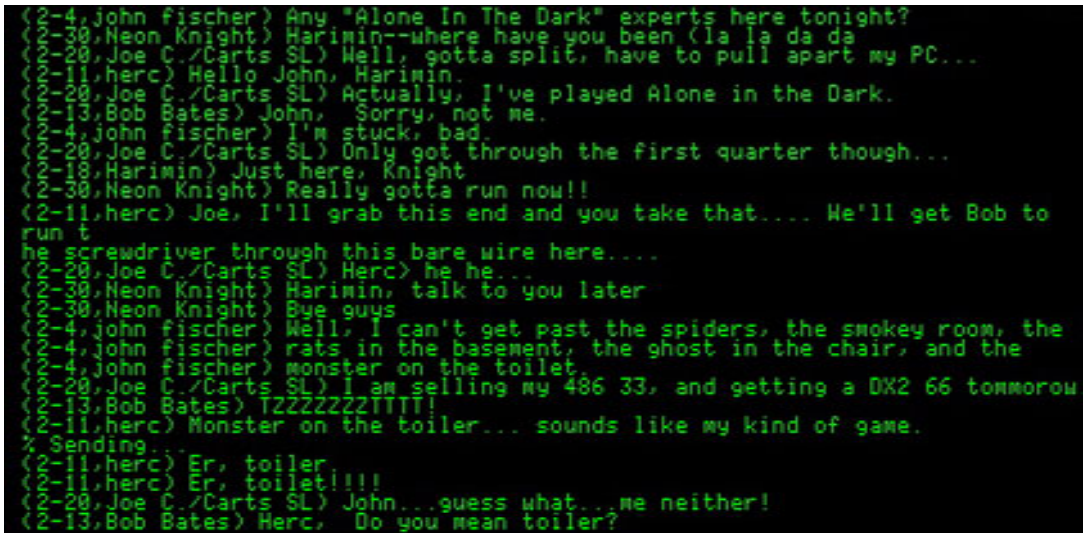

Figure 2: CB Simulator.
Screenshot of the text interface of CB Simulator in 1985.

In the 1990's, as the internet became accessible to the public and as personal computers started showing up in more households, mass adoption of the technology and chatrooms began, with AOL Chat (which purchased CompuServe in 1998) becoming the most widely adopted. AOL and Excite, a collection of websites and dashboard type services (weather, stock market info, email and metasearch engine) both incorporated a chat program called Ubique, created by an Israeli company. The program, commercially referred to as Virtual Places, allowed users to create a 2D representation of themselves (avatar) in the form of a picture and a profile. Users could tour the World Wide Web together on "magic carpets" and gather in chatrooms designed around a topic, such as child-rearing, fashion and, of course, sex, interacting through public text and private personal messaging. Games, such as chess and backgammon were popular pursuits by Virtual Places users.[2]

[2] Most information about Virtual Places comes from personal experience with the technology after having a been an early adopter of social virtual technologies. I was a member/user of Excite's Virtual Places (VP) from 1995 until 2002.

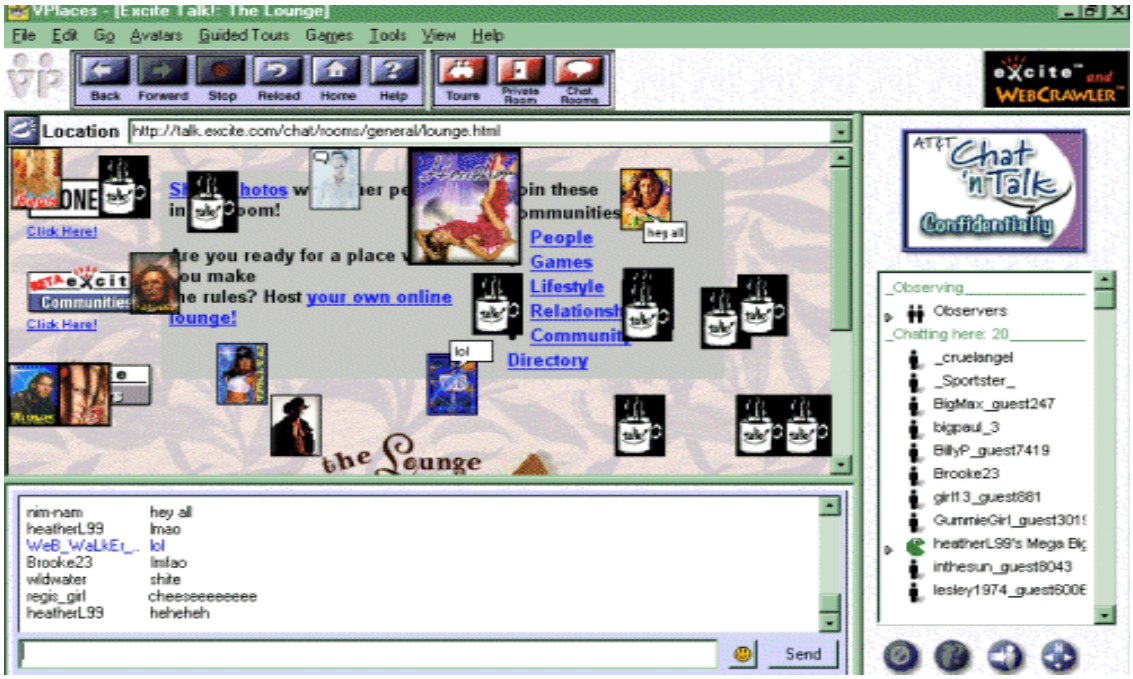

Figure 3: Virtual Places.
Excite's Virtual Places Chatroom 1995

In the mid 90's, AOL abandoned the platform due to the lack of control the company had over the avatars chosen by the users. AOL considered itself a family-centered program and wanted more control over what was visible to its users, so they adopted a text-based chat program that did not include the avatar component. At its peak, Excite's Virtual Places drew tens of thousands of concurrent users.[3]

[3] https://en.wikipedia.org/wiki/Virtual_Places_Chat

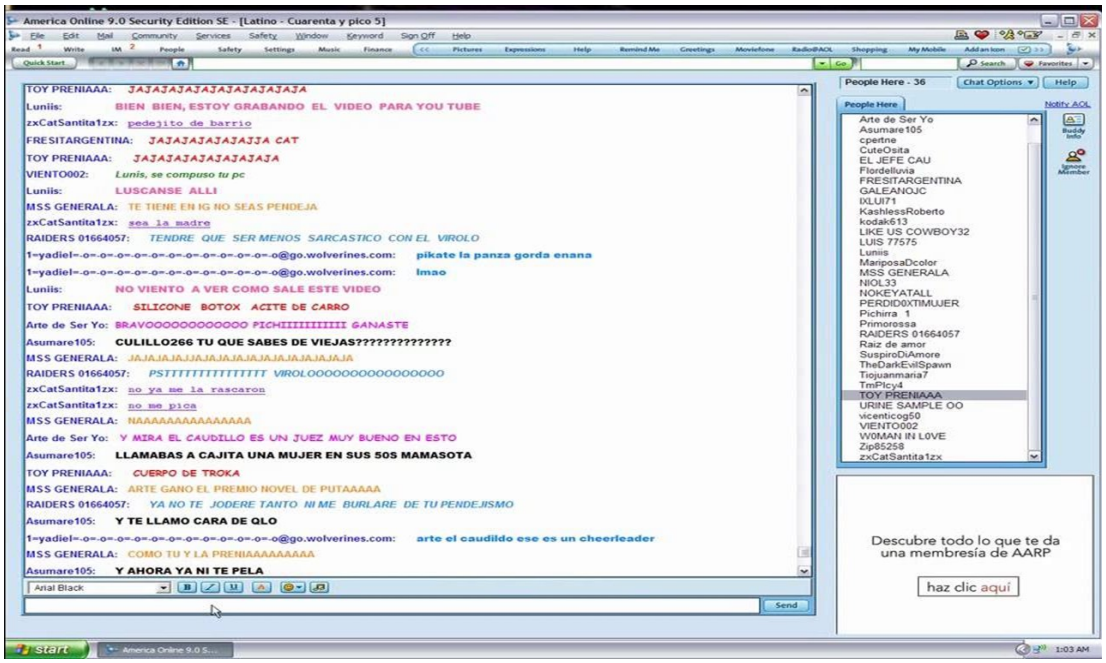

Figure 4: AOL.
AOL Chatroom Screenshot 1995

Early chat environments also included Multi-User Dungeons (MUDs) created in 1978 by Roy Trubshaw and Richard Bartle (Bartle, 2003). MUDs are real-time multiplayer virtual worlds typically text-based, created for, and as a part of the gaming culture – a culture that extends beyond the computer itself and is a source of conversations, storytelling, memories, and dreams which help to create both offline and online identities (Crawford, 2012). MUDs provide the gaming "environment" through storylines which the user responds to through text.

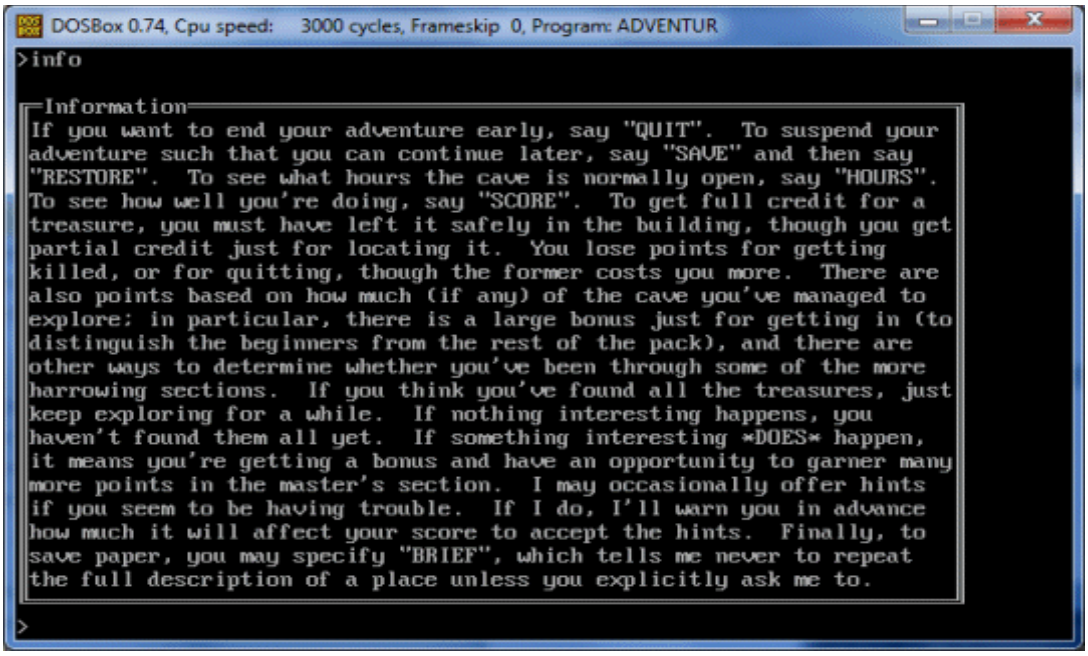

Figure 5: MUD1.
Example of instructions for responses in MUD1 1978

As chatrooms were becoming popular in the 90's, arcade popularity was transitioning to virtual computerized video games that could be played in the home and which eventually gave rise to 3D virtual environments for both gaming and social interactivity (Bartle, 2003).

Technology advancements allowed developers to create three dimensional (3D) virtual environments that were interactive and immersive (Castronova, 2005). Interactivity can be defined as the degree of a user's ability to interact with the environment, objects and/or other users in the environment (Castronova, 2005). Immersion is how we represent a sense of "presence" in the virtual environment: the deeper the immersion through actional and sensory cues (visual and audial), the greater the user's ability to "suspend disbelief"[4] (Cummings & Bailenson, 2016) and feel that they are "present" in the environment. These ideas will be presented in depth in later sections. What is important to note is that it is the gaming industry that

[4] Suspension of disbelief is a temporary suspension of belief that something one is experiencing is not real, as in reading a book or watching a movie. https://en.oxforddictionaries.com/definition/suspend_disbelief

pushed the 3D virtual environment and made these environments available for users of social virtual environments.

When Richard Garriott's *Ultima Online* Massively Multiuser Online Role-Playing Game (MMORPG) was launched in 1995, over 50,000 players logged in within the first 3 months and the game netted 100,000 players in the first year (Garriott, 2017). Developers took note and followed suit, providing several options for gamers and chatters alike (Bartle, 2003).

SVE's differ from gaming platforms such as Ultima Online and World of Warcraft (WoW) in that there are not predetermined missions, gaming rewards, leveling up demands or fantasy roleplaying (unless chosen by the user). Several Social Virtual Environment (SVE) prototypes were introduced with the first major successful one, Habbo, launched in 2000. Habbo, described as "a hang-out for teenagers" is still active (as of 2018) and, though it boasts millions of users, only 680 are online at the time of this writing.[5]

Figure 6: Habbo.
Habbo website image showing 680 online. January 2018

[5] https://en.wikipedia.org/wiki/Habbo

Shortly after the launch of Habbo, German company blaxxun (the virtual environment referenced in Neil Stephenson's 1992 novel *Snowcrash)*[6] was one of the first to launch a 3D social environment.[7] AlphaWorld shortly followed and offered more in the way of avatar gestures and limited in-world building capabilities, edging out the predecessors. AlphaWorld changed its name to Active Worlds in 1995 and is still around in 2018 although its resident numbers are low.[8]

Figure 7: AlphaWorld.
Screenshot of AlphaWorld circa 1997

Second Life

The first Social Virtual Environment to see any real success was Second Life launched publicly in 2003 by Linden Lab. In the Autumn of 2008, after experiencing an influx of users previously unmatched, Second Life had over 16 million residents. Second Life is considered by many to be the pre-eminent SVE (based on user numbers and length of time in existence). According to 2016 statistics provided by Wareable, Second Life boasts 900,000 active users and

[6] *Snowcrash* is a science fiction novel by American author Neal Stephenson which introduced the term "metaverse" as a virtual universe. It has been the inspiration for many virtual world developers.
[7] https://en.wikipedia.org/wiki/Blaxxun
[8] https://en.wikipedia.org/wiki/Active_Worlds

users cashed out $60 million in 2015 from businesses and content made and sold within Second Life.[9]

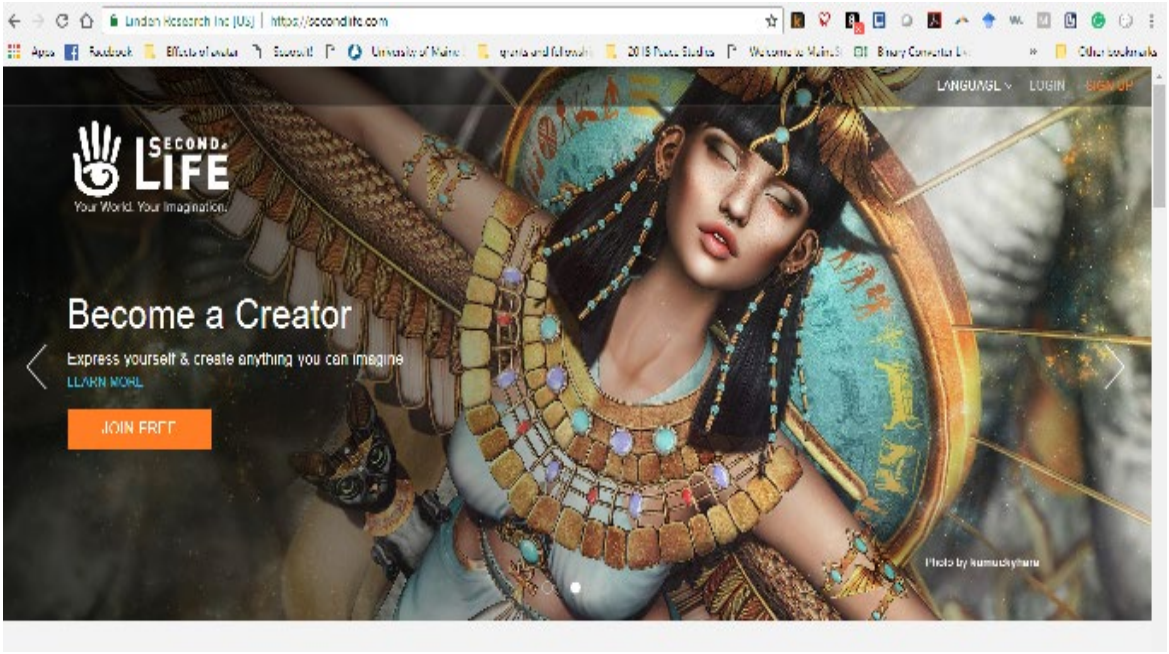

Figure 8: Second Life Home Page.
Second Life welcome page screenshot

There are many kinds of virtual worlds, each with their own mission and purpose. Many are oriented around gaming interaction and others, like Second Life, are designed for social interaction, although many users set up role-playing games as part of their community experience.

Users of Second Life can sign up for a free account which gives them the ability to build in public "sandboxes" and interact with others in most places. Premium accounts allow users to purchase land parcels where they can build and set privacy restrictions. Some regions only allow users with payment information on file to enter their sims (simulated land regions). After signing up for either a free or a premium account, choosing a default avatar (a virtual representation that

[9]https://www.wareable.com/vr/second-life-project-sansar-beta-2016

has not been modified by the user) and avatar name, users download the platform (software that allows access to the virtual environment) and log in. Users can then customize their avatar through the built-in customization feature which allows the user to control height, facial features, hair color, skin color, body features such as weight, breast size, and other physical features. Users can add attachments such as clothing, animations, different hair, etc. The Second Life Marketplace has many options for avatars, attachments, animations, objects such as houses, cars, animals, furnishings – anything that one can imagine. All the objects in Second Life have been created by users. Some items are available for free, though most require purchase through Linden dollars, the in-world currency.

The Second Life virtual environment will be discussed in great depth in a subsequent segment.

Components of Social Virtual Environments

Opinions vary about what components are necessary for a virtual environment to be considered a virtual world. Richard Bartle, the creator of the first MUD and the author of *Designing Virtual Worlds,* considered by many to be the "bible" of virtual environments and used in many university courses in virtual reality, outlines the following components:

1) Physics capabilities. (Sky, water, ground, gravity)
2) A representation of the user.
3) Synchronous interaction with other user representations.
4) A shared world (other users).
5) Persistence (the environment is still "there" after the user logs off). (Bartle, 2003)

Other researchers of virtual worlds include additional required components such as customizable avatars, a 3-dimensional environment, a world map that allows avatars to travel,

interactive objects, physics that can be defied by user preferences, and its own cartesian time (Cabiria, 2011; Kaplan & Haenlein, 2009; Graffam, 2012). Because this research focuses on Second Life, which has all of the components listed, the components are not important in this study. The attributes are important only in that they exemplify the fact that the research definitions and theories in describing virtual environments vary and no one description of requirements can be deemed to be the "right" definition. For the purposes of this study, we will consider the attributes that are important in defining the avatar. The important components that will be considered relate to social and object interaction, the 3D environment, the user and the avatar. Other components will be mentioned as they apply to the aforementioned aspects.

Components of the Avatar

"Perhaps it's impossible to wear an identity without becoming what you pretend to be."
~ Orson Scott Card, Ender's Game, p231

The avatar has its origins in Hinduism. It is the descent of a god into human form to counteract some sort of evil. History can be a slippery fish so there are several people who are credited with applying this term to human virtual representations. Richard Garriott, developer of the Ultima game series, is one of them. For most, the term plays on the idea of the "descent of a god". For Garriott, the term seemed to focus more on the counteraction of evil.[10] Either way, the term has solidified and become a part of our vernacular.

Users go through stages as they progress in their use of virtual environments and develop relationships, group affiliations, and experience interactions with objects and other avatars.

[10] Richard Garriott wanted to write a game about virtue: one in which the player was judged not by the fact that they had risen to power in the game but by the methods through which they achieved the levels. He wanted to hold up a mirror to the players' behaviors. He created a "moral code" that players had to complete before their character was delivered to them imbued with the traits and characteristics of the player (Garriott, 2017). It's an incredible story and exemplifies "avatar" in ways that others do not.

Richard Bartle describes this process as Players (users) becoming Avatars – representations of the user which then, after additional experience, become Characters which represent one characteristic of the user. Once the user fully connects with the Avatar and begins to see themselves and the Avatar as one, they move into the Persona stage (Bartle, 1996). Nagy refers to this as the "this is me" stage (Nagy & Koles, 2014). This is the process of *becoming* an avatar versus *having* an avatar (Curtis, 1992). It's the difference between *using* a virtual environment and *being in* a virtual environment (Bellman & Landauer, 2000).

Foregoing the gaming jargon for a more concise description of the stages of connection between avatar and user, I have modified and further elucidated the description of these stages as follows: people enter the virtual environment viewing the virtual representation as an Object. The representation at the first stage is seen as a tool or an object not connected to the user. "This is an avatar." The second stage is Extension. the virtual representation is an extension of the user representing a characteristic of, or an idealized version of the user. "I have an avatar and I use a virtual environment." The fourth stage, Connection, comes when the user/virtual representation connects with others and holds material goods. The avatar may, at this stage, begin impacting the user's offline personality and identity. The final stage, the "this is me" stage referred to by Nagy and Koles above as the persona stage, I refer to as Reflection. The reflection stage happens when the user sees the virtual representation as themselves. "I am me and I am my avatar. I am in a virtual world."

James Paul Gee outlined three identities relevant to virtual environments: the real-world identity,[11] the projective identity and the virtual identity (Gee, 2007). Because these identities

[11] Because research is coming around to the idea that virtual is "real", I like the use of "offline" identity as opposed to "real world" identity. For the consummate user of virtual technologies, virtual worlds are "real" places and therefore not distinguished by real versus virtual. For the remainder of this paper, offline will be used in place of real world.

exist in different forms depending on the realm they inhabit, each identity has a specific role when defining the avatar. Gee defines the identities as follows: 1) The offline identity is the user that controls the virtual and projective identities. This is the non-virtual identity. The effect of the user, in the virtual environment, is relative to the characteristics that are filtered through the projective identity to the virtual identity. 2) The projective identity. The projective identity is the interplay between the offline and the virtual identities and possesses qualities of both. 3) The virtual identity. This is the virtual representation in the virtual environment. It is developed through the interactions that take place in the virtual environment and is formed, in part, by the environment in which it exists (Gee, 2007).

To this, I would add the virtual environment itself; the *place*. The more a user interacts in an environment and with other users of that environment, an identity relative to that environment is formed based on the interactions. That identity may differ between various virtual spaces since different environments dictate different interactions. How identities transfer from the user to the online environment will be explored in the Transference of Identity section. What is of note here is that place plays an important role in identity. This is true in all our realms and realities. Place thus must be included in our description of the avatar.

Many people come into a virtual environment to check it out and decide not to stay. Others come in and immediately feel a sense of place, connecting to a mission or a feeling or the community, any one of which is vital to the formation of virtual identity.

Offline Identity - The User

"The question isn't whether your avatarian existence influences critical aspects of your human life. The question is whether it lifts it up or sucks it dry."
~Botgirl Questi, Best of Botgirl, loc55 (Kindle)

Before we talk about the user as their virtual representation in virtual environments, we must understand a little about how the user forms their self-identity and how that relates to the formation of the projective identity. Debating the theories of self-identity are beyond the scope of this study and will not be examined in depth. Although theories of identity formation have been extensively explored and are one of the most researched constructs in the social sciences (Vignoles, Schwartz, & Luyckx, 2011), the definition of identity remains multi-faceted. For the purposes of this study, identity will be defined as the "self-definition" of individuals, "who I am," which contains a multitude of diverse and inter-related contexts (Vignoles, Schwartz, & Luyckx, 2011).

According to Vignoles, et al, there are three distinct levels of identity that apply to humans in general. Those levels are the individual, relational, and social (collective) identities (Vignoles, Schwartz, & Luyckx, 2011). The individual level includes the traits and characteristics that we ascribe to ourselves. These can include our dreams, goals, values, and beliefs. Relational identity comes about through our social interactions with one another which encompass "me" as a child, student, parent, etc. These are identities (or roles) that are formed in conjunction with others' views of who we are. We form our social (collective) identity through our group memberships, ethnic, national, gender, and family (Vignoles, Schwartz, & Luyckx, 2011). Nagy and Koles expand this definition of identity to include the material identity, defining the material identity as the material extension of the self; our clothes and material possessions and even particular places (Nagy & Koles, 2014).

Constructionist theories of social identity look at the ways that people account for who they are and how they interact, focusing on how people present their identity through actions, interactions, and appearance (Cabiria, 2011; Neustaedter & Fedorovskaya, 2008). These social constructs of identity follow through the same consistencies in social media and other virtual environments which may serve as places for identity exploration (Cabiria, 2011). Virtual media and environments can provide us with a "clean slate" upon which to extend, recreate, or redefine our identities (Bailenson & Segovia, 2010; Castronova, 2007; Coleman, 2011; Nagy & Koles, 2014).

Throughout this study, the Five Factor Model (FFM) of personality, developed by Robert McCrea and Paul Costa, will be used. The FFM consists of five factors of personality which can be assessed through familiar instruments such as self-reporting questionnaires (McCrae & Costa, 1987). The factors include Openness to new experiences, Conscientiousness, Extraversion, Agreeableness and Neuroticism. Many personality studies include the FFM. A user's identity (offline) can easily be assessed using this model. It is therefore important in establishing a baseline for this investigation. (See Appendix A for a table of adjectives relative to each of the five factors.) This will also be further examined in the Methodology and Results sections.

The user, as a component of the avatar, is subject to the Five Factor Model of personality. These personality factors may differ between the user, the projective identity and the virtual identity (Boellstorff, 2008; Yee, Harris, Jabon, & Bailenson, 2011). The user builds the offline personality and reputation through interactions with others that may, or may not, include the projective identity and contingent identities (self as a parent, child, etc.) and which may, or may not, be extended to virtual interactions. The factors vary between users. Motivations for joining social virtual environments may also affect the extent to which a user extends their identity into

these environments (Curtis, 1992; Eisenbeiss, et al, 2012). For now, the user, in relation to the avatar, can be seen as:

- Subject to the Five Factor Model (FFM) of personality, which may differ from the projective and the virtual identities.
- Carrier of the "offline" identity.
- Offline interactions may or may not include projective and virtual identities. (This is explored in more depth in the section on Projective Identity.)
- Containing a multitude of contingent identities such as parent, child, student, etc.
- Experiences the physical body as "what I am" versus something that belongs to me.
- Carrier of the motivation for joining the SVE which affects the experience and attachment to the virtual representation.

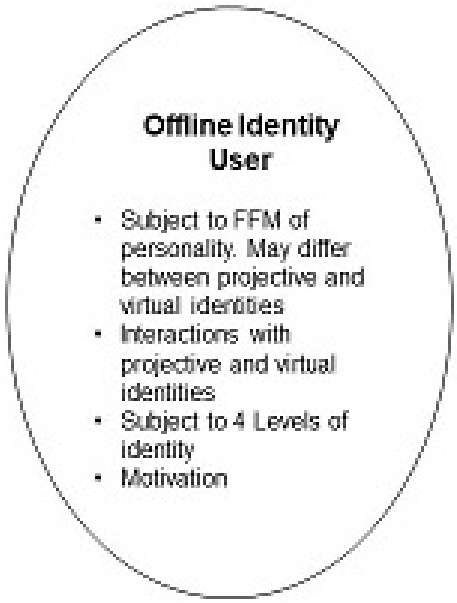

Figure 9: Offline Identity.
Illustration of components of the user – offline identity

Projective Identity

"You are what you share."
~ Charles W. Leadbeater

Anyone involved in social media or even representing themselves online has an avatar. A picture on a Google email account is an avatar. Facebook profiles, pictures, and timelines are avatars. Avatars represent users in the online world and through all the interactions that occur

there. As online identities become engrained in daily activities, an identity is formed around the online avatars (Boellstorff, 2008). People who relate to others strictly through online means present components of their identities that may not accurately portray their physical identity (Gleason, 2016; Graffam, 2012). Avatars provide a means to reinvent the self (Van Looy, 2015). These separate identities are imbued with the characteristics that the users bestow upon them and are continuously formed and shaped by their interactions in the virtual environment and with virtual others (Evans, 2011; Van Looy, 2015; Wu, 2013).

James Paul Gee calls this the "Projective Identity" (Gee, 2007). It is the culmination of the various online projections of what can be a multitude of online identities. Users have access to multiple platforms upon which to form the projective identity. Facebook, MySpace, Second Life, gaming environments, blogs, email accounts, even a shared playlist on Spotify helps create the projective identity of a user. These identities may or may not be consistent across all platforms. In the physical existence, people are known by several related but separate contingent identities (Vignoles, Schwartz, & Luyckx, 2011). We are children of parents, parents to children, sisters, brothers, employees, co-workers, spouses, etc. People juggle these offline identities mostly effortlessly even as they intermingle (Vignoles, Schwartz, & Luyckx, 2011). Contingent identities are applicable to our virtual lives as well and are contained in the projective identity.

The projective identity can also be examined using the Five Factor Model of Personality which is an acceptable and oft-used model for virtual surveys of avatar personality (Fatahi, Moradi, & Kashani-Vahid, 2016; McLeod, Liu, & Axline, 2014; Yee, Harris, Jabon, & Bailenson, 2011). Again, these factors of personality can vary between the user, the projective identity, and the virtual representation and typically do.

The projective identity has interactions with both the offline identity and the virtual identity and can transfer aspects of both these identities to the other (Gilbert, et al., 2014). Both contribute to our sense of self (Nagy & Koles, 2014). This transference of identity (the ways in which identity transfers from user to projective to virtual representation) will be covered in another segment. The projective identity holds the virtual "reputation" (based on virtual interactions with others) which is connected to other virtual spaces and may be viewed as social credential in those environments[12] (Gal-Oz, Grinshpoun, & Gudes, 2010).

Analyzing the projective identity across the multitude of online platforms available is beyond the scope of this study and will not be included as part of the results.

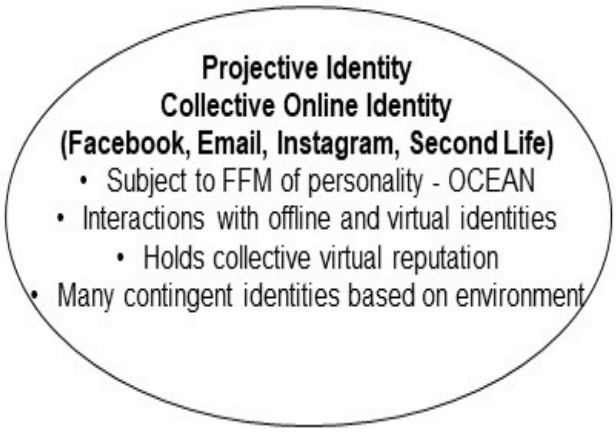

Figure 10: Projective Identity.
Illustration of the Avatar Component – Projective Identity

Virtual Identity - The Virtual Representation

There are many levels of virtual representations including non-modifiable representations that users portray in games such as Mario Brothers. These avatars (two brothers, Mario and Luigi) are plumbers that follow players' input through controls on a predefined mission to rescue a princess. Avatars in these games are not modifiable and must play along a preset range of

[12] Users build a reputation (personality) in virtual environments like LinkedIn, Facebook, MySpace, Second Life and other virtual environments. The culmination of these personalities is contained in our projective identity.

actions. They don't serve as reflections of the players but rather are conceived and designed by the game developers. Many avatars set within virtual 3D platforms are preprogrammed to exhibit parameters of characteristics and behaviors demanded by the environment. These avatars have a "role" and are typically referred to as "agents" (Donovan, 2015).

