

Leading a 'Second' Life: Understanding Virtual Reality



Project Report

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Leading a 'Second' Life: Understanding Virtual Reality

Project Report

By

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**For the partial fulfilment of the
Degree of Bachelor of Arts in
Journalism**

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DECLARATION OF ORIGINAL WORK

This is to certify that the work that forms the basis of the project work, “Leading a ‘Second’ Life: Understanding Virtual Reality” is original work carried out by me and has not been submitted anywhere else for the award of any degree.

I certify that all sources of information and data are fully acknowledged in the project report.

Date:

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CERTIFICATE

This is to certify that Ms. Soumya Jain has carried out her dissertation in partial fulfilment for the award of the degree of Bachelor of Arts (Hons) in Journalism on the topic, “Leading a ‘Second’ Life: Understanding Virtual Reality” during January 2008-April 2008.

The work presented embodies the original work of the candidate to the best of my knowledge.

Date:

(Avijit Chakravarti)

Project guide

Kamala Nehru College

ACKNOWLEDGEMENTS

This dissertation is the result of three months of work, whereby I have been accompanied and supported by many people. I now have the opportunity to express my gratitude to all of them.

At the outset I would like to express my deep sense of gratitude towards my project guide, **Mr. Avijit Chakravarti** for guiding me, discussing the difficulties encountered and providing me an environment of total intellectual and functional freedom.

I am thankful to **Ms. Radhika Khanna**, for helping me in providing psychological knowledge and every other possible way through which she could provide her support.

A word of thankfulness for **Mr. Allan Hoving**, for constantly providing leads which proved to be productive for the research.

Huge thanks to **Dr. Steven Stern, Dr. John Suler**, and all my **interviewees from Second Life**, without whom this research would not have existed.

Very special thanks to my batch mates **Neha Tandon and Geetanjali Harnal** for keeping up my spirits through their cheerful disposition, providing a stimulating environment for discussion, and also for listening to my constant babble on Second Life.

I take this opportunity to thank **Mr. Gaurav Garg** for providing help in commencing and conceptualising this research project.

Last, but definitely not the least, I take this opportunity to thank **my parents and my brother** for their much-needed moral support in constantly rejuvenating my spirits.

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Preface

Like any other youngster, technology has always fascinated me. I, therefore, try to keep myself abreast of news on technology. Orkut and Facebook have been as much of fun for me as for other people. There have been times when I have neglected my other chores for them. But I never looked at it as an addiction.

Recently, news on Second Life, a virtual world, started cropping up a lot. I figured it was some new game which had just become a new pastime for people after Orkut and Facebook.

A quick check on the Internet about Second Life gave me a better insight on what it actually is. I came across the term 'Virtual Reality' a lot during my searches. So when the time came to choose my research topic, I thought of doing the project on this as this is one field which, though old in terms of time, is still new with novel concepts arising every time. The seed of virtual reality date as back as 1950, but it's steadily evolving to provide advanced features to its users.

Virtual reality in itself is huge. To understand the concept better, I thought of taking Second Life as a case study.

In depth exploration on the topic led me to more discoveries on Second Life. Slowly, I understood the vastness of the virtual world. To comprehend it better, I made my own

account in Second Life. From the beginning itself I could feel the pull of this innovation. Though a beginner, without many facilities as I had chosen a basic membership, I knew that this soon can become as compulsive for me as water.

Many of my most beautiful relationships have emerged from my virtual friendships. This research project, thus, is also an attempt to understand my own psychology.

Hence, through my study **“Understanding Virtual Reality: A Case Study of Second Life”**, I hope to shed more light on this complex issue. Though it can be studied from various perspectives, I chose to study what emotional gratification do users get through such virtual worlds.



Figure 1 My Avatar in Second Life

Objectives

- To find out how prominent is virtual reality in the lives of people of today.
- To find out how much people are dependent on virtual communities and worlds.
- To explore the factors due to which users are akin to virtual worlds with reference to Second Life.

Methodology

- Primary sources: Questionnaires, Interviews, and Case Studies
- Secondary sources: Books and Internet

Delimitations of Study

- It is to be noted that since all the surveys were take through email, and not on a personal basis, it cannot be assured that the replies received are entirely true.
- Second Life can be studied through various angles, like from a financial, legal or educational point of view. Due to paucity of time, however, I have restricted myself to studying only the emotional affects of Second Life on users.

Research Questions

- What does the concept of virtual reality encompass?
- What kind of emotional gratification do users get out of virtual worlds, in context to Second Life?
- Does Second Life have a strong foothold in India?

CHAPTER 1

INTRODUCTION

From Internetworking to Cyberspace

Internetworking today is not just limited to gaining access to information and pictures. It has developed increasingly to provide a variety of features to its users.

In an essay titled ‘Computers, the Internet, and Virtual Cultures’, Steve Jones and Stephanie Kurker¹ note, “The Internet could, in some ways, be seen as a ‘carrier’ of culture, in so far as it serves both as a medium of transmission and as a medium whose users selectively attend to texts others have made available.”

The Internet is unimpeded by state boundaries and is increasingly accessible on a global scale. It is a diverse, decentralised communications system with unlimited input – in as much as anybody who is connected to a network can participate in the system – resulting in seemingly uncontrolled and unpredictable development. The Internet is also a powerful form of technology of individuation. It connects and disconnects individuals at the same time. As paradox of ‘connectivity’, of participation with others in a virtual space, the technology disconnects the individual from the embodied interactions surrounding her/him. (Michele Willson, Community in the Abstract)

¹ A paper in the book ‘Culture in the Age of Communication’, edited by James Lull

One of the most important characteristics of computer-mediated communication (CMC) is that it is a many-to-many medium. This is a medium where many people have access to many others.

CMC leads to interaction among different individuals, each with their own online identity. It is observed by various scholars that CMC sometimes tends to be much more desirable than face-to-face (F2F) interaction.

In the recent years, rapid expansion of Internet has led scholars to study it not only from a technological perspective, but also from a social perspective. Introduction of social networking sites like Orkut and Facebook¹ have led to the coinage of a new term, 'cyberculture'.

Cyberculture has been defined as an alternative to actual social and spatial cultures and online identities have been described as offering the individual freedoms not otherwise available in real space. (The New Media Handbook, Dewdney and Ride, 2006)

Cyberspace is a new form of perspective. It is not simply the visual and auditory perspective. It is a new perspective without a single precedent or reference: a *tactile perspective*. Seeing at a distance, hearing at a distance – such was the basis of visual and acoustic perspective. But touching at a distance, feeling at a distance, this shifts

¹ Orkut and Facebook are social networking sites where people can make new friends or stay in touch with the existing ones, apart from a variety of other activities like uploading pictures or videos. They have become hugely popular globally in the recent times.

perspective into a field where it had never before applied: contact, electronic contact, tele-contact. (Paul Virilio, Red Alert in Cyberspace!)

On being asked that what characteristics of cyberspace attract users towards it, Dr. John Suler¹ said, “There are many characteristics, and it varies from person to person. Mostly, it’s the ease with which people can access information and connect with other people. Cyberspace has become such a complex and sophisticated world that there is no one explanation about what people like about it and what they do there. Asking ‘What do people do with cyberspace’ is like asking ‘What do people do with life?’.”

Virtual Reality

Virtual reality (VR) is a technology, which allows a user to interact with a computer-simulated environment, be it a real or imagined one. Most current virtual reality environments are primarily visual experiences, displayed either on a computer screen or through special or stereoscopic displays, but some simulations include additional sensory information, such as sound through speakers or headphones.

There are a number of methods by which VR can be done. They are:

- **Simulation-based VR:** The first method is simulation-based virtual reality. Driving simulators, for example, give the driver on board the impression that

¹ An e-mail interview of Dr. John Suler was taken. His profile is given in the fourth chapter of this research project.

he/she is actually driving an actual vehicle by predicting vehicular motion caused by driver input and feeding back corresponding visual, motion, audio and proprioceptive cues to the driver.

- **Avatar image-based VR:** With avatar image-based virtual reality, people can join the virtual environment in the form of real video as well as an avatar. The proposed image VR system can handle two types of users. One can participate in the 3D distributed virtual environment as form of either a conventional avatar or a real video.
- **Projector-based VR:** In projector-based virtual reality, modelling of the real environment plays a vital role in various virtual reality applications, such as robot navigation, construction modelling and airplane simulation.
- **Desktop-based VR:** Desktop-based virtual reality involves displaying a 3-dimensional virtual world on a regular desktop display without use of any specialized movement-tracking equipment. Many modern computer games can be used as an example, using various triggers, responsive characters, and other such interactive devices to make the user feel as though they are in a virtual world.

Concepts within Virtual Reality

Interactions are conducted within ‘**virtual communities**’. Virtual communities are formed and function within cyberspace. According to Howard Rheingold, “A virtual community is a group of people who may or may not meet one another face to face, and

who exchange words and ideas through the mediation of computer bulletin boards and networks.” (Virtual Communities; The Community of the Future)

A virtual community *liberates* the individual from the social constraints of embodied identity and from the restrictions of geographically embodied space; which *equalize* through the removal of embodied hierarchical structures; and which promote a sense of connectedness (or *fraternity*) among interactive participants. It is thereby posited as the epitome of a form of postmodern community within which multiplicity of self is enhanced and difference proliferates uninhibited by external, social structures. (Michelle Willson, Community in the Abstract)

The ‘**player**’ or community member is able to depict her/himself in whatever shape, form or gender s/he desires. Participants in virtual communities can thus escape their own in person identities and accordingly can also escape any social inequities and attitudes relating to various forms of embodiment. Race, gender or physical disability is unapparent over the Internet.

Dr. Suler, however, presents a different view. On being asked that due to what factors do people like cyberspace better than real space, he said that firstly, it’s not necessary that all people like cyberspace better. “But people, who do think that, sometimes feel that they can be more ‘real’ in cyberspace – that the Internet gives them the opportunity to express what they really feel and think.”

Dr. Steven Stern¹, on being asked the same question, also stressed that not all people think that cyberspace is better than real space. He further said, “To some extent, cyberspace is a trap. We form new habits around this newer, more accessible way of accessing people, commerce, and information.”

Taking a cue from the above, liberation may also be achieved from the constraints of geographical space in so far as the physical location of the ‘body’ of the player is overcome through the extension of interaction in cyberspace, compressing into a readily transversible medium. Thus virtual communities are also seen as a way of overcoming the inherent isolation of contemporary life where people do not know their physical neighbours, are not involved in local township decisions and possibly work from home. This ‘solution’ overlooks the physically isolated nature of participation, where only the mind is extended into the mutual interaction.

Expanding on the above, Kevin Robins said, “In overcoming the ‘tyranny of distance’, it is claimed, the new virtual technologies permit us to communicate with others wherever they might be. And, on this basis, it is said, it will be possible to form new kinds of electronic communities, based on internet and affinity (rather than on the ‘accident’ of geographical location). In the new virtual networks, there seems to be the prospect of greater closeness to others (to others with whom we shall interact through the virtual network, that is to say). Virtual relations are closely associated with ideals of intimacy, social communion and bonding – this is said to be the age of immediate communication,

¹ An e-mail interview of Dr. Steven Stern was taken. His profile is given in the fourth chapter of this research project.

connectivity and, 'being in touch'. What is being argued, then, is that new technologies now make it possible to be in a space where we may enjoy the kind of social intercourse that the real world has always denied to us. Where geographical distance is presented as the fundamental obstacle to human communication and community, the achievement of technological proximity is presented as a solution." (Against Virtual Community: For a politics of distance)

The perception of **anonymity** is seen as a further 'plus' by proponents of virtual community. Liberated from the normative gaze of both institutions and society, identity cannot be verified and attached to the embodied user and behaviour is not constrained by 'real space' norms and values.

Another capability of a virtual community is to provide accentuation of choice. Within a virtual community individuals are able to choose the level or degree of interaction. They can choose when to participate; they can choose their degree of involvement with others – as long as those with whom they wish to be involved agree. Marriages take place, 'sexual' relationships are formed and hierarchical or administrative relations created. Individuals can also choose to have several characters within a community, or to belong to several communities, at any one time.

Virtual communities are instruments for connecting people according to shared mutual interests. In traditional kinds of communities, we are accustomed to meeting people, then getting to know them. In virtual communities, you can get to know people, and then

choose to meet them. (Howard Rheingold, Virtual Communities, The Community of the Future)

Flow theory

Flow, also called ‘Optimal experience’, is a concept developed by Mihaly Csikszentmihalyi¹. He states, “Flow – the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it” (1991).

Csikszentmihalyi identified 8 dimensions of the flow experience:

- Clear goals and immediate feedback
- Equilibrium between the level of challenge and personal skill
- Merging of action and awareness
- Focused concentration
- Sense of potential control
- Less of self-consciousness
- Time distortion
- Autotelic or self-rewarding experience

¹ Mihaly Csikszentmihalyi is a Distinguished Professor of Psychology in Claremont Graduate University, California. He is noted for his work in the fields of happiness, creativity, subjective well-being and fun. He is, however, more known as the architect of the Flow Theory.

To reach a state of flow, one should perceive a match between the level of skills possessed and the situational challenges offered. Activities leading to flow should also “facilitate concentration and involvement by making the activity as distinct as possible from the so-called ‘paramount reality’ of everyday existence” (Csikszentmihalyi, 1990). While engaging in such activities, the user loses track of time and self-consciousness. The user is rewarded with highly enjoyable experiences. “An activity that produces such experiences is so gratifying that people are willing to do it for its own sake, with little concern for what they will get out of it, even when it is difficult or dangerous” (Csikszentmihalyi, 1991:71).

Users of virtual worlds also go through the flow experience. However, a certain sense of self-control is required to pull oneself back from virtual reality.

The above definition of ‘flow’ provided by Mihaly Csikszentmihalyi, might also point towards **addiction**. If the user experiences such behaviour, it can be termed as addiction also. As Dr. Suler said, “Cyberspace is an ‘addiction’ when a person spends so much time and energy there that it begins to have a detrimental effect on that person’s ability to function in the face-to-face world, when it has a negative effect on their work, relationships with friends and family, and on their health.”

A valid cure was provided by Dr. Stern, “I do not believe that cyberspace is addictive and I reject the term ‘Internet Addiction’ as a useful diagnosis or description. Most of those people who are glued to their computers would be unglued if we banned the

pornography, shopping, dating, and gambling. Yes, there would still be some compulsive news readers and gossips, and also some compulsive gamers, but I believe that 'Internet Addiction' would be cured worldwide.

The concepts discussed above have been attempted to be explored further through the means of Second Life and other case studies. These means will define the end of the research.

CHAPTER 2

SECOND LIFE: OVERVIEW AND FEATURES

“You will be able to immerse yourself in simulated environments instead of just looking at them through a small rectangular window...you become an inhabitant, a participant, not merely a spectator.”

-William Mitchell, *City of Bits: Space, Place and Infobahn* (1995)

The above prophecy seems to have come true with the coming up of Second Life. ***Second Life (SL)*** is an Internet-based virtual world launched in 2001, developed by Linden Research, Inc (commonly referred to as Linden Lab). It opened for the public in 2003. It is an MUVE (Multi-User Virtual Environment). Though usually seen as a game, it is not one actually. While a game has set pre-defined goals, SL is completely user-generated. Its users or ‘residents’ are allowed to create and build the second life they want.