Table 1 represents the various levels, ranges of customization and available animations for avatars in several 3D immersive environments. Though not an exhaustive list of the platforms, games, and environments available to users, the table provides five representative platforms and examples of each.

As the table indicates, not all avatars are created equally. The most modifiable, immersive, socially interactive, animated user-controlled 3D representations are available predominately in Social Virtual Environments such as Second Life.

As SVE's become prolific, virtual representations of users have become more complex and include greater levels of customization (Yee, Bailenson, & Ducheneaut, 2009). In Second Life, users can purchase or create, using Linden's built-in scripting language, animations to offer social cues to other users during interactions with objects and other users' virtual representations. For example, users can express emotions through animations that allow the users' virtual representations to hug one another, argue, and even share sexual intimacy.

PLATFORM	AVATAR APPEARANCE	AVATAR ANIMATIONS
Mario Brothers, Donkey Kong, etc. (Games designed for the single player with a core mission and no modification)	Preset by the developer. Not modifiable	Preset by the developer. Speed, direction, and other built-in animations are determined by player controls.
World of Warcraft (Multiplayer Online Role-Playing Game. Interactive, some social aspects through guilds. Goals, missions and rules determined by the developer.)	Preset "races" (Orcs, Gnomes, etc.) Some aspects can be modified by the user including hair and eye color. Attachments to the avatar, such as weapons and accessories, can be added during gameplay.	Preset by the developer.
THE SIMS (Mostly single player game. The player can have multiple avatars all active at any given time) Immersive but not socially interactive except for SIMS 3.	Customizable based on developers' preset options. (Age, gender, physical appearance, walk, fashion, voice) Can purchase avatars in whole or parts (eyes, hair, clothing, etc.) through SIMS Resource Market.	Animations are preset by the developer and based on the personality attributes assigned by the player at the time of creation. (lifestyle, hobbies, emotional traits). Poses and actions can be chosen within the platform through "options" menu.
Terf, AvayaLive Engage (Private 3D Spaces used for training, meetings, classrooms, etc. Immersive and socially interactive though usually requires an invitation.)	Preset by the developer. Most have avatars that are customizable through options such as race, gender, hair color and style, eye color, some options for clothing.	Animations are preset and can be activated by the user through gestures. Movement is controlled by the user.
Second Life, OpenSim, InWorldz (Social Virtual Environments. User created environments, objects, avatars. Immersive and Socially Interactive.)	Preset options by the developer. Completely customizable within the platform. Other options created by users are available through the market. Accessories and attachments can be purchased or made by the user.	Some preset by the developer and built in. Other animations, poses, actions available on the market. Users can create animations through Linden Scripting Language which is built into the platform and accessible to all users.

Table 1: Avatar Variations.
Variations in 3D avatar customizability by virtual environment.

Studies have indicated that users form their avatar's identity in much the same manner as physical identities are formed (Edgar, 2016; Horowitz, 2012; Nagy & Koles, 2014). Although no authoritative model of virtual identity exists in current literature, Peter Nagy and Bernadette Koles have proposed a conceptual framework that may serve as a base. They argue for a four aspects identity model which can be described as a process in constant movement influenced by individual, community, and global factors in specific environment realities (Nagy & Koles, 2014). Basically, this means that virtual identities are evolving incrementally as users interact in the virtual environment beginning with the individual, moving out to the immediate connections, objects, and social alliances. Users then move into virtual relationship roles, virtual life stories, goals, values, and beliefs and expand out into the global culture (Nagy & Koles, 2014). This takes place within the framework of the virtual environment, the speed of which depends on the time that a user spends developing the iterative process of forming and reforming the avatar's identity in context with the community.

As users of virtual environments create their avatars, they endow their avatars with physical traits and characteristics based on their desires and expectations (Nagy & Koles, 2014). These traits and characteristics may change as avatars interact in the virtual environment, and as users establish a unique identity for their avatars based on their experiences, nuances of their relationships with other avatars, and the social aspects that they form within their groups and with the objects and accessories that they acquire (Yee, Bailenson, & Ducheneaut, 2009; Coleman, 2011; Nagy & Koles, 2014). Users take their existing worldviews into the virtual environment but create their own virtual narratives from the beginning (Meadows, 2008). How much the user relates to their avatar depends on the user's reasons for being there and, as noted above, how much time they devote to creating a virtual existence (Coleman, 2011).

There are several ways to assess a user's personality in virtual worlds. These include avatar appearance, animation over-riders[13] (AOs) and gestures,[14] and, the user's profile.

The user's profile provides a glimpse into the personal identity of the user and is considered an important aspect of assessing personality within the SVE community. Although I could find no research specific to profile creation in Second Life, several users have posted on blogs and it is understood by long-time members of the community that the profile can make or break a first impression by another user.[15] The more complete the user profile, the more likely another user is to start a conversation based on a common interest.

The profile also affords others an opportunity to see group affiliations, from which the user's social identity can be inferred (Suler, 2017). Though it is possible to hide groups from appearing in the profile, for those who do not conceal their group affiliations, this is a good place to start when beginning a conversation with an unknown avatar. Users can also include "Picks" in their profile which represent places that they have enjoyed visiting in the virtual environment. Some people include messages about their relationships, friendships or their desire to be privately messaged for conversations in their profiles. Although not directly related to avatar customization and appearance, the profile is a valuable tool in finding like-minded associations.

[13] Default animations for avatars are jerky and unnatural, so many users choose to update to pre-scripted Heads Up Display (HUDs) created by other users that include more realistic avatar movements. AOs are available in the Second Life™ marketplace.
[14] Gestures trigger the avatar to perform animations, sounds or text visible to other users.
[15] For examples of this, see the following blog posts: http://www.canarybeck.com/2015/07/30/what-does-your-second-life-profile-say-about-you/, https://slummagazine.wordpress.com/2012/08/19/profiles-in-error-what-your-profile-really-says-about-you/

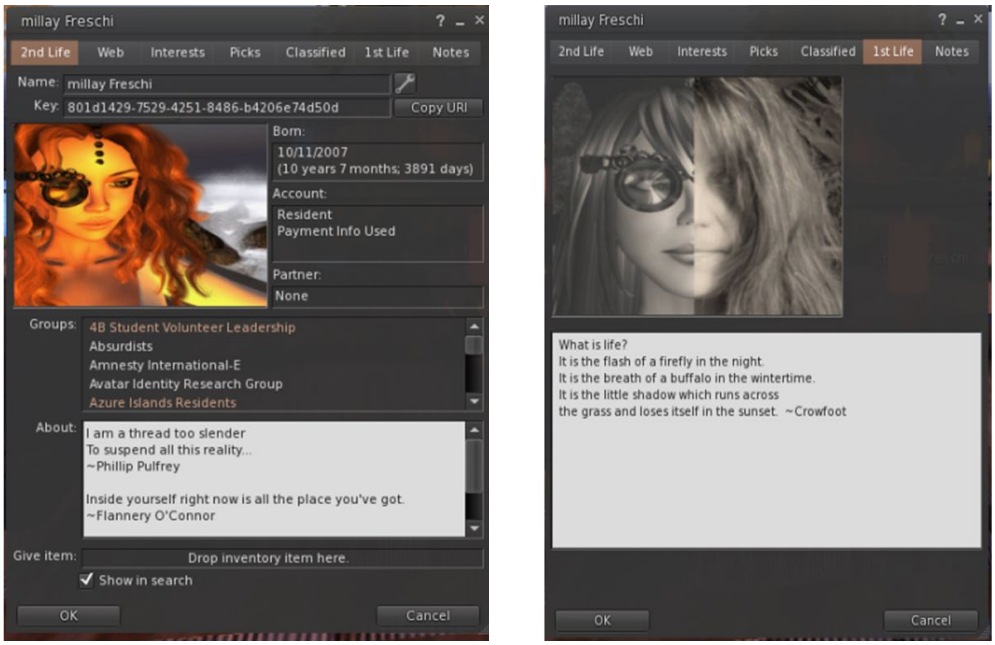

Figure 11: millay's Avatar Profile.
Screenshot of Second Life avatar profile.

Many users present an idealized self-representation when constructing their avatars (Coleman, 2011; Hooi, 2014; Nagy & Koles, 2014). They may be exploring aspects of their identity that they do not feel comfortable exploring in their physical realities (Turkle, 1995; Yee, 2009). They may present a sexualized version of an avatar if they are exploring an aspect of their sexuality that they are unable to in their offline world or they may be "gender-bending" – presenting as a different gender, or no gender (Lin, 2014). Users may be able to infer an avatar's openness to friendship or intimacy by looking at the avatar, and by making judgments based on their perceptions, but, just as in our offline lives, these perceptions and assumptions may be wrong (Coleman, 2011; Fong & Mar, 2015).

Interacting in virtual environments presents specific challenges because we are not in a physical environment. Physical social cues (a flirtatious look, a confused expression, etc.) are missing from our initial virtual meetings (Castronova, 2005; Trepte, 2010). However, according to the "cognitive adaptation proposition" cited by Riedl and others, the more users communicate

with each other using a specific means, including avatar to avatar, users develop the ability to convey and receive subtleties of the meta-language inherent in that environment (de Borst, 2015; Riedl, Mohr, Kenning, & Davis, 2014).

As users interact in virtual environments and with virtual others, they learn social cues relevant to that environment (McCreery, Krach, Schrader, & Boone, 2012; Webb, 2001). Of course, these are learned behaviors so a consistent presence in a virtual world is required to develop an understanding of the avatar cues.

Fong and Mar explored personality inferences and intentions to befriend based on avatars and, although the study was limited to cartoon characters that didn't afford users with in-depth customization features, their study showed that much information can be conferred about the user through the avatar appearance and the user's profile (Fong & Mar, 2015). Just as our clothing in the physical world conveys information about ourselves to others, the ways that users dress their avatars have the same connotations to other users in the virtual world (Fong & Mar, 2015; Neustaedter & Fedorovskaya, 2008).

Jim Blascovich and Jeremy Bailenson have been investigating virtual world phenomena since the early 90's. Much of their research has set the foundation for other virtual world/gaming research. In their seminal book, "*Infinite Reality*", after many studies, their conclusion is:

> *"The results of these and other virtual reality studies demonstrate that virtual behavior is, in fact, 'real'. In so many facets of social behavior, ranging from financial decisions and the way blood flows through the body, to the manner people stand in a room, people use the same template they use in grounded reality and apply it to agents and avatars in virtual reality."* (Blascovich & Bailenson, 2011, p. 94)

Basically, rules apply in virtual worlds as in physical reality, users can't know by looking at someone their complete history or identity, but they can certainly make some initial and immediate responses. Users' biases and prejudices carry over into virtual identities but, based on

personal and known experience of this researcher, people are more willing to examine their prejudices and biases under the anonymous cloak of the avatar. Social and relational identities in the physical world are part of a user's families and communities. It is much more difficult to question unpopular belief systems in the offline arena. The avatar provides a mask for self-reflection and exploration. Of course, this is conjecture on the part of the researcher at this point and will likely be included in future research studies.

As with the offline and projective identities, the virtual representation is also subject to the Five Factor Model of personality. After a period of disequilibrium, the feeling of confusion and uncertainty when a user first enters the virtual environment (Cabiria, 2011), the user may feel a sense of deindividuation, a loss of a sense of individuality and personal responsibility (Cabiria, 2011), which can encourage some to act irresponsibly (Curtis, 1992). This disinhibition, a temporary loss of inhibition due to outside stimuli, isn't typical for more established users because users become protective of their primary avatars, usernames, and inventory (Curtis, 1992). As users form a long-term cohesion with their avatars, they are less likely to risk damage to the avatar's reputation (Schultze, 2014).

Users also get attached to their virtual objects. Researchers have determined that virtual objects serve three functions in identity formation. Objects act as social signals that reflect our material identification to other users. They contribute to the user's sense of self, they improve the user's sense of well-being which influences behavior and helps users to achieve a sense of immersion in the virtual environment (Castronova, 2004; Nagy & Koles, 2014). They can also reveal offline identity, preferences, and aspirations (Nagy & Koles, 2014).

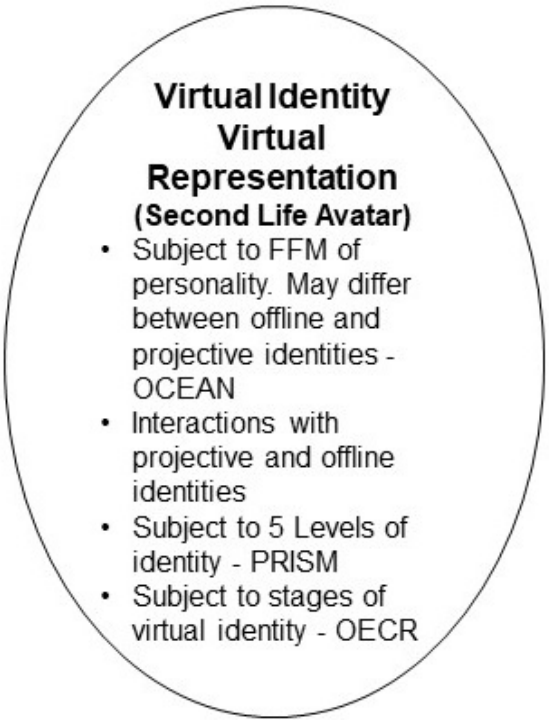

Figure 12: Virtual Identity.
Illustration of the virtual identity component of the avatar.

Transference of Identity

> *"So whatever this mysterious line is between Second Life and real life, I decided that it was not a foot-thick lead wall, but a porous membrane through which things can seep through from one side to the other, both ways. And, with enough pressure, it could burst."*
> *– Lea Tesoro, From Love, like Dim Sum: Real World Lessons Learned and Relearned in a Virtual World, (Kindle) loc 751*

The projective identity facilitates the movement of identity developed by BotGirl Questi which includes Immersionists – those who maintain a distinct boundary between their offline and virtual worlds. Augmentationists are those users who want to "augment" or enhance their offline lives. Emergents extend their virtual identity into their offline existence. And laterals move their virtual identity from virtual environment to virtual environment, not necessarily merging with their offline identity, though they may share all or parts of their distinctive identities between their offline, projective, and virtual identities (Questi, 2008; Prisco, 2007). This movement is

subject to change as users become more comfortable with merging the different identities or they may not change at all.

The effect of the avatar's experiences in virtual world environments on the user's offline behaviors is dependent on several conditions.

1) The user must form an emotional attachment to their avatar (individual level of identity). As indicated by numerous studies, this emotional attachment is more pronounced with avatars that are customized by the user (McLeod, Liu, & Axline, 2014; Yee, Bailenson, & Ducheneaut, 2009). The more customization afforded to the user, the stronger the attachment (Yee, Bailenson, & Ducheneaut, 2009). As the user creates the avatar in their physical likeness or preferences (such as weight, physical attractiveness, height, etc.), the greater the similarity to either the perceived actual identity or an idealized version of their identity, the greater the degree of emotional attachment (McLeod, Liu, & Axline, 2014; Riedl, Mohr, Kenning, & Davis, 2014; Yee, 2009).
2) The personal interactions, the relationships that we form with other users, both romantic and/or friendly (relational level of identity), play a large role in the development of our virtual identities (Kim & Kim, 2016; McLeod, Liu, & Axline, 2014; Nagy & Koles, 2014). It is the social interaction that defines the Social Virtual Environment (SVE). The avatar must be interacting with other avatars (Castronova, 2005; Coleman, 2011; de Borst, 2015). Forming relationships with other avatars in SVE's, sharing emotional events and doing work in the virtual world that is valued in a user's offline world are three events that must occur in order to form the permeable relationship between a user and their avatar (Castronova, 2005).

3) As users/avatars become more involved in the virtual world, many associate with groups that share like interests, ethnicity, sexual orientation and/or gender. The groups that users choose to join are important as they form the basis of our social identities (Nagy & Koles, 2014; Yee, 2009). Aligning with a social community, role-playing group, artists' guilds, etc., requires users to refine their virtual identities further based on that group's dynamics (Nagy & Koles, 2014).
4) Another important factor is the degree to which the user interacts and relates to their virtual environment (material level of identity). As a 2016 study done by Ho-Kyung Kim indicates, users become more attached to the avatar and the environment when they can control the avatar in the virtual world and interact in a substantial way with the environment through objects (Kim & Kim, 2016). The feelings of attachment to the virtual environment and the sense of presence and immersion that a user experiences while online will affect the psychological traces of the virtual environment on the user after subsequent exposure to the environment (McLeod, Liu, & Axline, 2014).
5) The time that a user spends in the virtual environment is a great factor on the effect of the experience on the offline identity. The user enters the virtual environment first as a spectator, looking around and watching others interact. After approximately 12 or so hours, the user is immersed in the environment and emergent aspects become manifest in the offline identity (Childs, 2011; Warburton, 2009).

It's important to note that the user's motivation for joining an SVE has an impact on their feelings of emotional attachment. Studies have indicated that there is a different response in virtual constructed identity between the users that are socially motivated and those who have a

task-specific motivation (Kanamgotov, Koshy, & Conrad, 2014; Lin, 2014). For those joining an SVE for professional collaboration, course-work or training (task-specific motivation), the avatar appearance and their attachment and identity formation are far less important than those factors are to those who are socially motivated (Kanamgotov, Koshy, & Conrad, 2014). They are more likely to see the avatar as a tool rather than as an accompaniment to their offline identities (Kanamgotov, Koshy, & Conrad, 2014; Neustaedter & Fedorovskaya, 2008). We can compare this phenomenon to migrant workers who have no attachment to the place in which they are working.

Most of the studies regarding avatar identity agree that there is a relationship between the virtual identities that we create, (whether through email, text, social media profiles or 3D virtual avatars) and our offline identities, and that virtual identities can affect offline behavior (Castronova, 2005; Coleman, 2011; Nagy & Koles, 2014). The differences in the theories are more to do with the specific conditions and motivations of the user in the creation of their virtual identities.

For example, Edward Castronova, one of the pioneering researchers in virtual worlds, believes that three events must take place before a user feels an attachment to their avatar. First, users must assign personal attributes to their avatar. These can be based on realistic or ideal characteristics. Second, the user must experience an intimate and emotional connection with another or other avatars. This can be a shared relationship (romantic or friendly) or a shared emotional event with a group. Third, labor that a user's avatar undergoes in the virtual world is valued in the offline world (Castronova, 2005).

According to Nick Yee, the Proteus Effect describes the phenomena of avatar characteristics and appearance influencing the user both inside and outside of the virtual

environment (Yee, Bailenson, & Ducheneaut, 2009). For example, studies conducted by Nick Yee and Jeremy Bailenson involved the effect of avatar's height in the virtual world in negotiations in the physical world. Users that were given a taller avatar were more aggressive in subsequent face-to-face negotiations. The two studies concluded that the same effect exists in both inworld (virtual) and physical negotiations (Yee, Bailenson, & Ducheneaut, 2009). There are a couple of concerns with this study. The first study was conducted in World of Warcraft which offers fewer options for customization and is a role-playing game rather than a social virtual environment. The second study was done using head mounted devices (3D goggles) that afford the user a first-person perspective as opposed to the third-person view. So, while the Proteus Effect is applicable to this study, the results are founded on different assumptions and the purposes of the studies are different. It is this researcher's hypothesis that users' avatars act as mirrors for the users as they participate in the social virtual environment and that the avatar's behaviors, appearance, and identity affect the behaviors and identity of the user. This effect is relevant only if the user observes and participates from a third-person perspective. The first-person perspective in most games does not give the user a view of their own avatar so the mirroring effect is not present. The role of perspective in the virtual environment will be discussed in the Perspective segment.

Sherry Turkle, in 1995, before 3D social virtual worlds were mainstream and when most virtual world interactions were text-based, referred to the online identity as "constructed persona" (Turkle, 1995). She relates that the identity that we form in our online environments is separate from our offline identities.

> *"Life on the screen makes it very easy to present oneself as other than one is in real life. And although some people think that representing oneself as other than one is is always a deception, many people turn to online life with the intention of playing it in precisely this way."* (Turkle, 1995, p. 228)

In 1995, Turkle worried that our online identities and realities have the potential to "call forth a new moral discourse" (268) and can help us to bring forward new visions of identity in a multifaceted integrated manner with flexibility, resilience and a "capacity for joy for having access to our many selves" (268). For those of us who are "of an age", we can remember times without the internet and what we used to do. For digital natives, there are no memories on which to rely. Understanding the ways in which identity is affected through virtual mediation and working to make the best of it, at the very least, requires that we assume that the pre-internet version of reality is already lost.

Another theory on user/avatar identity concerns how much the appearance of an avatar represents the appearance of the user in establishing an emotional attachment between the user and the avatar. Research has indicated that most users prefer avatars that are similar to their actual appearance, gender, and type and that users experience greater identification, more intense game involvement, and heightened self-awareness when this happens (Downs, 2011; Hooi, 2014; Trepte, 2010). Hooi believes that this avatar/user similarity affects the users' self-disclosure in relationship to other user/avatars (Hooi, 2014). Self-disclosure is an important part of the relationships we form at the relational and social levels in our offline realities but may not hold the same importance in virtual realities. For many users, virtual reality is a separate place and having the anonymity of the avatar presents opportunities to explore areas of the self that the user may not wish to disclose in any reality (Kanamgotov, Koshy, & Conrad, 2014; Turkle, 1995).

Central to the building and transference of identity in a virtual environment are the ideas of embodiment, presence, and immersion. How presence in a virtual environment is perceived by the user is dependent not only on their reasons for being there but also on the sense of "being there" and being there with others. The ideas of immersion, embodiment, and presence, all things

that contribute to a user's sense of being there, will be explored in more depth in subsequent segments.

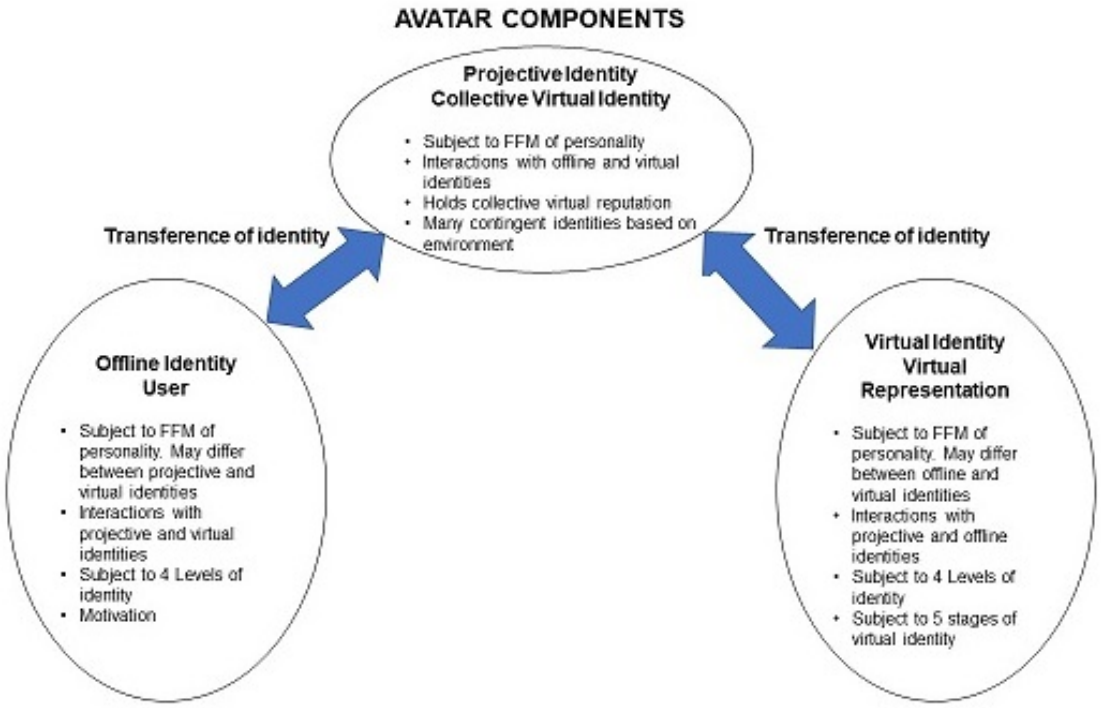

Figure 13: Transference of Identity.
Illustration of the transference of identity component.

The Virtual Environment/Place

This study is focused on the SVE Second Life. Second Life, the platform, is the technology that hosts the regions within the platform, the computer/technology components of the virtual world. Developed in 2003 by Phillip Rosedale and Linden Lab, Second Life is a 3D immersive environment built nearly entirely by the users of Second Life. Contained within the technology are tools that allow users to build interactive objects, clothing, scripts that animate objects and avatars, and the avatars themselves. Many of these objects can be purchased by other users on the Second Life Marketplace or in stores set up within the environment. Fashion and commerce are big business in Second Life. In 2016, Second Life's GDP was half a billion

dollars. This is larger than many small countries and is part of the user to user interactivity (Frank, 2017).

Second Life is accessed by the user through a viewer. Users download the viewer which provides a "doorway" for them to log in to the Second Life servers and platform. Linden Lab provides a viewer as do several third-party markets. Viewers are designed dependent on user preferences and needs. For example, a popular viewer with builders in Second Life is the Firestorm viewer which has easy access to builders' tools. The Black Dragon viewer is scaled down and includes only the most accessed menu items.

Figure 14: Firestorm Viewer.
Note the multiple menu items on the top and bottom menu bars.

Figure15: Black Dragon Viewer.
Menu items are limited to 8 buttons in the top middle of the screen.

There are several other third-party viewers available to Second Life users which can be used to access other virtual environments.[16]

Second Life is the platform but it's also the "place". What makes "place"? Can we describe cyberspace as a place? Bellman and Landauer, in 2000, describe the properties of a *cyberspace* as having to meet the following criteria:

1) It must provide a sense of place. It must have motion, directions, distance, and attention. Users must be able to interpret a cyberspace in much the same way they do physical spaces. Motion, directions, and distance can all be ascribed to a visual impact on the user. Attention breaks down to four important aspects: scope, which sets the outer boundary, scale sets the inner boundary, and focus is the direction of attention. The final aspect is context. Context is the interpretation of the terms and

[16] For a list and description of the other third-party viewers available see http://wiki.secondlife.com/wiki/Third_Party_Viewer_Directory.

symbols that the user attends to in how meaning is derived. Context gives the user the shape of the space.

2) It must provide interaction with other users and with objects in the space. If a place requires a heavier graphical capability than is currently easily accessible by the masses for instance, some users will be left out of the community based on the deficit and will not attain the sense of place that others may feel.
3) There must be a sense of presence. Presence will be discussed in further detail later but, in this instance, the authors use presence as feeling as though the user is there and that they affect the environment.
4) Finally, it must allow a sense of identity that is persistent which means that when a user leaves a place for a time and then returns, their history, inventory, etc. is still there. That identity must also be shareable so that others can see them as they present themselves through their profile and their avatar (Bellman & Landauer, 2000).

That is the description of what a place must include but there is a "feeling" around place, like a community, a "belonging" that brings a user back to their cyberplace (Cabiria, 2011; Schultze & Leahy, 2009). It is a connection to others, an emotional bond to the attachments, the community, and the other users that create place in the emotional sense (Cabiria, 2011; Schultze, 2014). The expression of users' identities is dependent on their attachment to the environment (McLeod, Liu, & Axline, 2014).

Virtual place must also have a functional realism aspect (Bellman & Landauer, 2000; Biocca, Harms, & Burgoon, 2003; Nagy & Koles, 2014). Users must be able to recognize aspects of the physical world contained in the virtual environment. Aspects such as physics, spatial and temporal design, and staging allow users to create narratives that are relative and specific to

"place" (Jenkins, 2004; Wei, Bizzocchi, & Calvert, 2010). The experience of time and space is critical to human experience as humans organize themselves using both time and space. In the experience of virtual environments, it is critical that the users experience these aspects as well (Bellman & Landauer, 2000; Hayles, 2014; Tesoro, 2012).

Figure 16: Place Component.
Illustration and description of the Place Component

Human-Computer Interaction – HCI

> *"Good design is design that changes behavior for the better. I think it needs to take into account the context of the environment, of the human condition, the culture, and then attempt to make the things you do—make us do them better, make us do better things. It encourages us to change the way that we live."*
> *~Jon Kolko*[17]

Accessing the Social Virtual Environment relies on the user's comfort, ability, and relationship with the technology. This is known as Human-Computer Interaction. Human-

[17] John Kolko is the founder of the Austin Center for Design, a school devoted to using design as a means of social change. The excerpt is from an interview with Forbes in June 2010. The interview can be found in its entirety here: https://www.forbes.com/2010/06/15/jon-kolko-designer-technology-future-design-10-frog.html#38db2eea2bf6

Computer Interaction (HCI) is the study of the interaction between the human and the computer; specifically, how the user interacts with technological interfaces. Human-centric design strives for ease of use, accessibility and cognitive mirroring through the interface.[18] When a user looks at a screen, whether a website or a software program such as Office's Word, the designers of that site or software have considered (if they've done their jobs) the way that the user sees the font, the background, the movement, the accessibility of features and buttons, navigation ease, and accessibility issues. Audio and visual options are important for the users' interactions. (A "bad" site can send a user running.)

The interface used to access Second Life can be complicated for many first-time users though it's reasonably easy to learn and perform basic navigation and there are many user tutorials for building, navigating, and interacting. Many groups have created orientations for new users to learn basic functions like navigation, communication, and object manipulation and management, all of which can be handled through the interface using a keyboard and/or mouse.

3D virtual environments like Second Life, require much more upfront learning than other platforms. It also requires that the user downloads the "platform" as a separate software download outside of the web browser. Lack of familiarity with the interface, technical difficulties with the technology, and intermittent "lagging" (slowing down the rendering of objects, avatars, and the environment) can cause confusion and negative reactions in users' experiences of the virtual world. This issue can complicate the usability in certain circumstances such as in education, training, and professional collaborations. Until a user is familiar with the navigation, customization features, and the rendering and fidelity of the environment, these

[18] Summarized through information of Human-Computer Interaction course taken at the University of Maine through Dr. Nicholas Giudice in the Spring of 2014.

disruptions create a distraction and a sense of disequilibrium (Creutzfeldt, Hedman, & Fellander-Tsai, 2016; Curtis, 1992; McLeod, Liu, & Axline, 2014).

There is a trade-off in virtual worlds. For those that have a steeper initial learning curve (Second Life, OpenSim, Kitely), the benefits are in the avatar and environment customization, the community aspect of a global membership, and more in-depth interactivity between users and between the user and the environment.

Other virtual environments that don't have the same depth of front-end learning requirements typically come without the global community, avatar and environment customization, and persistent social interaction entertainment availability (such as art installations, music venues for live music, and open discussions). While these environments certainly have their merit and are suitable for education, training, and professional collaboration, the influence of the avatar is less pronounced in these environments as much of our virtual identity is based on the relational, social, and material levels of interaction (Nagy & Koles, 2014). A key component in Social Virtual Environments (SVEs), is the capability for users, across distances, to interact with one another. It is the social interaction that gives the environment its meaning (Castronova, 2007; Coleman, 2011; Meadows, 2008).