The mission of Linden Lab was defined by Philip Rosedale, CEO, Linden Lab, in his blog on the SL website¹, “The ability to simulate our world on computers means that we can make it different in ways that empower us, allowing us to do things that in the physical world we can imagine but are incapable of. Largest among the new capabilities

¹ <http://blog.secondlife.com/2006/11/06/the-mission-of-linden-lab>

we seek to create through this simulation are: Improvements to our ability to communicate quickly and accurately with each other, and the ability to rapidly express our thoughts or intentions as shared artefacts within this new world. This mission is both a great business and a great cause. If we empower people by our efforts, we can expect a fraction of the value of those improvements in return for having built the infrastructure to enable them. Improvement to the capabilities, intelligence, or well being of a broad group of people has great value. Indeed, I would argue that the greatest technology-driven business success stories have been those like the personal computer or the telephone, in which technology has directly and broadly improved the capabilities of individuals. Second Life and Linden Lab are on their way to becoming one of those stories.”

FEATURES OF SECOND LIFE

Residents

All the users who live in Second Life are given the term ‘Residents’. Robin Harper, VP Marketing and Community Development, SL, describes the process of coining this term, “It was pretty early in the development of Second Life. One of my jobs was to come up with the different words we wanted to use, including the name! When it came to what to call the people in the world, we knew we didn't want to call them 'users', although that would be the most typical thing for software. However, the word ‘users’ doesn't do a very good job of describing the two-way nature of Second Life, where the people involved are providing content and contributing to the experience. We also thought about ‘members’

(boring!), ‘citizens’ (too political!), and ‘players’ (too game-y). ‘Residents’, however, seems most descriptive of people who have a stake in the world and how it grows.”

There are 12,240,161 residents in SL as of January 2008. Following is the registration count of population growth in SL as obtained from the Second Life website.

Created Year	Created Month	Running Residents Registration
2003	January	145
2003	December	2,103
2004	January	2,743
2004	December	17,056
2005	January	18,876
2005	December	99,623
2006	January	1,23,438
2006	December	2,267,092
2007	January	3,136,259
2007	April	5,956,170
2007	May	6,860,473
2007	June	7,729,655
2007	July	8,548,178
2007	August	9,252,781
2007	September	9,596,742
2007	October	10,570,615
2007	November	11,175,710
2007	December	11,704,934
2008	January	12,240,161

Following is the registration count of top 50 countries by active users.

Country	Active Avatar Count	% of Avatar Count
United States	190018	34.96%
Germany	44806	8.24%
United Kingdom	41182	7.58%
Japan	30694	5.65%
Brazil	30282	5.57%
France	27971	5.15%
Italy	23844	4.39%
Netherlands	17316	3.19%
Canada	17307	3.18%
Spain	15865	2.92%
Australia	10885	2.00%
Belgium	5451	1.00%
China	5158	0.95%
Poland	5105	0.94%
Portugal	4363	0.80%
Switzerland	4133	0.76%
Mexico	4120	0.76%
Argentina	3712	0.68%
Republic of Korea	3520	0.65%
Sweden	3401	0.63%
Denmark	3332	0.61%
Austria	2509	0.46%
Turkey	2504	0.46%
Greece	2132	0.39%

Peru	2052	0.38%
Romania	1901	0.35%
Norway	1867	0.34%
Ireland	1687	0.31%
India	1613	0.30%
Czech Republic	1536	0.28%
New Zealand	1480	0.27%
Russia	1477	0.27%
Colombia	1467	0.27%
Slovenia	1408	0.26%
Venezuela	1289	0.24%
South Korea	1193	0.22%
Chile	1181	0.22%
Finland	1149	0.21%
Singapore	1102	0.20%
Israel	931	0.17%
Hungary	807	0.15%
Afghanistan	797	0.15%
Hong Kong	677	0.12%
Philippines	638	0.12%
Egypt	569	0.10%
Slovakia	567	0.10%
Serbia	561	0.10%
Latvia	560	0.10%
Malaysia	499	0.09%
Taiwan	489	0.09%

Avatars

The character and identity which the residents create for themselves is called their 'Avatar'. The basic avatar is human in form, but can be of either sex with a variety of physical attributes. The avatar can also be created in a humanoid form. It can be made to resemble like a person's real life looks too. Everything from hair to shoes can be created for the avatar.



Figure 2 Changing appearance in SL

Chat

Within SL, there are two main methods of text-based communication: local chat, and global ‘instant messaging’ (known as IM). Chatting is used for public localized conversations between two or more avatars, and can be ‘heard’ within 20 m. Avatars can also ‘shout’ (‘audible’ within 100 m). IM is used for private conversations, either between two avatars, or among the members of a group. Unlike chatting, IM communication does not depend on the participants being within a certain distance of each other.



Figure 3 Chatting with another avatar in SL

Motion

The most basic method of moving around is by foot (also running and jumping). To travel more rapidly, avatars can also fly up to about 170 m above the terrain (meaning 270 m if ground level is 100 m, 180 m if ground level is set to 10 m) without requiring any special equipment, and with scripted attachments there is currently no limit to how high an avatar can fly (although once past several million meters, the rendering of the avatar mesh starts to be affected).

For instantaneous travel, avatars can teleport (commonly abbreviated to 'TP') directly to a specific location. An avatar can create a personal landmark (often called an LM) at their current location, and then teleport back to that location at any time, or give a copy of the landmark to another avatar. There's also a map window that allows direct teleportation anywhere.

Following is the registration count of top 50 countries by active user hours.

Country	Total Hours	% of Total Hours
United States	10,606,965.95	37.69%
Germany	2,795,307.72	9.93%
Japan	2,043,194.62	7.26%
United Kingdom	1,808,616.72	6.43%
France	1,596,623.23	5.67%

Netherlands	1,153,012.00	4.10%
Italy	1,146,911.67	4.08%
Canada	992,136.37	3.53%
Brazil	923,230.92	3.28%
Spain	886,941.23	3.15%
Australia	552,034.50	1.96%
Belgium	272,876.60	0.97%
China	253,559.83	0.90%
Switzerland	234,526.68	0.83%
Portugal	188,740.05	0.67%
Denmark	184,397.32	0.66%
Sweden	159,384.67	0.57%
Argentina	137,885.38	0.49%
Austria	136,747.30	0.49%
Mexico	136,500.88	0.49%
Poland	135,134.25	0.48%
Greece	96,057.52	0.34%
Turkey	95,514.73	0.34%
Romania	73,818.48	0.26%
Russia	70,341.90	0.25%
New Zealand	68,669.05	0.24%
Norway	61,846.53	0.22%
Republic of Korea	59,503.43	0.21%
Ireland	53,257.48	0.19%
Finland	49,935.18	0.18%
Venezuela	43,356.60	0.15%
Singapore	41,656.03	0.15%
Israel	41,474.52	0.15%
Afghanistan	40,339.92	0.14%

Czech Republic	39,618.17	0.14%
Slovenia	38,941.43	0.14%
Philippines	35,769.98	0.13%
Chile	34,845.00	0.12%
India	34,252.33	0.12%
Korea South	34,154.60	0.12%
Peru	30,113.37	0.11%
Taiwan	29,116.13	0.10%
Colombia	25,437.20	0.09%
Hong Kong	25,431.48	0.09%
Hungary	25,068.75	0.09%
Thailand	23,552.58	0.08%
Malaysia	23,375.10	0.08%
American Samoa	21,334.32	0.08%
Puerto Rico	20,756.85	0.07%
Algeria	20,125.77	0.07%

Economy and real estate

Second Life has its own economy and a currency referred to as Linden Dollars (L\$). Residents regularly create new goods and services, and buy and sell them in the *Second Life* virtual world. There are also currency exchanges where Residents can exchange real world currencies for L\$. Though the exchange rate fluctuates, as of March 2007 it is reasonably stable at around L\$ 266 to one US dollar. A small percentage of Residents derive net incomes from this economy, ranging from a few hundred to several thousand

US\$ per month, while a larger percentage derive a gross income large enough to offset most of their expenditures in L\$.

Second Life offers an exchange called LindeX, for the trading of Linden Dollars, which uses the terms 'buy' and 'sell' to indicate the transfer of license rights to use Linden Dollars.

Premium members can own land. Owning larger areas of land incurs an additional fee (which Linden Lab calls "Land Use Fee", but most users refer to as "Tier", because it is charged in tiers) ranging from US\$5 a month up to US\$195 a month for 'an entire region', but in reality it is actually charged for owning up to 65536 m² regardless of how many regions this land is based in. This pricing refers to 'mainland', i.e., land that is on an Estate owned by Linden Lab. There are also Private Estates. Once a Resident buys land he or she may resell it freely and use it for any purpose within the Second Life Terms of Service, provided that it is not used for a mature purpose in a PG (Parental Guidance) simulation.

There is a separate type of land known as Private Estate, consisting of one or more Private Islands or Regions, which has a completely separate set of regulations and pricing. The initial purchase of each private region can only be made by one Resident and

not jointly by a group of Residents, and that Resident is termed the Estate Owner. The Owner may in turn appoint Estate or Region Managers, which may even be a Resident without a Premium Account. Individual regions may be joined together into a single Estate to ease the process of land management. Land purchased in Private Estates actually remains in the ownership of the Estate Owner as far as Linden Lab is concerned and so they will not involve themselves in disputes between Estate Owners and other Residents. As Linden lab only acknowledge the Estate Owner as a land owner, no other Resident pays Linden Lab for the use of land on a Private Estate, although the Owner will usually charge a Land Use Fee. As a consequence, land may be owned by a Resident without a Premium Account and without impacting on the tier level of their Linden Lab Land Use Fee.

Users can also bid on pieces of land, known as ‘parcels’. These auctions take place in many different locations and at varying times. All a user has to do is scroll through the various parcels which are listed for sale, choose the appropriate one and commence bidding. As with a conventional auction, the highest bid wins.

Following is an account of resident owned Mainland and Islands till 31st January.

Date	Resident Owned Mainland	Islands	Total Land
31/10/2006	83.97	134.28	218.25
30/11/2006	84.59	170.13	254.73

31/12/2006	87.35	206.31	293.65
31/01/2007	102.71	258.08	360.79
28/02/2007	116.15	295.83	411.98
31/03/2007	132.04	372.24	504.28
30/04/2007	144.53	434.90	579.42
31/05/2007	160.06	491.32	651.39
30/06/2007	166.59	546.01	712.60
7/31/2007	178.76	601.19	779.95
8/31/2007	189.41	650.31	839.72
9/30/2007	184.57	686.75	871.32
10/31/3007	186.35	718.14	904.50
11/30/2007	184.00	755.10	939.11
12/31/2007	185.35	778.31	963.66
1/31/2008	182.92	819.79	1,002.71

There were L\$ 2,210,107,194 exchanged for US\$ in January 2008. Also, US\$ 8,231,372 were exchanged for L\$ in January 2008.

Creation and copyright

One of the distinguishing characteristics of SL is that the Residents, not Linden Lab, create most of the content of the world. The Resident avatars are one example of such user-generated content.

There is a 3D modelling tool in SL that allows any Resident with the right skills to build virtual objects: buildings, landscape, vehicles, furniture, and machines to use, trade, or sell. This is a primary source of activity in the economy. Any Resident can also make *gestures* from small animations and sounds from the standard library. Outside SL, Residents can use various graphics, animation, and sound tools to create more elaborate objects, and upload them into the world.

SL also includes a scripting language called Linden Scripting Language, or LSL. LSL is used to add autonomous behaviour to many of the objects in SL, such as doors that open when approached. LSL has been used to create relatively advanced systems, such as the artificial life experiment on the island of Svarga, where a complete ecology runs autonomously (including clouds, rain, sunshine, bees, birds, trees and flowers).

Once the creation is in the world of SL, the system makes efforts to help protect the exclusive rights of the *content creator*.¹ A Resident who creates an object and the Resident that owns an object may retain certain rights, rather like copyright in the real world. The creator can mark an object as ‘no copy,’ which means that no copies of it may be made by others, ‘no mod,’ which means that others may not modify the object’s characteristics, and ‘no trans,’ which means that the current owner may not give the object to another.

¹ Residents retain Intellectual Property Rights for the original content they create in SL, including avatar characters, clothing, scripts, textures, objects, and designs.

Arts and creativity in SL

Many of the residents of SL have a creative background. There is a large virtual community of artists and designers. They use Second Life not only as platform to demonstrate their art from real life, but also to express themselves and create new (virtual) art. The modelling tools from Second Life allow the artists also to create new forms of art, that in many ways are not possible in real life due to physical constraints or high associated costs. The virtual arts are visible in over 2050 “museums” (according to SL's own search engine).



Figure 4 An accessories shop in SL

Live music performances take place in Second Life, in the sense that vocal and instrumental music by SL Residents can be provided from their homes and studios. This is input, via microphones, instruments or other audio sources, into computer audio interfaces and streamed live to audio servers. Similar to webcast radio, the audio stream from the live performance can be received in SL for the enjoyment of other Residents.

By the beginning of 2008, scheduled live music performance events in Second Life spanned every musical genre, and included hundreds of live musicians and DJs who perform on a regular basis. A typical day in Second Life will feature dozens of live music performances.

Businesses and organizations in SL

A combination of Linden Lab granting SL Residents the copyright over their content, and legal trading of the in-world currency 'Linden Dollars' (L\$) has encouraged the creation of solely in-world businesses. For example, IBM has over 50 islands on SL for purposes such as research, on-boarding of new employees, developer support and IBM internal and client meetings.

“We believe that these rich, immersive, social environments will have a huge impact on the Web and a global impact on business and government. 3D virtual world holds

promise to solve real-life problems in business and society,” says Simon Thomas, CRM Leader, IBM India.



Figure 5 One of the many IBM islands in SL

CRY (Child, Rights and You) recently opened its virtual office in SL to reach out to more people and to strengthen its global online community. CRY is the first Indian non-profit organisation working on child rights to have an office in SL. Indusgeeks¹, a technology and new media company, has partnered CRY to build its virtual office. “The space offers avatars an opportunity to experience, via displays, videos, community development stories and photo essays, the situation of marginalised children, especially Indian, and

¹ Indusgeeks is the first and the largest Indian Metaverse Development Co. based in Mumbai. They create technology, content and marketing campaigns for 3D virtual worlds, The platform which they chose was Second Life. They are listed as ‘Full-Service Developer’ in the Linden Lab Directory of Solution Providers. <http://www.indusgeeks.com>

invites them to join the community, engage with volunteers from across the world to discuss issues, organise brainstorming sessions, exchange ideas and experiences and get more deeply involved”, said Ingrid Srinath, CEO, CRY.

International diplomacy

The Maldives was the first country to open an embassy in Second Life. The Maldives’ embassy is located on Second Life’s “Diplomacy Island”, where visitors will be able to talk face-to-face with a computer-generated ambassador about visas, trade and other issues. “Diplomacy Island” also hosts Diplomatic Museum and Diplomatic Academy. The Island is established by DiploFoundation as part of the Virtual Diplomacy Project.

In May 2007, **Second Life Insider** (website giving daily updates of SL) confirmed that Sweden had become the second country to open an embassy in Second Life. Run by the Swedish Institute, the embassy serves to promote Sweden's image and culture, rather than providing any real or virtual services. On Tuesday December 4, 2007, Estonia became the third country to open an embassy in Second Life.

Religion

Religious organizations have also begun to open virtual meeting places within Second Life. In early 2007, LifeChurch.tv, a Christian church headquartered in Edmond,

Oklahoma, and with 11 real world campuses in the USA, created 'Experience Island' and opened its 12th campus in Second Life. The church reported "We find that this creates a less-threatening environment where people are much more willing to explore and discuss spiritual things."