The following sections will expand on the components of HCI important to the user's experience of embodiment, presence, immersion, and perspective in virtual environments.

Embodiment, Immersion, and Presence – Are We There Yet?

Describing our relationship with our bodies, though difficult, is important to our understanding of who we are and where we fit into our environments (Black, 2017; Gorisse, Christmann, Amato, & Richir, 2017). Embodied identity, who we are as defined by our interaction with our environment, ourselves and others applies in a virtual environment but is not

necessarily a part of the identity of the user that sits at the computer (Schultze, 2014). Embodiment involves the entanglement of identity, technology, and the interactions with objects and others. Embodiment is a sense of connection with the avatar that is strong enough to give the user a physical and/or emotional reaction to what happens to the avatar (Childs, 2011). This happens much in the same way that our sense of self can extend to a prosthetic device as in the "rubber hand" experiment. Researchers from Italy placed a rubber hand, covered by a cloth from the wrist and hid the participants' hands from the participants' view. They simultaneously stroked the fingers of the rubber hand (visible to the participant) and the participant's hand (hidden from the participant's view) for a period. In combining the sensation of the stroking and the visual perception, participants began to feel the rubber hand as an extension of their bodies even when the researchers stroked only the rubber hand. Their brains began to recognize the rubber hand as an extension of the body (Biocca, Harms, & Burgoon, 2003; Childs, 2011). This is the process of embodiment.

Immersion is the mental sense of involvement that a user feels in the virtual environment (Denisova & Cairns, 2015). Denisova and Cairns analyzed the measure of immersion along five factors: cognitive involvement (how much the user involves cognitive functions in interactions), emotional involvement (how emotionally attached a user feels to the environment and others present in the environment), real-world dissociation (how well the user can separate themselves from the activities of the real world while present in the virtual environment), the challenge associated with the user's participation in the virtual environment and control (how much control the user feels in the environment, the virtual representation and in the course of their activities and interactions and the appearance of their virtual representation) (Denisova & Cairns, 2015). As Tom Boellstorff points out in his seminal work "*Coming of Age in Second Life*",

> *"Historically, for most virtual world residents social immersion has been far more meaningful than sensory immersion."* (Boellstorff, 2008, p. xviii)

Presence, though defined in numerous and distinct ways, is depicted by researchers, with subtle differences and nuances, as a sense of social awareness and physical transportation into a virtual environment with a diminished sense of the immediate physical surroundings (McCreery, Krach, Schrader, & Boone, 2012). The virtual representation of the user acts as a bridge between the user, the projective identity, and the virtual environment and gives rise to the sense of how the user experiences the virtual environment (Gee, 2007; McCreery, Krach, Schrader, & Boone, 2012; Minsky, 1980). Interactions with objects, the environment and other users deepen the sense of presence providing the users with a sense of "being there" together (Schultze, 2014).

Perspective – The Way I See IT

Central to the ideas of immersion, embodiment, and presence is the perspective of the user within the virtual environment. The user attains perspective using a camera built into the platform. In Second Life, the camera perspective can be changed from the third-person to first-person perspective relatively easily.

According to several studies, camera perspective is an important aspect of virtual avatar identity formation. Nick Yee, in his research into the Proteus Effect, references Bem's self-perception theory that "people infer their own attitudes and beliefs from observing themselves as if from a third party" (Yee, Bailenson, & Ducheneaut, 2009, p. 290). Edgar argues in his 2016 study that both Descartes and Locke "treat personal identity exclusively from within, which is to say, as a first-person psychological experience (of thinking or remembering). As a social being, the person is also judged to be such from without. Others identify the object before them as an embodied person and re-identify that body as the same person they encountered previously." (Edgar, 2016, p. 59). He believes that this carries over into our virtual identities. Seeing the

avatar embodiment through our interface (camera and viewer) gives us the perception of the "gaze of the other" (59).

As with our offline identities, this is a continuously iterative process and is affected by the relationships we form, our membership in groups that may (or may not) hold certain rules and characteristics as necessary for participation (role-playing group memberships), by the virtual environment and the objects which become part of our self-description, and through our involvement with the global virtual community itself (Biocca, Harms, & Burgoon, 2003; Childs, 2011).

Enter Neuroscience

NeuroIS, which was recently introduced in Information Science literature, is described as the idea of applying theories, methods, and tools in neuroscience to research in Information Sciences (IS). Functional magnetic imaging (fMRI) studies demonstrate that the patterns of brain activity can explain behaviors towards information technologies (IT) artifacts (Riedl, Mohr, Kenning, Davis, & Heekeren, 2014).

In their study, Riedl, et al, explored the neurology of the interaction between human to human versus human to avatar regarding trust. They found that the brain deals with trust information in the same way whether in a virtual world dealing with avatars or in offline worlds dealing with other humans. (Riedl, Mohr, Kenning, & Davis, 2014). In the physical world, humans discern trustworthiness through facial cues that are not available in avatar interactions but, human brains display a lot of plasticity (the ability to adapt). Users have learned, not evolved, to find these cues using other means in virtual environments (Riedl, Mohr, Kenning, Davis, & Heekeren, 2014).

Figure 17 illustrates the proposed model of the relational aspects and intersections of the components that comprise the avatar. Just as with any system, it is the interaction of the components that combine to inform identity development of the user's offline, projective, and virtual identities.

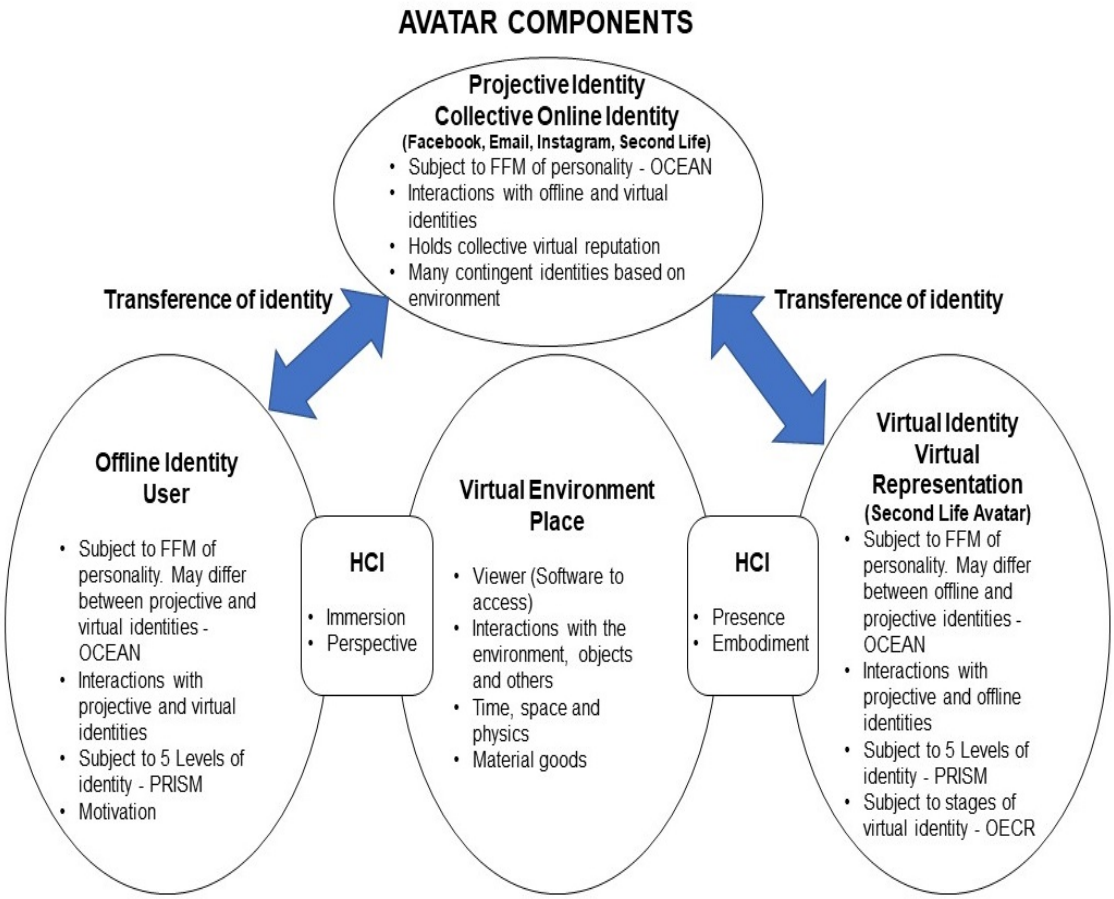

Figure 17: Model of Avatar Components.
Illustration of interaction between avatar components

The remainder of the background review examines the application of the theories on identity in relation to social movements in Social Virtual Environments. As education, training, and professional projects bring new users into virtual environments and, as social movements grow in the digital domain, SVEs open a broad potential audience for organizations dedicated to social and political change.

Social Movements in Virtual Environments

"I have never had any faith in humanity. But I will give us props on this: if we can evolve, invent and theorize our way into the technologically magical, culturally diverse and artistically magnificent race we are and still get people to buy the idiotic idea that half of us are inferior, we're pretty amazing. Let our next sleight of hand be to make that myth disappear."
~Joss Whedon[19]

The possibilities of technology are changing the way that people live and work and how social causes are expressed. We live a pluralistic existence, wandering between our physical realities and virtual communities (Palmer, 2012). Facebook, Twitter, Instagram and other social media sites have opened the door for a new kind of social movement - public, easily accessible and geographically dispersed (Boellstorff, 2008; Castronova, 2005; Griffiths, 2013; Lastowka, Lehdonvirta, Brey, & Stenslie, 2014). Social movements in virtual environments are different than the social activist activities that users of other social media participate in. Social activism in virtual worlds revolves primarily around group activities.

The user that does not affiliate with a group or a community quickly becomes alienated, which negatively affects users' participation and interest in virtual environments (Blanchard & Horan, 1998). This lack of community may affect the morality of the actions of the user in a virtual environment since the user's avatar can act with impunity under the cloak of anonymity (McMillan & King, 2017). Once an avatar has established an identity and reputation within a virtual community, although able to construct a new identity,[20] reinventing oneself might come at great expense as an avatar carries the inventory, including personal snapshots and notecards

[19] Joss Whedon created Buffy, the Vampire Slayer, Firefly and co-wrote Pixar's Toy Story. This excerpt is from a comment he made on a blog post which served as his response to the "honor killing" of a 17-year-old girl which was filmed and posted widely on social media in 2007. His comment, in its entirety can be found here: http://whedonesque.com/comments/13271

[20] Users can create "alts" which are avatars with a different user name but attached to the same user. Many people set up ALTernate identities for testing in building, privacy, money management, etc.

and the reputation of the user (Curtis, 1992; McMillan & King, 2017). It also means loss of community.

Communities in Social Virtual Environments

Communities in virtual worlds are founded on user homophily and shared interests (Cairncross, 1997; Palmer, 2012; Papargyris & Poulymenakou, 2008). According to Wenger's "Communities of Practice", communities are defined in terms of the social groups developed around common practice and interaction in the group between participants through reciprocal learning between the group and each of its members (Wenger, 2010). Activist communities provide constant reinforcement of belonging to a collective identity with a global component when these are charitable and activist organizations (Palmer, 2012). Childs combined the philosophy of Wenger's Communities of Practice with Activity Theory, which states that an individual's happiness and quality of life is directly related to the degree of social interactions and the level of activity of the individual (Knapp, 1977). Wenger developed what he calls the "Mediated Environments Reference Model" (Childs, 2011). The purpose of this model is to identify links between identity and the following:

- "The characteristics of the individual.
- The community.
- The rules and conventions of the group.
- The object or practice of the group.
- The roles or division of labor within the group.
- The tools and implements that mediate interactions.
- The situated experience of the interaction, within virtual worlds, this is specifically the experience of presence and embodiment."

(Childs, 2011, p. 15)

When applied to virtual social activism, this model provides the individual with confidence about their role in the group and a feeling of belonging.

Whether in a virtual environment or physical, connections and group affiliations impact the sense of belonging, the collective identity, and have an impact on the user's sense of overall identity.

Social Movements, Activism, and the Use of Technology

According to McKenna, there are three levels of organizing social movements. 1) Mobilization of resources and recruitment of participants (ongoing processes of economic considerations, opportunities and threats, and critical event planning). 2) Organization of the movement (locally based, specific issues, movement cycles of high and low activity, fluid hierarchy, and shifting memberships). 3) Strategies and campaigns (forming an association dedicated to pursuing a cause) (McKenna, Gardner, & Myers, 2011). For online activism, Vegh classifies these levels as 1) awareness/advocacy, 2) organization/mobilization, and 3) action/reaction (Vegh, 2003).

The differences in online activism and social movements of the past vary according to researcher though most agree with the following points:

- Supporters can be involved even from a distance since there are no geographical boundaries.
- The hierarchy of online activism is much more fluid.
- A much broader audience can be involved in many of the strategies.
- Solidarity grows through the involvement of people sharing information through personal networks.
- Supporters can participate without direct physical consequence because they are anonymous unless they choose to reveal their offline identity.

- Organizers of protests and attendees can be banned (kicked out of and not allowed to return) from the virtual location, which may be disruptive to the event.

- There may be technological boundaries in large showing events as there is a limit to the number of avatars that can occupy any one space in virtual environments.

- There is a potential for deception, since some group members may not be who they appear to be or who they suggest they are (different age, gender, affiliation). (Diani, 2000; McKenna, Gardner, & Myers, 2011; Palmer, 2012).

Social Movements in Second Life

Wherever people come together and form communities, disagreements, conflicting views on issues, and construction of hierarchies are bound to occur. Virtual communities are no different. In many cases, the disagreements come with the leaders or the institutions that bring the groups together. Every moderately popular virtual environment has experienced some sort of protest and social unrest. In the case of Second Life, Linden Lab, as creator and provider of the virtual space, has come under attack for decisions that affect the virtual residents.

Example: Second Life Liberation Army Protest of Linden Lab

One of the first protests against Linden Lab came in 2006 and was launched by the Second Life Liberation Army (SLLA). The SLLA was set up in Second Life to establish what they saw as "avatar rights". Linden Lab announced a change in pricing that would affect users' experiences in Second Life as it came out of Beta. Many avatars were against the change to a premium membership model and felt that they were being usurped by the corporate customers that were beginning to flock to the platform. (IBM, American Apparel, Toyota, and Kelly Services are among the over 80 companies that set up a presence in Second Life during the boom of 2006-2007.[21])

[21] For a list of the companies that have done business in Second Life, though no official record exists, and Linden Lab is not required to release information, Wikipedia details the businesses and provides some examples of the work. https://en.wikipedia.org/wiki/Businesses_and_organizations_in_Second_Life

SLLA felt that Linden Lab was catering to the corporate body at the expense of the avatars and proposed Proposition 1769 which afforded avatars the right to a democratic governance in the virtual environment.[22] The timeline for this action was as follows[23]:

- 08/01/2006 - SLLA blog started with the initial post regarding the aims of the movement.

- 08/06/2006 - SLLA notifies a Linden Lab employee, threatening in-world military operations against "crucial Second Life infrastructure" to commence within 4 days if the demands (bestowing rights to avatars for democratic governance) were not met.

- 08/09/2006 – SLLA draws up Proposition 1769[24] and delivers it to Linden Lab (regarding avatar rights for democratic governance).

- 08/10/2006 – After no response from Linden Lab, an attack begins at the American Apparel location. Although reports vary, only minor disruptions to avatars attempting to shop the location occur.

- 09/15/2006 – American Apparel closes its operations in Second Life. It appears that this had been in the works since June of 2006 according to a Forbes article.[25]

[22] http://slla.blogspot.com/2006/08/

[23] This information was compiled through blog posts at SLLA http://slla.blogspot.com/2006/08/, Alphaville Herald Second Life Magazine http://alphavilleherald.com/2006/08/aftermath_of_sl.html, Forbes article https://www.forbes.com/forbes/2007/0702/048.html#5132a9e85a41 and Toronto's The Star publication https://www.thestar.com/entertainment/2007/03/11/virtual_reality_bites.html .

[24] Although I couldn't find any "official wording" on proposition 1769, I did find this amendment/description on the SLLA Blog "The introduction by Linden Labs of commercial shares in the company for Second Life residents. We propose that resident players should be entitled to purchase one share in Linden Labs. We understand that currently Linden Labs is a privately held company but that the mechanismism [*sic*] exist within this structure to grant resident SL players a share in the commercial operation. While not meeting our initial aims we feel this is a worthy interim step that would serve both the interests of Linden Labs and be a substantial step towards voting rights for resident players."

[25]https://www.forbes.com/forbes/2007/0702/048.html#3c5287e65a41

Figure 18: SLLA Protesters.
Photo taken from SLLA blog depicting the attack on American Apparel store in Second Life. Two avatars, both from SLLA are highlighted. There doesn't appear to be anyone else in the store.

Linden Lab did not respond to the SLLA and it appears that the matter was dropped. No other information is available. Linden Lab has not afforded avatars democratic governance rights.

Example: IBM Worker's Union Protest in Second Life

Another example of how SVE technology is used for protest and activism is the 2007 protest of the Italian branch of IBM. IBM had locations in Second Life for corporate meetings, employee training, and public outreach during the boom of 2006-2007.[26]

IBM and Rappresentanza Sindacale Unitaria (RSU), the Italian labor union, had representatives that were in contract negotiations in early 2007. RSU had asked for an increase of 60 Euros per year and additional benefits for Italian employees. IBM countered with a 6 Euro increase and cancellation of the 1000 Euro bonuses in place with no change in benefits. RSU

[26] https://www.ibm.com/developerworks/library/os-social-secondlife/

decided to stage a virtual protest in Second Life, working with the Union Network International Global Union (UNI Global Union[27]) which also had a location in Second Life.

Protesters were supplied with "striker kits" that included t-shirts, information, placards, and avatar attachments. They also provided tutorials in the use of the Second Life platform and access to Union Island's resources.

On September 27, 2007, from 4 am to 4 pm EST, 1853 avatars from 30 countries protested at 7 IBM Second Life locations. Protestors were eventually locked out and banned from the locations and IBM continued with their Second Life operations during that time.

Figure 19: IBM Protesters.
Snapshots of the IBM protest at the IBM locations in Second Life

[27] From their website: UNI Global Union, based in Nyon, Switzerland, represents more than 20 million workers from over 900 trade unions in the fastest growing sectors in the world – skills and services. For information about the UNI Global Union, please see their website at http://www.uniglobalunion.org/.

Figure 20: IBM Protesters 2.
Snapshots of the IBM protest at the IBM locations in Second Life.

On October 24, 2007, the CEO of the Italian IBM operations resigned from his position and an agreement was reached with the workers on November 5, 2007, reinstating the 1000 Euros bonuses for 3 years and contributions to the National Health Insurance Fund for the workers with an agreement for continued negotiations (Blodgett & Tapia, 2010).

These are examples of how protests and activism take place in virtual communities. In these examples, situations arise that bring people together around a specific issue or perceived injustice. These actions don't necessarily require continued involvement after the protest or the issue is resolved. The formation of an activist community built around continuing issues of human rights, social and economic justice, environmental and peaceful pursuits was a relatively new idea in virtual communities like Second Life when the Four Bridges Project was formed.

Case Study: The Four Bridges Project - An Accidental Community

Figure 21: The Four Bridges Project Logo.

As is the case with many communities, the Four Bridges Project (4B) came about accidentally. After working diligently to get an officially recognized Amnesty International presence in Second Life, it was difficult to find a stable home from which to carry out events to raise awareness and gather as a group. Land regions were expensive, and many closed unexpectedly with little warning. As the founder of the Amnesty group in Second Life, I made the decision to fund a sim (land region) and invite other organizations to share in the resources. I felt that a community of activism related organizations would help to raise the awareness of the organizations through shared events, cross-group notices, and central places to hold events.

When the sim was delivered on February 9, 2009, before anything was built, the community began holding events. February 12 was Red Hand Day, a day set aside to raise awareness of child soldiers. The Four Bridges Project held its first event, combining the efforts of Amnesty International, Peace Train, and Imagine Network, (the original Four Bridges collaborative organizations). The event was a great success and it became obvious what might be accomplished when a community of organizations came together to share resources.

Figure 22: Four Bridges Project Opening.
Red Hand Day, Feb 12, 2009. Opening event of the Four Bridges Project.

Four Bridges became the first virtual model of sustainable community in the virtual world of Second Life. The mission statement was a simple one: *Four Bridges is a virtual sustainable global community model founded on the four principles of respect for nature, universal human rights, economic and social justice, and a culture of peace.*[28]

Community in Second Life is built primarily through groups, just as offline, people gather around shared interests. Music, art, and special events are used by the residents[29] to raise support and membership. Groups are set up by a resident for 100 Lindens.[30] (approximately $1 USD). The resident then goes about encouraging membership. Members receive group notices about events and general information. Group members can initiate group instant messages that

[28] The mission statement was written through a collective effort between the leadership of the Four Bridges Project.
[29] Users of Second Life are referred to as residents.
[30] Lindens are the virtual currency in Second Life.

go to all members that are online at the time that it is opened. Groups can be set up as free to join or with a cost. A membership fee can keep people from joining a group to spam the members.

Having a group listed in a user profile invites others to join when they open the group's profile. As stated earlier, the user profile is a great way to make connections around shared interests. If the group has an open membership, users can join directly from the group's profile. At the peak of 4B's Second Life presence, there were 848 members. As of May 3, 2018, there are 506. This is a healthy number for a group in Second Life, although not all members in the groups are active avatars. Often, people set up avatars and then leave the community. An avatar's membership is recognized by the system until they are either removed by the group leadership or until the avatar leaves the group.

Four Bridges Project Leadership

The leadership of 4B was often a point of contention among the members of the community. As a student of Peace and Reconciliation Studies at the University of Maine, I was studying sustainable community building, principles in universal design, technology's impact on social issues, and nonprofit leadership. I was reading Dee Hock[31], Peter Block[32] , and Peter Senge[33], studying their theories in leadership and community. I was also taking courses in transformative mediation and restorative justice practices. I wanted to experiment with all these theories in one virtual "petri dish". I wanted leadership to be fluid and organic. I did not want to set prim limits (building blocks that count against land regions. Everything in Second Life is built of prims), and I did not want to set tiers (virtual rent) for the organizations that were

[31] Birth of the Chaordic Age by Dee Hock, founder and CEO Emeritus of Visa http://www.deewhock.com/publications/#birth-of-the-chaordic-age
[32] See any of his books and essays. For information http://www.peterblock.com/about_peter/
[33] Peter Senge, Lecturer MIT Leadership and Sustainability For more information http://mitsloan.mit.edu/faculty-and-research/faculty-directory/detail/?id=41415

headquartered on the Four Bridges Project's sim. I did not want to limit any organization's "place" on the sims by setting parcel sizes that limit the organizations' spaces on the sims. I wanted the land and the resources to be shared by all.

4B's first "About Us" information note card read as follows:[34]

"The Four Bridges mission is a simple one.

Four Bridges is a virtual sustainable global community model founded on the four principles of respect for nature, universal human rights, economic and social justice, and a culture of peace.

Four Bridges believes in an organic community that encourages the growth of each of its constituent parts. Our organizations are autonomous, but we come together through our sharing of resources, events, festivals, volunteers, etc.

The Four Bridges Project encourages these collaborations and projects by removing the competition for resources and sharing collectively in the responsibilities and expenses. This allows the organizations to concentrate on their missions and raise awareness of their own goals.

Four Bridges models a sustainable community for organizations outside of the virtual world. Our hope is that by putting these principles to work in the virtual world, the success can be emulated in the real world.

We are proud of the work that we do with our organizations and the collaborations that have formed within our community."

Four Bridges Project Membership

From its inception, Four Bridges Community members wanted to understand how global issues impact local communities and how participants could work together to find solutions to complicated global issues and then apply these processes in their own communities and relationships in the physical world. As the community grew, sharing resources, ideas, and knowledge became part of the mission. Members came together over a global issue or event and

[34] All information, quotes, and snapshots come from millay Freschi's inventory in Second Life™ of which the author is the sole owner. No other users' or avatars' information, notes, or snapshots have been shared.

put their talents and passions to work on designing ways to bring awareness to that issue.[35] The 4B philosophy recognized that movements and organizations that are organic and flexible, especially in rapidly changing times, have the best possibility to survive and flourish.

Figure 23: Avatars as Activists.
Support of Iranian Students, 2009. This image shows avatars on the Four Bridges Project during the 2009 Iranian Student Protests.

The 4B community provided resources for educators, students, researchers, artists, musicians, and squatters. 4B land regions were open for building to any member of the Four Bridges Project group. This means that any user, with good intentions or bad, had the ability to

[35] Four Bridges hosted many events around global issues such as Peace Fest, Imagine Fest, 16 Days to End Gender Violence, the Iranian Student Protests of 2009, LGBT issues with Second Pride™ and the Israeli/Palestinian conflict.

rez (make appear in the environment) any object from the avatar's inventory. Many community members were bothered by this openness as it left the region open for "griefers".[36]

Griefers

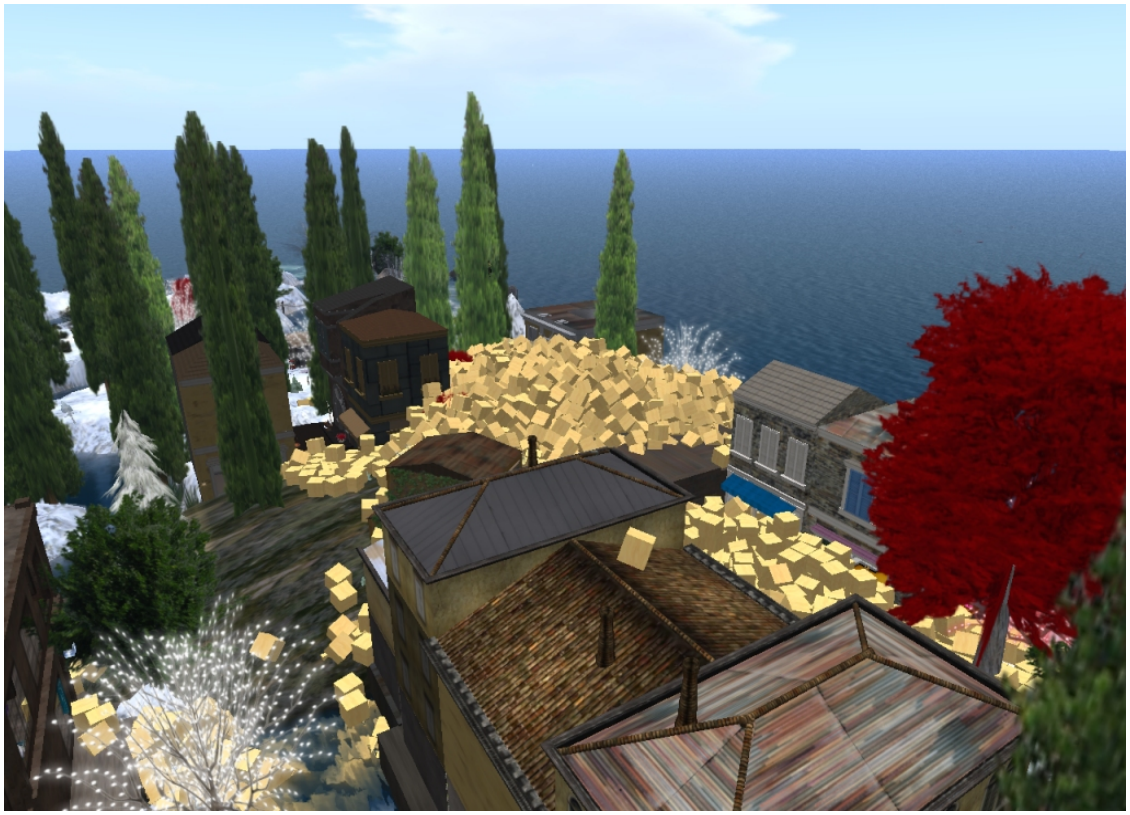

Figure 24: Griefers.
This griefer set up a device that created dozens of prims (those yellow boxes) every minute, filling a portion of the region during an event.

It was my belief that, as in the physical world, griefers are a part of the community, and, if we were going to learn how best to handle these situations offline, virtual communities are a practical place to learn and practice. I used skills that I had learned through Transformative Mediation and Restorative Justice classes to try and bring the griefers into the community.

[36] Griefers are users that create disruption of a sim through the creation of many prims and particles that overload other user's experience of an event and may even overload the capabilities of the sim which forces a crash, kicking all users out of the sim.

Sometimes I was successful, as in the case of a griefer who used the Four Bridges Project sim to create the objects of disruption that he would then use at other locations.

During an event on Commonwealth Island, he disrupted the event with an object that continually released particles which prevented the audience from seeing and hearing the speaker. One of the organizers of the event saw that he had the Four Bridges Project group in his profile and contacted me. She was angry that I "allowed" him to build on the sims. She gave me his name and I sent him an instant message. He explained to me that he had built an object as a "social experiment". He took the object to an event promoting human rights. The object was scripted so that anytime someone typed the words "ban" "kick" or "push" more particles were released. To stop the particles, someone would have to say "hello, XXX" (griefer's name). He wanted to see if anyone would say "hello" to him. He felt that they were griefing themselves. I loved his experiment and, after some conversation, talked him into putting his energy into scripting and building for 4B.[37] This is community.

In every case, with every griefer, I was able to convince them to retrieve their disruptive objects and help clean up the mess. I talked to them about the importance of the work that organizations were doing in Second Life and invited them to participate in the community. Most of them didn't but, eventually, most of the griefing community came to respect 4B and a few even protected us from other griefers.

Four Bridges Project's Events

Four Bridges' reputation was solid in the broader community and many artists and musicians supported the work by donating concerts and exhibits to help raise awareness. We held street fairs and weekly events like Sunday Toast and Jam with live music followed by a

[37] On a side note, as it happens, this was a 21-year-old from Boothbay Harbor, Maine – a mere 2 hours from my desk.

poetry reading. We held days-long events around issues like *16 Days to End Gender Violence* and an event on War and Peace. We participated in grid-wide events (events that span many locations in Second Life) like the Human Rights Festival and Peace Festival. We participated in education conferences and gave presentations for other groups on our work in Second Life.

Summary and Closing of the Four Bridges Project

The Four Bridges Project opened in February 2009. I was in my junior year at the University of Maine working toward my B.A. For five years, until July 2014, I ran the Four Bridges Project, served as Virtual World Coordinator for both Amnesty International and the Bill of Rights Defense Committee (BORDC). I organized events, brought my studies into 4B, using the platform for final projects and for my Capstone Project. I brought the UMaine Humanities Initiative into Second Life and created spaces for graduate students at UMaine to create their projects. 4B worked with other universities to collaborate on informal projects and poster sessions and set up official internships for students with Amnesty. We created sim-wide projects with the intent of opening difficult conversations around global issues.

What we created in the community of Four Bridges from February 2009 to July 2014 was a safe place for people to learn about and participate in issues of global concern. We created a space of belonging and inclusivity. Our collective identity was of kindness, generosity, and empathy. No one was turned away. People left but not because they were turned away.

Edward Castronova called virtual worlds “social software” and laboratories in which to carry out complex social experiments (Castronova, 2004). Four Bridges served as a social experiment in social movements, activism, and community. Our reach was international and our concentration, local. People were encouraged to take the lessons into their physical communities to complete the cycle, much as we do with our various identities.

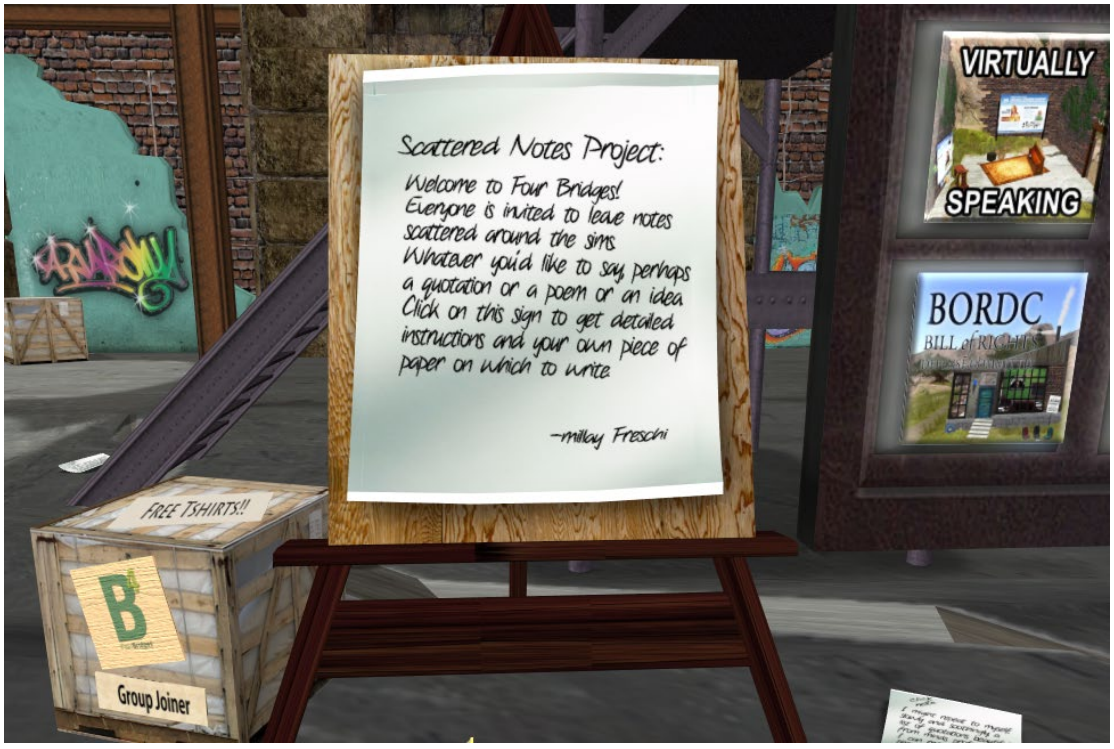

Figure 25: The Scattered Notes Program.
Information and instruction easel. The poster reads, "Scattered Notes Project. Welcome to Four Bridges! Everyone is welcome to leave notes scattered around the sims. Whatever you'd like to say, perhaps a quotation or a poem or an idea. Click on this sign to get detailed instructions and your own piece of paper on which to write. – millay Freschi"

I closed the Four Bridges sims in July 2014. I was beginning Ph.D. work in earnest and could ill afford the time and energy that was required to do both Four Bridges and my academic work. Since that time, I have been approached numerous times by members of the Four Bridges and Second Life communities regarding the vacuum that they feel the Four Bridges community's closing has left in the larger Second Life community. There are no other communities that have filled the role and the activist community is, once again, scattered and siloed. Through the efforts of the Four Bridges community, we created more than a space. We created a collective, social identity whose absence still, after four years, has not been duplicated.

This is millay's announcement of closing to the community:

To All Four Bridges Community Members: July 17, 2014

It is with a hopeful and proud sadness that I am announcing the closure of the Four Bridges Project and sims effective July 19th, 2014. The sims have been offline for a few days. Linden Lab has agreed to put them online so that we can retrieve our prims and say goodbye. I'm not sure when they will be up or for how long.

I am so proud of the community and of the work that we have all done to make this a shining example of what can be accomplished using virtual technology. I think of us as pioneers and visionaries taking on the responsibility of helping to create a peaceful global consciousness. I think that we have done a fine job in a process that will continue for many years to come.

We started in activism, moved into sustainability and then stepped over into education. Our evolution has been an exciting and sometimes dramatic venture into who we are and who we are becoming as a world society. We've had a coming and going of personalities, perspectives and problems but we, this core group of amazing people, have created and sustained a virtual community of compassion. I'm very proud of us.

I appreciate all of your efforts with Four Bridges and your faith in my leadership over the years.

I wish that we had more time on the sims to celebrate our work and go out in Four Bridges style but I'm afraid that our time is to be limited.

My hope is to continue with the work of Four Bridges after I finish my academic journey. I hope that by then communities like Four Bridges pop up all over the virtual worlds to carry on the work in our absence.

I will remain in Second Life but not as frequently and not in an organizing capacity. Please do say "hi" when you see me online. It's for these interactions that I come. This community is a large part of who I have become and I am better for our contacts.

Thank you for making my Second Life experience so rich. I hope that we will all be together again soon.

Most Respectfully,

millay"

Four Bridges Project Post Mortem

My hope throughout the nearly 6 years of Four Bridges was that the community would find a way to be self-sustaining. I didn't want the future success of the community to be reliant on the participation of one person. The goal was to create an environment that allowed for a fluid and organic leadership to form while maintaining the mission and principles upon which the community was founded. As I had fewer and fewer hours to spend in Four Bridges, the community quietly dispersed and the sims grew empty. No one rose to the top to take a leadership role. I believe that leadership should not be hierarchical, and the movement and community should constantly reinforce a sense of belonging to a collective identity. Perhaps, had I been able to continue, or had I understood identity and the role it plays in community a new leadership dynamic might have risen.

This indicates to me that our work is not finished.

CHAPTER 3 METHODOLOGY: A MIXED METHODS APPROACH TO MIXED REALITY

"Research is an expression of faith in the possibility of progress. The drive that leads scholars to study a topic has to include the belief that new things can be discovered, that newer can be better, and that greater depth of understanding is achievable. Research, especially academic research, is a form of optimism about the human condition."
~Henry Rosovsky.
Former dean of the Harvard Faculty of Arts and Sciences.
From The University: An Owner's Manual, page 89

The aim of this study was, primarily, to create a model diagramming the interaction of the personality/identity components that comprise the avatar and, secondarily, to determine if the model could be applied to the user's/avatar's participation in social virtual activism. The researcher believed that a better understanding of the avatar components and the transference and transformation of identity through interactions with other avatars, the virtual environment, and the objects in that environment would help to create foundational understanding about the impact of the avatar in prescribed virtual situations. Many disciplines, including education, professional training, social and medical sciences, and others could benefit from an informed perspective on user-avatar interaction when designing curriculum and programs in virtual environments. The research also adds important information to a growing number of studies in virtual environments and the avatars that inhabit digital spaces. In seeking to establish the validity of the model created through background research and through personal experience, the study addressed two questions: (a) Are there consistent components in the avatar in Social Virtual Environments and, if so, what are they? (b) How can the user and avatar personalities be examined in predicting an avatar's participation in virtual social activism? Conclusions were reached through the analysis of 1001 completed surveys of denizens of Second Life and analysis of a case study of an activist community in Second Life.

This chapter describes the research study methodologies and discusses the study's design in the following areas: (a) philosophical foundation and design rationale, (b) description of quantitative approach, (c) description of qualitative approach, (d) analysis and synthesis of data, (e) ethical considerations, (f) limitations. The study concludes with a brief methodological summary.

Design Rationale and Philosophical Foundations

As is true with the application of methodology to any new and emerging social/ technological research, challenging methodological issues in studies of SVEs must be resolved before the appropriate research method can be determined (Feldon & Kafai, 2008; Moore, Ducheneaut, & Nickell, 2005). There are limitations in both qualitative and quantitative methodologies when applied to the study of interactivity, norms, and social phenomena in virtual environments (Locke, 2000). However, there are strengths in examining virtual phenomena through a mixed methods strategy to combine the strengths of both (Feldon & Kafai, 2008; Symborski, et al., 2013). A mixed methods approach was most suited for addressing the secondary aims of this exploratory study which were two-fold. First, a quantitative approach (survey instrument) was used to examine the personality components of the user and the avatar through mass sampling of Second Life residents. Further description of the survey and approach will be covered in the quantitative rationale section. After thorough research and consideration, a qualitative exploratory case study of the Four Bridges Project was deemed the best approach for the secondary question, *can the model be used to predict an avatar's participation in virtual social activism?*

Because the data was analyzed for two distinct propositions, (examining the personality components of the user and the secondary question noted above, in the area of activism, is the

model predictive?) the results of each of the methods were analyzed and synthesized separately. Each method serves its own purpose and yields its own results. Combined, both methodologies have the potential to strengthen and provide a more comprehensive understanding of the collected data regarding user-avatar interaction (Johnson & Onwuegbuzie, 2004).

Survey Methodology

One of the easiest ways to obtain information about virtual world participants is through the use of a survey: surveys can include information about demographics, behaviors, activities and patterns of interaction (Faleiros, et al., 2016; Groves & Singer, 2014). Survey instruments are limited bcause of the self-reporting factor but they also provide respondents a veil of anonymity which may encourage respondents to be more candid than otherwise in their responses, especially in answering sensitive questions (Pearce, Blackburn, & Symborski, 2015).

Question Development

The 48 questions included in the survey instrument were developed based on the researcher's ongoing interest in avatar and virtual world research and for their potential to be used in future research projects. The survey questions were divided into seven sections:

- Virtual World Experience – 5 questions
- Virtual World Activities – 2 questions
- Avatar Questions – 6 questions
- Avatar Identity – 14 questions
- Avatar Interactions – 6 questions
- Technology questions – 7 questions
- Demographics – 8 questions

Many of the questions were open-ended to give respondents the opportunity to add further information and include data that might not have been considered, especially in the area of activities, motivation, and interactions with others. Survey Questions are included in Appendix B.

Design of the survey was a concern because the survey included more questions than recommended, several included open-ended responses. Many websites and other researchers in virtual worlds recommended short surveys as respondents are less likely to complete longer surveys, especially those with open-ended questions.[38]

Advertising the survey to the Second Life community was also of concern. The budget did not include a marketing fund, therefore there was concern about the number of people that would respond to the survey. Fortunately, the survey link was shared widely through social media and the survey proved to be much more successful than expected. In fact, several Second Life residents commented on the Facebook page about the pertinence of the questions.

Figure 26: Survey Comments.
Screenshot of Facebook comments regarding the survey

[38] Some of the sites that I visited: https://www.qualtrics.com/blog/10-tips-for-building-effective-surveys/, http://www.pewresearch.org/methodology/u-s-survey-research/questionnaire-design/

Advertising and Recruitment of Respondents

The survey ran from August 31, 2017 through December 20, 2017 and was administered through SurveyMonkey®[39]. In order to ensure that respondents read the Informed Consent document, all respondents were directed to the survey through the Four Bridges website on a page set-up specifically for the survey[40]. A total of 1,001 respondents completed the survey, although some respondents skipped some of the questions, which was an option given to them in the Informed Consent wording. Results include the number of respondents that skipped questions.

The survey was promoted through several groups within Second Life, a Facebook group, Second Life Friends, and shared through several blogs including New World Notes and Strawberry Singh, two of the more popular Second Life blogs.

Figure 27: New World Notes Survey Post.

[39] SurveyMonkey is a registered trademark of SurveyMonkey, Inc. and its affiliates in the United States and other countries.
[40] http://www.fourbridgesproject.org/second-life-survey.html

Figure 28: Second Life Friends Facebook Post.

No compensation was offered for completion of the survey. To assure confidentiality, IP addresses were not collected and no names or avatar identities were associated with the respondents or included in the questions.

IRB permission was granted through the University of Maine's Institutional Review Board prior to the commencement of any research being conducted. The survey's Informed Consent document is included as Appendix C and the Survey Recruitment Script as Appendix D.

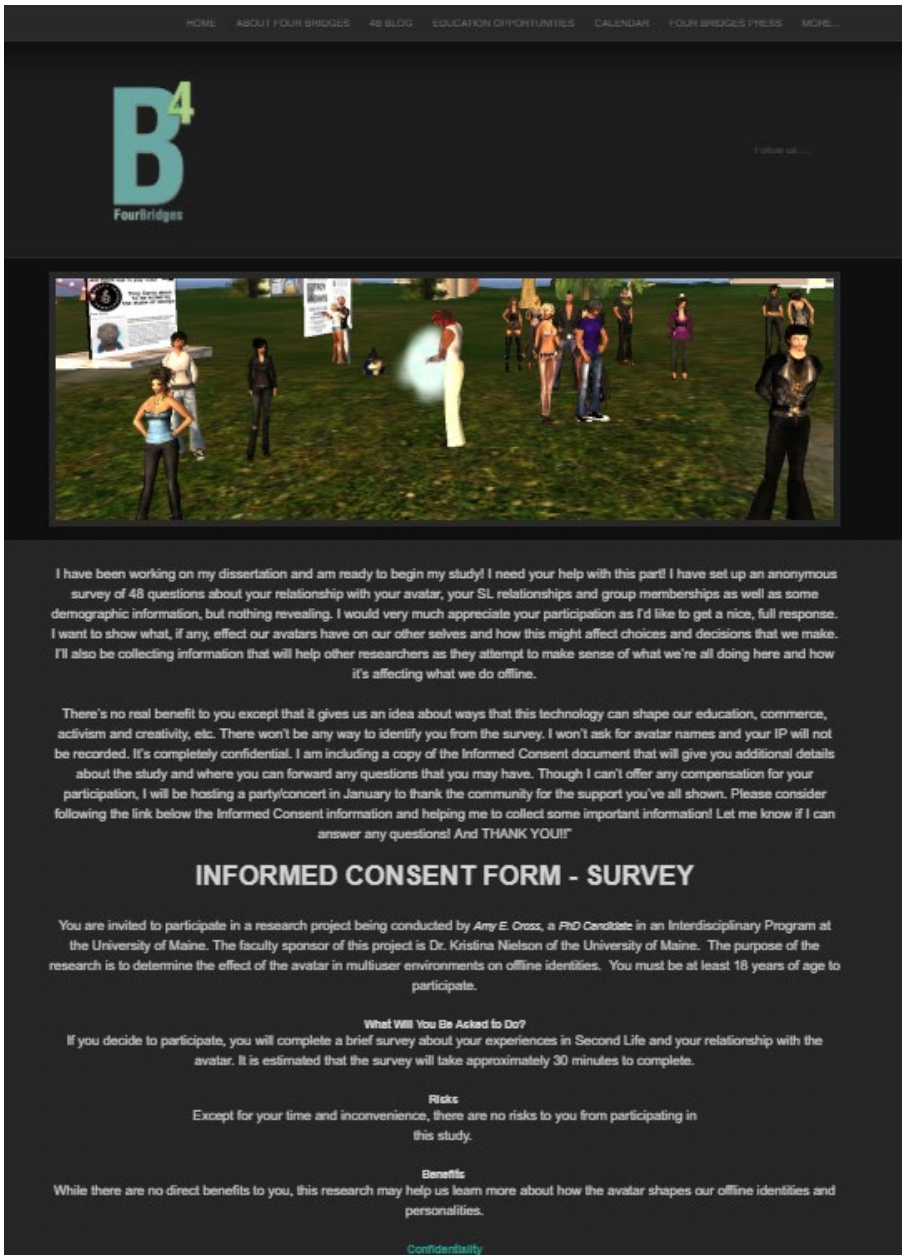

Figure 29: Four Bridges Survey Link.
Image of the Four Bridges webpage for the Second Life survey.

Coding the Survey Responses

The survey questions provided for an abundance of information relative to the components of the avatar. Once analysis of the data collected through the survey began, the focus was narrowed to a more specific component, an examination of the personality components and questions relative to Second Life activism. (All of the questions were coded, but

analysis was limited to those questions relevant to the dissertation study. The remainder of the questions may be used for future research and papers but will not be included in these results.)

The two questions on the survey relative to user and avatar personality were questions 15 and 16. The responses were coded according to the FFM of Personality table of adjectives developed by Robert McCrae and Paul Costa, Jr. from the Gerontology Research Center, National Institute on Aging, National Institutes of Health (McCrae & Costa, 1987). The model, discussed in the previous chapter, employs five factors of personality which include Openness to new experiences, Conscientiousness, Extroversion, Agreeableness and Neuroticism (OCEAN). (This table is included as Appendix A.) A plus or minus (+ or –) was used to indicate ends of the spectrums of the categories. For example, **O+** = Openness to new experiences whereas **O-** indicates an aversion to new experiences and so on. This coding is indicated beside each of the options below. (The codes were not included in the survey questionnaire.)

15. How would you describe your main avatar's personality in Second Life? (Check all that apply).

- Outgoing (Extroverted) E+
- Shy (Introverted) E-
- Aggressive A-
- Agreeable A+
- Likes to try new things O+
- Likes to meet new people O+
- Quiet and reserved E-
- Helpful to others A+
- Troublemaker A-
- Professional/businesslike C+
- Explorer O+
- Likes to be in a crowd E+
- Likes to explore alone or in a small group E-
- Socializer E+
- Activist E+
- Intense/Brooding E-
- Other (specify)
- Rather not say

16. How would you describe your offline personality?

- Outgoing (Extroverted) E+
- Shy (Introverted) E-
- Aggressive A-
- Agreeable A+
- Likes to try new things O+
- Likes to meet new people O+
- Quiet and reserved E-
- Helpful to others A+
- Troublemaker A-
- Professional/businesslike C+
- Explorer O+
- Likes to be in a crowd E+
- Likes to explore alone or in a small group E-
- Socializer E+
- Activist E+
- Intense/Brooding E-
- Other (specify)
- Rather not say

Two of the questions asked respondents about their activism activities. Question 21 asked, "Would you consider yourself to be an activist in your offline activities?" and question 22 asked, "Does your avatar engage in activist activities (human rights, environmental causes, social justice, etc.) within Second Life?" Only the results for the Second Life activists are included in this study since the focus is on Second Life activism and the Four Bridges Project in Second Life, i.e., social virtual activism.

Another segment of the survey looked at the relationship between the user and the technology. Human-Computer Interaction (HCI) is an important component in the user's experience of any technology and an excellent indicator of the sustainability of the technology.[41] The results of the HCI portion, with a comparison of the Second Life activists HCI experience to

[41] New technology requires a critical mass of users to be considered "sustainable". Without that critical mass, the technology runs the risk of becoming obsolete.

the general population of Second Life respondents, is included in the case study results. Key comments and user descriptions of their experiences are found in the case study discussion.

Analyzing the Survey Data

The Five Factor Model (FFM) was used to compare the user personality to the avatar personality for the general population of Second Life respondents. Also examined was how the personalities between the general population and those who self-reported as Second Life activists compared to one another to determine if personality might correlate with participation in Second Life activism.

Demographics of the Second Life general population were then compared to demographics of the Second Life activist. This was followed by a comparison of HCI components between the activists and general population.

Challenges and Limitations

There were flaws in the design of the survey in that it did not include options covering all factors of the Five Factor Model of personality. Specifically, options for **O-** (Openness to new experiences), **C-** (Conscientiousness)**, A-** (Agreeableness)**, N+** and **N-**(Neuroticism) were not included. Also, activism was included as an option in the personality segment, though activism should be considered as an activity, not a personality trait. The activism category was included in the personality comparison charts but were not included in the comparison descriptions in the results.

There are disadvantages inherent in surveys: people may be dishonest, may not understand the wording of the questions, or the same person may complete the survey multiple times. Other disadvantages include: respondents that may rush through their answers or skip

questions. Another disadvantage is that open-ended questions present problems in consistency in analysis.

These limitations were considered in the design of the survey by making it clear in the informed consent that no identifying information about the respondents would be available to the researcher. The survey was set to deny access to IPs that had already completed the survey and each individual response was examined to verify that the answers were distinct. None of the questions that are included in the results were open-ended except that an "Other" option was provided so that respondents could add to the data. These responses were analyzed and, where applicable, included in the results.

Case Study Methodology

I described 4B's mission and background in segment *Case Study: The Four Bridges Project in Second Life An Accidental Community* as part of the Background Review chapter because it stands, to date, as the only truly activist community in Second Life. My experience as its founder, with a first-hand perspective of the growth, sustainability and the vacuum left since it closed, affords a unique methodological perspective beyond participatory action research and auto-ethnography. While a case study incorporates aspects of both methodologies, it also allows for a boundary blurring freedom that seems to be a hallmark of the 21st century.[42]

Four Bridges is a unique case that serves as a pilot for further study. It is exploratory, relevatory research that examines documents, artifacts, interviews, and observations, triangulating data from a variety of sources to determine if and how personality predicts a user's participation in social virtual activism. Towards this end, the following segment outlines the methods used to analyze and formulate the results in the context of the research question.

[42] According to Robert Yin, the investigator's goal in using a case study is to expand and generalize theories investigating contemporary phenomena when behavior can't be manipulated (Yin, 2013).

Evidence Relevant to Social Activism

The Four Bridges Project was an active entity in Second Life from February 2008 until July 2014. During that 6 year period, Four Bridges members hosted, on average, 24 events per year. Many of these events served as final projects in my Peace and Reconciliation Program at the University of Maine. We also held events in conjunction with offline events and occurances such as the Iranian Student Protests in 2009, the International Peace Festival, Human Rights Day, 16 Days to End Violence Against Women, and many others. I participated in education conferences, presented to many organizations on the work of Four Bridges, and worked with students from Universities around the world on their specific graduate and undergraduate projects. Members used the space for weekly poetry readings, concerts, as well as special projects. We held discussions about difficult subjects, such as the controversy surrounding the Israeli/Palestinian wall, Guantanamo Bay, and the use of children as soldiers around the world. Because of the amount of archival data, the study was limited to the two most active years for Four Bridges – 2009 and 2010.

Analysis of the case study began with interviews of five activists associated with the Four Bridges Project. The interviewees were active 4B members that helped to develop, organize, and market events to the general population of Second Life. Most had participated in activist activities prior to joining Second Life and two of them joined the Second Life community to further their activist activities and outreach.

Interview questions were designed to explore the effect of the technology on the interviewee's activism, their thoughts about activism in Second Life, their relationship to their avatar and their interactions through the Four Bridges Project. An examination of aspects of their personality was then performed relative to their participation in activist activities in Second Life

through the Four Bridges Project. (Interview questions are included in Appendix E and Interview Recruitment Script is included as Appendix F. Interview Informed Consent is included as Appendix G.) Portions of the interviews relevant to the dissertation are included in the Results section.

Much of the case study evidence was based on an evidentiary review of documentation relative to these interviewees. Information obtained in the interviews was correlated with historic documents (chat log transcripts, notecards created by the participants, and information obtained through blog posts) as well as direct observation notes created by the researcher during the years in review (2009-2010).

Documents and artifacts were organized according to their relevance to the research questions: personality indicators, use of the technology, and activism. Hours of chat transcripts, notecards, and notices were reviewed highlighting conversations about the effect of the technology, the participant's relationship to their avatar, the environment, and the event or situation. All of the data was anonymized to ensure confidentiality.

Participant observation consisted of a review of chat log transcripts of the activist members during events, meetings, and discussions.

Direct observation data consisted of an analysis of fieldnotes created during events and a plethera of photographs taken over the 2 years being examined. This data was analyzed through the lens of personal observation and recollection.

All of the data was organized and categorized into subsections:

- Personality
- Technology and HCI
- Activism

Analyzing the Case Study Evidence

After gathering the case study evidence, the evidence was correlated with results found through the survey. As indicated in the survey methodology section, two questions in the survey inquired about the users' participation in activism both offline and in Second Life. For the correlation to the case study evidence, only the Second Life activists' avatar personalities were considered and analyzed. Offline activists' user or avatar personalities where not included in this part of the analysis because the study is focused on the avatars' participation in Second Life activism and the personality traits associated with that participation.

Case study evidence was used to explore the relationship between the activist user and the technology – the Human-Computer Interaction (HCI) by asking interviewees about their relationship with the technology, the ease of use of the technology, the effect of the technology on their activism in Second Life, and the importance of the technology's capabilities (building, creating, and interaction) to their virtual activism.

Two representative interviewees were chosen that exemplify characteristics and traits found in the other interviewees. One was an activist prior to joining Second Life but had little experience with technology. The other had not participated in activist activities (other than in giving donations to "worthy" causes) prior to joining Second Life but had strong technological and artistic skills.

Dealing with Researcher Bias in the Case Study

As is true with most qualitative case study research, the researcher serves as the primary instrument in the analysis. As such, the researcher must consider the biases that may affect the design, the collection of data, and the subjective analysis of the case study evidence. Alan Peshkin (1988) saw the researcher's subjectivities as "…virtuous, for bias is the basis from

which researchers make a distinctive contribution, one that results from the unique configuration of their personal qualities, and joined to the data they have collected" (p. 18). If there are any unintentional influences on the interpretation of the data and analysis, the following information (presented as a personal statement) addresses any personal, academic and professional experiences relative to this study.

I was the primary organizer and leader of the Four Bridges Project for six years which provides a unique perspective and keen insight into the personalities, activities, and interactions of the members of the group. I can consider the perspectives of the participant, the organizer, and the observer, and understand the challenges of each role. From this vantage point, I have a broad understanding of the intricacies and the overall context in which these roles occur. The project was not started as a case study: it was meant as a learning experience and set up as a model of sustainable community. In this light, I kept descriptive notes and reports for the members of the group and for my own understanding.

Additionally, my personal experience in virtual worlds, spanning over two decades of immersion in virtual environments and participating in virtual communities, provides further insight and deepens the frame of reference in understanding the data and the correlation between the categories and variables that I consider in this research.

Narrowing the scope of the study, was the fact that there were no other known cases to which the findings could be compared. For this reason, it is unlikely that the results would be similar to another case study of another activist community in virtual worlds. Without a comparable case through which to make comparisons, these results are not generalizable across all virtual activist communities. The variable of "place" in the model is also an important consideration. All components of the study would have to be congruent.

The limited amount of time that that participants of the semi-structured interviews were able to devote to the interview added to the narrow scope of the case study. All interviews were conducted through text and thus impacted the time that was devoted to each interview. Most interviewees kept the time to a little over an hour. In some cases, I hoped for more time to expand on some of the interviewees' responses. In the two cases (out of the original five interviewees) that I chose to use as examples for the combined case study evidence, the interviewees were able to spend more time answering the questions and following up where necessary.

Summary

Chapter 3 outlined the philosophical foundation that formed the basis of the methods and methodologies chosen for the study. The advantages of mixed methodology, utilizing the quantitative survey and qualitative exploratory case study were examined, and the theoretical and practical application of the methodological approaches were discussed, including the processes of data collection, analysis and limitations for each of the methodologies.

Chapter 4 is a presentation of the results of the mixed methods study, concluding with a discussion of the findings. Chapter 5 draws conclusions based on the findings of the background review, the survey results, and examination of the case study. Chapter 5 will also outline the implications and applications of this study and make recommendations for further research.

CHAPTER 4 RESULTS:

EXAMINATION OF

THE FINDINGS

"I pass with relief from the tossing sea of Cause and Theory to the firm ground of Result and Fact."
— Winston S. Churchill From, The Story of the Malakand Field Force

The Model of Avatar Components

The primary purpose of this dissertation was to create a model of the components that comprise the avatar, a virtual 3D representation of a user in a virtual world. This model was based on a thorough review of current literature on the avatar, virtual environments, human-computer interaction (HCI) as well as theories in virtual identity, user and avatar personality, and the movement of identity between the user, the projective identity, the virtual representation, and the environment. The components were outlined and discussed in the background chapter of this dissertation, examining and fully discussing each of the descriptions of the components and their purpose for being included in the model. Based on this thorough examination, the following model was constructed and presented.

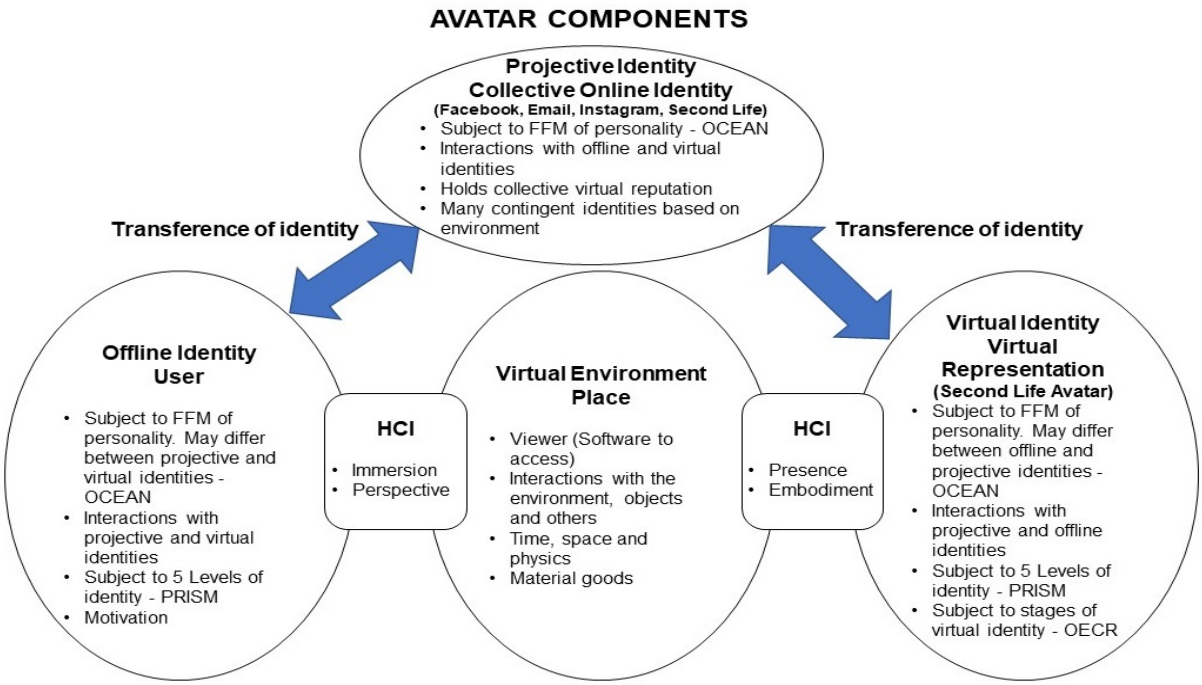

Figure 30: Model of the Avatar Components.

The model of the avatar components takes into consideration the importance of place in determining motivation, identity, personality and human-computer interaction. The goal in providing the model is to take into consideration the movement of identity based on the environment through which it progresses. This study was not intended to make broad statements about other virtual environments and social media platforms.

Secondarily, the dissertation examined, using quantitative and qualitative methods, the application of the model in examining personality traits of the user and the virtual representation (the avatar) to predict participation in social virtual activism in the virtual world of Second Life. This chapter examines the findings of the quantitative survey and the analysis of the qualitative case study of the Four Bridges Project in Second Life.

Survey Results

Data collection methods outlined in the methodology chapter yielded 1,001 completed surveys from Second Life residents. Survey Monkey, the paid database survey delivery system,

allowed each IP one response. This prevented the same person from taking the survey multiple times. Though not all users answered each of the questions, Survey Monkey provided statistical information based on the completion rates for individual questions. All respondents accessed the survey through the Four Bridges website on a page devoted to the survey which included the Informed Consent script.