Egyptian owned Islam Online has purchased land in Second Life to allow Muslims and Non-Muslims alike to perform the ritual of Hajj in virtual reality form, obtaining experience before actually making the pilgrimage themselves in person.



Figure 6 Krishna Kaliya temple in SL

Architecture

The Architectural community has also found a benefit from the Second Life application. 3D designs are usually presented through 'static images or fly-throughs'. SL offers the user the ability to 'virtually look around the urban space'. This offers a better experience for the end client, giving them the ability to explore the space prior to building or further planning work taking place. Second Life also acts as a great network tool for all involved in the building project to communicate and change objects on the project.

Media in SL

Due to plethora of options and benefits that SL offers to its residents, it has obtained a lot of media coverage. Many newspapers, magazines and online sites around the world have been reporting about every development which takes place in SL.

Reuters has opened a virtual office in SL with Adam Pasick as the Bureau Chief. *Fortune*, a finance magazine by CNNMoney.com also has posted David Kirkpatrick, its senior Fortune journalist to report from SL constantly.

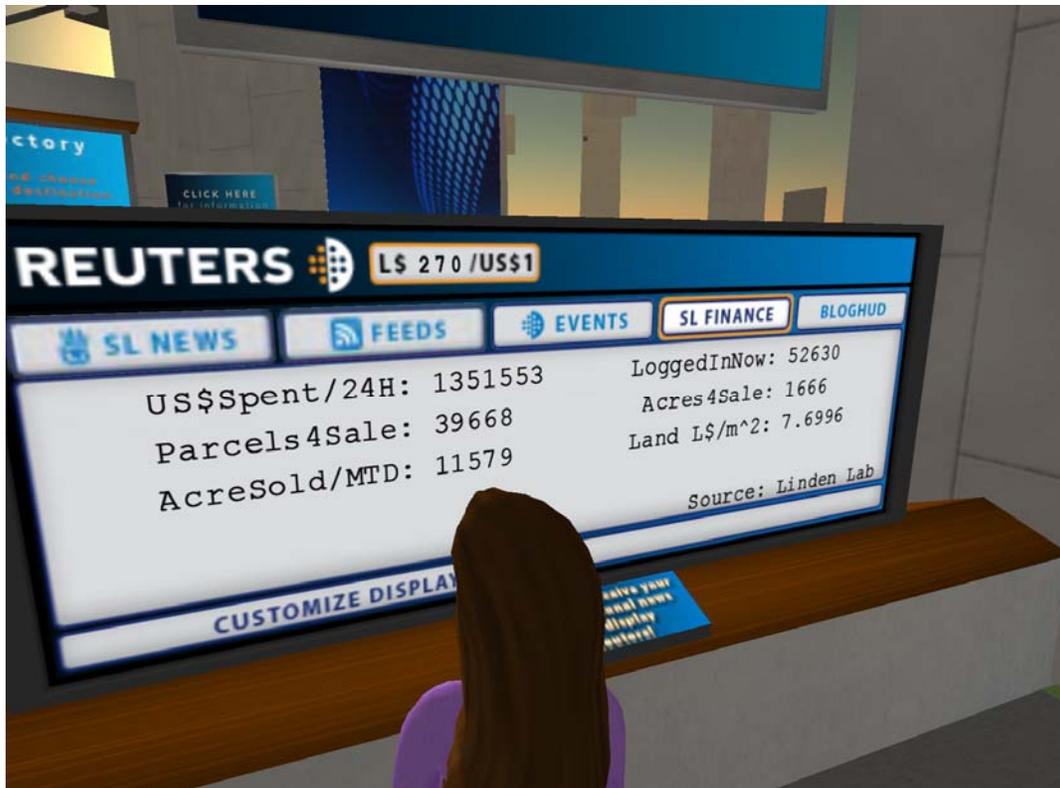


Figure 7 A billboard giving the latest statistics in the Reuters island

Education in SL

SL has recently become one of the cutting-edge virtual classrooms for major colleges and universities. SL fosters a welcoming atmosphere for administrators to host lectures and projects online, selling more than 100 islands for educational purposes¹, according to a *New York Times* article. The article quoted Rebecca Nesson, an instructor at Harvard who brought her Legal Studies class to SL in the second half of 2006. “Normally, no matter how good a distance-learning class is, an inherent distance does still exist between you and your students,” she says. “SL has really bridged that gap. There is just more

¹ Some of the major universities offering education over there are Harvard University, New York University, San Diego State University, Stanford University, and Texas State University.

unofficial time that we spend together outside of the typical class session.” Joe Sanchez, a researcher at the University of Texas at Austin evaluated the use of SL in education in an interactive qualitative analysis, finding that once students overcome the technical and interface difficulties with SL, they “indicate a preference to social learning activities and find it enjoyable to interact with other avatars while learning in this space.”

There are now many universities, colleges, schools and other educational institutions researching the use of SL as an environment for teaching and learning which offers a community of practice and situated constructivist learning. Among the institutions bringing the use of SL into the provision for distance learners is the Open University in the UK which already offers a range of teaching and learning provision on two islands in the metaverse (CETLment and SchomeBase) and is gradually developing a range of tools and resources which support learners and offer a sense of presence and engagement to distance learners who can otherwise feel isolated and alone.

In 2007 SL started to be used for foreign language tuition. Both SL and real life language educators have begun to use the virtual world for language tuition. English (as a foreign language) has gained a presence through several schools, including the British Council, which has focused on the Teen Grid (Second Life grid for the age group of 13-17). Spain’s language and cultural institute “Instituto Cervantes” has an island on Second

Life. A list of educational projects (including some language schools) in Second Life can be found on the SimTeach site.

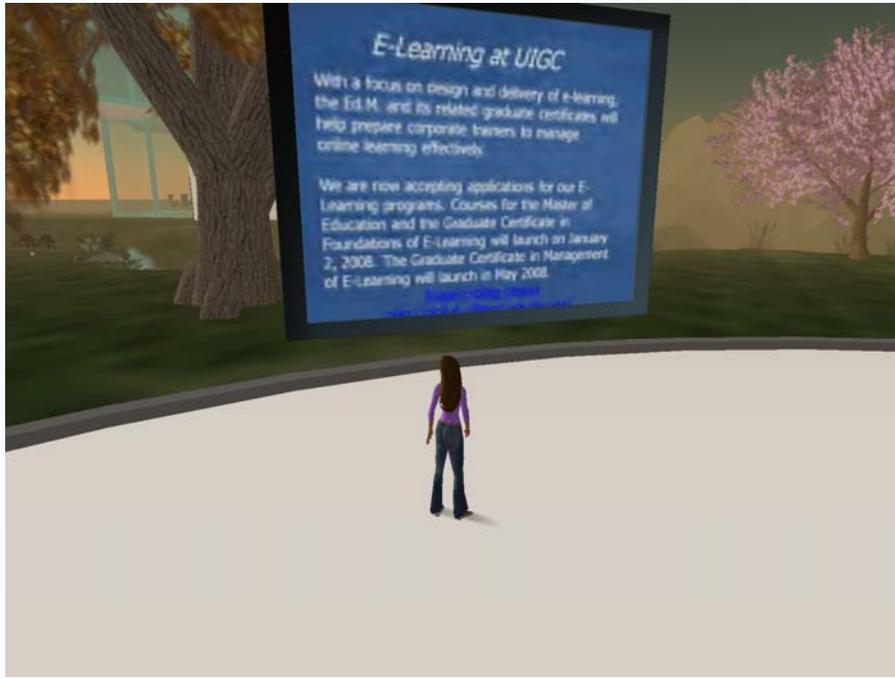


Figure 8 Gateway of UIGC, an educational institution, in SL

CHAPTER 3

REVIEW OF LITERATURE

Available literature on virtual reality, cyberspace and Second Life were studied to obtain a better understanding of the concepts and the issues involved. Accordingly previously published research papers on Virtual Environments and Second Life; books on Cyberspace and Cyberculture; and online reports on the latest happenings in Second Life were studied and examined. This chapter provides a summary of the literature surveyed.

1. Culture in the Age of Communication – Edited by James Lull

This book talks about the affect that various new communication technologies have had on the present cultural scene. The book had various essays by experts provided for a fair understanding of the subject. The essay which concerns this thesis is, *‘Computers, the Internet and Virtual Cultures’*, by *Steve Jones and Stephanie Kucker*.

The essay encompasses the creation of a virtual culture through internetworking. They first present a summary of all the perspectives of earlier studies on Internet. These early studies were characterised by the comparison between CMC and F2F. Culture does not seem to be a central theme of these studies. CMC was mainly

studied as an effective tool in work related situations. Very few studies mentioned the 'social uses' of these technologies. However early scholars viewed these technologies as impersonal and ill-suited for interpersonal communication.

According to the essay, a more recent approach is the 'hyperpersonal' view, which suggests that there are instances where CMC may be 'more socially desirable than [individuals] tend to experience in parallel F2F communication', and thereby may surpass F2F communication in the ability to establish interpersonal relationships. This assertion is based on the premise that, even though CMC may reduce non-verbal context cues (i.e. facial expressions, gestures, tone of voice, etc.), such a lack of cues may enhance interpersonal communication in a range of situational contexts, and particularly where status differentials are present.

The essay talks about the factors which made people come together to form virtual communities. A particular group of people, driven by a common interest come together for virtual interaction. It also talks about the personal identity that they form for themselves in the absence of F2F.

The essay, however, concludes by saying that the goal now should not be merely to 'connect' the real and the virtual; it should be to embed one within the other.

2. The Community of the Future – Edited by Frances Hesselein, Marshall Goldsmith, Richard Beckhard, and Richard F. Schubert

The book includes various chapters which talk about the family, societal and community pattern which the future has in store for us. The chapter, however, which concerns this project is, '*Virtual Communities*', by *Howard Rheingold*.

The author defines virtual communities and talks about the evolution of the same. He gives their advantages and disadvantages. According to him, the fact that members of a virtual community cannot see each other helps in elimination of any sort of prejudice formation before reading what they have to say. Characteristics like age, gender, race, national orientation and physical appearance are not apparent unless the user wants to make it public. People whose physical handicaps make it difficult to form new friendships find that virtual communities treat them as they always wanted.

He, however, also points out that the same filtration which prevents one person from knowing the race, age and physical appearance of the other person, also prevents them from communicating through facial expressions, body language and tone of voice. This lack of communication bandwidth can lead to misunderstandings.

He concludes the essay by giving a food for thought, “Is many-to-many communication a potential tool for revitalising the public sphere? Can virtual communities help people reconnect with each other and rebuild the civil society that is essential to the health of democracy?”

3. The Cybercultures Reader – Edited by David Bell and Barbara M. Kennedy

The book talks about cyberculture, in context to a variety of topics. For example, there are sections on Cyberfeminisms, Cyberlife, Cyberpolitics, etc. It contains different essays by experts in their fields. There are a few chapters which concern this study.

In ‘*Community in the Abstract: A political or ethical dilemma?*’, author Michele Willson explains the nature and various characteristics of Internet and virtual communities. He talks about the factors of liberation, anonymity and choice which facilitate the popularity of Internet and virtual communities. He concludes by saying that though virtual communities, celebrated for providing a richer experience of togetherness, lead to a ‘thinning’ down of the complexities of human engagement to the level of one-dimensional transactions and a detaching of the user from the political and social responsibilities of the ‘real space’ environment.

Implications of the emergence of cyberspace were studied in the chapter *'Red Alert in Cyberspace'* by *Paul Virilio*. He explains that 'real time' takes precedence over real space. The coming up of 'immediacy' and 'instantaneity' has grave consequences for our relation to the world. He states that the coming up of new technologies like information superhighways confront us with a new phenomenon: disorientation. "It is quite clear that this disorientation, this 'de-situation', will bring about a profound disturbance with consequences for society and, in turn, for democracy", he says.

Although studied by others, the advantage of virtual technologies over personal communication, in terms of distance, was explained more in detail by *Kevin Robins* in *'Against Virtual Community: For a politics of Distance'*. He stresses on the fact that, while relationships are formed in real life due to the 'accident' of geographical distance, relationships in virtual reality are formed based on interest and affinity. He cites the work of William Mitchell in *City of Bits: Space, Place and Infobahn*, where the author is trying to convince the audience of utopian possibilities inherent in the technological creation of a virtual world, an 'incorporeal world', in which we shall exist as 'disembodied and fragmented subjects'. Robins, however, makes it clear that withdrawal from reality should be studied more profoundly beyond the narrow debate of virtual technology debate.

4. Understanding the Psychology of Internet Behaviour: Virtual Worlds, Real Lives – By Adam N. Joinson

The book consists of various chapters where the author has explained various tools through which behaviour on the Internet can be understood.

The author enumerated various tools through which Internet addiction can be judged. He cited the work of Griffiths (1998) who argues that Internet addiction needs to fulfill the following six criteria:

- ***Salience***: Using the Internet dominates the person's life, feelings and behaviour.
- ***Mood modification***: The person experiences changes in mood when using the Internet.
- ***Tolerance***: Increasing amounts of Internet use are needed to achieve the same affects on mood.
- ***Withdrawal symptoms***: If the person stops using the Internet, they experience unpleasant feelings or physical effects.
- ***Conflict***: Using the Internet causes conflicts with those close to the person, or with their everyday life (example, their job, social life or hobbies).
- ***Relapse***: The addict tends to relapse into earlier patterns of behaviour, even after years of abstinence or control.

According to him, there are three main reasons due to which Internet becomes addictive: *anonymity, convenience and escape (ACE)*.

The author gives the negative aspect of having cyberrelationships, since the Internet provides the opportunity for greater level of misrepresentation, particularly in the early stages of a relationship when commitment is low, and self-presentation and enhancement agendas are paramount.

He also cites the research of Robert Kraut and Sara Kiesler (1998) to show a correlation between Internet and psychological well-being. The project was called HomeNet. The researchers provided 256 people computers with Internet connection. They tracked their Internet use and mental well-being for over two years. In the end, they concluded that 'greater use of Internet was associated with small but statistically significant declines in social involvement...and with increases in loneliness... Greater use of Internet was also associated with increases in depression.' The team goes on to suggest that ties created between people on the Internet might be generally weak, whereas ties built in real life tend to be strong.

One argument, however, which arises from this research is that it's not necessary that Internet caused depression, but those who were suffering from depression turned to Internet.

The author then goes on to enumerate the positive aspects of Internet use. According to him, online identities afford Internet users the opportunity to be themselves, freed from the constraints of face-to-face interaction. Use of online personae can serve a useful purpose for expressing and understanding our 'core' selves unfettered by shyness, social anxiety and physical states. Bargh et al. (2002) note that relative anonymity on Internet allows people to express their true selves.

He also notes that CMC also may allow people the time to compose messages and replies, enhancing self-presentation and reducing the cognitive load of real-time impression management.

The author enumerated the following social-psychological reasons why attraction on the Internet might occur relatively easily:

- ***Similarity***: People who are similar to each other tend to form relationships, and those relationships tend to be longer-lasting. Many meeting places on the Internet are based on shared interests.

- ***Self-presentation***: The Internet allows people to be strategic in their self-presentation, maximising their plus points and minimising their weaknesses. As a relationship develops, people are more motivated to present an accurate presentation of themselves (Swann, 1983).
- ***Self-disclosure and reciprocity***: Increased self-disclosure online might lead to a reciprocal cycle of disclosure, leading to heightened intimacy and trust.
- ***Idealisation***: There is a tendency to idealise people we talk to online, leading to higher levels of liking. There is little evidence to suggest that this leads to lower levels of stability (McKenna et al., 2002).