The confidence level of a survey predicts its generalization to the population being explored. Researchers employing surveys use this information to determine how likely it is that, if all members of the population in question took the same survey, the same results would be achieved. This confidence level[43] is calculated based on the population being examined and the number of respondents. A confidence calculator is provided by SurveyMonkey® as part of their advanced features. Based on a Second Life population of 800,000, the latest number of residents provided by Linden Lab[44], to achieve a 99% confidence level, with a margin of error of + or -5 %, the sample size should be at least 700. This survey had 1001 respondents which easily achieves the confidence level of 95%.

Demographic of the Second Life General Population

Critical to any study in the social sciences and meaningful in understanding virtual world phenomena is examining the demographics of the users. This section presents the demographic breakdown of the 1,001 respondents. A larger study of non-game virtual environments that included Second Life residents was published in 2015 but those results included several virtual

[43]Equation for calculating confidence level z^2 x p(1-p)/e^2/1+(z^2 x p(1-p)/e^2N) where N=population size, e= margin of error. (This is also referred to as the confidence interval), z=Confidence level (for 95% Confidence level, which is typically industry standard, use .95) p= percentage value. (Usually, the p value is set by a previous survey. If 75% chose an answer in the last survey, .75 would be used as p value. Since I was running the survey for the first time, p value set as .5 as per recommendations so not too conservative or loose.)

[44] Information provided by Linden Lab representative in a Wired magazine article dated 2/13/2017 titled "First They Got Sick, Then They Moved to Virtual Utopia". https://www.wired.com/2017/02/first-they-got-sick-then-they-moved-into-a-virtual-utopia/#.il88t9ln8

environments and was not broken down by Second Life residents exclusively (Pearce, Blackburn, & Symborski, 2015). For this reason, no comparisons to other surveys were evaluated except casually.

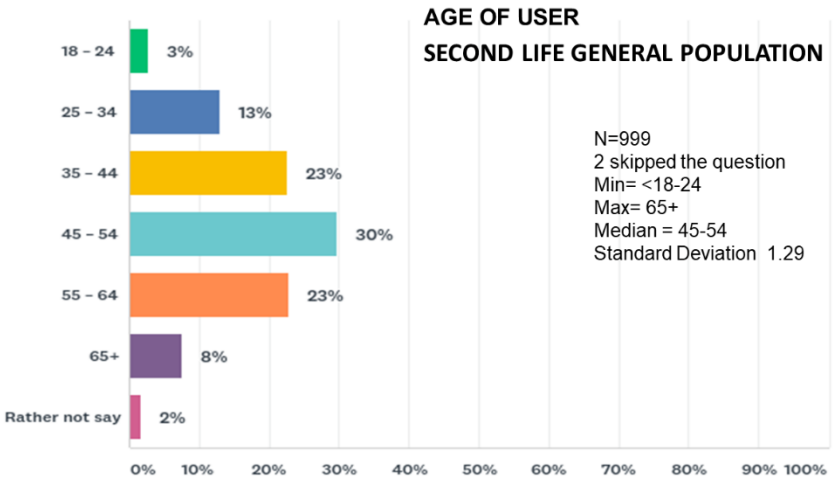

Figure 31: Age of the Second Life User.

As indicated, the median age of the respondents falls in the 45-54 years old range. According to a survey of non-game virtual worlds by Celia Pearce et al, which evaluated several non-game virtual worlds, this differs from their results, which indicated 45% were between 29 and 47 years of age (Pearce, Blackburn, & Symborski, 2015). Their survey was based on 793 respondents collected from over 10 virtual worlds.

Gender in virtual worlds tends to differ dramatically from gaming environments such as World of Warcraft and other online games (Yee, Bailenson, & Ducheneaut, 2009).

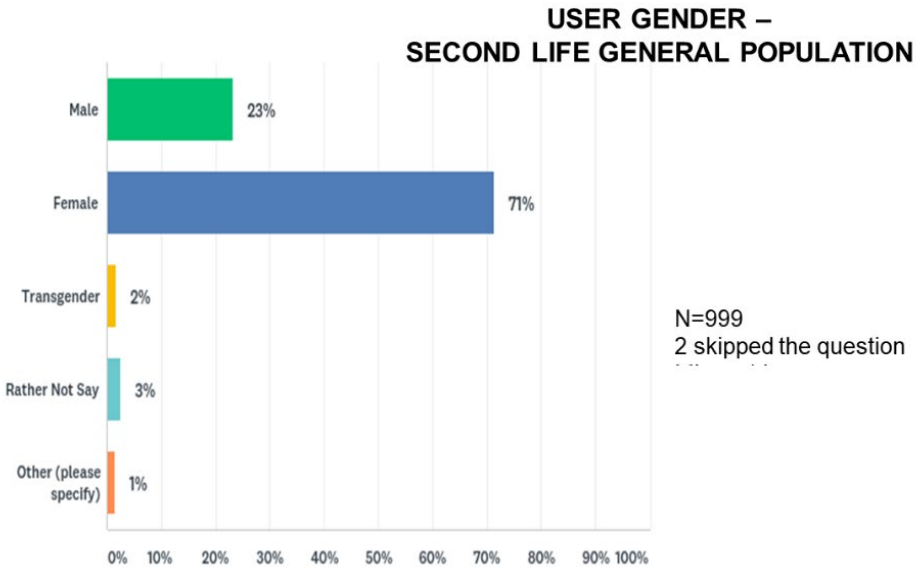

Figure 32: Gender of the Second Life User.

71% of the respondents identified as female and 23% as male. 2% identified as transgender with others specifying transsexual. This is an interesting finding as the most widely accepted figures in the general population, provided by the Williams Institute at UCLA[45], report 0.6% of the population identify as transgender in the United States. This figure should not be confused with users that present their avatars as a different gender. The survey made it clear that the demographics were descriptive of the user and not the avatar.

Another interesting finding in the survey is that, according to the World Health Organization (WHO), 15% of the world's population is disabled[46]. Survey results show that 30% of the respondents self-report that they are disabled.

[45] "How Many Adults Identify as Transgender in the United States" published June 2016 https://williamsinstitute.law.ucla.edu/wp-content/uploads/How-Many-Adults-Identify-as-Transgender-in-the-United-States.pdf

[46] "World report on Disability" 2011 http://www.who.int/disabilities/world_report/2011/world_report_disability_easyread.pdf?ua=1

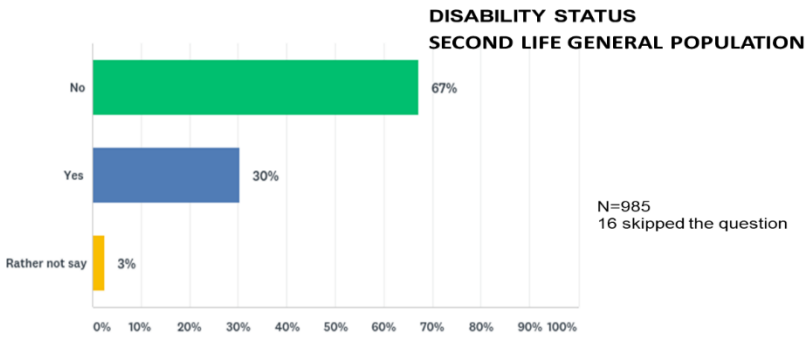

Figure 33: Disability of the Second Life User.

Second Life works with many technologies that allow those with disabilities to participate in the virtual world.[47] This may provide an explanation for the higher numbers in the virtual world population compared to the worldwide figure.

In marital status of the Second Life respondent, 37% are married followed by 30% reporting single.

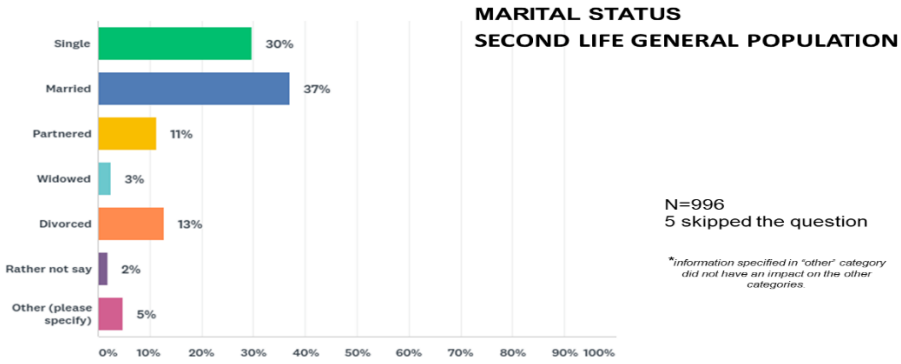

Figure 34: Marital Status of the Second Life User.

13% of the general population of Second Life respondents reported being divorced and 11% reported that they were partnered. 3% reported being widowed.

[47] Virtual Ability, Inc. is a fantastic resource for accessibility issues, technology and resources for the Second Life residents tat require additional information on assistive technologies. https://virtualability.org/

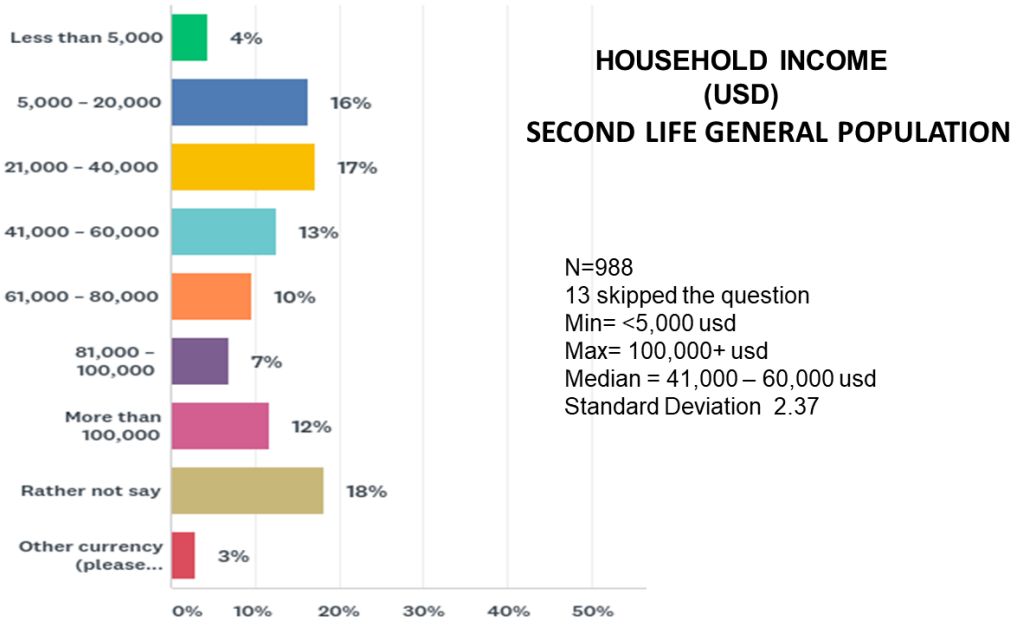

Figure 35: Household Income of the Second Life User.

The median household income of the Second Life user is between $41,000 and $60,000 though the percentages were relatively close.

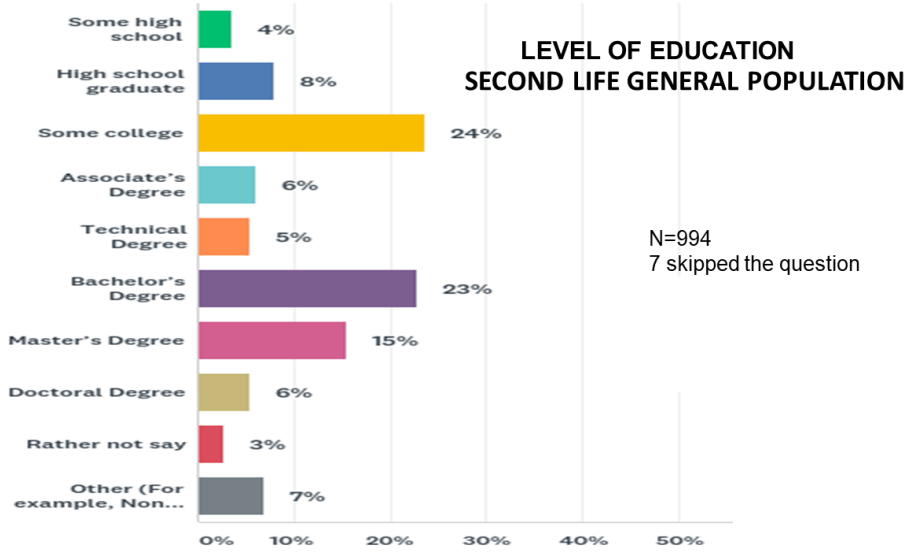

Figure 36: Level of Education of the Second Life User.

The level of education for those that responded indicated that 23% had some college. More than 55% indicated that they had a degree. This number includes some of the respondents that chose "Other" when it could be determined that the degree conferred was comparable to a

degree issued by a United States institution. Where the determination was not possible, the response was not included.

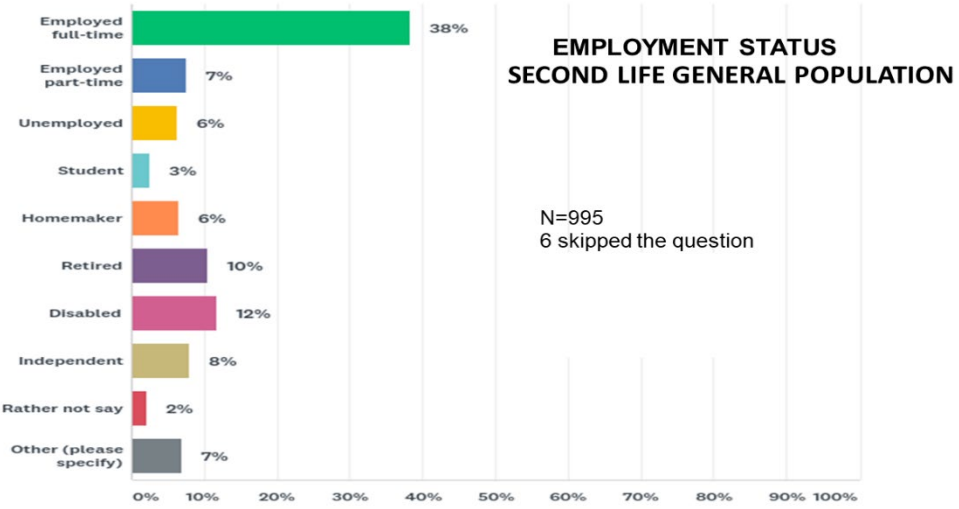

Figure 37: Employment Status of the Second Life User.

38% of respondents reported that they were employed full-time. The second largest response indicated that 12% were on disability. 10% reported that they were retired and 8% reported independence.

This is an especially interesting statistic considering that 34% of respondents reported that they spend an average of 20 hours or more logged into Second Life.

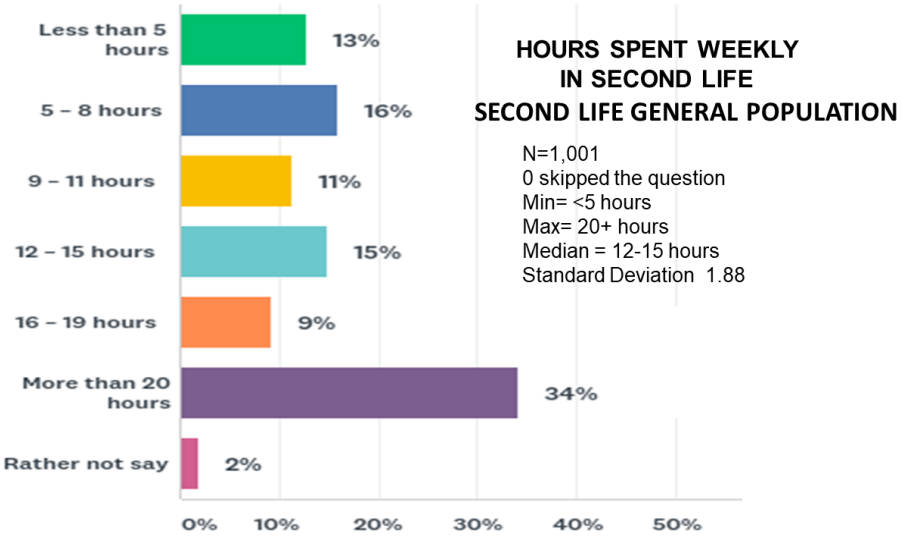

Figure 38: Weekly Hours Spent in Second Life.

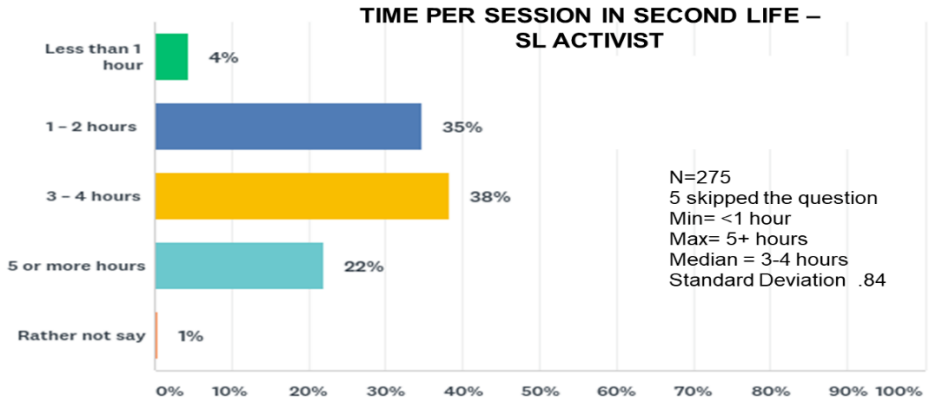

Figure 39: Hours Per Session Logged into Second Life.

Additionally, 38% of respondents spend 3 to 4 hours logged into Second Life per session.

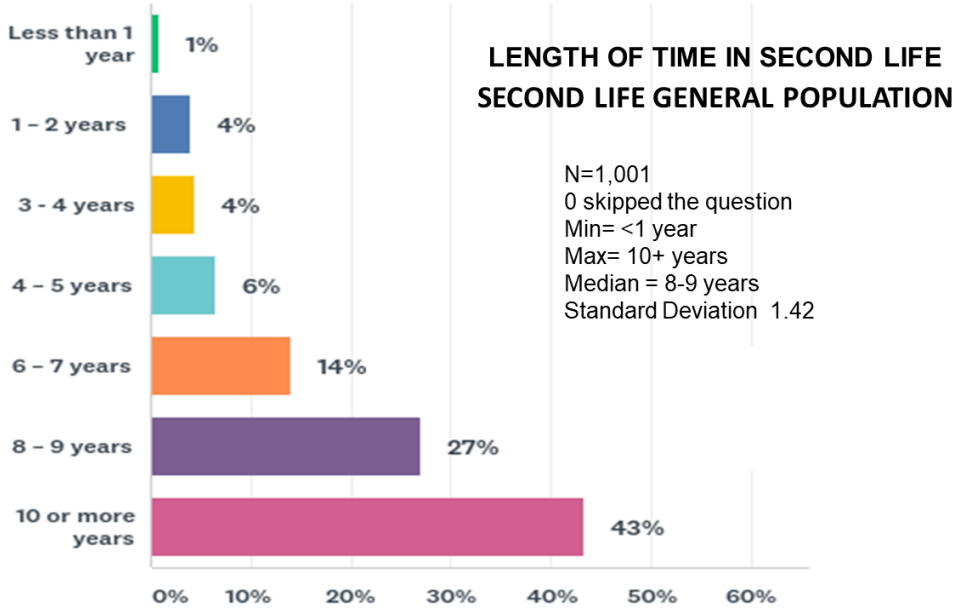

Figure 40: Length of Time in Second Life.

43% of the respondents reported that they have been Second Life residents for 10 or more years. In fact, 84% have been residents for at least 6 years.

Analysis of Respondents' Second Life Avatar Personalities

As indicated in the methodology chapter, not all components of the avatar were evaluated in this study. After much trial and consultation, results focused primarily on the comparison of

the user and avatar personalities using the Five Factor Model of Personality. Two questions in the survey provided information on personality components. Question 15 asked about the avatar personality and question 16 focused on the user's offline personality. I then compared the user and avatar personalities of those who reported that they participate in activist activities in Second Life.

All the comparisons that follow are based on numeric values (n=actual respondents) calculated as percentage values. For example, in the first graph, n=1001 respondents. Of those 1001 respondents, approximately 50% (n=502) responded that their avatar likes to try new things. This is consistent throughout the comparison graphs.

The following chart compares the user personality to the avatar personality of the general population of Second Life. As indicated in the methodology, although the "activist" option was included in questions 15 and 16 (personality), activism is not a personality trait but rather an activity. Many people may consider themselves to be activists but would not equate that to a personality trait. Though included in the charts, the activist category was not considered in the analysis. The chart also indicates how the groups of categories were coded in analysis. Categories include: Openness to new experiences (O+, O-), Conscientiousness (C+, C-), Extroversion (E+, E-), Agreeableness (A+, A-), and Neuroticism (N+, N-).

To adhere to the terms in the avatar component diagram, I used the terms "user" and "avatar" when describing the personality traits.

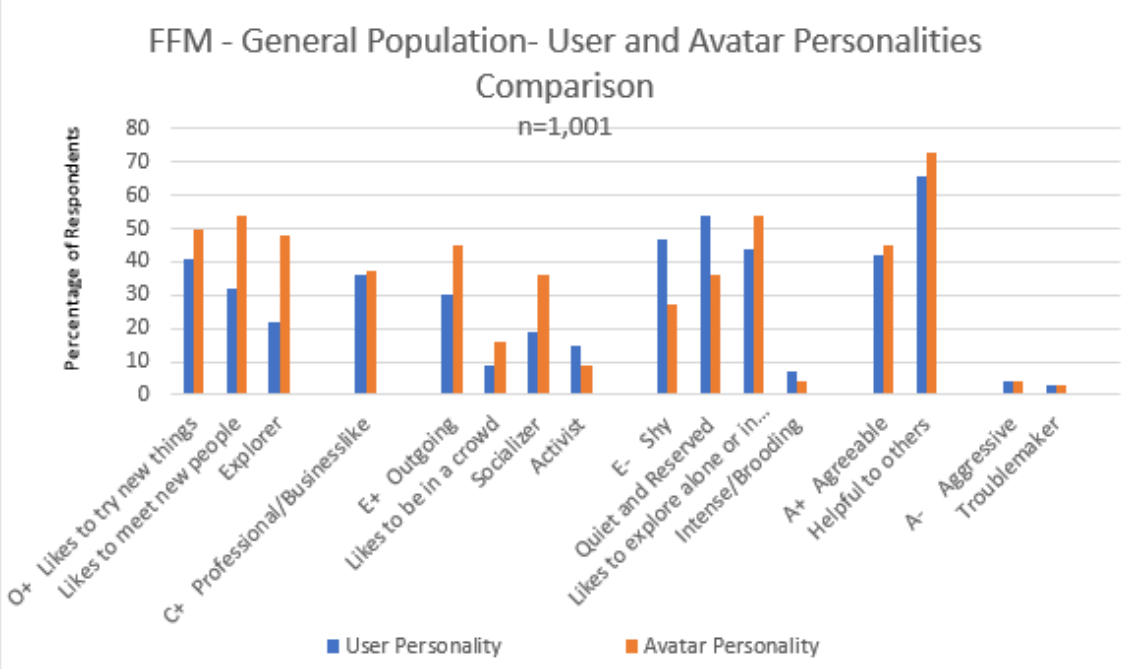

Figure 41: Comparison of User and Avatar Personalities.

Not surprisingly, based on personal and related experience, openness to new experiences (O+ group of 3 categories) is stronger in the avatar personality than in the user personality. This is especially true in the "Explorer" category where the responses were 25% higher for the avatar personality as compared to the user personality. The differences presented in these results were anticipated based on the variance of safety issues inherent in the physical world versus the virtual world.

In the area of conscientiousness (C+), the user and avatar personalities of the respondents were closely related. Those that reported that their user personality was professional, also described their avatar in the same manner with only a slight percentage difference. Many of the comments indicated that the users were unemployed offline but that their avatars were involved in professional endeavors within Second Life.

In analyzing the differences in extroversion (E+ group of four categories), especially in "Outgoing" and "Socializer" categories, these results were anticipated as well based on the

research in the background chapter. As collaborated by many virtual world researchers, people tend to feel more comfortable expressing themselves in virtual environments (Blascovich & Bailenson, 2011; Boellstorff, 2008; Evans, 2011). The anonymity of the avatar might also have a role in this difference. The range in percent differences for "Outgoing", "Likes to be in a Crowd", and "Socializer" were between 6% and 16 % higher for the avatar personality than for the user personality.

The differences in the Introversion (E- group of 4 categories) show user percentages were consistently higher than avatar percentages except for the "Likes to explore alone or in a small group" category which shows a higher percentage for avatar personality than user personality. This can easily be attributed to the fact that many people enjoy exploring the sims and exhibits in Second Life alone or in a small group. In fact, most exploration, unless you are with a class or organization, is done alone or in a small group.

In the "Agreeableness" (A+ group of 2 categories), the percentage differences were only slightly more skewed in favor of the avatar personality (3% in the case of "Agreeableness" and 7% in the case of "Helpful to others"). Again, this might be attributable to the anonymity that the avatar provides as well as the differences in extroversion (E+). Perhaps people are more willing to aid those less familiar with the technology when this assistance can be offered anonymously or without fear of "standing out". The data for the A- group of 2 categories was less than 4% of the respondents and was not considered in further analysis.

Users as Activists

The remainder of the survey results section is devoted to the user as Second Life activist. Two questions on the survey asked respondents about their activist activities both offline and

within Second Life. First, a comparison was made between the Second Life activists' user and avatar personalities.

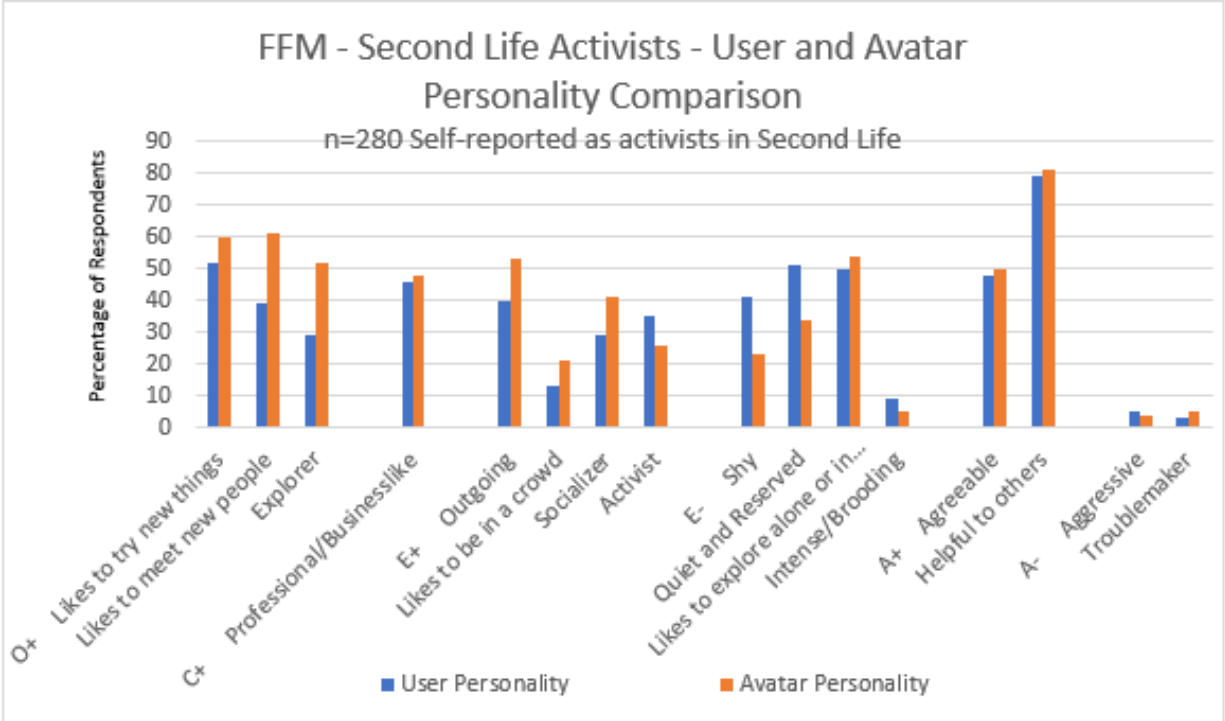

Figure 42: Second Life Activists and General Population User/Avatar. User and avatar personality comparison using FFM

The differences in the Second Life activist user and avatar personalities are comparable to the differences in the General population of Second Life respondents user and avatar personalities.

What's interesting to note about this comparison and the comparison of the general population of Second Life respondents is that Second Life activists reported higher percentages in the O+, C+, E+, A+ and A- categories as a baseline, most by 5% or more.

For example, in the "Outgoing" (E+) category, though the percent difference in the user and avatar personality ranged ~14%, only 30% of the general population reported their user personality as being "Outgoing" whereas 40% of the Second Life activists reported their user personality as being "Outgoing". Second Life activists also reported lower or equivalent

percentages in E- which tends to validate the E+ differences. The Second Life activists and the general population of Second Life respondents user comparisons are presented in the following chart.

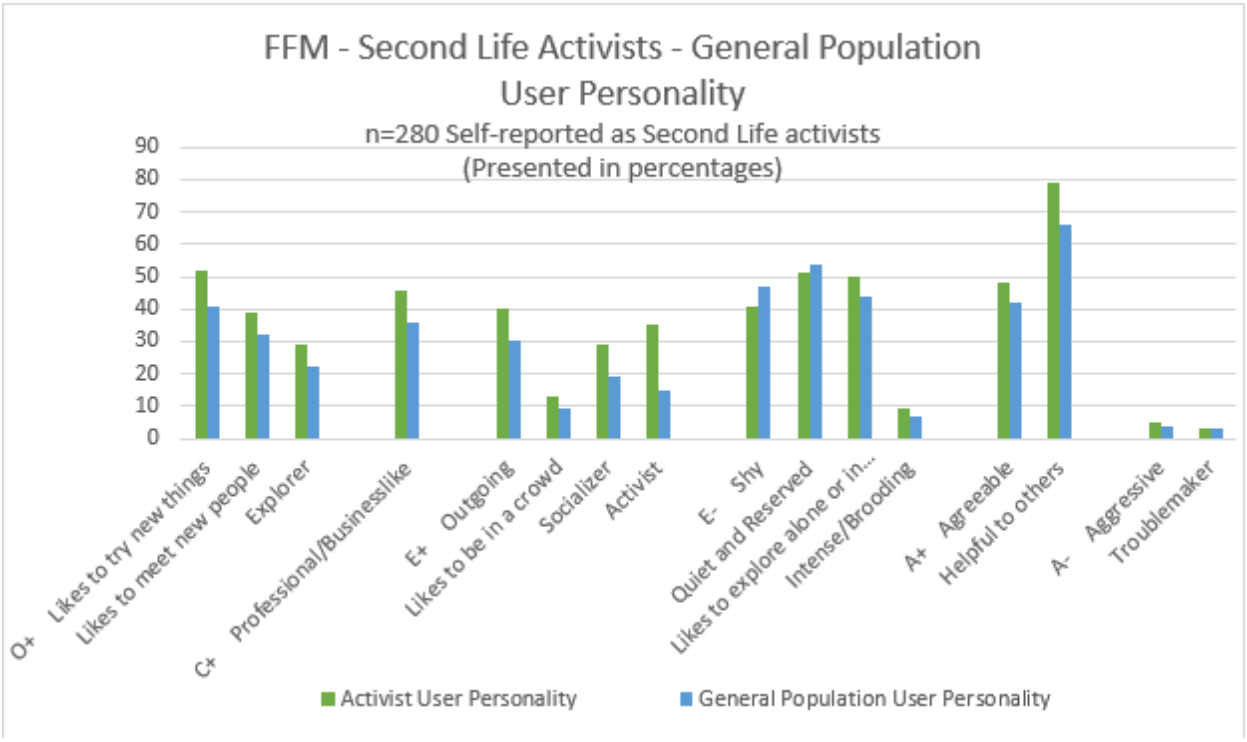

Figure 43: Second Life Activists and General Population User. User personality comparison

Considering the Second Life activist versus general population of Second Life respondents user personality comparison, the activists' user personality is higher than the general population of Second Life respondents user personality in O+, C+, E+ and A+ groups. Percent differences range from 4% to 13%. The "Shy" and "Quiet and reserved" category in the E- group show the general population group user personality higher than the activist user personality. Percent differences range from 3% to 7%. This is consistent with the correlation between the E+ group of categories.