The author then culminates all the above points to bring a correlation between the Internet and quality of life. According to the above mentioned points, the Internet can have benefits for the self, for social interaction and for those with ailments seeking social support. The question then arises as to whether or not this translates into an improvement in the overall quality of life for Internet users. There are a number of obvious reasons in which Internet use can improve quality of life. Internet has affected the personal lives of people by improving the way they learn about hobbies, learn about new things, manage their personal finances, get information about health care and do their shopping.

**5. Second Life: The Second Life of Virtual Reality – A Report by EPN¹
(December 1, 2006) – Research by David de Nood, and Jelle Attema**

The research aimed at studying the social, legal and economic implications of virtual reality. The researchers, therefore, took up Second Life as a case study.

The report explores the concept of interreality, i.e., there is no clear distinction between a person's physical and virtual life. The researchers surveyed 246 residents of Second Life to determine the presence of the same.

The conclusions which the report comes to are:

Economic

- There is no solid middle class in SL. People are either 'poor' or they earn a lot. The group with more than L\$ 200,000 stands out in particular: instead of shrinking, it is expanding.
- An individual's net income in the real world cannot predict much about his or her possessions in SL. When asked about real income and property, they turned out to be of some significance, but they cannot be considered a dependable indicator for

¹ The EPN platform is a Dutch non-profit foundation that functions as a centre of knowledge and a think tank regarding the influence of the use of ICT in society.
<http://www.epn.net>

possessions in SL. Even without ‘real’ money it is possible to gain property. The physical ‘rich’ do not necessarily have a lot of possessions in SL.

- One of the negative effects of frequent participation in SL could be the loss of a real income. However, 42.4% of the respondents who spend more than 30 hours a week in SL claim to have an income of more than US\$ 50,000 a year.
- To designers, SL is a playground where they can experiment and get inspired. IT professionals can utilise their skills in programming and developing functionalities. Being a ‘producer’, however, is not restricted to professionals only; it is possible for other visitors too.
- 51% (125) of the respondents claim to earn money in SL. 52 out of these 125 (41%) claim to exchange Linden Dollars into ‘real’ money.

Well-being

- In spite of large amounts of time spent in SL, it does not automatically have a bad influence on visitors’ social lives. On the contrary, it can have a therapeutic effect on those with few friends.
- Respondents, who claim to feel happy in SL, also feel happy in the physical world: this hypothesis does not hold for those who spend more than 30 hours a week in SL and feel unhappy in the physical world.
- Real and virtual lives seem to have integrated well, and are linked together almost seamlessly. A fusion has taken place that does require the elimination of either ‘first life’ or Second Life.

Law

- More than half of the respondents admit they have been harassed (this includes, among other things: 'imprisoning', stalking, gossiping and using inappropriate language) and 40% indicate that certain things should not be permitted in SL.
- 90% of the respondents, however, feel safe and free in SL.
- 36% of the respondents want more security in SL.

The above literature mainly attempts to explain the phenomenon and implications of 'virtual communities'. Concepts related to virtual communities, however, can also be related to virtual worlds. The virtual reality experience has various levels. While the simplest is the feel of virtual communities, the highest is the experience of virtual worlds. Therefore this study aims to add on to the above reviewed literature, by going in-depth in the emotional effects of virtual worlds. Other fields like law, economics and education were not taken up due to time constraints, and also to allow deep research into emotional gratification of Second Life.

CHAPTER 4

METHODOLOGY

The study includes three methods through which I have attempted to obtain a profound understanding of the phenomenon of SL. All the three methods used to attain a holistic impression of the topic are primary (Questionnaires, Interviews and Case Studies).

Questionnaire

Questionnaire as a data collection tool was used for a survey. It was used to determine both quantitative and qualitative results. The aim of the survey was to know the extent and reach of Second Life in the lives of people. The survey also aspired to find out the purposes for which SL was used by most people.

The questionnaire was distributed among a purposive sample consisting 52 Second Life residents, between the time period of February 1 to March 15. Answers to the questionnaire were collected through email. The respondents were from various professional fields, numerous countries, and belonged to different age groups.

Quantitative results were derived to gather statistical data on various factors like the amount and purpose of usage of Second Life. **Qualitative results** were derived on factors like the resultant degree of happiness consequential to using Second Life.

Case Studies

The replies obtained from the above distributed questionnaire were analysed to select four case studies. These residents were further questioned intensely to gain a better knowledge of the satisfaction that they derive from SL. This was done to discover the extent of their involvement in SL and to figure out the contrast in their real and ‘second’ life.

Profile of the SL Residents studied

Khannea is an avatar in Second Life (real name withheld) who is in her 20s. In real life, however, she is in her 40s. She was one of the first ones to be associated with sl-escorts.com (virtual prostitution). She is also the Outreach Director of the Second Life

Chapter of the World Transhumanist Association¹, The Institute for Ethics and Emerging Technologies², and the Extropy Institute³.

Jade Book (real and SL name withheld) is also an avatar in SL. A psychologist and a retired professor in real life, she runs her own business in SL. She runs a medieval island as a simulation. She covers the monthly tier by taking rent and offering events to visitors. For her, SL is not only about earning money, but also about exploring a lot of things which would not have been possible for her in real life.

Thely Anansi, who has been a resident of SL for the past more than three years, is a SL mentor who helps new residents discover what SL is all about. She loves to build and create things in SL. She is also the SL Coordinator for Sustainable Harvest International⁴, a non-profit organisation, which gives her immense gratification. As she states, she is “definitely addicted” to SL.

¹ The WTA is an international non-profit membership organization which advocates the ethical use of technology to expand human capacities. They support the development of and access to new technologies that enable everyone to enjoy **better minds, better bodies, and better lives**.

² The IEET promotes the ethical use of technology to expand human capabilities. Their mission is to become a center for voices arguing for a responsible and constructive approach to emerging human enhancement technologies.

³ The Extropy Institute is a think tank for the future of social change brought about by consequential technologies. Their mission is to serve its members by ensuring a reputable and an open environment for discussing the impact of emerging technologies and for collaborating with diversely skilled experts in exploring the future of humanity.

⁴ SHI, founded in 1997, helps American farmers reverse rainforest destruction with sustainable land-use practices that allow them to take control of their environmental and economic destinies.

Phoebe Chenille, a homemaker in real life, is also a regular resident of SL. Her experiences, however, also are a story in itself. Although not there to earn money, for her there are other activities in SL, in which she indulges herself. She enumerates the differences between SL and real life through the time she has spent in both the worlds.

Interviews

It was considered important to take interviews of psychologists proficient in the field of Internet and Cyberspace to gain a better theoretical perception into what goes through the mind of an Internet consumer. Due to geographical constraints, however, interviews had to be taken through email. Psychologists interviewed are:

- Dr. John R. Suler
- Dr. Steven Stern

Profile of Interviewees

Dr. John R. Suler is a Professor of Psychology in Rider University, New Jersey. His research activities include Psychology of Cyberspace, Photographic Psychology, Mental Imagery, and Teaching Clinical Psychology. He is also interested in Eastern Philosophy and Psychology (Buddhism and Taoism). His hypertext book 'Psychology of Cyberspace' explores the psychological aspects of environments created by computers

and online networks. It presents an evolving conceptual framework for understanding how people react to and behave within cyberspace.

Dr. Steven Stern is a Professor of Psychology at the University of Pittsburgh at Johnstown (UPJ). His research interests include Psychological Effects of Technology, Automation, and the Internet, Internet Experiments, Perception of Computer-Synthesized Speech, Assistive Technology and Disability, Distortion of Memory for Speech. His main area of research involves how people interact with technology. More specifically, he is interested in studying the social effects of advances in technology.

CHAPTER 5

ANALYSIS AND INTERPRETATION OF THE QUESTIONNAIRE

One of the objectives of this research was to find out how prominent Second Life is in the lives of its users. This survey, therefore, was taken to derive quantitative and qualitative results as a means to determining the objective.

Analysis of the Questionnaire

Following is a sample of the questionnaire:

Questionnaire for Second Life users

Please colour your answer in red. Be assured that your name and other information will remain confidential.

1. Name:
2. What country do you belong to? _____
3. Age:
 - 13-17
 - 18-24
 - 25-35
 - 35-45
 - 45 plus

4. Gender:
 - Female
 - Male

5. Profession:
 - In a creative field
 - Media/Communication
 - IT
 - Student
 - Education
 - Other, Please specify _____

6. Income level:
 - 0-20,000K
 - 20,000K-40,000K
 - 40,000K-60,000K
 - More than 60,000K

7. How much time do you spend on SL per day?
 - 0-1 hour
 - 1-4 hours
 - 4-7 hours
 - More than 7 hours

8. Since when have you been using SL?
 - 0-2 months
 - 3-6 months
 - 7-12 months
 - 1 year
 - 2 years
 - 3 years or more

9. What is your objective of participating in SL?
 - Fun
 - Doing things I can't do in real life
 - Making friends
 - Learning (education purposes)
 - Pastime
 - Adding something to my life
 - Making money on SL
 - Experimenting with changing gender
 - Thrills
 - Improving social skills

- Meeting real friends online
- Daily reality is boring
- Dating/sex
- A disability hampers me in real life

10. Do you think you are addicted? How do you rate yourself on a scale of 1 to 4?

- 1-not addicted at all
- 2-Maybe addicted
- 3-Yes
- 4-Definitely addicted!

11. How many friends do you have in real life?

- 0-3
- 4-10
- More than 10

12. How many friends do you have in SL?

- 0-3
- 4-10
- More than 10

13. Do you feel happier in the virtual world as compared to physical world? How do you rate it on a scale of 1 to 4?

- 1-No
- 2-Neutral
- 3-Somewhat happier
- 4-Yes, definitely happier

14. Do you think that SL can offer a better quality of life as compared to physical life?

- Yes
- No

15. What kind of impact has SL made on your real life?

- Positive effect
- Negative effect
- No effect

The respondent was asked to define their **age group** so as to determine whether there is any particular age group who uses SL more. The **gender** was also asked to ascertain

whether SL is gender specific or is as common for both the sexes. The **profession** was asked so as to check the pre-conceived notion that mainly IT professionals indulge in such technological innovations. The **income level** was inquired so as to clarify whether it was only the rich who indulged in these innovations, though SL just requires a computer and Internet connection.

Respondents were asked the **amount of time they spend on SL per day** to establish how important SL is in their daily routine. Respondents were inquired about **since when they have been using SL** to determine that since when this has been a habit, or whether this is a habit or not.

People use SL for varied purposes. Therefore, respondents were requested to select their **purpose of using SL** from the list provided in the question. Many, however, provided their own specific reasons also which were more in tune with their needs.

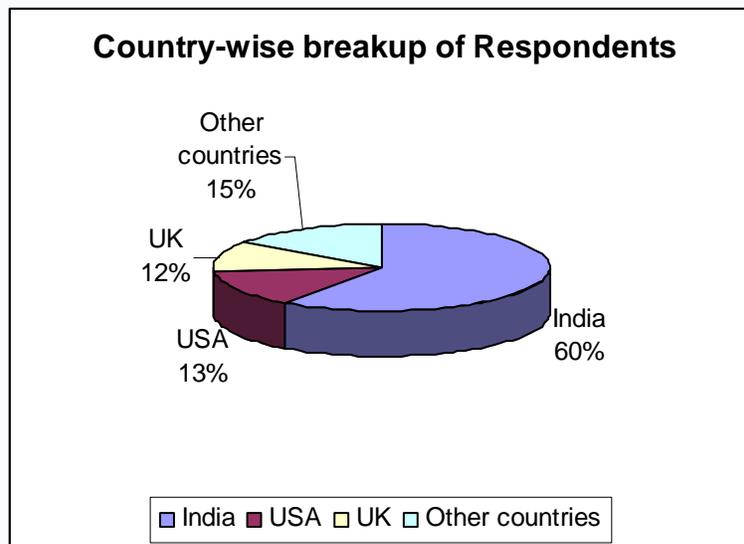
Respondents were asked to rate themselves on their **addiction level** to SL to know till what level do they consider themselves 'hooked' on to SL. Respondents were asked to state their **number of friends in real and Second life** so as to figure out whether there is any correlation between the two factors.

Respondents were asked to rate **whether they felt happier in virtual life as compared to physical life** to judge their psychological bent of mind and whether they are getting any satisfaction from their alternate life. Respondents were asked stipulate **whether SL can offer a better quality of life as compared to physical life** to find out the kind of experience they are getting from SL. Lastly, respondents were asked **what kind of impact SL has had** on them to sum up the kind of satisfaction they have received from Second Life.

Results and Interpretation of the Questionnaire

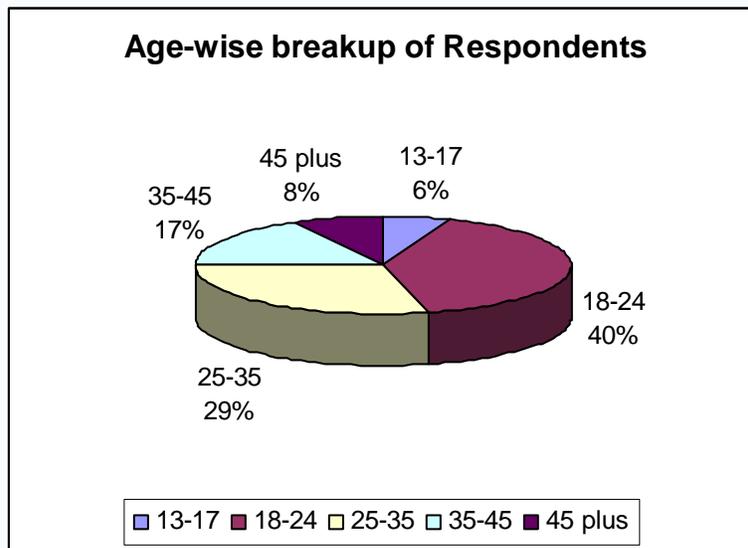
Following are the statistical results obtained from the questionnaire. The qualitative analysis is also given subsequently.

What country do you belong to?



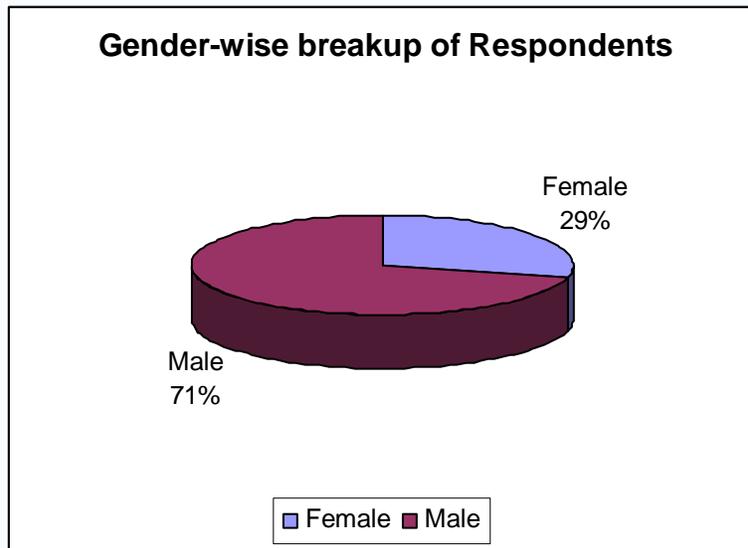
Out of the 52 respondents, 31 were from India and 21 from other countries. Virtual Reality and Second Life is mainly conceived as a Western concept. This break-up, however, reveals the fact that virtual reality is as much prominent in India as in other countries.

Age group

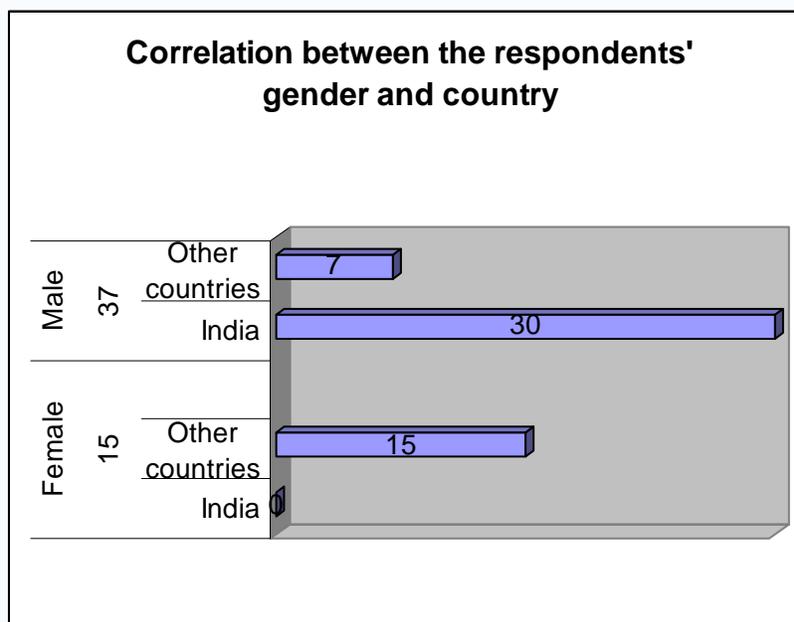


Most of the respondents were from the age group of 18-24 (40%), followed by 25-35 age group (29%). This shows that it's mostly the youth which uses Second Life. It was noted, however, that the age groups of 35-45 (17%) and 45 plus (8%) used SL with much more interest and held more affinity for the same.

Gender

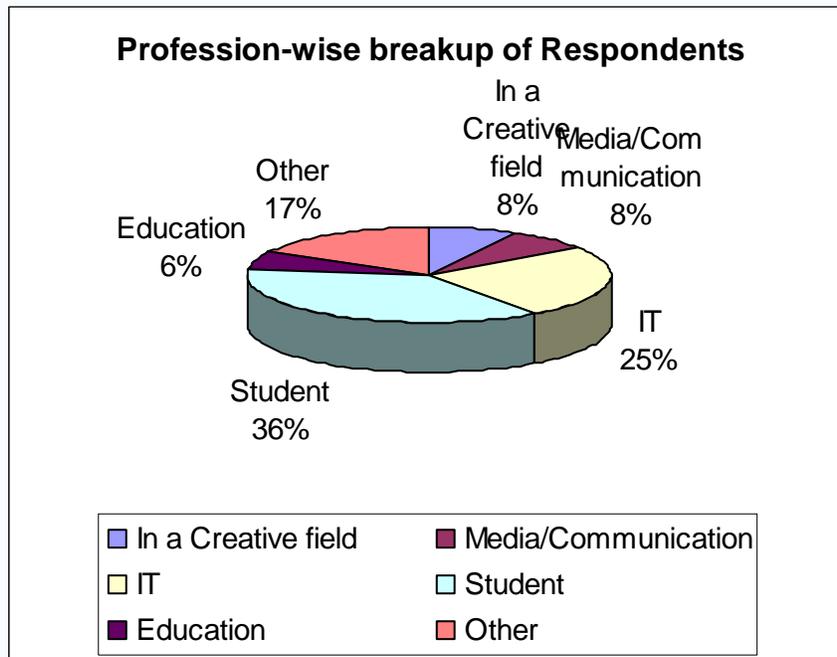


Males constituted 71% of the respondents while only 29% women constituted the sample. This may bring us to the conclusion that men are more techno-friendly as compared to women. Interestingly, however, no Indian women answered the questionnaire. All the 15 women are from other countries.



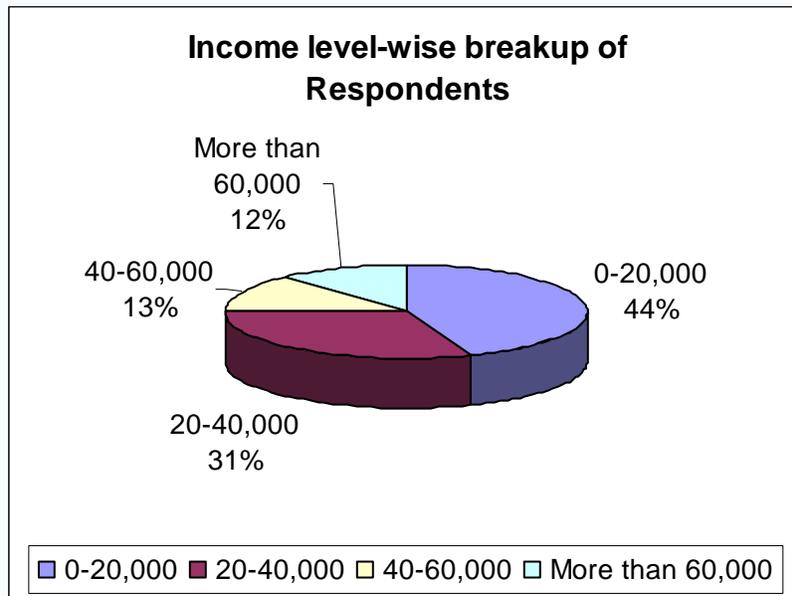
This brings us to the conclusion that this may not be a gender issue, but a geographical issue too.

Profession



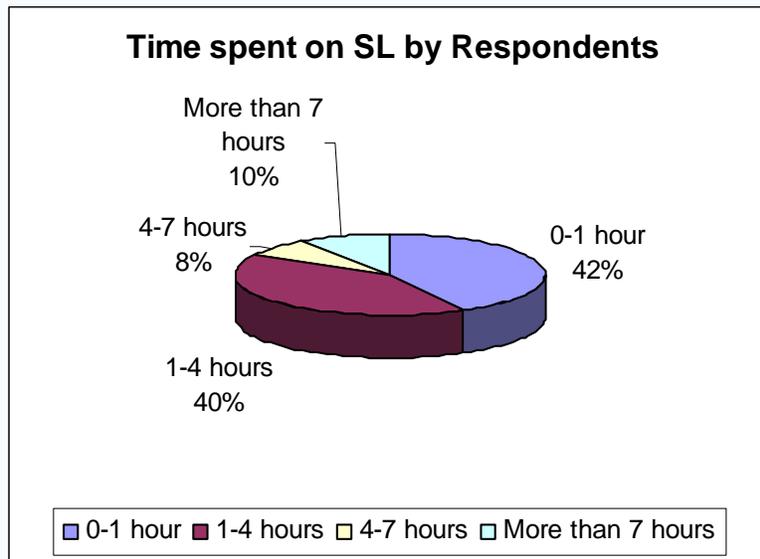
Majority of the respondents are students (36%). This can be attributed to the fact that students have more time and inclination to experiment with new ideas and concepts. This also busts the myth that IT professionals are much more interested in technical novelties. They are, however, not far behind as they constitute 25% of the respondents.

Income level



Most of the respondents are from the income level of 0-20,000 (44%). This can be attributed to the fact that most of the respondents are students and they don't have any income. This also shows that there is no correlation between a person's income level and using SL.

How much time do you spend on SL per day?



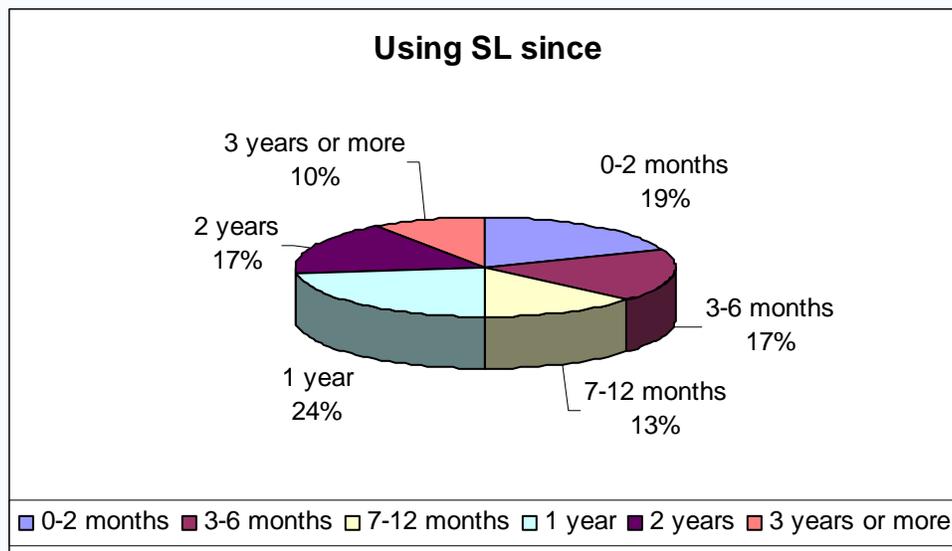
A large number of people (42%) spend only 0-1 hour on SL. Following are those who spend 1-4 hours on SL (40%). It was noted, however, that Indians use SL for lesser time as compared to people from other countries.

India			Other countries			
31			21			
0-1 hour	1-4 hour	More than 7 hours	0-1 hour	1-4 hours	4-7 hours	More than 7 hours
18	11	2	4	10	4	3

As shown in the table, maximum Indians use SL for 0-1 hour while respondents from other countries mainly use it for longer hours. One reason for this can be that while SL requires a minimum 786mbps internet speed, India can offer an internet speed of maximum 512 mbps. SL, therefore, works very slow over here and requires a lot of time

for each action to happen. This makes SL a very harrowing experience in India. While in other countries, a speed of 786 mbps is readily available, therefore, providing an enjoyable and better encounter with SL.

Since when have you been using SL?



Most of the SL users have been using it for the past 1 year (24%). Following closely are the respondents who have been using it since only 0-2 months (19%). It was also noted that respondents from other countries are comparatively older users of SL.

	0-2 Months	3-6 Months	7-12 Months	1 Year	2 Years	3 Years or more
India (31)	10	5	6	4	4	2
Other countries (21)	0	4	1	8	5	3

As shown in the table above, most of the Indian respondents have been using SL only from the past 2 months, while most respondents from other countries have been using it for the past 1 year. This can be owed to the fact that SL is a relatively new concept in India, but quite popular in other countries.

What is your objective of participating in SL?

People use SL for fulfilling different needs. The respondents also selected those purposes from the list which was more in tune with their basic need. They were allowed to select more than one option.

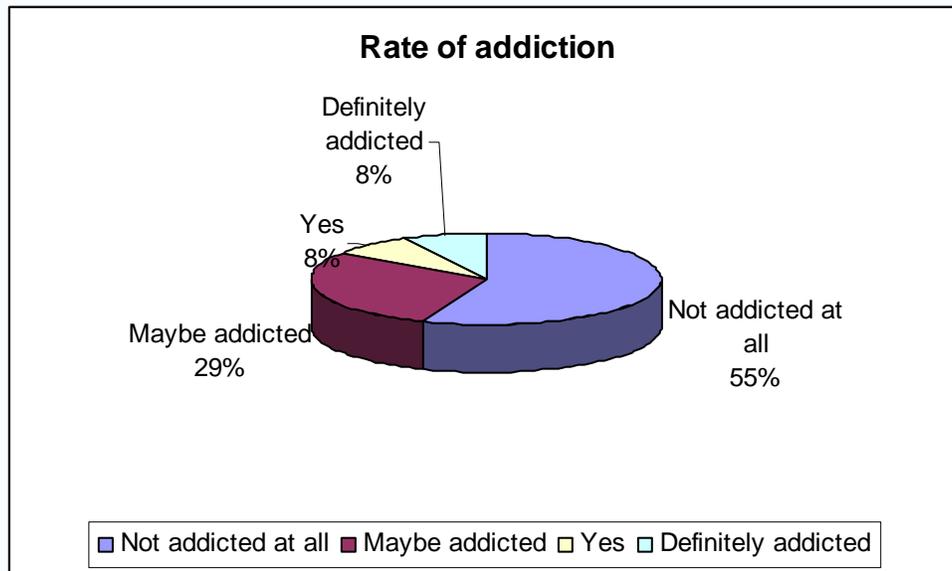
Purpose of using SL	No. of respondents
Fun	30
Doing things I can't do in real life	18
Making friends	18
Learning (education purposes)	18
Pastime	14
Adding something to my life	11
Making money on SL	12
Experimenting with changing gender	4
Thrills	10
Improving social skills	13

Meeting real friends online	9
Daily reality is boring	9
Dating/sex	8
A disability hampers me in real life	3
Other reasons	5

As can be seen from the above table, most people use SL for fun. This can be due to the fact that a large section of the sample has just started using SL (19% have been using it since 0-2 months). Initial purpose of using SL or any other such ‘game’ is usually fun. Later they start fulfilling other requirements or desires which an individual might have.

‘Other reasons’ consisted of expanding business, discovering new technologies, doing professional work, and creating new things. One respondent gave a unique reason of using SL - ‘interacting with non living things’.

Do you think you are addicted? How do you rate yourself on a scale of 1 to 4?

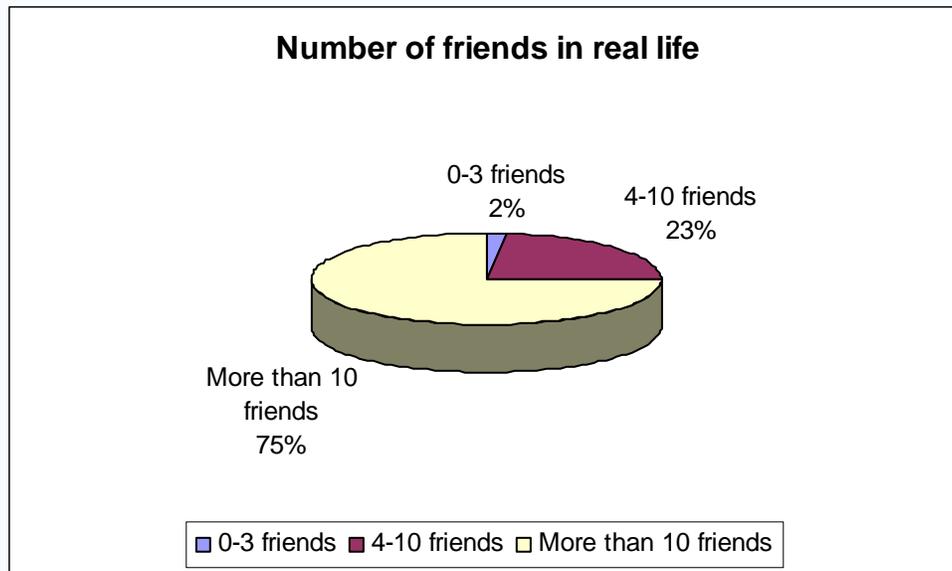


Most of the respondents state that they are not addicted (55%). Following is the group which says that they are ‘maybe addicted’ (29%). The rate of addiction, however, is subject to the time spent on SL.