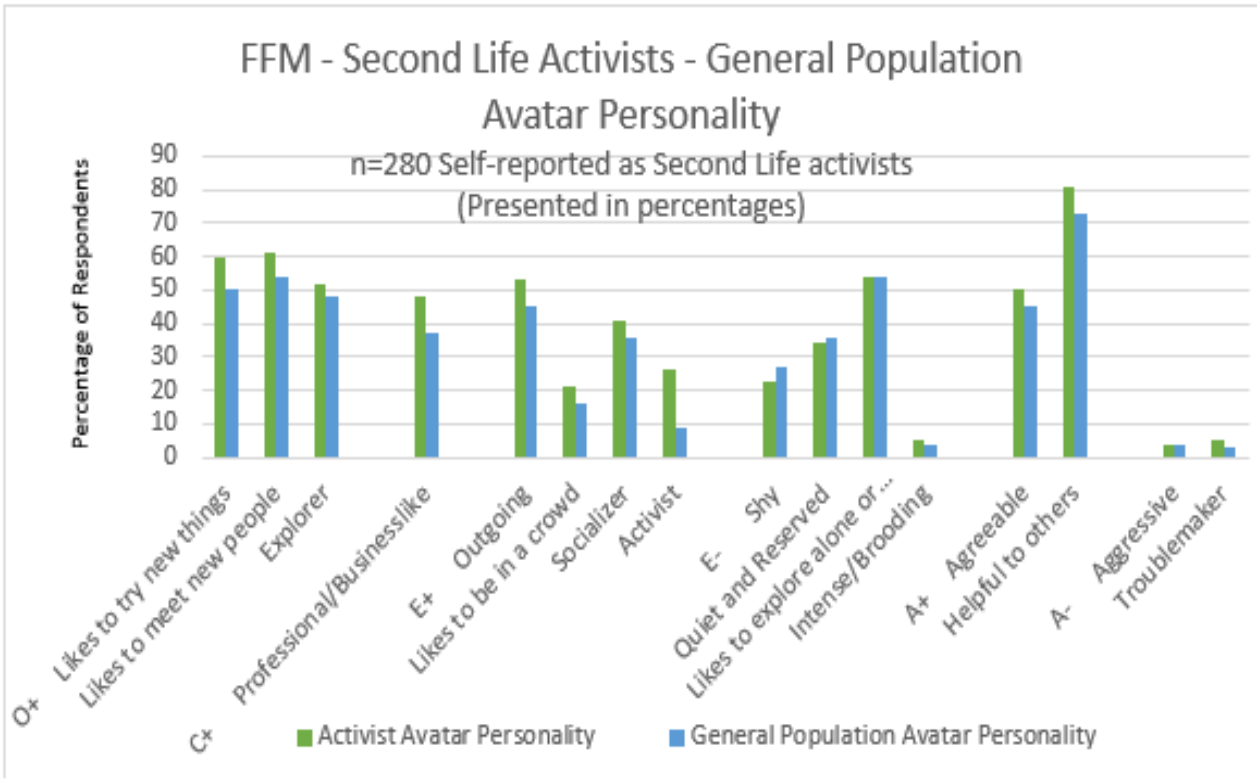

Figure 44: Second Life Activists and General Population Avatar. Avatar personality comparison

The same differences held true in the comparison of the Second Life activists and Second Life general population respondents in their avatar personalities with a slightly lower percent difference in each of the categories compared to their user personalities.

Another interesting finding is that fewer of the Second Life activists reported being "Shy" or "Quiet and reserved" (E- group of categories) in both their user and avatar personality traits.

In order to get a general idea of the level of activism both offline and in Second Life, I created a table to illustrate the number and percentages of those that reported being an activist both offline and in Second Life and those that reported participating in activism either offline or in Second Life. For accuracy, I also reported those that would rather not say. Table 2 below illustrates this breakdown.

ACTIVIST OFFLINE	SECOND LIFE ACTIVIST	NUMBER of respondents	PERCENTAGE of respondents
YES	YES	156	16
YES	NO	104	10
NO	YES	86	9
NO	NO	570	57
RATHER NOT SAY	YES	38	4
RATHER NOT SAY	NO	27	3
YES	RATHER NOT SAY	2	0.2
NO	RATHER NOT SAY	2	0.2
RATHER NOT SAY	RATHER NOT SAY	9	1

Table 2: Breakdown of Activist Statistics.

16% of the respondents self-reported being activists both offline and activists in Second Life. 10% self-reported as being activists offline but not in Second Life. 9% of respondents self-reported as being activists in Second Life but not activists offline.

Demographic of the Second Life Activist

I wanted to see if the demographics of the Second Life activist differed from the demographics of the general population of the Second Life respondents. Those results are presented in this section.

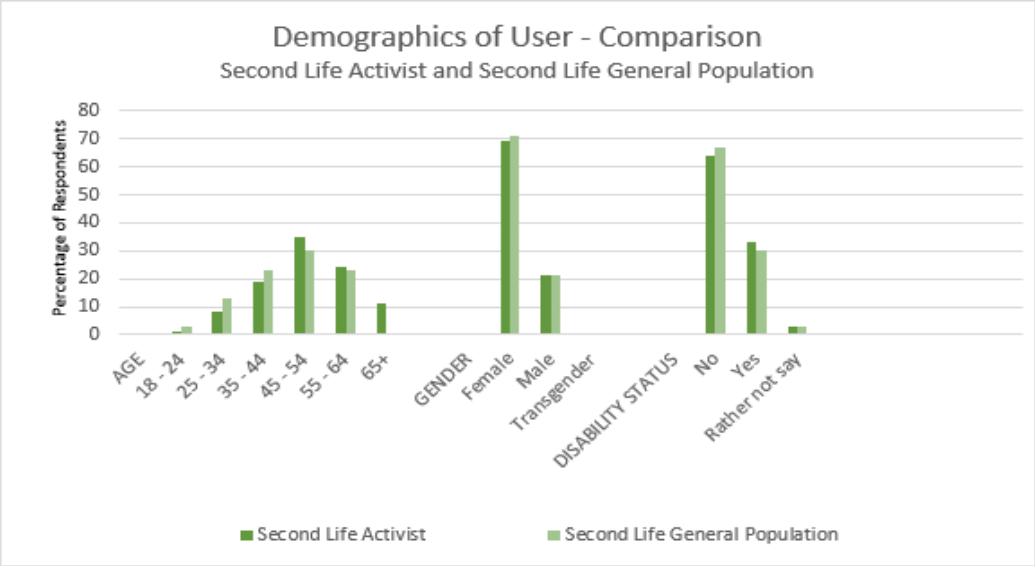

Figure 45: Demographic Activist/Gen Pop Comparison 1.
Age, gender and disability status

As indicated, the biggest difference in percentages in this chart shows that more activists in Second Life are 65 years of age or older than the Second Life general population of respondents. Second Life activists reported a slightly higher percentage (~2% difference) of having a disability than that of the general population of Second Life respondents.

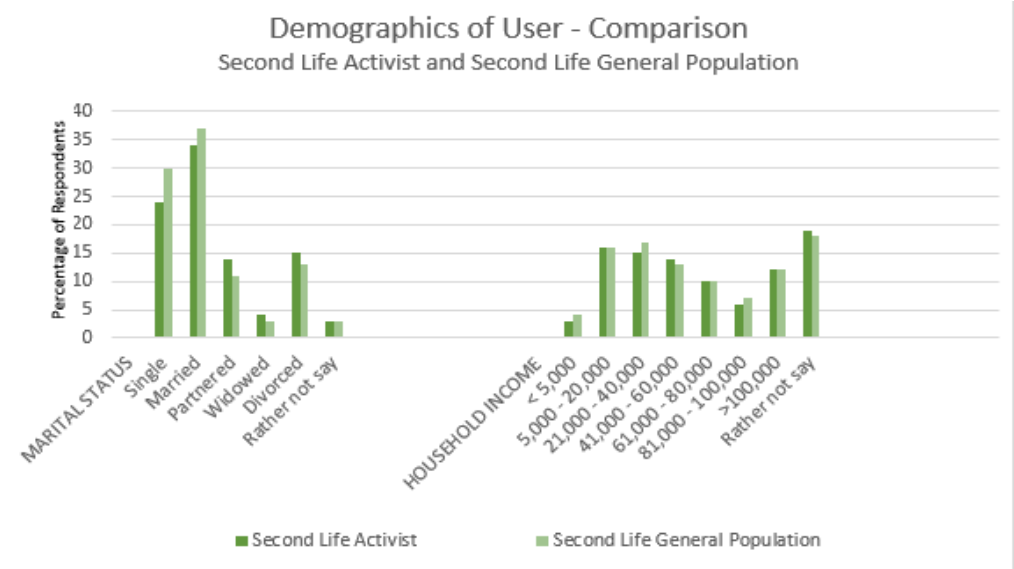

Figure 46: Demographic Activist/Gen Pop Comparison 2.
Marital status and household income

The greatest percent difference between Second Life activists and general population of Second Life respondents in marital status is the percentages of those that identified as being single (6% percentage difference). There were only slight differences (less than 2%) reported in household income between the Second Life activists and general population of Second Life respondents.

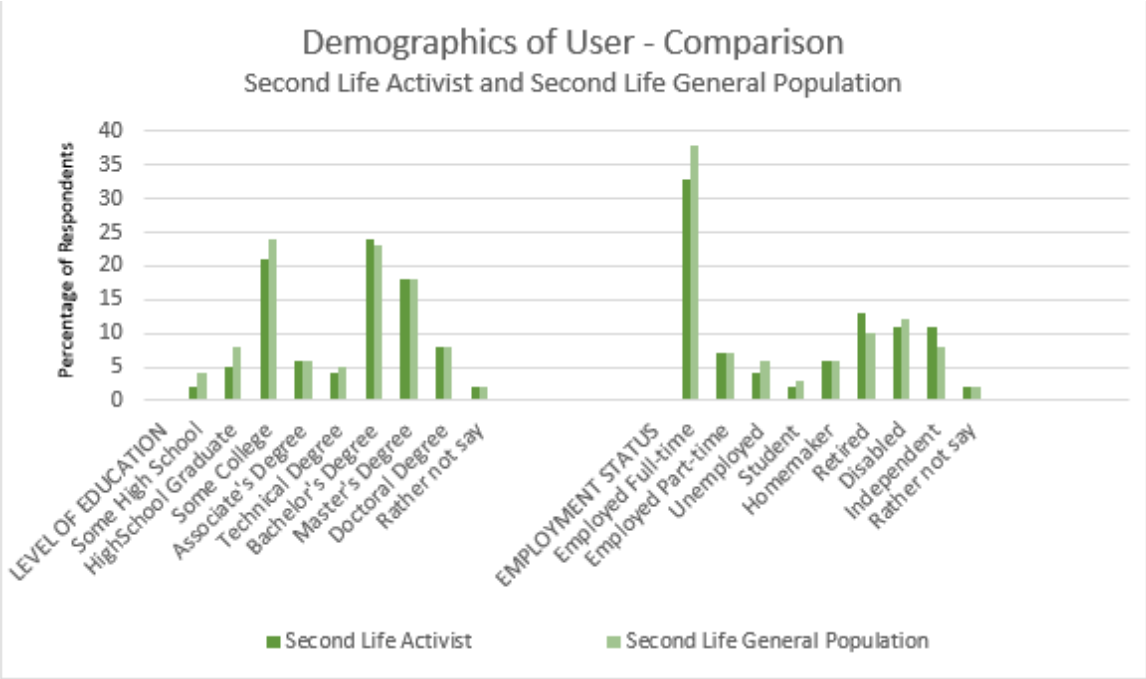

Figure 47: Demographic Activist/Gen Pop Comparison 3. Level of education and employment status

Second Life activists reported a higher level of education, but only slightly, in the bachelor's degree category. The rest of the categories were approximately the same as far as degree holders are concerned though ~5% fewer reported as having some high school and as having ended their academics with a high school diploma.

The employment status of Second Life activists weighted more heavily in reports of being retired or independents. Fewer Second Life activists, (~ 3%) reported being unemployed and approximately 10% fewer Second Life activists reported being employed full-time compared to the general population of Second Life respondents.

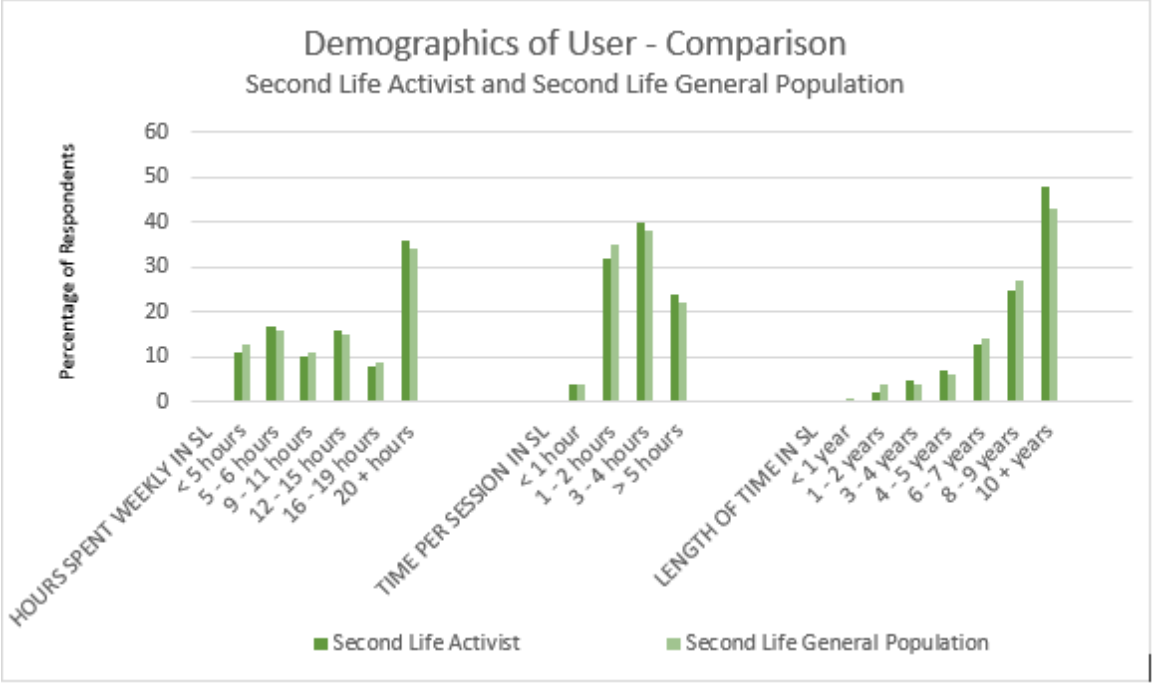

Figure 48: Demographic Activist/Gen Pop Comparison 4.
Time in Second Life per week, session and length of time

Although the time spent in Second Life weekly and per session were similar between Second Life activists and the general population of Second Life respondents, activists tended to report a greater amount of time spent in Second Life, on average (5% percentage difference). This may be due to the larger population of activists reporting their employment status as retired or independent. Activists also reported as having been residents of Second Life for 10 years or more, 5% more than the general population of Second Life respondents.

Human-Computer Interaction (HCI) and Technology Use

There were seven questions about the respondent's use and experience of the technology. The first three questions asked about the avatar.

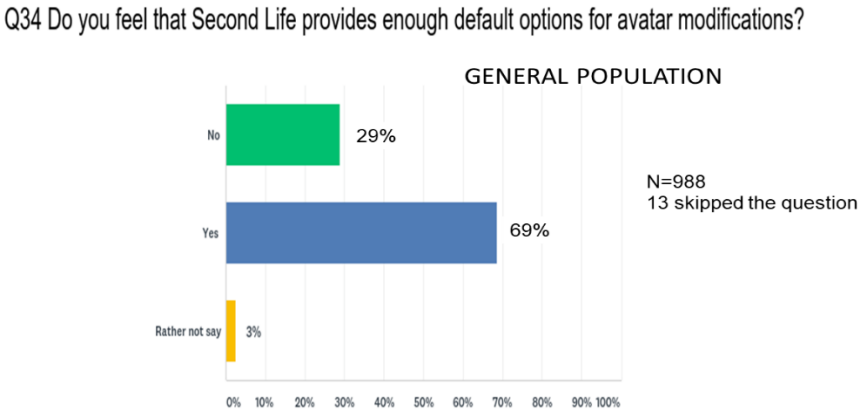

Figure 49: Default Options for Avatars.

The largest percentage of the general population of Second Life respondents (69%) felt that there were enough default options for modifying the avatar. Viewers provide sliders for users to change physical aspects of the avatar (size of features, spacing of features, lengths of arms, legs, neck, height, body fat, etc.) 29% didn't feel that there are enough modification options. A space was provided for respondents to make comments and, of the 50 respondents that commented, 74% of the 50 comments wanted more realistic looking features and 34% of the 50 comments wanted more cultural, age and body type options in the default avatar choices provided by Linden Lab.

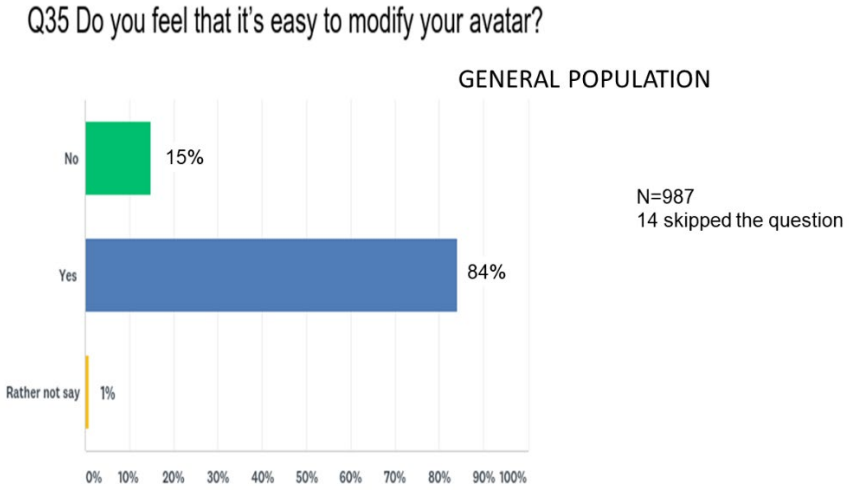

Figure 50: Ease of Modification of Avatar.

When asked about the ease in modifying the avatar, 84% of the respondents felt that it was easy to modify while 15% thought it was not easy to modify the avatar. Again, a space was provided for comments and 50 people added comments. Of those 50 respondents, 94% said that the learning curve was too steep in learning how to modify the avatar effectively.

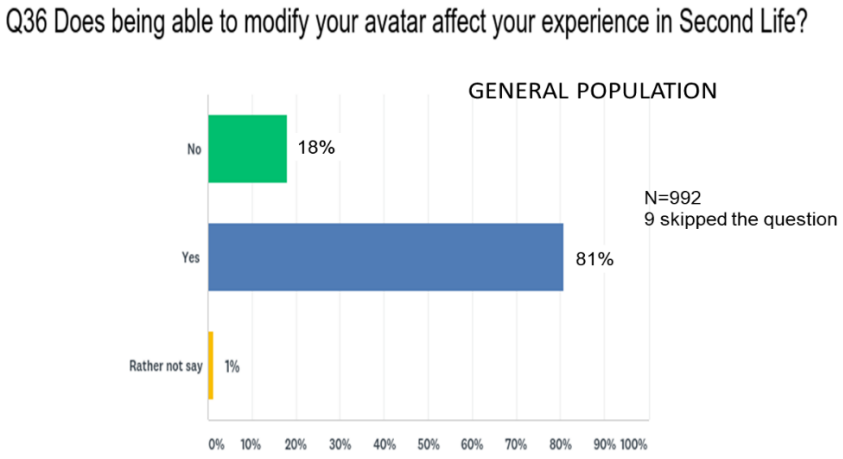

Figure 51: Avatar Modification Effect on Experience.

81% of the general population of Second Life respondents reported that the ability to modify the avatar is important to their experience in Second Life. A space was provided for comments for this question as well. Again, there were 50 comments added. Of the 50 comments, 100% said that it was important to them (the respondent) that their avatar be attractive. 82% stated that they felt that the attractiveness of their avatar was important to others.

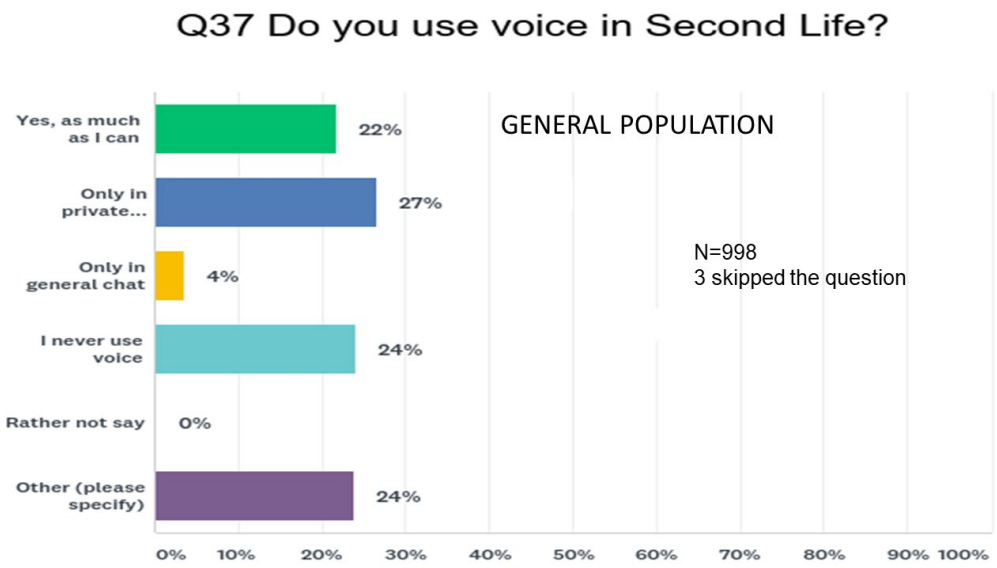

Figure 52: Use of Voice in Second Life.
General Population of Second Life respondents

When asked about their use of voice in Second Life, the responses were split mostly evenly between Yes (22%), Only in private conversations (27%), Never use voice (24%) and Other. Of the ones who chose the "Other" option, 80% of the 237 respondents who chose this option (n=190=19% of total respondents) indicated that they only use voice rarely or when required by the situation such as business, teaching or performing.

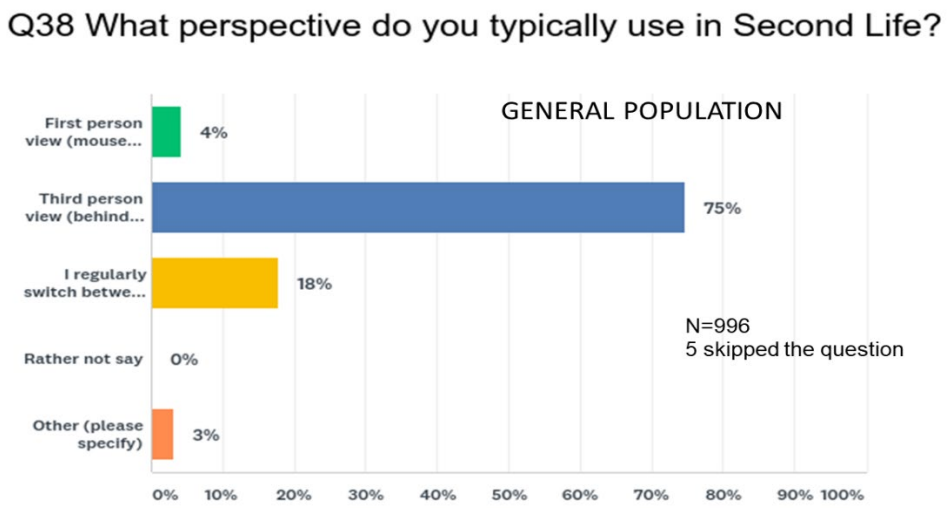

Figure 53: Camera Perspective.
General population Second Life respondents

75% of the general population of the Second Life respondents use third-person perspective when using Second Life. Third-person perspective is just above the avatar so that the avatar is in the user's sight. 18% switch between first-person perspective and third-person perspective and 4% use first-person perspective which is viewing the environment through the perspective of the avatar.

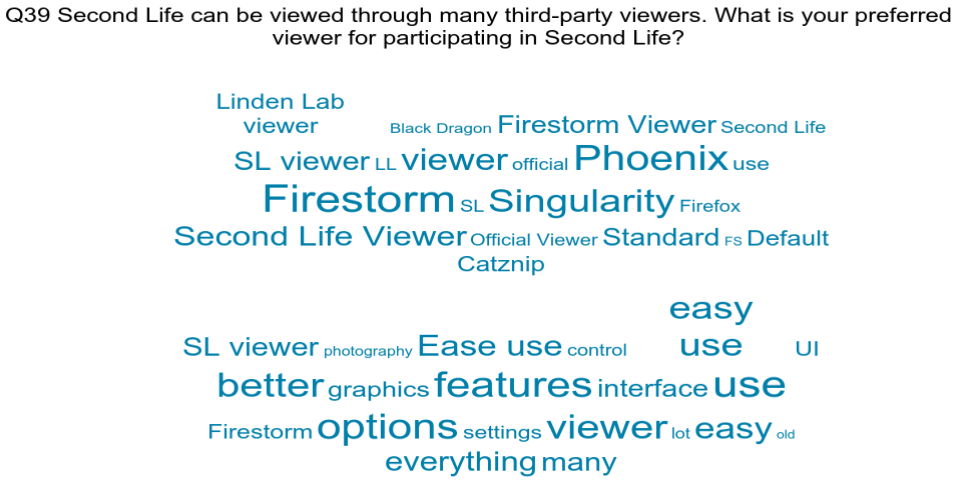

Figure 54: Third Party Viewer Use.

Respondents were asked which viewer they used to access the Second Life environment. The viewer is a separate download. Linden Lab provides a viewer and several other third parties have developed viewers based on user preferences. Of the 968 respondents to the question (33 skipped this question), 88% use the Firestorm viewer while only 7% use the viewer provided by Linden Lab. When asked why they prefer the viewer that they used, 34% responded that it was easier to use.

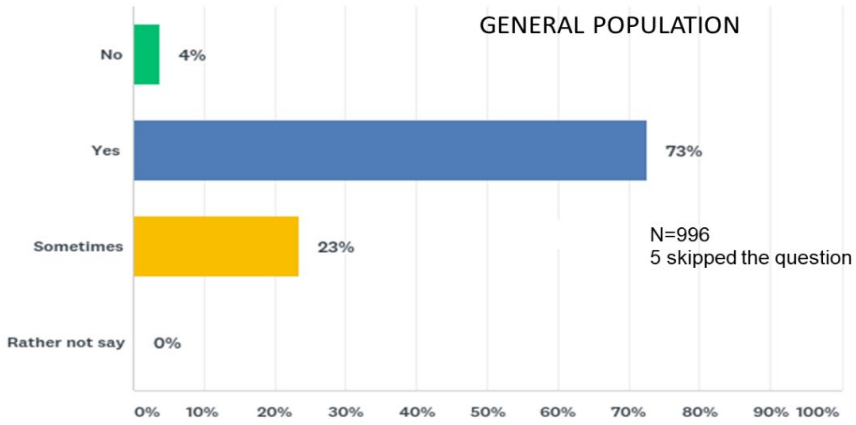

Figure 55: Use of Advanced Menu.
General population Second Life respondents

The final question about technology asked about the respondents' use of the advanced menu capability in Second Life. Advanced features in Second Life give more control of the interface through graphics presets, mouse control, etc. The menu is hidden and can be displayed on the top menu bar by depressing CTRL ALT and D at the same time. Once displayed, it provides a pull-down menu by clicking on it. I included this in the technology questions as it presupposes a more technologically experienced user. The following figure illustrates some of the options available through the advanced menu.

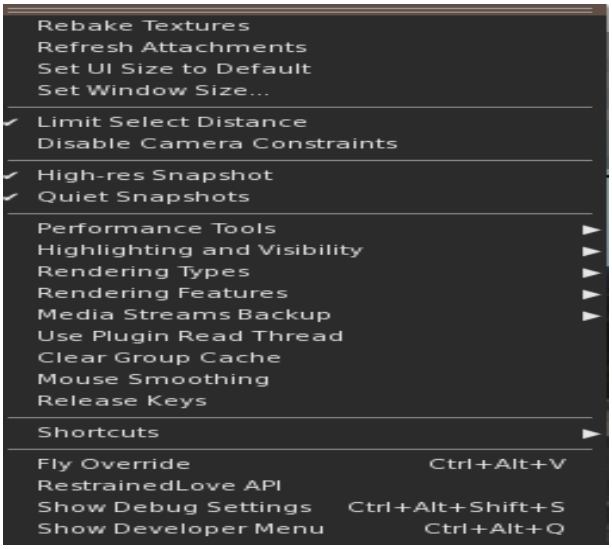

Figure 56: Advanced Menu Option.
Screenshot f the Advanced menu options in the Firestorm Viewer

Of the 996 respondents (5 respondents skipped this question), 73% reported using the advanced features regularly, 23% said that they use it sometimes and 4% responded that they do not use the advanced menu features.

Use of the advanced features menu insinuates a more experienced user, which coincides with the large percentage of users (43%) that have been residents of Second Life for 10 or more years.

The final comparison was in the HCI/technology use to see if there was any difference in the way that the Second Life activist used the technology compared with the general population of Second Life respondents.