	0-1 Hour	1-4 Hours	4-7 Hours	More than 7 Hours
Not addicted at all (30)	19	6	1	3
Maybe addicted (15)	3	12	0	0
Yes (4)	0	3	1	0
Definitely addicted (4)	0	0	2	2

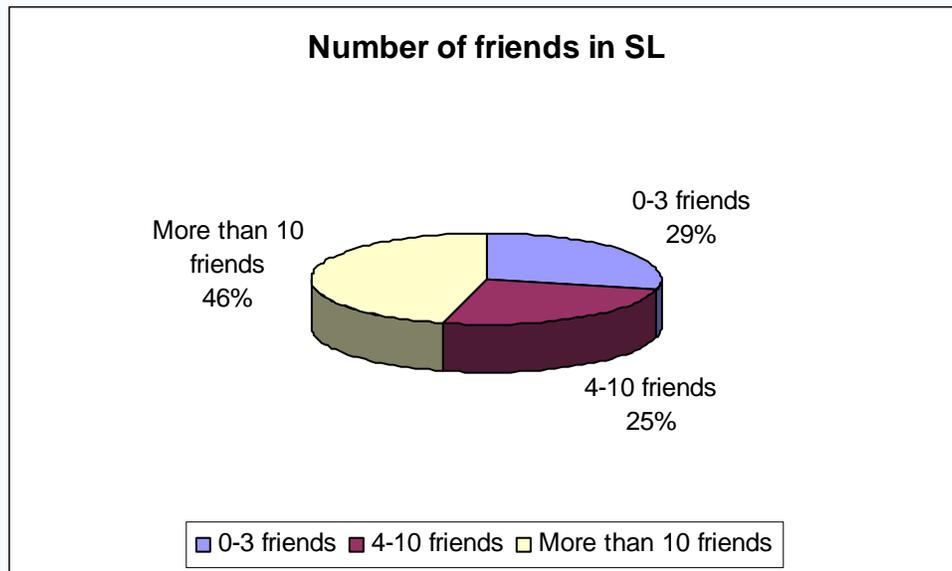
As seen from the above table, most of the people who say that they are ‘not addicted at all’, use SL for 0-1 hour. While people who say that they are ‘definitely addicted’, use SL either for 4-7 hours or more than 7 hours. Most of the people who say that they are ‘maybe addicted’, use SL for 1-4 hours. This, therefore, shows that using SL for longer periods naturally makes people feel that they are addicted. Interestingly, however, there are three people who use SL for more than 3 hours, but still feel that they are not addicted. One of them gave the reason that she could not afford to get addicted to SL due to the migraines that she gets after using it for a long time.

How many friends do you have in real life?



75% of the sample states that they have more than 10 friends in real life. Next is the group which says that they have 4-10 friends in real life (23%).

How many friends do you have in SL?



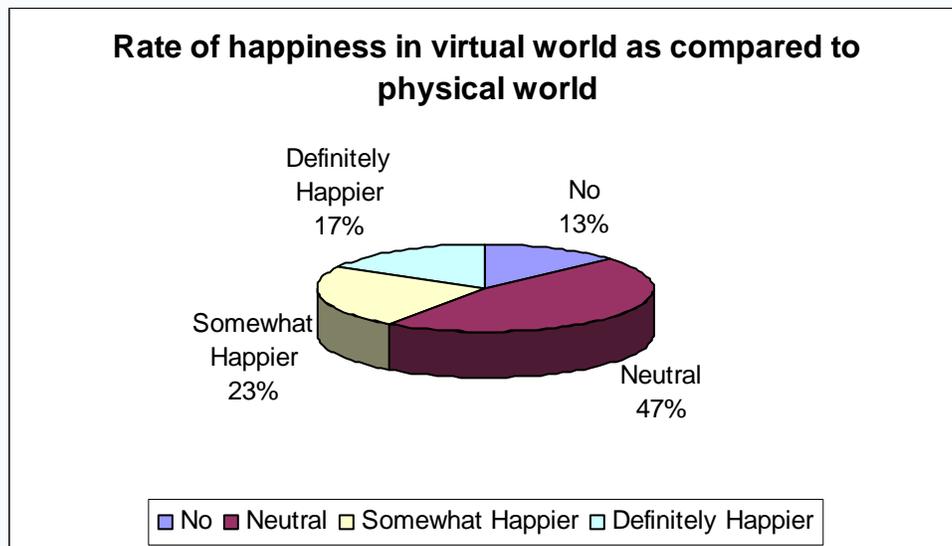
Most of the sample says that they have more than 10 friends in SL. There is, however, not much difference between people who state that they have 0-3 friends (29%) and 4-10 friends (25%).

The correlation between the number of friends one has in real life and in SL busts the myth that only those who are lonely seek solace from such virtual communities.

	0-3 SL friends	4-10 SL friends	More than 10 friends
0-3 real friends (1)	1	0	0
4-10 real friends (12)	5	5	2
More than 10 real friends (39)	9	8	22

The above table shows that the number of friends that users have in SL is similar to the number of friends they have in real life also. Out of the 39 respondents who have more than 10 friends in real life, 22 have more than 10 friends in SL too.

Do you feel happier in the virtual world as compared to physical world? How do you rate it on a scale of 1 to 4?



Approximately half of the sample classifies themselves as 'neutral' (47%). Significantly, least percentage of the sample says that they are not happier in a virtual world as compared to physical world (13%). These respondents, however, are using SL for professional purposes or to earn money only. Therefore, their refusing to be happier in SL can be identified with.

Do you think that SL can offer a better quality of life as compared to physical life?



Most of the sample is saying that SL cannot offer a better quality of life (62%). Interestingly, respondents here are providing contradictory views. Even those who feel happier in SL say that it cannot provide a better quality of life.

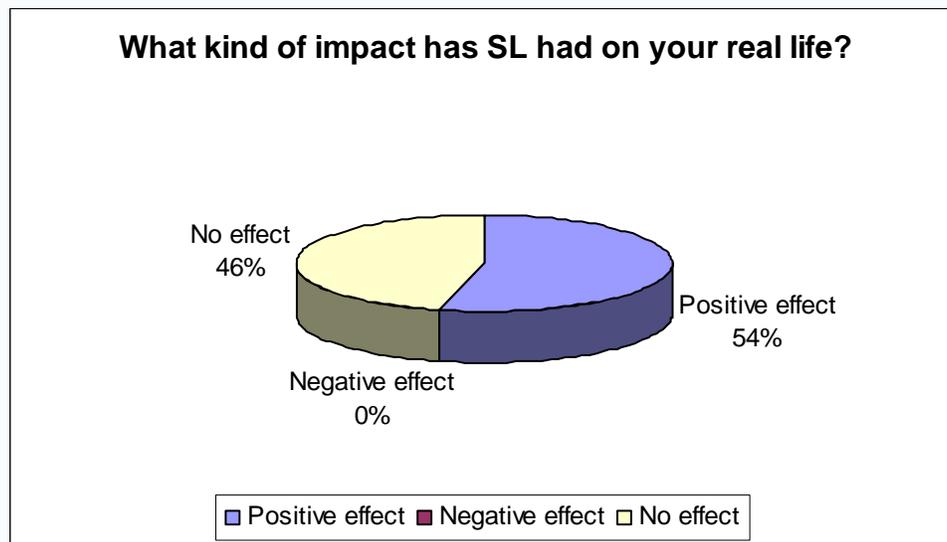
	Do you feel happier in the virtual world as compared to physical world?			
Can SL offer a better quality of life?	No (7)	Neutral (24)	Somewhat happier (12)	Definitely happier (9)
Yes	1	6	7	6
No	6	18	5	3

As seen from the above table, maximum people are saying that SL cannot offer a better quality of life. One respondent gave the reason that at present it does not offer a better

quality of life, “but it will in several decades when the compelling nature of virtual reality fundamentally improves.” Another respondent said that while SL gives you happiness, “you shouldn’t forget the life that you have to live for others.” One respondent, taking the side of SL said, “SL adds to real life (RL), it is a part of RL. There is no dichotomy between the two.” Dr. Stern also provided a similar reply when he was asked whether virtual and real lives are embedded or dichotomous. He said, “It is still the same person, so I believe that they are embedded.”

Expanding on the above, Dr. John Suler said, “Some use cyberspace as a supplement to enrich their offline lifestyle. Some use it as a substitute. Some people behave online in a way very similar to the way they behave offline. Some use cyberspace as a place to experiment with new behaviours and new ways to express themselves. Some people then take what they learn online and carry it into their offline lifestyle. Some people isolate their offline and online lives from each other.”

What kind of impact has SL made on your real life?



54% of the respondents say that SL has made a positive impact on their real life. Significantly, none of the respondents say that SL has had a negative impact on their lives. On the whole, therefore, majority of the people have received a good experience from SL.

Summary of Results

- The concept of virtual reality is as much conceivable in India as in other countries.
- Although the age group of 18-24 uses SL more, it is the older generation of age 35 onwards which uses SL with much more interest.

- Mostly males have been recorded as using SL. Women, however, who did respond to the questionnaire, were from other countries only.
- Mostly students use SL, followed by IT professionals.
- There is no correlation between a person's income and usage of SL.
- Most of the respondents use SL for 0-1 hours. This is, however, due to the fact that most of the respondents are from India. People in India haven't yet started using SL for long.
- Most of the respondents have been using SL for the past 1 year. People from other countries, however, have been using SL since long as compared to Indians. SL is a relatively new concept here.
- Most of the respondents employ SL for fun. They have, however, other reasons also for spending time on SL, like 'doing things which they can't do in real life', 'making friends', and for 'education purposes'. A sizeable number of people also operate SL to earn money.
- Most of the respondents say that they are not addicted to SL. Addiction to SL, however, is subject to the amount of time spent on SL.
- The number of friends that people have in SL is similar to the number of friends they have in real life. Therefore, there is no proof that those who don't have friends in real life, only those use such virtual communities.
- Most of the replied as feeling 'neutral' when asked to rate their happiness in SL as compared to physical world.
- Most of the respondents said that SL cannot offer a better quality of life. Even those who feel happier in the virtual world feel that a physical life is better.

- More than half the sample said that SL has made a positive impact on their real life. On the whole, therefore, SL cannot be regarded as just a 'game'.

CHAPTER 6

CASE STUDIES

Case studies were taken up to comprehend the phenomenon of Second Life in a more personalised way, so as to probe more into the factors which provides satisfaction to its residents. They were chosen by the nature of answers they had provided for the questionnaire.

Following are the case studies which made me analyse the concept of virtual reality in an advanced way.

Khannea

Khannea has been a resident of SL for the past two years. While she is 42 in real life, her SL age is something in 20s. The answers provided by her for the first questionnaire are as follows:

Name: Khannea

What country do you belong to? The Netherlands

Age: 42

Gender: Female

Profession: In a creative field, IT, Student

Income level: 0-20,000K

How much time do you spend on SL per day? More than 7 hours

Since when have you been using SL? 2 years (November 2005)

What is your objective of participating in SL? (all of the below)

- Fun
- Doing things I can't do in real life (or would want to)
- Making friends (the incredible EASE you make contact when you look pretty is shocking)
- Learning (education purposes)
- Pastime
- Adding something to my life
- Making money on SL
- Thrills
- Improving social skills
- Meeting real friends online
- Daily reality is boring (Oh My God! Yes, I am poor)
- Dating/sex
- A disability hampers me in real life

Do you think you are addicted? How do you rate yourself on a scale of 1 to 4?

- Not addicted at all. I have this funny problem that whenever I play too much SL I get migraines. So it's hard for me to get addicted.

How many friends do you have in real life?

- 4-10 But due to poverty my friendships in real life are disintegrating slowly.

How many friends do you have in SL?

- More than 10. But relationships in SL are more idealized and superficial. “Easier”

Do you feel happier in the virtual world as compared to physical world? How do you rate you rate it on a scale of 1 to 4?

- 4- Yes, definitely happier

Do you think that SL can offer a better quality of life as compared to physical life?

- No. But it will in several decades when the compelling nature of VR fundamentally improves.

What kind of impact has SL made on your real life?

- A clearly positive effect. I was in a bad state in 2004-2005. SL probably saved me from suicide.

Her intriguing answers led to further questions about her real life and her entry into SL. Khannea, according to her own admission, has inherited certain neurological disorders from her parents. “I inherited the unpleasant narcissism¹ of my father. I inherited something of ADD² from him too. On my mothers’ side, however, there is a clear

¹ Narcissism describes the characteristic of self love, based on self image or ego. The term ‘narcissism’ is often used as a pejorative denoting vanity, conceit, egotism or simple selfishness.

² Attention Deficit Disorder (ADD) is a neurobehavioural developmental disorder. The disorder, which is presents itself during childhood, is characterised by a persistent pattern of inattention, forgetfulness, poor impulse control, and distractibility.

predisposition towards asperger¹, hyperintelligence and type two personality disorder. The two have somehow affected what kind of individual I am, and it's clear my neurology is damaged and sub par functional in a large part.”

Another ‘demon’ which is affecting her life is her tendency to get cluster migraines. She is not able to use her time productively “either due to dysphoria², a lingering heaviness in my head, acute attacks or the aftereffects of acute attacks. As such I can be said to suffer from CFS³ pretty regularly.”

She also suffers from Post-Traumatic Stress Disorder (PTSD)⁴, due to the physical and mental abuse she faced in her childhood. “My youth was very violent, filled with sexual imagery, filled with deeply inadequate parental stereotypes, extremes of physical and mental abuse as well as overprotective sheltering.”

¹ Asperger is a mild form of Autism Spectrum Disorder (ASD). Asperger is characterised by qualitative impairment in social interaction, stereotyped and restricted patterns of activity and interests, and significant delay in cognitive development.

² Dysphoria is generally characterised as an unpleasant or uncomfortable mood, such as anxiety, irritability and restlessness. Etymologically, it is the opposite of euphoria.

³ Chronic Fatigue Syndrome (CFS) is characterised by unexplained and persistent fatigue, an inappropriate loss of physical and mental stamina, ‘unrefreshing’ sleep, insomnia or rhythm disturbances, widespread and migratory pain, impairment of concentration, short term memory consolidation, and disorientation. CFS is diagnosed so if the symptoms continue for more than six months.

⁴ PTSD is an anxiety disorder that can develop after exposure to a terrifying event or ordeal in which grave physical harm occurred or was threatened.

Coupled with her above problems were financial constraints. Initially, it was to earn money that she started 'playing' SL. She started earning money through virtual prostitution.

On being asked how SL has kept her glued for more than two years, she gives to credit to her neurological predispositions. "One aspect of this predisposition has been an almost anomic¹ tendency to loathe the present world, and a very open eye for large-scale trends, patterns and emerging states. I use this pattern recognition device to see *how people function* (which seems to work well enough, if only it leaves me a little prone to abuse it) or how large scale chaotic trends emerge in the world at large."

This made her shift towards Transhumanism, a movement which she endorses "as highly indicative of where these trends are headed." Transhumanism, a term often used as a synonym for 'human enhancement', is an international, intellectual and cultural movement supporting the use of new sciences and technologies to enhance human mental and physical abilities and aptitudes, and ameliorate what it regards as undesirable and unnecessary aspects of the human condition, such as stupidity, suffering, disease, aging and involuntary death.

¹ Anomie is characterised by an absence or diminution of standards or values. When applied to government or society, anomie applies a social unrest or chaos. The 19th century pioneer sociologist Emile Durkheim believed that anomie is common when the surrounding has undergone significant changes in its economic fortunes, whether for good or for worse, and more generally, when there is a significant discrepancy between the ideological theories and values commonly professed and what was actually achievable in everyday life.

Khannea is working towards the cause with full determination to create “a world which will be fundamentally different from the one we have today.” It is with this view that she says that 3D virtual worlds, like SL, will become big businesses in 5-10 years.

She had said in the first questionnaire that she uses SL for ‘doing things which she can’t do in real life’. On being asked what those things were, she indicated her work in virtual prostitution. “I don't like sex in real life much. For me sexuality has always been a largely mental activity, based on imagination, visualisation, exploration and such. In reality the flesh tends to be ugly, and I do not have the looks, money or talents to find me anywhere near the level of appealing/eager sexual partners that are a reflection of what I perceive inside my own mind.” She also indulges in sexual acts like group sex, sex with unnatural partners and so on. “These things are clinically appealing in SL, and will probably become more so in the next few decades.”

Furthermore, I asked her how SL is adding on to her life. “I regard SL as both a tool and as a medium. I am learning to use the tool, in a detached and analytical manner, as well as go nuts about the medium. I am positive this enhances my life, in having added options. Apart from these two base ways to view the matter I am convinced SL will be bigger than pornography, cinema, and television combined before 2020. I will be 55 by then and still enjoying this very much - better still I am already regarded as a pioneer in this field and I intend to make money and fame of that.”

According to her SL has saved her life and she feels better since 2005 – the time when she started using SL. **“SL allows me to do things not even the wealthiest of kings could do less than a century ago. I enjoy a luxury few people in human history enjoyed before.”**

She ends on a note which summarises her reasons of joining SL and her affinity towards it, “‘Out there’ I can be attractive, sexy, overflowing with health and energy. It is worth a study in itself to look at the differences on how people treat me. In SL I am welcome everywhere, in the real world people instinctively shun and distrust me.”

Though she calls SL her ‘crutch’, I want to salute her for the determination and courage with which she has dealt with her life. She will always remain a constant source of inspiration for me in all walks of my life.

Jade Book

Jade Book has been glued to SL for the past two years. A psychologist and a retired professor in real life, she is running her own business in SL. Following are the answers which she provided in the first questionnaire:

Name: Jade Book

What country do you belong to? UK

Age:

- 45 plus

Gender:

- Female

Profession:

- Education (Professor retired)

Income level: POUNDS STERLING. DOUBLE FOR DOLLAR

- 40,000K-60,000K

How much time do you spend on SL per day?

- 4-7 hours

Since when have you been using SL?

- 2 years

What is your objective of participating in SL?

- Fun
- Doing things I can't do in real life
- Learning (education purposes)
- Pastime
- Adding something to my life
- Daily reality is boring

Do you think you are addicted? How do you rate yourself on a scale of 1 to 4?

- 3-Yes

How many friends do you have in real life?

- More than 10

How many friends do you have in SL?

- More than 10

Do you feel happier in the virtual world as compared to physical world? How do you rate you rate it on a scale of 1 to 4?

- 3-Somewhat happier

Do you think that SL can offer a better quality of life as compared to physical life?

- No

What kind of impact has SL made on your real life?

- Positive effect

Jade's interest in SL stems from the explorative qualities that SL has within it. It is fun for her to discover novel things in SL. As she says, she learnt what a pole dancing club is. **“Heavens! Being able to afford a grand piano on which I can ‘play’ Beethoven, that’s been fun!”** According to her, SL leads one towards a developing career path and self-betterment materially. Another fulfilling feature of SL is its Intellectual Property Rights, which provides an individual with the challenge to create and make their conceptions sell in the internal SL economy. She maintains her own medieval island in SL.

On being asked how SL is adding to her life, she said, “I don’t think it is ‘adding on’ to my real life. It’s just something very interesting that I do *in real life*, more interesting than a lot of the rest of my daily round in RL.”

When she was asked on how SL has made a positive impact on her and what kind of emotional gratification does she receive from it, she said, “Being very happily married in real life for 37 years, I have now ‘fallen in love’ with someone in SL! It’s lovely to have affection within a limited (but sincere!) range of commitment. And both of us being fairly mature, we can enjoy it as play, without any of the possible delusions about ‘meeting for real’. It’s rather innocent, and it enriches rather than trouble our real life partnerships.”

However, from a psychologists’ point of view, she spots out some issues. Firstly, according to her, it was a wise decision by Linden Lab to provide a Teen Grid for the age group 13-17. “Emotions *do* matter here in SL and that is, I should imagine an issue. I can quite understand why Linden provided a separate zone for under-18 year olds. It’s not to protect them from ‘mature’ animations and activities in SL - most youngsters of 16-17 have experienced those, if my own children and their friends are anything to go by - so much as to protect them from adult adventurers offering emotional entanglements. One hears of them in conventional chat-rooms; I can imagine they’d be as likely in SL if it wasn’t for that wise separation.”

Secondly, she highlights a downside of SL. “SL interactions have a very limited bandwidth, and the usual information one has for validating one’s impressions in real life is less copiously available. Much has to be taken on trust and, in that sense, SL can be a

very lonely place. For me, as a psychologist, it raises lots of issues about identity as well as the more obvious issues of friendship formation.”

On the whole, her experience can be summarised as, though quite exciting and appreciative of the offerings that SL can provide, Jade is wary and careful also as to the effects of SL.

Thely Anansi

Thely has been a part of SL now for more than three years. Not just a resident, she performs multiple responsibilities being a professional SL mentor. She helps all the new residents find their way around in SL.

Following are the answers that she provided for the first questionnaire:

Name: Thely Anansi

What country do you belong to? USA

Age:

- 45 plus

Gender:

- Female

Profession:

- **Other, Please specify:** Human Resources

Income level:

- More than 60,000K

How much time do you spend on SL per day?

- 4-7 hours

Since when have you been using SL?

- 3 years or more

What is your objective of participating in SL?

- Fun
- Doing things I can't do in real life
- Making friends
- Learning (education purposes)
- Adding something to my life
- Making money on SL
- Creating (building etc.)

Do you think you are addicted? How do you rate yourself on a scale of 1 to 4?

- 4-Definitely addicted!

How many friends do you have in real life?

- 4-10

How many friends do you have in SL?

- 4-10

Do you feel happier in the virtual world as compared to physical world? How do you rate you rate it on a scale of 1 to 4?

- 1-No

Do you think that SL can offer a better quality of life as compared to physical life?

- Yes

What kind of impact has SL made on your real life?

- Positive effect



Thely has been glued on to SL for more than three years due to her love for designing and creating new things. “I absolutely *love* to build. I build houses, furniture, jewellery, and clothing. I make a beautiful home for myself, live in it a while, then sell it and buy new land and start all over again. I have never gotten tired of the ability to create that I have in SL.”

It’s not only this, but the constant modifications in the SL world that hold the charm for her. “My fellow residents have built some amazing places, from the Rezzable art exhibits, to Chakryn Forest, to the recreations at Amsterdam, Paris, Greenwich Village, and so on. In the past, there have been recreations of the Land of Oz, and of 19th century London and Neverland from Peter Pan. There are some amazing recreations of worlds from Star Wars. You could spend all day everyday exploring SL and never be able to see everything. I love being surrounded by such a talented and creative community of people. At any given time, there are several live musicians performing around SL. There are art exhibits. There are shops containing amazing furniture, clothing, and other things that people have made. The fascination of SL is never ending for me.”

On being asked that how SL is adding on to her life, she says that it is not only the ability to create, but also the friendships that she has formed here that enhances her life. She goes on to say, “As the SL Coordinator for the nonprofit Sustainable Harvest International, I feel that I am making a positive impact on the world by educating people

about rainforest destruction and raising funds for the work that SHI does. Through it I have also had the opportunity to make friends and learn from a lot of other people working for nonprofit organizations in SL and trying to make the world a better place.”

Another benefit of SL for her was that she was able to spend time with her husband online before she got married to him in real life. She spells out the emotional gratification in the following words: “When I first started in SL, I was involved romantically with a man I had met online, in the game of Everquest¹. I lived in the USA and he lived in England, and we had never met. We joined SL together, and we were able to be ‘married’ in-world, to buy land and build a house together. It helped to increase our emotional attachment, and gave us a way to be together. We did later meet and are now happily married in RL.”

She has another friend in SL who is from another country in real life. “We greatly enjoy spending time together and I get a great deal of emotional gratification out of spending time with her shopping, attending live concerts, or even just sitting and talking.”

She, however, disagrees with the fact that virtual worlds can provide a better quality of life as compared to real world. “But for some people, who are ill or handicapped and not able to get out, it’s a great way to provide friends and a social life. I know people who

¹ Everquest is a 3D fantasy themed massively multiplayer online role-playing game (MMORPG).

confined to a wheelchair in real life, are able to experience the freedom of movement in SL, walking, dancing, flying. I have a friend who is battling cancer, and SL gives her a chance to forget about it all for a while, to have a beautiful body that is disease free and friends who know nothing of her problems. I know musicians who have found an eager audience in SL and have been able to establish careers as professional singers there and earning good money through their performances. It's much harder to establish a successful musical career in real life.”

It is a combination of being able to have a ‘perfect body’, owning a chain of shops where she can sell her creations, being able to fly, and being able to build and design her house in SL that gives her immense satisfaction. She encapsulates by saying, **“The success I have had with selling my jewellery certainly has a positive impact on my finances as well as giving me great personal satisfaction. The time I spent living in SL with my husband helped intensify our relationship, and helped us see what it was like to socialise with others as a couple before we were able to meet in real life. My work in SL for SHI has let me make a positive contribution to the real world.”**

Phoebe Chenille

Phoebe has been a resident of SL for the past one year. She is a homemaker in her real life. While she is not handling the beacon of any group or community in SL like the above people, she is as active as anyone can be in SL.

Following are the answers that she provided for the first questionnaire:

Name: Phoebe Chenille

What country do you belong to? USA

Age:

- 35-45

Gender:

- Female

Profession:

- **Other, Please specify:** Homemaker

Income level:

- More than 60,000K

How much time do you spend on SL per day?

- 1-4 hours

Since when have you been using SL?

- 1 year

What is your objective of participating in SL?

- Fun
- Doing things I can't do in real life
- Making friends
- Learning (education purposes)
- Pastime
- Adding something to my life
- Daily reality is boring
- Dating/sex

Do you think you are addicted? How do you rate yourself on a scale of 1 to 4?

- 2-Maybe addicted

How many friends do you have in real life?

- More than 10

How many friends do you have in SL?

- 4-10

Do you feel happier in the virtual world as compared to physical world? How do you rate you rate it on a scale of 1 to 4?

- 4-Yes, definitely happier

Do you think that SL can offer a better quality of life as compared to physical life?

- Yes

What kind of impact has SL made on your real life?

- Positive effect

Phoebe's regular real life days are spent being a homemaker, wife and caregiver. Her regular SL days, however, are characteristically different. Her SL activities include spending time with her friends, attending live concerts and art shows, visiting dance clubs, discussing topics related to politics, religion, economic, and so on. "I do not have complete access to these things since I am not able to go out much at night, which would prevent me from doing those types of things in my real life." She has also been a part of a machinima¹ production in SL.

She speaks very warmly about the friendships she has formed in SL: "I have made some very good friends in SL over the past year. There are three at least whom I speak to on a daily basis. I have learned about them beyond the 'character/avatar' that they have created and know them on a very intimate level." She also spelled out how she gets emotional gratification through her friends, "There are friends in here that reward me

¹ Machinima (machine cinema), is a collection of associated production techniques whereby computer generated imagery (CGI) is rendered using real-time, interactive 3D engines, such as those of games, instead of professional 3D animation softwares.

emotionally. I have grown very emotionally intimate with friends in-world who are always a shoulder to listen, strength when I need it, listeners when I need someone who will not judge. It is beautiful, the relationships I have developed in SL. I have friendships in my real life, but only a few that rival the deep connections I have build in-world.”

Apart from forming strong relationships, SL has made a difference in her real life through many other ways. “I think the biggest ‘thing’ that SL has added to my life is opening my mind. Since SL is such a diverse community (culturally, ethnically, spiritually), I am exposed to people and beliefs that I may not come across in my real life. In my real life, I live in a suburb of a large city, but unless I seek the diversity out, it is not present in my everyday. I find that because of my interactions and learning in SL, I am far more open minded when I interact in my real life situations.”

On being asked whether virtual reality can provide a better quality of life as compared to physical reality, she replied in the negative. According to her, SL will be a better option for the physically disabled or those who are marginalised in the society. For herself also, however, she considers SL a valid choice. “I have marginalized myself in my real life, due to decisions I have made and promises that I am keeping, which do not allow me to live in a way that is true to my heart and the way I would want to live if my situation would allow it.” SL has, therefore, provided her with an exceptional alternative.

SL has also given her a new identity, or rather, an identity which she wanted in her real life also. **“SL has given me an identity, one that is imagined by me but not entirely able to portray in my real life. By this I mean that I am able to live by ideals and mores in SL that may not be present or appropriate in my real life. I get a great satisfaction from being able to live in a way in SL that is closer to my real heart of hearts. It builds me up and gives me confidence and strength in a way that my real life cannot.”**

These personal narrations have provided a greater insight into what an individual goes through, and what nature of changes are brought in them (if there are any), through the use of these novel technologies.

CHAPTER 7

CONCLUSION

Internet has expanded to provide a variety of features to its users. As Dr. Stern said, “It is ubiquitous, inexpensive, convenient and secretive. We can buy, sell, watch, and do all the things we like without moving out of home/office.” Virtual reality is also an extension of Internet, or rather, a characteristic of it now.

Initially, computers were hulking Goliaths locked in air-conditioned rooms and used only by those conversant in esoteric programming languages. Fear of nuclear attack, however, later prompted the U.S. military to commission a new radar system that would process large amounts of information and immediately display it in a form that humans could readily understand. The resulting radar defense system was the first ‘real time’ or instantaneous simulation of data.

One of the most influential antecedents of virtual reality was the **flight simulator**. Following World War II and through the 1990s, the military industry pumped millions of dollars into technology to simulate flying airplanes (and later driving tanks and steering ships).

By the 1970s, computer-generated graphics had replaced videos and models. A natural consumer of computer graphics was the **entertainment industry**, which, like the military, was the source of many valuable spin-offs in virtual reality.

Today, virtual reality has become as personalized as being our desktops. This is where the personalisation of virtual reality started, aided by Internet. The theory of virtual reality encompasses the concepts of virtual communities and virtual worlds. Indeed, virtual reality is portrayed through virtual communities and virtual worlds.

Virtual reality has become almost a reality for many. Interactions with SL residents revealed that many people are going through **Mixed Reality**. Mixed reality refers to the merging of real and virtual worlds to produce new environments and visualisations where physical and digital objects co-exist and interact in real time.

In 1994, Paul Milgram and Fumio Kishino defined mixed reality as “...anywhere between the extrema of the *virtuality continuum*.”, where the Virtuality Continuum extends from

the completely real through to the completely virtual environment with augmented reality¹ and augmented virtuality² ranging between.



While users of virtual reality are not totally dependent on it, it does form a very important part of their lives. There are certain conveniences which virtual worlds offer that attract users towards it. **Anonymity** is one big factor which presents a novelty to internet users, since they have the lowest stake involved. Secondly, it's the temptation of coming in contact with a diverse range of society **without any geographical constraints**, which provides a stimulating environment for discussion. Thirdly, it is the **freedom to portray** oneself in whatever way one feels like, presenting mental or physical abilities which they may or may not possess in reality.

¹ Augmented reality is a field of computer research which deals with the combination of real world and computer generated data. At present, most AR research is concerned with the use of live video imagery which is digitally processed and 'augmented' by the addition of computer-generated graphics.