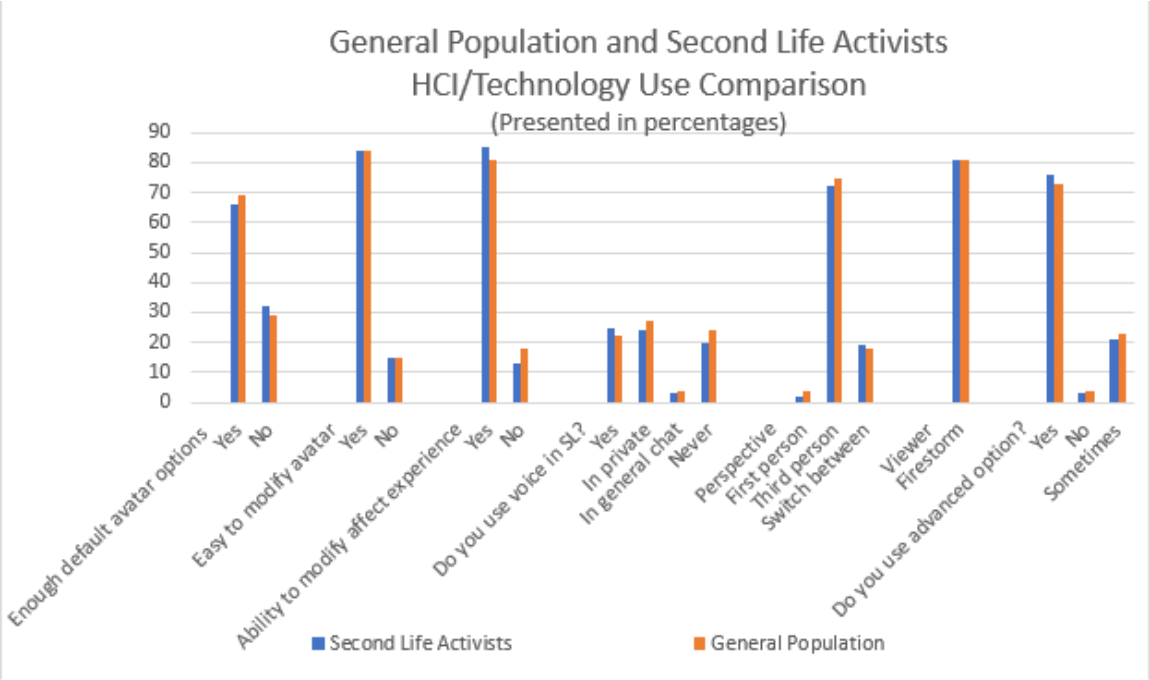

Figure 57: HCI/Technology Use Comparison.
Second Life activists and Second Life general population

As evidenced, the usage patterns and technology choices are mostly comparable. There's a slight difference in the activists feeling a little stronger about the ability to modify the avatar and its effect on their experience of Second Life, their use of voice, and in their use of the advanced features. All percent differences are less than 5%.

Case Study Results

The purpose of this single case, qualitative, exploratory study was to determine if the user and avatar personalities can be examined to predict an avatar's participation in virtual social activism and, if so, how? To examine this, I present two representative cases from the larger group of five interviews. The first is Trill who was not an activist before entering Second Life and the other is Alexjo who was an activist offline before joining Second Life.

Trill – The Avatar

Figure 58: Trill's Avatar in Second Life.

Personality

I met Trill in September of 2009. Her name was passed on to me by one of the Four Bridges Project organizers. Trill had attended the Peace Festival event on the Four Bridges sims and wanted to get involved. She had been researching the Revolutionary Association of the Women of Afghanistan (RAWA) organization and had seen a presentation I gave on women activists in which I had included the organization's founder, Meena. In our initial conversations, Trill expressed an interest in working with Four Bridges to set up a display of Afghanistan's history with information about the culture and an exhibit dedicated to RAWA. Her goal was to

collect donations, bring in speakers who could speak about the work of the organization, and raise awareness of the organization and the Afghanistan culture. Although she had an array of artistic and technological skills, she didn't have the knowledge for organizing or connecting with the RAWA organization.

Trill was much more reserved and shy in our initial meetings than most of the activists that worked with Four Bridges. She admitted to me in one of our conversations that she didn't feel comfortable approaching people for donations and didn't have the confidence that she felt she needed to be a leader of the RAWA group in Second Life. I told her that I would help her to make the connections necessary for an official association with the offline group. I had previously done this with Amnesty International and the Bill of Rights Defense Committee.

As Trill worked on building the RAWA headquarters on Four Bridges, I drafted letters of contact to the organization and helped her set up donation kiosks, organize the group and its membership, and set up an event to introduce the community to the group and its mission.

As Trill grew more comfortable with me and with the Four Bridges Project community, her avatar personality began to change. She became more confident in her voice for the organization and more outgoing in her interactions with other people in the Four Bridges Project group. She had been a very active member of the art community in Second Life before coming to Four Bridges but hadn't explored her "voice for others" through activism in Second Life.

In my interview with her, she related a story about an incident that occurred in Second Life not long after I met her.

> *"Some sim had a display of extreme Islamophobia. Hundreds of avatars showed up. People with Amnesty International tags, some Muslim groups. It was packed. London labs* [Linden Lab] *came and deleted everything in the sim. Then all these people from all over the world were standing and nothing was left but green grass and blue sky. That was very moving for me.*
> *We got a sim shut down. Yay"*

I remembered her telling me about this the day that it happened. It was in March of 2010. I went back to the chat logs and found our conversation about the situation. It was obvious through the chat logs that this event had a major impact not only on her activism but on her avatar identity and her offline personality. She was determined that she could make a difference, that we were all making a difference and she said that it made her feel "empowered" and "much more confident". That confidence has stayed with her even though she has since left Second Life. In our interview she stated:

> *"You never know what tiny little thing you did had a huge effect. You may have already done some little tiny thing that set in motion something that in 1000 years will result in some kind of golden age or Renaissance."*

From my own experience with Trill, I recognized changes in her personality before and after her interaction and work with the Four Bridges Project. I watched her confidence grow, her willingness to speak out for things that she believes in improve as well as her patience with those that disagree with her.

When I asked her about how her experience in Second Life, specifically with Four Bridges affected her, she said:

> *"I found that my voice mattered a lot more than I had ever thought. It translated back into the real world in that I learned that any little place any little act matters.*
> *My definition of activism expanded as a result of SL.*
> *Personally is the most important way. These big voices like Gandhi had or MLK. They were the voices of the people. The momentum, I think, only gets real and moving to the people in your immediate surroundings. Much more important to be a good friend and good mom or dad, or teacher.*
> *That's how messages become eternal. By living an example.*
> *Small things everybody does."*

Figure 59: Trill and millay.
Hanging out in front of deserted Walmart build

Technology

Trill came into Second Life with a strong technology background in the arts. She had already been using several programs that helped her acclimate to the Second Life platform very easily. She had been creating clothes, building and scripting objects, and creating art exhibits for over a year before I met her.

Within a year of Trill's association with Four Bridges, she created her Afghanistan museum and did a complete redesign of the Four Bridges sims. She created a post-apocalyptic vision and instilled it with hope and promise, though you had to be willing to look for the hope and add to the promise.

Figure 30: The Speak Easy or Get Out.
One of the Four Bridges venues built by Trill

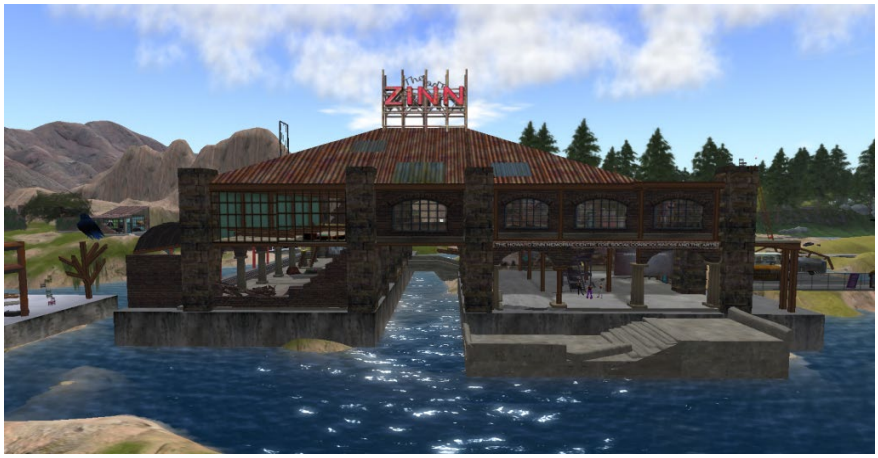

Figure 61: The Zinn Centre.
Event and exhibit venue on Four Bridges created by Trill

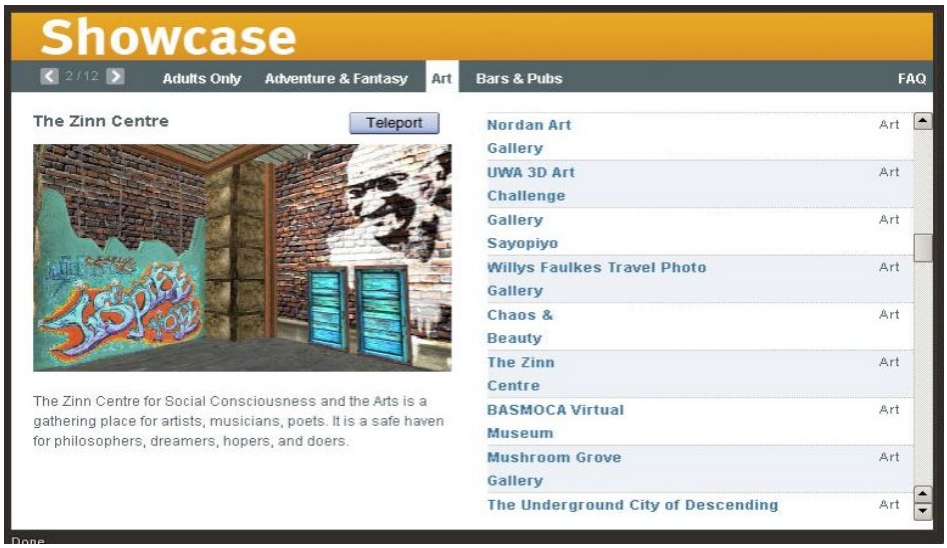

Figure 62: Editor's Picks Showcase.
Trill's Zinn Centre on the Four Bridges Project sim

Figure 63: Trill's Afghanistan Museum.
An entire sim was dedicated to the project

Trill's technology skills added extensively to the Four Bridges Project's outreach. Because Second Life provides every user with the opportunity to create, Trill was able to share her immense artistic talents in creating a space for the Four Bridges Project members to hold events and expand awareness of the organizations' missions that were headquartered on the sims. I think that she summed it up best when I asked her in the interview if she felt that the technology contributed to her activism in Second Life.

> *"I think when artists and builders in SL or arts anywhere, film video, whatever, online offline interactions and communications, all have a collective effect on raising awareness and inspiring people to be the change. Chaos theory, the butterfly effect. Gazillions of micro moments make up a collective effect on consciousness globally."*

I couldn't have stated it better myself.

Activism

During Trill's time with the Four Bridges Project, she tackled many difficult issues. She built the Afghanistan museum at a time when the United States' military involvement was a major contention in our standing with the rest of the world. At the same time, she created a model of the Israeli/Palestinian wall and included graffiti made by both Egyptian and Lebanese artists in Second Life. She also helped me to organize a War and Peace exhibit, curating many controversial works of art created by Second Life artists. We talked about these exhibits during our interview.

> *"Amy: The wall exhibit on 4b was incredible. so many good conversations around that one exhibit.*
> *Trill: It's so controversial. But we need to talk about it,*
> *Amy: The difficult conversations are the most important ones!*
> *Trill: I took it down because I was getting called an anti-Semite.*
> *Amy: I know. We lost a lot of members and a lot of people unfriended me. I had horrible hateful messages.*
> *Trill: Every piece had my name on it because I arranged it.*
> *Amy: Good conversations and though really difficult and sometimes angry and hateful, the calmer voices seemed to prevail. I consider that a success.*
> *We were really doing something*
> *Trill: Yes. They thought we weren't anti-Zionist enough. Lol*
> *Trill: Always too much or not enough of something. I love that we pissed so many people off.... that means we had them thinking. I loved our work in those days."*

I asked Trill if she felt that the work she did in SL and with 4B…the artistry was activism. She said that the aesthetic had an activism feel about it. When I asked her what she thought Second Life activism means in relation to what's happening offline she responded:

> *"I think a lot of what we do is activism. Growing your own food, developing that skill is a kind of activism. Do you think you need a very specific definition of activism? The personal is the political, I think.*
> *Everything matters. How would you gauge what is successful activism? Shopping*
>
> *is a political act."*

Alexjo – The Avatar

Figure 64: Alexjo's Avatar in Second Life.

Personality

I met Alexjo in September of 2008. She joined the Amnesty International group and it was my habit to contact each new member after they joined to welcome them to the group and introduce myself. We chatted about her activism experience which was quite extensive. She was working on her dissertation researching the impact of the Israeli/Palestinian conflict's on the women of Palestine. Her parents were Jewish refugees from the Holocaust and had settled in Australia. She was working with refugees in Australia in a teaching position with a small University.

Alexjo's activism experience was quite extensive. She had been an activist for most of her adult life in women and gender issues and had spent a lot of time in Palestine on the "front lines" in protests with the women of Palestine. Her technology skills were minimal, and she had no experience building or creating in Second Life.

Though Alexjo had a strong voice and a lot of confidence in her activism, speaking, and presentation skills, she had little confidence or understanding of organizing using Second Life

technology. She saw the potential in having an international community but was nervous about her ability to create a solid Second Life exhibit and resource center for her group, the Coalition of Women for Peace. We worked together and with other members of the Four Bridges community to create a resource center and interactive display.

Figure 65: Resource Center for the Coalition of Women for Peace. Organization on the Four Bridges Project

Technology

One of the goals with the Four Bridges Project was to create a place of teaching/learning. We were committed to studies in digital activism, event organizing and resource planning, building and technology skills, and sustainability. We didn't create places for those without the technical skills to do so. Instead, we supported people as they learned and practiced the skills that were important to them. A large part of the process was in sharing skills and teaching members how to do the things that they wanted to accomplish the goals of their organization's mission in Second Life and to provide a supportive space for this learning.

During the interview I asked Alexjo if there were aspects of Second Life or the Four Bridges Project that made it easier to be "activated" and involved.

"...the friendliness and environment that was so helpful. and of course, the support in creating a space to develop an educational place around social justice and human rights issues. I found the connections with other avatars very helpful in building and creating the space. I still have pictures of what was built. it was the friendliness and connection and support from the community... and being given space to build or an opportunity to speak to lecture at different universities. It was the capacity to present information in a creative manner to a global community."

Alexjo's technical skills have improved immensely in her time with Second Life. Though she doesn't participate in Second Life as much since the Four Bridges Project sims have closed, she still comes in for conferences and events.

Figure 66: Alexjo and millay.
Hanging out on the Four Bridges Project sim.

Activism

Alexjo joined the Four Bridges Project and immediately set to work establishing herself in the activist community. She worked with Trill on Trill's wall exhibit and with several other members with ideas for offline activism. She gave many presentations and was a part of many of the activist activities.

In the interview when asked about the activism in Second Life:

"I think SL plays a very important part in connecting people safely. I know people get upset because the issues connect to the emotions. But I do think that the more you raise awareness the more you can potentially change the situation. The only reason women won the right to vote and got access to an education is because other women spoke out and challenged the situation, the women went against the norms of society in RL. In SL you can have discussions that break down prejudice and challenge the narrative."

Alexjo came into the Second Life community with a strong sense of herself and in her ability to speak to others about issues of social concern. She got involved immediately with the Four Bridges Project learning how to build, organize and manage events with the group's leadership. Her first event was a presentation of her research on the impact of the Israeli/Palestinian conflict on Palestinian women. It was, and still is, an area of major contention in the public view. As a Jewish woman, she felt it was her responsibility to be a voice for the Palestinian women and their daily concerns and challenges.

Figure 67: Alexjo's Presentation.
The impact of the Israeli/Palestinian conflict on Palestinian women

The event was challenging for all the people involved. People from both sides of the issue attended and, at times, the conversation was heated and angry. Alexjo handled the challenges

patiently. During the 2-hour event I relied on my experience in transformative mediation and conflict resolution to keep tempers in check and backlash at a minimum. We lost a few members during this event, and a few people unfriended me and Alexjo but Alexjo and I agreed that difficult conversations are important ones. As Alexjo pointed out in her interview:

> *"The conversations have to start somewhere. It's never easy but it's a lot easier in SL than in RL. I think people feel safer behind a computer. The avatar allows for distance and safety so if you end up in a big argument, you're not threatened like in RL and you have the freedom to test your theories and beliefs. I think the avatar gives you freedom to express thoughts you may not express in RL because you may be scared of rejection or reaction that may be negative. Avatars give people a safe way of exploring other parts of themselves they may be too shy to express in RL"*

This comment made me think of an interview that I had with another 4B member. Coyote brought in a lot of activism experience when he joined Second Life and was the coordinator for the Veterans for Peace Second Life presence. He told me about a meaningful incident he had while working on an event.

> *"I was working with a woman in Saudi Arabia, a devout Muslim, who was advocating for gay rights. She was not gay herself, a close friend was, and she was married in a very traditional way.*
> *Her avatar was very sensual, female, dressed in sexy clothes, no veil on her face. I asked her why, confused because she insisted she was very traditional and she laughed and said,*
> *'But I am veiled, silly'*
> *It was her avatar that was the veil."*

Later in the interview, I came back to this story and asked him if he thought he would have asked her about her choices if they had met in a physical world situation.

> *"No, we would almost certainly have never met. I would have felt it an intrusion. That kind of personal question could only be asked here. Even if friends in real life, I would not have felt comfortable asking her about that. Even in SL, if it were not that I knew she was in a gay rights advocacy organization, I would have felt inhibited about asking her that."*

Alexjo and I ended our interview with a discussion about her thoughts on how activism in Second Life differs than activism offline, other than in the ways she already expressed.

> *"I think it's easier to help someone in SL because you can do small things that make a big difference and without getting too involved. The computer creates a safety net for people or barrier for people who may otherwise be too shy or not confident. I think in RL people might be fearful of where it goes. In SL there is more control over what people can do."*

Figure 68: Alexjo and millay.
Interview snapshot

The Findings

This section presents the findings of the study and is divided into three sections. 1) The model of the avatar components. 2) Key findings from the survey. 3) Case study findings. 4) Summary of the findings.

Model of the Avatar Components Findings

The primary goal of this study was to develop a model of the components of the avatar through a thorough review of current research in user-avatar personality and virtual identity theory, theories in human-computer interaction and virtual technology, and the influence of "place" in our virtual interactions. The model was constructed to offer a foundation for future

studies of virtual worlds and the avatars that inhabit them. Having a foundational understanding of the ways that users' personality and identity is presented and modified by their experiences, interactions with the technology, the environment and each other will assist in creating successful applications across disciplines.

The model also presents a clear process of identity and personality transference between the user, the projective identity and the virtual representation (the avatar) mediated through the technology and a sense of place provided by the environment.

Key Survey Findings

The secondary goal of the study was to determine if the personality factor of the model of avatar components could be used to predict an avatar's participation in social virtual activism.

The success of the survey in terms of the number of responses provides an excellent view into the users of virtual worlds. Though not all the questions were discussed in the results, analysis of the personality through the Five Factor Model of Personality provided a strong indication that the avatar personality is more outgoing (E+), open to new experiences (O+), and more agreeable (A+) than their user counterparts.

It also showed that activists in Second Life have a higher baseline in the user personalities in categories related to openness to new experiences, being more outgoing, and are more agreeable with the same percentage differences in comparing their user personality to their Second Life avatar personality.

While this does not necessarily mean that a connection can be drawn, the findings indicate that there is a base difference in the Second Life activists' personalities and the general population of the Second Life respondents which certainly warrants further study.

The survey also showed that there is not much difference in the Second Life activists' and the general population of Second Life respondents' interaction with the technology. This could indicate that the technology is not a hinderance to activists in their digital activism opportunities.

Case Study Findings

When the study started, the case study was intended to offer a qualitative approach to the social activism part of the research. Understanding how an activist participates in virtual environments requires an ethnographic or participatory research approach. To ascertain qualities and characteristics of the members of a community, (in this case, an activist community) hours of study, observation and analysis are required on the part of the researcher. When the researcher is not only a member of the community, but its founder, the perspective and subsequent analysis becomes a personal exploration as well.

The case study analysis and results indicate what has become an important part of the research for this investigator. The case study analysis indicates that it isn't necessarily the personality factors of the users or their technology level and skills, but rather the community itself that makes for successful activism in social virtual environments.

CHAPTER 5 CONCLUSION:

BRINGING US

TOGETHER

"There is no kind of material, no body, and no thing that can be produced or conceived of, which is not made up of elementary particles; and nature does not admit of a truthful exploration in accordance with the doctrines of the physicists without an accurate demonstration of the primary causes of things, showing how and why they are as they are."

— Vitruvius

In De Architectura, Book 2, Chap 1, Sec. 9. As translated in Morris Hicky Morgan (trans.), Vitruvius: The Ten Books on Architecture (1914), 41.

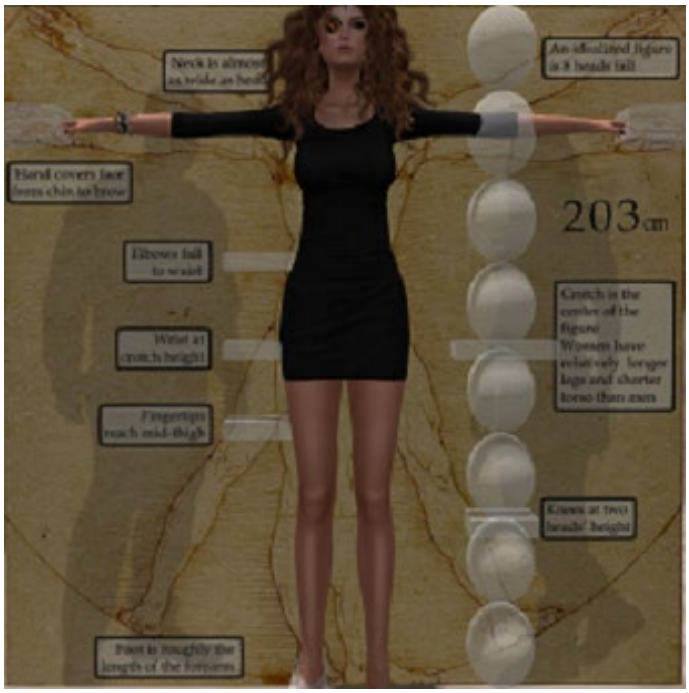

Figure 69: millay Against Vitruvian Man Exhibit in Second Life.

The purpose of this research study was two-fold. The primary purpose was to develop a model of avatar components to provide a foundation for future researchers of virtual world environments, allowing researchers to better understand how personality and identity are transferred between the user, the projective identity, and the virtual representation (the avatar). This included an exploration of how this transference is facilitated by the environment (place)

and the technology (human-computer interaction). The secondary purpose was to determine whether personality traits using the Five Factor Model of personality could be used to predict an avatar's participation in virtual world social activism.

The aim of this chapter is to provide a summary of the study and findings and to present a discussion of contributions, limitations, and recommendations based on the findings of the methodological processes (the survey instrument) and a heuristic evaluation of the exploratory case study. The chapter will end with a personal statement from the researcher.

Discussion

The study was conducted using a mixed methods process, analyzing the strengths and limitations of the methodological approach as well as of the findings. The survey instrument provided rich data relative to the avatar motivation, identity, personality and interactions with place and with the virtual world technology. Because of the volume of information collected (1,001 respondents answering 48 questions), for the purposes of this study, the survey results were limited to the personality traits of the general population of Second Life respondents and those that self-reported as Second Life activists.

The findings indicate that there is a distinguishable difference in traits associated with extroversion, openness to new experiences, and agreeableness between the user's offline personality and their associated avatar personality in the virtual world. The analysis also revealed an indication that these results are consistent between the activists' user and avatar personalities. What was interesting to note in this comparison is that the Second Life activists' user personality profiles had a higher baseline in the areas of extroversion, openness to new experiences, and agreeableness. So, while there was a similar percentage difference in these two comparisons, the Second Life activists' user's personality profile indicated higher development of the personality

traits associated with extroversion and confidence. Whether this was the case when the users joined Second Life or came about as a result of their Second Life activist activities was not explored in this study. This will be discussed further in the recommendations segment of the conclusion.

The case study, a qualitative approach, focused on two activists in Second Life that exemplified the document, fieldnotes, and interview data that was collected and used as evidence for the study. One case represented the user that enters Second Life and becomes involved with an activist group and the other, an activist that enters the community to expand their activist outreach. These cases were chosen as examples to evaluate the motivations of users with various backgrounds to become involved with activism in Second Life.

The results of the case study data and the survey responses were analyzed together to see if it could be determined how and why a user becomes involved in social activism within Second Life. The findings indicate that the most probable explanation for an avatar's motivation in becoming a social activist is based more on finding a sense of community within the environment (social and relational aspects of identity) than on individual characteristics and motivations. This was a consistent sentiment expressed in the archived fieldnotes and documents and reiterated in the interviews. One of the interviewees, Red, when asked about the impact of the Four Bridges Project on her activism in Second Life stated the following:

> *"At 4B, the idea of a collective for change and willingness to collaborate with other activists was more possible. The support was there in comparison to other groups. It was very encouraging and discovered people were working on so many issues around the world! and I was not working on an island but with others who are as committed to social justice. There's a big gap* [since the closure of 4B]. *One of the major results* [in joining 4B] *was sustained support and networking. I felt like I was part of a much bigger movement. Activists would share best practice and more opportunities to listen to one another."*

This sentiment of a "gap" was expressed by each of the interviewees and is something that I am asked about at least weekly when I'm logged into Second Life. Many of the activists that were involved with the Four Bridges Project left Second Life shortly after the sims closed and those that remain are interspersed in the community working on individual projects. It has been made clear and evident that the loss of the Four Bridges Project community has left a void for social virtual activism in Second Life. This indicates to me that activism in Second Life relies on a community of practitioners that encourage and support each other through shared resources and information building.

Figure 70: Group Event.
From War and Peace exhibit on Four Bridges.

Contributions of the Research

Researchers have understood for decades that there is a growing association between users and their avatars in virtual environments and that this association can be used in a variety of ways: to change user behaviors (Joo & Kim, 2017; Kothgassner, et al., 2017; Wiederhold, 2013), to enhance learning (Adamo-Villani & Dib, 2016; Li & Lwin, 2016; Ma, et al., 2016), and to explore the human condition (Blascovich & Bailenson, 2011; Boellstorff, 2008; Castronova, 2007).

This section expands on the contributions of this study to the understanding of the components of the avatar and the interactions that define, guide, and demonstrate the effect of online interactions on collective realites. Just as Leonardo's Vitruvian Man has become a model of the mechanics and biology of man, with some interpretations geometrically placing man within the cosmos as the center of the universe (Murtinho, 2015), the avatar, possessing both mechanics (technology) and biology (the user) is no less important in understanding our place in the three dimensional cosmos of the metaverse.

Model of Avatar Components Contributions

As virtual world environments continue to grow, understanding the avatar and the transference of identity between the user, the projective identity, and the virtual representation provides a foundation for sociological, anthropological, psychological, and neurobiological research into how these environments and the avatars that inhabit them effect change in the individual and collective physical world.

There is a renewed trend in using virtual environments for product promotion and education[48] and, as the price for a virtual sim in Second Life decreased in late June of 2018, the discounts have contributed to a growth spurt in SL sims. According to Tyche Shepard, a long-time resident of SL and a senior statistician of a multinational corporation,

> *"We are now two weeks into the new pricing regime for Private Estates and this is now the 2nd week of positive growth of the grid. Net Growth stands at 35 regions this week (last week was 34) All this week's net growth was among private Estates ."*[49]

[48] Attendance at the Virtual World Best Practices in Education 2018 conference was up from 800 attendees in 2017 to 1,100 in March 2018.
[49] http://www.sluniverse.com/php/vb/virtual-business/8523-new-sl-sims-past-week-100.html#post2471718

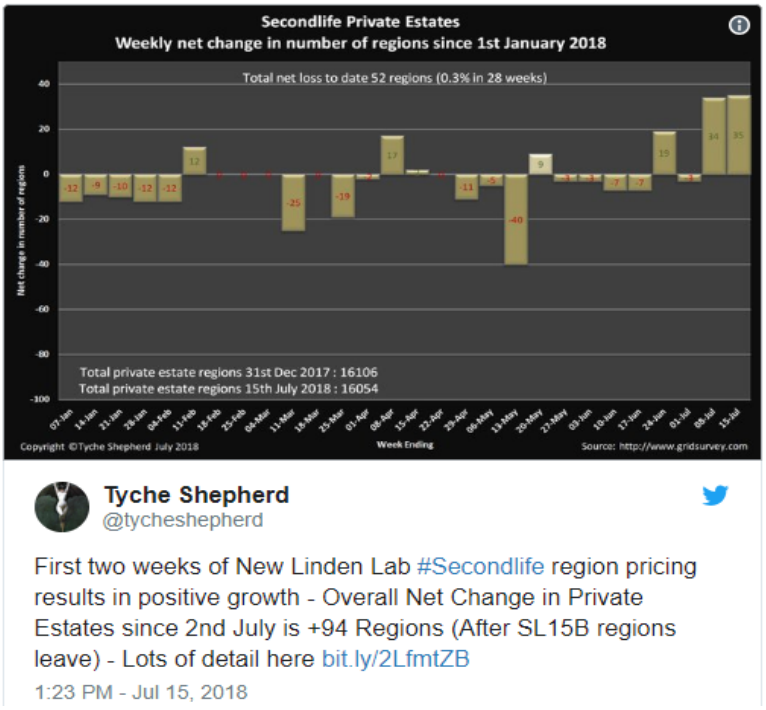

Figure 71: Tyche Shepard's Twitter Post.
Jul 15,2018 Screenshot Illustrating the growth of Second Life sims since the announcement of the pricing discount offered by Linden Lab.

As I write these conclusions, one of the most well-known pop-celebrities, Kim Kardashian, is using a Second Life avatar to market her latest perfume.

Perhaps Second Life is preparing for another rush such as was experienced in 2007-2008.[50] If this is the case, in this "second wave", educators, businesses, nonprofits, and industry will be better prepared to understand the effect of the transference of identity and personality and the effect of the technology on those participating in virtual environments, through experience alone. The model of the avatar components created through this study seeks to assist in this foundational understanding.

[50] Several news agencies reported on the growth of Second Life in 2007. https://www.wired.com/2007/03/second-life-lan/, https://money.cnn.com/2007/03/22/technology/fastforward_secondlife.fortune/index.htm, http://drexel.edu/now/archive/2007/June/Second-Life-Opening-Doors-for-Teaching-Collaboration-Opportunities-at-Drexel-University/

Figure 72: Kim Kardashian's Instagram Post.
Post using a Second Life avatar to promote her latest fragrance.
Posted 7/14/2018.

Survey and Case Study Contributions

The contributions of the survey are difficult to evaluate without an extensive examination of the results for statistical significance in areas not analyzed by this study. However, because of the open-ended questions developed, the high response rate and confidence interval, the survey has the potential to reveal useful information to future researchers about the demographics, personality, identity, motivations, avatar interactions, and human-computer interactions of the users and their avatars that populate these environments. This information can serve as a guide for developing engaging experiences, successful social and activist communities, and virtual world curricula in virtual world environments.