² Augmented virtuality refers to predominantly virtual spaces, where physical elements, e.g. physical objects or people, are dynamically integrated into, and can interact with the virtual world in real-time. This integration is achieved with the use of various techniques.

Results obtained from the questionnaire shows that the concept of virtual reality and virtual worlds is new in India, but poised for a flight. This is proven by the fact that there are 1613 residents in SL from India. Also, 60% of my respondents are from India. SL, specifically, does not hold an important position in their life as of now due to technical difficulties and unawareness about the possibilities in SL. Innumerable Indian people, however, are a part of Orkut and Facebook. This shows that there is space enough for advancement towards SL in India.

Personal interactions with some of the interviewees gave a better insight into the deeper effects of SL on their lives. SL holds a fascination for its users, by providing multiple facilities, like being able to create original creations (get copyright for the same too), and earn money apart from the usual chatting and interactions.

Virtual reality has negative aspects too. As Dr. Stern said, “Technologies tend to amplify our abilities. But they can also amplify our flaws.” Through this research, however, I could only derive positive results. For some SL has proved to be saviour, for some it has brought a freshness in their lives, while for others it has proved to be an outlet of their professional ambitions.

This does not mean that users have sidelined their physical realities. Instead, they have integrated their virtual life in their real life. They are as conscious of their physical realities as of their physical self.

As Khannea says, **“Sure SL isn’t perfect, but it does act as a beacon from where to move next in the evolution of civilization at large.”** SL, through its unique nature, has enabled people, literally, to lead a ‘second’ life. Kudos to Linden Lab!

Second Life Photographs

I believe that my research would not have been complete without roving around and exploring SL. These explorations led me to understand SL better than any other theory could have done. Following are some photographs of SL which I took while I was ‘in-world’.



Figure 9 Entering the Butterfly Island in SL



Figure 10 Escapade Zoo and Safari in SL



Figure 11 Midsomer's Isle, a beautiful island where couples could slow dance in the classical style



Figure 12 Mystica Market place, a ‘magical’ island in SL



Figure 13 October Country, an island complete in the Halloween style



Figure 14 Sinner's Paradise, an 'adult' island in SL



Figure 15 Winged Isle, a one-stop shop for those who want to provide wings to their avatar

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ANNEXURES

ANNEXURE 1

Interview Transcripts

Dr John R. Suler

1. What characteristics of cyberspace attract users towards it?

There are many characteristics, and it varies from person to person. Mostly, it's the ease with which people can access information and connect with other people. Cyberspace has become such a complex and sophisticated world that there is no one explanation about what people like about it and what they do there. Asking "What do people do with cyberspace" is like asking "What do people do with life?"

2. What is it that makes users feel that cyberspace is better than real space?

That's not necessarily true for all people. But people who do think that sometimes feel that they can be more "real" themselves in cyberspace – that the Internet gives them the opportunity to express what they really feel and think.

3. Can cyberspace become an addiction? If yes, then what are the symptoms?

For some people it can be. Cyberspace is an "addiction" when a person spends so much time and energy there that it begins to have a detrimental effect on that person's

ability to function in the face-to-face world, when it has a negative effect on their work, relationships with friends and family, and on their health.

4. What emotional affects does internet or cyberspace has on its users? Is there any emotional gratification that users get from virtual reality or virtual worlds?

Some people enjoy experimenting with new ways of behaving in virtual worlds. They enjoy experimenting with new and different identities. They might be able to express feelings that they otherwise cannot express in their “real” lives.

5. Is there any correlation between a person’s virtual life and her/his real life? How do they affect each other?

This is a complex question. Some use cyberspace as a supplement to enrich their offline lifestyle. Some use it as a substitute. Some people behave online in a way very similar to the way they behave offline. Some use cyberspace as a place to experiment with new behaviours and new ways to express themselves. Some people then take what they learn online and carry it into their offline lifestyle. Some people isolate their offline and online lives from each other.

6. Can virtual and real lives be embedded within one another? Or will they remain dichotomous?

Again, it depends on the person. Both are possible.

Dr. Steven Stern

1. What characteristics of cyberspace attract users towards it?

It is ubiquitous, inexpensive, convenient and secretive.

We can buy, sell, watch and do all the things we like without moving out of the house/office.

2. What is it that makes users feel that cyberspace is better than real space?

I'm not sure that they do. To some extent, cyberspace is a trap. We form new habits around this newer, more accessible way of accessing people, commerce, and information.

3. Can cyberspace become an addiction? If yes, then what are the symptoms?

I have argued that the same compulsions, sex, gambling, shopping, continue. The only difference is that they use cyberspace as the access point. And since the access for these things is frequently sitting right there on the desktop, compulsions are enabled.

But I do not believe that cyberspace is addictive and I reject the term "Internet Addiction" as a useful diagnosis or description. Most of those people who are glued to their computers would be unglued if we banned the pornography, shopping, dating, and gambling. Yes, there would still be some compulsive news

readers and gossips, and also some compulsive gamers, but I believe that “Internet Addiction” would be cured worldwide.

4. What emotional affects does internet or cyberspace has on its users? Is there any emotional gratification that users get from virtual reality or virtual worlds?

The same as the real world, just less available. We seek out the same pleasures and gather the same fears.

5. Is there any correlation between a person’s virtual life and her/his real life? How do they affect each other?

Technologies tend to amplify our abilities. But they can also amplify our flaws.

6. Can virtual and real lives be embedded within one another? Or will they remain dichotomous?

It is still the same person, so I believe that they are embedded.

ANNEXURE 2

Questionnaire Samples

1. Name: **SAI KRISHNAN**

2. What country do you belong to? **INDIA**

3. Age:
 - 13-17
 - **18-24**
 - 25-35
 - 35-45
 - 45 plus

4. Gender:
 - Female
 - **Male**

5. Profession:
 - In a creative field
 - Media/Communication
 - IT
 - **Student**
 - Education
 - Other, Please specify _____

6. Income level:

- **0-20,000K**
- 20,000K-40,000K
- 40,000K-60,000K
- More than 60,000K

7. How much time do you spend on SL per day?

- **0-1 hour**
- 1-4 hours
- 4-7 hours
- More than 7 hours

8. Since when have you been using SL?

- **0-2 months**
- 3-6 months
- 7-12 months
- 1 year
- 2 years
- 3 years or more

9. What is your objective of participating in SL?

- Fun
- Doing things I can't do in real life
- Making friends
- **Learning (education purposes)**
- Pastime
- Adding something to my life
- **Making money on SL**
- Experimenting with changing gender
- Thrills
- **Improving social skills**

- Meeting real friends online
- Daily reality is boring
- Dating/sex
- A disability hampers me in real life

10. Do you think you are addicted? How do you rate yourself on a scale of 1 to 4?

- 1-not addicted at all
- **2-Maybe addicted**
- 3-Yes
- 4-Definitely addicted!

11. How many friends do you have in real life?

- 0-3
- 4-10
- **More than 10**

12. How many friends do you have in SL?

- 0-3
- 4-10
- **More than 10**

**13. Do you feel happier in the virtual world as compared to physical world?
How do you rate you rate it on a scale of 1 to 4?**

- 1-No
- 2-Neutral
- 3-Somewhat happier
- **4-Yes, definitely happier**

14. Do you think that SL can offer a better quality of life as compared to physical life?

- Yes
- No

15. What kind of impact has SL made on your real life?

- Positive effect
- Negative effect
- No effect

I have learnt to socialize better. I learnt of many things that wouldn't be possible in reality without going around a distance. The reach of internet and SL has empowered me to do things better, simpler and with more ease...hats off and thanks to the ever advancing technology

1. Name: Naimya Price

2. What country do you belong to? USA

3. Age:
 - 13-17
 - 18-24
 - 25-35
 - 35-45
 - **45 plus**

4. Gender:
 - Female
 - **Male**

5. Profession:
 - In a creative field
 - **Media/Communication**
 - IT
 - **Student**
 - Education
 - Other, Please specify _____

6. Income level:
 - 0-20,000K
 - 20,000K-40,000K
 - 40,000K-60,000K
 - **More than 60,000K**

7. How much time do you spend on SL per day?
 - **0-1 hour**

- **1-4 hours**
- **4-7 hours**
- **More than 7 hours**

8. Since when have you been using SL?

- **0-2 months**
- **3-6 months**
- **7-12 months**
- **1 year**
- **2 years**
- **3 years or more**

9. What is your objective of participating in SL?

- **Fun**
- **Doing things I can't do in real life**
- **Making friends**
- **Learning (education purposes)**
- **Pastime**
- **Adding something to my life**
- **Making money on SL**
- **Experimenting with changing gender**
- **Thrills**
- **Improving social skills**
- **Meeting real friends online**
- **Daily reality is boring**
- **Dating/sex**
- **A disability hampers me in real life**

10. Do you think you are addicted? How do you rate yourself on a scale of 1 to 4?

- **1-not addicted at all**
- **2-Maybe addicted**

- **3-Yes**
- **4-Definitely addicted!**

11. How many friends do you have in real life?

- **0-3**
- **4-10**
- **More than 10**

12. How many friends do you have in SL?

- **0-3**
- **4-10**
- **More than 10**

13. Do you feel happier in the virtual world as compared to physical world? How do you rate you rate it on a scale of 1 to 4?

- **1-No**
- **2-Neutral**
- **3-Somewhat happier**
- **4-Yes, definitely happier**

14. Do you think that SL can offer a better quality of life as compared to physical life?

- **Yes SL adds to RL, it is a part of RL, there is no dichotomy**
- **No**

15. What kind of impact has SL made on your real life?

- **Positive effect**
- **Negative effect**
- **No effect**

ANNEXURE 3

Detailed Interviews for Case Studies

Phoebe Chenille

1. How has SL kept you glued to it for the past 1 year?

I have made some very good friends in SL over the past year. There are three at least whom I speak to on a daily basis. I have learned about them beyond the 'character/avatar' that they have created and know them on a very intimate level. Beyond those close friend I have about 15 other friends whom I keep in touch with (speaking to about once or twice a week). I know them on a less intimate level, but they are interesting and fun to spend time with when I am online.

2. You have said that use SL for 'doing things that you can't do in real life'. Can you tell what those things are?

I definitely use SL for doing things I cannot do in my real life. I spend a lot of my time 'in world' attending live music events, art openings and showings, discussing hot topics (political, religious, spiritual, economic, etc.) topics. I do not have complete access to these things (I am not able to go out much at night, which would prevent me from doing those types of things in my real life)

3. How is SL adding on to your life?

I think the biggest 'thing' that SL has added to my life is opening my mind. Because SL is such a diverse community (culturally, ethnically, spiritually) I am exposed to peoples and beliefs that I may not come across in my every day. I live in real life in a suburb of a large city, but unless I seek the diversity out, it is not present in my every day. I find that because of my interactions and learnings in SL, I am far more open minded when I interact in my real life situations.

4. How has SL made a positive impact on your life?

SL has given me an identity, one that is imagined by me that I am not entirely able to portray in my real life. By this I mean that I am able to live by ideals and mores in SL that may not be present or appropriate in my real life. I get a great satisfaction from being able to live in a way in SL that is closer to my real heart of hearts .. it builds me up and gives me confidence and strength in a way that my real life cannot.

5. How can virtual reality give a better quality of life as compared to physical life?

I am not entirely certain that SL can give a better quality of life to me personally, I am not physically disabled or marginalized in my society. I have marginalized myself in my real life, due to decisions I have made and promises that I am keeping... which do not

allow me to live in a way that is true to my heart and the way I would want to live if my situation would allow it.

6. Is there any emotional gratification that SL is giving you?

I get a great emotional high from partaking in SL. There are friends in here that reward me emotionally (by this, I do not mean that I partake in cybersex, I do not) but I have grow very emotionally intimate with friends in world who are always a shoulder to listen, strength when I need it, listeners when I need someone who will not judge. It is beautiful, the relationships I have developed in SL. I have friendships in my real life, but only a few that rival the deep connections I have build in world.

Thely Anansi

1. How has SL kept you glued to it for the past 3 years?

I absolutely *love* to build. I build houses, furniture, jewelry, I design clothing. I make a beautiful home for myself, live in it a while, then sell it and buy new land and start all over again. I have never gotten tired of the ability to create that I have in SL. Also, the world itself it always changing. My fellow residents have built some amazing places, from the Rezzable art exhibits to Chakryn Forest, to the recreations at Amsterdam, Paris, Greenwich Village, etc. In the past, there have been recreations of the land of Oz, and of 19th century London and Neverland from Peter Pan. There are some amazing recreations of worlds from Star Wars. You could spend all day every day exploring SL and never be able to see everything. I love being surrounded by such a talented and creative community of people. At any given time, there are several live musicians performing around SL. There are art exhibits. There are shops containing amazing furniture, clothing, and other things that people have made. The fascination of SL is never ending for me.

2. You have said that use SL for 'doing things that you can't do in real life'. Can you tell what those things are?

In SL I am able to have the 'perfect body', and have a huge wardrobe of beautiful clothes, including things that I could or would never wear in RL. I am able to own a chain of

shops and sell the jewelry I make. I am able to fly. I am able to design and build my own home, and derive great satisfaction from the result.

3. How is SL adding on to your life?

The ability to create such wonderful things definitely adds to my life. So do the friendships I have made with people from all over the world. As the SL Coordinator for the nonprofit Sustainable Harvest International, I feel that I am making a positive impact on the world by educating people about rainforest destruction and raising funds for the work that SHI does. Through it I have also had the opportunity to make friends and learn from a lot of other people working for nonprofit organizations in SL and trying to make the world a better place.

4. How has SL made a positive impact on your life?

The success I have had with selling my jewelry certainly has a positive impact on my finances as well as giving me great personal satisfaction. The time I spent living in SL with my husband helped intensify our relationship, and helped us see what it was like to socialize with others as a couple before we were able to meet in RL. My work in SL for Sustainable Harvest International has let me make a positive contribution to the Real World.

5. How can virtual reality give a better quality of life as compared to physical life?

I don't think it *should*. I still have an active and happy physical life, and I think in most cases SL should not replace RL. But for some people, who are ill or handicapped and not able to get out, it's a great way to provide friends and a social life. I know people who are confined to a wheelchair in real life, who are able to experience the freedom of movement in SL, walking, dancing, flying. I have a friend who is battling cancer, and SL gives her a chance to forget about it all for a while, to have a beautiful body that is disease free and friends who know nothing of her problems. I know musicians who have found an eager audience in SL and have been able to establish careers as professional singers there, earning good money performing. It's much harder to establish a successful musical career in RL.

6. Is there any emotional gratification that SL is giving or is it just a professional platform for you?

Certainly there is emotional gratification. When I first started in SL, I was involved romantically with a man I had met online, in the game of Everquest. I lived in the USA and he lived in England, and we had never met. We joined SL together, and we were able to be 'married' in-world, to buy land and build a house together. It helped to increase our emotional attachment, and gave us a way to be together. We did later meet and are now happily married in RL. I also have one very close friend in SL, a woman who also lives in another country so it is unlikely we would ever have met if it weren't for SL. We greatly enjoy spending time together and I get a great deal of emotional gratification out of spending time with her shopping, attending live concerts, or even just sitting and

talking. My charity work in SL is very gratifying. I am an SL Mentor, and I love helping the new residents as they arrive for the first time in SL. And finally, I love to build and create things in SL. I get a lot of emotional gratification out of seeing my home, which I designed and built myself, and also from my chain of jewelry shops, when I see how people enjoy the things I have created.