Building sustainable communities in virtual world environments requires a deep understanding of the meta-components that go into the creation of a functional avatar. The

survey results and case study findings, when evaluated and applied, can provide a strong foundation for understanding virtual communities in Second Life.

Overall Limitations of the Study

Limitations of each of the methodologies employed were discussed in the results chapter. This section will explore the overall limitations of the study in application.

The major limitation of this study is that the research was limited to users and avatars in the social virtual world of Second Life.

An overall limitation not discussed or evaluated in this study that might have implications in the study and survey of Second Life residents, is an understanding of the users that do not continue to use Second Life after setting up an avatar. Just as important as the motivations for using virtual world environments, or any social technology for that matter, are the reasons that people decide not to continue their use. Understanding the impact of the usability of the technology, the learning curve, and the motivation to leave could provide additional insight into personality, identity, human-computer interaction, and the role of place in connecting with a community and sustaining a presence within that environment.

Recommendations for Future Research

Recommendations for further research in Social Virtual Environments and virtual representations (avatars) include research into the role that the projective identity (the culmination of all of the users' projections of a multitude of online identities) to provide a comprehensive perspective of how these multiple identities form and affect the user offline and in the virtual environments in which they participate. This could provide more detailed

information about how these environments can be utilized in education, training, and professional development as well as in health and well-being studies.[51]

There is also much knowledge to be gained from studies in understanding the role activism activities and interactions in virtual environments affect the personality of the user offline. As indicated in the results section and discussed in the beginning of this chapter, it is clear that the Second Life activists' personality baseline in traits associated with extroversion, openness to experiences, and agreeableness is higher than that of the general population of Second Life survey respondents. It would be interesting to know whether this is a phenomenon attributable to the activists' activities and interactions within the Second Life environment or if these personality traits of the user existed before they became activists in Second Life.

Certainly, there is a vast field of observation and experimentation open to researchers of social virtual environments with regards to how successful communities are formed and in the sustainability of these communities, especially communities devoted to improving the human condition.

One of the most practical uses of virtual communities is in modelling behavior and in understanding community systems. Virtual environments provide a "safety net" of anonymity and provide a practical place to fail. The implications and risks involved in creating exploratory sustainable communities in the virtual world are far more manageable and practical than in the physical world. Learning how to incorporate the lessons that virtual failures provide in the design of physical communities of practice allows for a more thorough perspective of the challenges

[51] Second Life provides a tremendous resource for health and well-being studies. Examples of how Second Life is being used include: Diabetes Care https://www.ncbi.nlm.nih.gov/pubmed/25421741, Weight Loss https://www.npr.org/sections/alltechconsidered/2013/05/19/185164635/can-losing-weight-in-your-second-life-help-in-your-first, Depression http://www.slenquirer.com/2013/09/depression-part-5-how-second-life-gave.html, and Veteran's PTSD Treatment http://www.washingtonpost.com/wp-dyn/content/article/2011/01/31/AR2011013101528.html?noredirect=on.

that must be confronted and opportunities that can be used to advance humankind's place in the physical world.

Future research in social virtual environments must also include a comprehensive exploration of the limitations in usability and accessibility of the environments. It is imperative that a more diverse population gain access to social virtual environments to assure that all the world's population can use virtual environments to enhance an overall understanding of the complexity inherent in global interaction. Until all voices can be heard, the perspective is limited.

Personal Insight from the Researcher's Perspective

This dissertation represents a culmination of 13 years of academic study combined with 11 years of exploration into education and activism in the virtual world of Second Life. My avatar, millay Freschi, has become a reflection of my offline persona to the extent that, outside of our personal appearance, we are indistinguishable from one another. She has changed me in as many ways as I have developed her.

At the time of this writing (July 2018), the challenges facing the world through climate change, political unrest, migration of the world's population, turmoil that continues to grow between religions, human rights issues, social and economic disparities and the like, it is clear to me that organizations that include an international membership like the Four Bridges Project are more useful than ever before. As the founder of the Four Bridges Project in Second Life, I feel a responsibility to continue the efforts of the group and reopen the project across virtual environments beyond Second Life.

It is my personal mission to apply the findings of this study and expand the Four Bridges Project outreach through education, collaboration, and community and to provide a place of

coming together, the absence of which has left a vacuum as stated by many members of the Second Life community.

It is my intent to continue the research and foundational study of sustainable virtual communities and social virtual environments and to use this information to create a virtual peace and reconciliation curriculum for badging, self-development, and educational project collaborations.

The Four Bridges Project has been quiet since the sims closed in July 2014. But, borrowing from a Rumi quote,

> *"And don't think the garden loses its ecstasy in winter. It's quiet, but the roots are down there riotous."*

Figure 73: millay Freschi.
Four Bridges Project founder

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APPENDIX A - FIVE FACTOR MODEL ADJECTIVES

Table 3
Varimax-Rotated Factor Loadings for 80 Adjective Items From Peer Ratings

Adjectives	Factor N	E	O	A	C	Adjectives	Factor N	E	O	A	C
Neuroticism (N)						Agreeableness vs. antagonism (A)					
Calm–worrying	**79**	05	−01	**−20**	05	Irritable–good natured	17	34	09	**61**	16
At ease–nervous	**77**	−08	−06	−21	−05	Ruthless–soft hearted	12	27	−01	**70**	11
Relaxed–high-strung	**66**	**04**	01	**−34**	−02	Rude–courteous	03	18	09	**55**	36
Unemotional–emotional	**44**	**40**	14	03	−03	Selfish–selfless	−07	−02	04	**65**	22
Even-tempered–temperamental	**41**	01	01	**−56**	−21	Uncooperative–helpful	01	23	14	**44**	**45**
Secure–insecure	**63**	−16	−08	−07	−39	Callous–sympathetic	04	29	11	**67**	20
Self-satisfied–self-pitying	**53**	−17	−07	03	−17	Suspicious–trusting	−14	19	15	**62**	08
Patient–impatient	**41**	02	−03	**−57**	02	Stingy–generous	02	24	17	**55**	22
Not envious–envious/jealous	29	01	−10	**−46**	−19	Antagonistic–acquiescent	−02	−06	−09	**66**	−02
Comfortable–self-conscious	**57**	−30	−17	−16	−16	Critical–lenient	−13	09	00	**65**	−14
Not impulse ridden–impulse ridden	20	26	22	−16	−38	Vengeful–forgiving	−15	11	07	**70**	16
Hardy–vulnerable	**50**	−14	−13	23	−26	Narrow-minded–open-minded	−14	15	**48**	**54**	16
Objective–subjective	17	10	−31	−20	−36	Disagreeable–agreeable	14	24	06	**59**	26
Extraversion (E)						Stubborn–flexible	−18	08	12	**61**	00
Retiring–sociable	−14	**71**	08	08	08	Serious–cheerful	−10	**58**	08	26	02
Sober–fun loving	−08	**59**	12	14	−15	Cynical–gullible	14	14	−17	**40**	16
Reserved–affectionate	−01	**65**	12	25	−15	Manipulative–straightforward	−15	06	−02	**47**	31
Aloof–friendly	−16	**58**	02	**45**	06	Proud–humble	01	−18	−09	**45**	13
Inhibited–spontaneous	−21	**52**	**49**	01	−02						
Quiet–talkative	01	**64**	06	−19	00	Conscientiousness vs. undirectedness (C)					
Passive–active	−26	**42**	28	−23	37	Negligent–conscientious	−01	02	08	18	**68**
Loner–joiner	−14	**53**	−08	14	12	Careless–careful	−08	−07	−01	11	**72**
Unfeeling–passionate	14	**43**	28	31	09	Undependable–reliable	−07	04	05	23	**68**
Cold–warm	−05	**57**	09	**54**	06	Lazy–hardworking	−07	17	14	03	**66**
Lonely–not lonely	**−49**	30	−01	10	11	Disorganized–well organized	14	−02	05	−05	**68**
Task oriented–person oriented	−04	36	09	35	−29	Lax–scrupulous	05	03	03	10	**53**
Submissive–dominant	−16	20	20	**−57**	27	Weak willed–self-disciplined	−26	−01	23	−03	**62**
Timid–bold	−21	33	31	**−44**	10	Sloppy–neat	−01	00	−04	12	**59**
Openness (O)						Late–punctual	−05	−09	−05	05	**60**
Conventional–original	−06	12	**67**	08	−04	Impractial–practical	−24	01	−04	05	**54**
Down to earth–imaginative	16	03	**54**	−10	−12	Thoughtless–deliberate	−03	−08	05	14	**45**
Uncreative–creative	−08	09	**56**	11	25	Aimless–ambitious	−09	12	21	−08	**52**
Narrow interests–broad interests	−15	20	**52**	18	27	Unstable–emotionally stable	**−57**	09	07	27	**45**
Simple–complex	16	−13	**49**	−20	08	Helpless–self-reliant	−29	19	21	−01	**53**
Uncurious–curious	00	12	**41**	00	24	Playful–businesslike	00	−26	02	−09	**49**
Unadventurous–daring	−18	31	**55**	−06	08	Unenergetic–energetic	−14	34	27	−06	**46**
Prefer routine–prefer variety	−11	30	**43**	14	−21	Ignorant–knowledgeable	−12	−03	**53**	13	**43**
Conforming–independent	−22	09	**49**	−14	21	Quitting–persevering	−09	13	27	00	**62**
Unanalytical–analytical	−15	−13	**43**	−13	30	Stupid–intelligent	−04	03	**41**	17	**44**
Conservative–liberal	04	08	**46**	15	−13	Unfair–fair	−14	04	19	**59**	33
Traditional–untraditional	02	−01	**45**	−05	−36	Imperceptive–perceptive	−16	07	**46**	24	39
Unartistic–artistic	10	15	36	21	18	Uncultured–cultured	01	00	36	15	33

Note. These are varimax-rotated principal component loadings for 738 raters. The loadings above .40 given in boldface. Decimal points are omitted.

APPENDIX B - SURVEY QUESTIONS

VIRTUAL WORLD EXPERIENCE

1. How long have you been a resident of Second Life?
    - Less than 1 year
    - 1 – 2 years
    - 2 – 3 years
    - 3 – 4 years
    - 4 – 5 years
    - 5 – 6 years
    - 6 – 7 years
    - 7 – 8 years
    - 8 – 9 years
    - 9 – 10 years
    - More than 10 years

2. Are you or have you been a member of any other virtual world? (World of Warcraft, Minecraft, Virtual Places, There, Active Worlds, etc.)
    - No
    - Yes, Please specify place and approximate length of time:
      _____
    - Rather not say

3. Why did you join Second Life? (Check all that apply)
    - Curiosity
    - I saw an ad or read an article
    - Referred by a friend
    - For a class
    - Business purposes
    - Training
    - Meet people
    - Play music
    - Create art
    - Create/sell items
    - Other (specify) _____
    - Rather not say

4. On average, how many hours do you spend in Second Life weekly?
    - Less than 5 hours
    - 5 – 10 hours
    - 10 – 15 hours
    - 15 – 20 hours
    - More than 20 hours
    - Rather not say

5. On average, how much time do you spend per session in Second Life?
    - Less than 1 hour
    - 1 – 2 hours
    - 2 – 3 hours
    - 3 – 4 hours
    - 4 – 5 hours
    - More than 5 hours
    - Rather not say

VIRTUAL WORLD ACTIVITES

6. Which activities do you participate in the most while in Second Life? (Check all that apply)
    - Live music/concerts/dancing
    - Role-playing communities
    - Attending classes
    - Teaching classes
    - Clubs and venues
    - Charity events
    - Community organizing, management or event planning
    - Discussion groups
    - Socializing
    - Griefing
    - Mental health/Disability resources
    - Explore simulated locations
    - Political activism
    - Relationships with others
    - Building for profit
    - Building/creating for fun
    - Meeting people
    - Exploring other cultures
    - Exploring gender
    - Exploring sexuality
    - Rather not say

7. Do you own or rent any land in Second Life?
    - Own
    - Rent
    - Squat
    - Other (specify) _____
    - Rather not say

AVATAR QUESTIONS

8. How many avatars do you use regularly in Second Life?
    - 1
    - 2
    - 3
    - 4
    - 5
    - 6 or more
    - Rather not say

9. Do you have one avatar that you consider your "main" avatar?
    - No
    - Yes
    - Rather not say

10. What uses do your other (not main) avatars fulfill? (Check all that apply)
    - Privacy when I don't want to be interrupted
    - Shopping avatar
    - Inventory management
    - Private relationships
    - Exploring aspects of sexuality
    - Exploring gender
    - Professional endeavors
    - Creating/building
    - Role-play communities
    - Griefing
    - Other (specify) _____
    - Rather not say

11. How important is your main avatar's appearance?
    - Very important
    - Somewhat important
    - Neutral
    - Not very important
    - Still have default avatar
    - Rather not say

12. How much effort did you put into creating your avatar when you first joined Second Life?
    - I was very concerned about my avatar's appearance and put a great deal of time into modifying the appearance.
    - I changed a few aspects, like height, body and facial features and explored the clothing options that came with my default avatar.

- I changed minor things but settled quickly for the basic appearance and then started searching for clothing options in Second Life.
- I chose an avatar that was not human and made no modifications.
- I chose an avatar that was not human and made a few modifications.
- I chose a default avatar and immediately began exploring Second Life.
- I didn't know that I could modify my avatar until I had been in Second Life for a while.
- Other (specify) _____
- Rather not say

13. How often do you change your main avatar's appearance?
    - Quite often. I change my gender, clothing and forms regularly
    - I change my avatar occasionally and my clothing/attachments frequently.
    - I change my clothing/attachments frequently but my avatar rarely (once or twice since joining).
    - I rarely change my clothing and never change the avatar.
    - I've never modified my avatar.
    - Other (specify) _____
    - Rather not say

AVATAR IDENTITY

14. How would you describe your main avatar's personality in Second Life? (Check all that apply)
    - Outgoing (Extroverted)
    - Shy (Introverted)
    - Aggressive
    - Agreeable
    - Likes to try new things
    - Likes to meet new people
    - Quiet and reserved
    - Helpful to others
    - Troublemaker
    - Professional/businesslike
    - Explorer
    - Likes to be in a crowd
    - Likes to explore alone or in a small group
    - Socializer
    - Activist
    - Intense/Brooding
    - Other (specify) _____
    - Rather not say

15. How would you describe your offline personality?
    - Outgoing (Extroverted)
    - Shy (Introverted)
    - Aggressive
    - Agreeable
    - Likes to try new things
    - Likes to meet new people
    - Quiet and reserved
    - Helpful to others
    - Troublemaker
    - Professional/businesslike
    - Explorer
    - Likes to be in a crowd
    - Likes to explore alone or in a small group
    - Socializer
    - Activist
    - Intense/Brooding
    - Other (specify) _____
    - Rather not say

16. Does your main avatar's personality reflect your offline personality?
    - No. In what ways are they different?_____
    - Yes. In what ways are they the same?_____
    - Rather not say

17. Are there activities that any of your avatars engage in that you would not do offline?
    - No
    - Yes, but I'd rather not specify.
    - Yes (specify) _____
    - Rather not say

18. Are there activities that any of your avatars have engaged in that you have carried over into your offline activities?
    - No
    - Yes, but I'd rather not specify.
    - Yes (specify) _____
    - Rather not say

19. Are there activities that any of your avatars participate in that have influenced your offline primary relationships?
    - No
    - Yes, but I'd rather not specify.
    - Yes (specify) _____
    - Rather not say

20. Would you consider yourself to be an activist in your offline activities?
    - No
    - Yes (describe)___
    - Rather not say.

21. Does your avatar engage in activist activities (human rights, environmental causes, social justice, etc.) within Second Life?
    - No
    - Yes (describe) _____
    - Rather not say.

22. Did you engage in activist activities prior to joining Second Life?
    - No
    - Yes (describe) _____
    - Rather not say.

23. In what ways has the anonymity of any of your avatars affected your Second Life behavior? (Check all that apply)
    - I have explored different parts of my personality that I would not/cannot do offline.
    - I have become friends with people in Second Life that I would not normally associate with offline.
    - I am able to do things in Second Life that I cannot do offline because of a physical handicap or other disability.
    - I have shared intimate details about my life with people in Second Life that I would not share with people offline.
    - I have portrayed a different gender online
    - I have been a furry online
    - I have explored sexual relationships that I would not have offline.
    - I have explored role playing a character that I would not offline (including but not limited to dominant/submissive, Gorean, or others).
    - I have the appearance of making more money than I do offline.
    - I am more confident in Second Life than I am offline.
    - I am more willing to speak my mind in Second Life.
    - I am less confident in Second Life than I am offline.
    - I am more likely to participate in activist activities in Second Life.
    - I am much more reserved in Second Life than I am offline.
    - I am less likely to share intimate details about myself in Second Life than I am offline.
    - Other (specify) _____
    - Rather not say

24. Do you see your main avatar as an extension of yourself?
    - No
    - Yes
    - Yes (specify) _
    - Rather not say

25. Do you see your main avatar as a separate identity from your offline self?
    - No
    - Yes
    - Yes (specify) _
    - Rather not say

26. Do you feel that your avatar identity has affected your offline identity?
    - No
    - Yes
    - Yes (describe)___
    - Rather not say

AVATAR INTERACTIONS

27. Do you have offline contacts that you associate with in Second Life?
    - No
    - Yes
    - Rather not say

28. Have you met any of your Second Life contacts offline?
    - No
    - Yes
    - Rather not say

29. Regarding relationships in Second Life, please check all of the following that apply:
    - I have dated someone in Second Life.
    - I have dated multiple people in Second Life.
    - I have engaged in sexual activity in Second Life with someone I was dating in Second Life.
    - I have had multiple sexual partners in Second Life.
    - I have been partnered in Second Life.
    - I have dated someone in Second Life that I subsequently met offline.
    - I have been paid Lindens or other monetary currency for sexual activity in Second Life.
    - I have engaged in anonymous sexual activity in Second Life.
    - I have engaged in other sexual activity in Second Life. (specify) _____
    - I have never been involved in a relationship in Second Life.
    - I have never engaged in sexual activity in Second Life.
    - Rather not say

30. How much of your offline life do you share with others in Second Life?

- I tell my closest contacts a lot about my real life, including real name and location.
- I tell close contacts about my real life, except my name and location.
- I tell contacts in Second Life only non-identifying information.
- Most people know everything about my real life through my main avatar for professional/business reasons.
- I tell people false stories about myself and my offline life.
- I don't tell people anything about my offline life.
- Other (specify) _____
- Rather not say

31. Do you feel that if your Second Life contacts met you offline they would say that you have the same personality as your avatar?

- No
- Yes
- In certain areas (specify) _____
- Rather not say

32. What do you find is true in relating to other people in Second Life? (Check all that apply)

- People are more honest when they know that you don't know who they are.
- People are more dishonest when you don't know who they are.
- It doesn't matter what the truth is about offline when in Second Life.
- It's doubtful that people are their true selves in Second Life.
- I do not relate to other avatars in Second Life
- You can't trust anything people tell you in Second Life.
- The avatar represents the true personality of the person.
- Other (specify) _____
- Rather not say

TECHNOLOGY QUESTIONS

33. Do you feel that Second Life provides enough default options for avatar modifications?

- No. What features are missing?
- Yes
- Rather not say

34. Do you feel that it's easy to modify your avatar?

- No
- Yes
- Rather not say

35. Does being able to modify your avatar affect your experience in Second Life?

- No

- Yes In what ways?
- Rather not say

36. Do you use voice in Second Life?
    - Yes, as much as I can
    - Only in private conversations
    - Only in general chat
    - I never use voice
    - Other (specify) _____
    - Rather not say

37. What perspective do you typically use in Second Life?
    - First person view (mouse view)
    - Third person view (behind the avatar)
    - I regularly switch between views
    - Other (specify) _____
    - Rather not say

38. Second Life can be viewed through many third-party viewers. What is your preferred viewer for participating in Second Life? _____
    - Why do you prefer this viewer

39. Do you use the "advanced" user menus?
    - No
    - Yes
    - Sometimes
    - Rather not say

DEMOGRAPHICS

40. What is your age?
    - 18 – 24
    - 25 – 34
    - 35 – 44
    - 45 – 54
    - 55 – 64
    - 65+
    - Rather not say

41. What is your gender?
    - Male
    - Female
    - Transgender
    - Other (specify)_____
    - Rather Not Say

42. What is your ethnic background?
    - Specify: _____
    - Rather not say

43. What is your marital status?
    - Single
    - Married
    - Partnered
    - Widowed
    - Divorced
    - Other (specify) _____
    - Rather not say

44. Do you have a disability?
    - No
    - Yes. Specify (if you so choose) _____
    - Rather not say

45. Current employment status
    - Employed full-time
    - Employed part-time
    - Unemployed
    - Student
    - Homemaker
    - Retired
    - Disabled
    - Independent
    - Other (specify)_____
    - Rather not say

46. Annual Household Income (USD $)
    - Less than 5,000
    - 5,000 – 20,000
    - 20,000 – 40,000
    - 40,000 – 60,000
    - 60,000 – 80,000
    - 80,000 – 100,000
    - More than 100,000
    - Other Currency _____
    - Rather not say
47. What is your educational background?
    - Some high school
    - High school graduate
    - Some college

- Associate's Degree
- Technical Degree
- Bachelor's Degree
- Master's Degree
- Doctoral Degree
- Other (For example, Non-US or other studies) _____
- Rather not say

APPENDIX C - INFORMED CONSENT FOR SURVEY

You are invited to participate in a research project being conducted by *Amy E. Cross*, a *PhD Candidate* in an Interdisciplinary Program at the University of Maine. The faculty sponsor of this project is Dr. Kristina Nielson of the University of Maine. The purpose of the research is to determine the effect of the avatar in multiuser environments on offline identities. You must be at least 18 years of age to participate.

What Will You Be Asked to Do?
If you decide to participate, you will complete a brief survey about your experiences in Second Life and your relationship with the avatar. It is estimated that the survey will take approximately 30 minutes to complete.

Risks
Except for your time and inconvenience, there are no risks to you from participating in this study.

Benefits
While there are no direct benefits to you, this research may help us learn more about how the avatar shapes our offline identities and personalities.

Confidentiality
This study is anonymous. Please do not provide your name or identifying information with the survey. There will be no records linking you to the data. The data collected through Survey Monkey will be stored on Survey Monkey for 60 days and then permanently deleted. Only the final data will be used or stored. No individual portions will be retained after the paper is produced. All analyses will be conducted at an aggregate level. Individual data will not be analyzed. The results will be used by the researcher in dissertation thesis, published papers and presentations.

Voluntary
Participation is voluntary. You may stop at any time. You may skip any questions you do not wish to answer.

Contact Information

If you have questions about the study, please contact Amy Cross at 207-299-0603 or amy.e.cross@umaine.edu. You may also contact Dr. Kristina Nielson at passman@maine.edu. If you have any questions about your rights as a research participant, please contact Gayle Jones, Assistant to the University of Maine's Protection of Human Subjects Review Board, at 207- 581-1498 or gayle.jones@umit.maine.edu.

APPENDIX D - SURVEY RECRUITMENT SCRIPT

1) Ad: On Second Life login page, social media pages (including Facebook and LinkedIn) and various Second Life blogs:

   "How has your avatar affected your human? Make your voice count! Follow the link to take an anonymous survey (followed by survey monkey link).

2) Notecard delivered to members of Four Bridges Community and other groups in Second Life:

   "As most of you know, I have been working on my dissertation and am ready to begin my study! I need your help with this part! I have set up an anonymous survey of 48 questions about your relationship with your avatar, your SL relationships and group memberships as well as some demographic information, but nothing revealing. I would very much appreciate your participation as I'd like to get a nice, full response. I want to show what, if any, effect our avatars have on our other selves and how this might affect choices and decisions that we make. I'll also be collecting information that will help other researchers as they attempt to make sense of what we're all doing here and how it's affecting what we do offline. There's no real benefit to you except that it gives us an idea about ways that this technology can shape our education, commerce, activism and creativity, etc. There won't be any way to identify you from the survey. I won't ask for avatar names and your IP will not be recorded. It's completely confidential. I am including a copy of the Informed Consent document that will give you additional details about the study and where you can forward any questions that you may have. Though I can't offer any compensation for your participation, I will be hosting a party/concert in January to thank the community for the support you've all shown. Please consider following this link and helping me to collect some important information! Let me know if I can answer any questions! And THANK YOU!!"

APPENDIX E - INTERVIEW QUESTIONS

1) How long have you been a member of Second Life?
2) What brought you into Second Life originally?
3) I'm going to take a minute and explain the definition that I am using of "activist" for this study. For the purposes of this study, I am defining an "activist" as someone who participates, with others, publicly in events, protests, etc. in an attempt to enact change in issues around human rights, social and economic justice, environmental causes, and peace related causes and movements. Activism, in this case, will not include raising donations for specific tragedies, such as natural disasters, diseases or personal crusades. Under this definition, do you consider yourself to be an activist?
4) What sort of activism does your avatar participate in Second Life?
5) Do you participate in activist activities offline?
6) If yes, did you participate in activist activities prior to joining Second Life?
7) What sorts of activism do you do offline?
8) Do you feel that your avatar's involvement in activist activities in Second Life has affected your participation in these activities offline?
9) What is it about your Second Life experience that encouraged you to have your avatar participate in activist activities?
10) Are there any attributes of the avatar that seemed to encourage the participation?
11) What activist communities does your avatar participate in?
12) What roles has your avatar played in these events or communities?
13) Is there anything that stands out in your Second Life that facilitates or supports your avatar's activism?
14) How do you think the technology supports or hinders activism in Second Life?
15) Do you think that the Second Life activism has an offline impact on the issues?
16) Has your Second Life avatar's activism affected your offline identity? In what ways?
17) Did the anonymity that the avatar provides play a role in your decision to participate in Second Life activism through your avatar?

INTERVIEW TOPICS:

1) Activism in Second Life
2) Avatar activities effect on the user
3) Interpersonal relationships and affiliations in Second Life
4) Effect of anonymity of avatar on Second Life activism activities
5) Effect of the technology on Second Life activism

APPENDIX F - INTERVIEW RECRUITMENT SCRIPT

(Script will be presented through emails known to the researcher and notecards dispersed in Second Life.)

Hi. My name is Amy Cross (millay Freschi in Second Life) and I am a PhD Candidate at the University of Maine conducting research on the relationship between the avatar and the user in Second Life activism. I'm interested in seeing how much of our offline personality comes out in our avatars and how much our avatars' personalities influence our offline personalities. I'm curious about how this comes together (when it does) to encourage activism. I'm contacting you to see if you would be interested in participating in my research. I am familiar with your activism efforts in Second Life which makes you an excellent resource.

If you're interested in participating, I would like to ask you questions about your experiences in Second Life, some of your interactions and questions about your thoughts on activism and activism in virtual worlds. I estimate that the interview will take between half an hour or 45 minutes but I will reserve longer in case we decide to extend.

This study is anonymous. There will be no records linking you to the data. The information collected through the interview will be recorded and then transcribed by me. No other person will have access to the transcript or the recording and nothing will be included that could identify you. Any identifying information inadvertently provided during the interview will be redacted to ensure your confidentiality. As research is being conducted, the recordings and transcripts will be kept on a password protected external hard drive and locked in my desk in my home office. Recordings and transcripts will be stored for 3 years and then permanently deleted. I will use results in my dissertation thesis, published papers and presentations.

All interviews will take place on land that I have rented specifically for this purpose to protect your anonymity and confidentiality. If you would rather meet elsewhere, please let me know in advance so I make certain that your confidentiality can be assured.

If you decide to participate, please contact me by replying to this email or dropping a notecard into my inventory in Second Life. My Second Life avatar name is millay Freschi. I will contact you within 24 hours to set up a time convenient for you. Although I'm not able to compensate you for your time and inconvenience, the research is important for future considerations in virtual world communities.

Thank you so much for considering this opportunity. I look forward to hearing from you!

millayfreschi@gmail.com
millay Freschi – avatar name – Second Life

APPENDIX G - INFORMED CONSENT FOR INTERVIEW

You are invited to participate in a research project being conducted by *Amy E. Cross*, a *Graduate Candidate* in an Interdisciplinary Program at the University of Maine. The faculty sponsor of this project is Dr. Kristina Nielson of the University of Maine. The purpose of the research is to determine the effect of the avatar in multiuser environments on our offline identities. You must be at least 18 years of age to participate.

What Will You Be Asked to Do?
If you decide to participate, you agree to be interviewed about your experiences in Second Life and your feelings regarding the avatar. It is estimated that the interview will take approximately 30 - 45 minutes to complete.

Risks
Except for your time and inconvenience, there are no risks to you from participating in this study.

Benefits
While there are no direct benefits to you, this research may help us learn more about how the avatar shapes our offline identities and personalities.

Confidentiality
This study is anonymous. Please do not provide your name or identifying information during the interview. There will be no records linking you to the data. The information collected through the interview will be recorded and then transcribed by the interviewer. Any identifying information inadvertently provided during the interview will be redacted to ensure your confidentiality. As research is being conducted, the recordings and transcripts will be kept on a password protected external hard drive and locked in the interviewer's desk. Recordings and transcripts will be stored for 3 years and then permanently deleted. The results will be used by the researcher in her dissertation thesis, published papers and presentations.

Voluntary
Participation is voluntary. You may stop at any time. You may skip any questions you do not wish to answer.

Contact Information
If you have questions about the study, please contact Amy Cross at 207-299-0603 or amy.e.cross@umaine.edu. You may also contact Dr. Kristina Nielson at passman@maine.edu. If you have any questions about your rights as a research participant, please contact Gayle Jones, Assistant to the University of Maine's Protection of Human Subjects Review Board, at 207- 581-1498 or gayle.jones@umit.maine.edu.

BIOGRAPHY OF THE AUTHOR

Amy E Cross was born in Fort Worth, Texas and graduated from D.H. Conley High School in Greenville, North Carolina. She received her Bachelor of University Studies with a Peace and Reconciliation focus in May 2010 from the University of Maine and her Master of Arts in Interdisciplinary Studies in May 2014 from the University of Maine. Amy worked for several years in the Commercial Property and Casualty Insurance and Risk Management Industry before returning to school in 2005. Amy has been active in the virtual world community of Second Life since 2007 and founded the Four Bridges Project; a virtual world model of sustainable community. She served as the Virtual World Coordinator for Amnesty International, USA and The Bill of Rights Defense Committee. She was awarded a Presidential Graduate Assistantship in 2012 to explore the use of virtual education for the University of Maine. Amy held a graduate assistant position with the UMaine Humanities Initiative from 2012 – 2014 and held a temporary position with UMaineOnline as an online advisor and instructional designer in 2015. She serves as an adjunct faculty member for the Peace and Reconciliation Studies Program at the University of Maine. She has presented frequently on the uses of virtual technology for digital activism and higher education. Amy was the 2014 Recipient of the Outstanding Graduate Student Achievement Award in Peace and Reconciliation Studies. Amy plans to continue her work with the Four Bridges Project in Second Life while consulting in virtual technology. She resides in Bangor with her two sons. Amy is a candidate for the Doctor of Philosophy degree in Interdisciplinary Studies from the University of Maine in August 2018.