

Second life 虚拟世界用户的人际交往和企业
的商业机会研究

**SIGNIFICANCE OF COMMUNICATION AND
BUSINESS OPPORTUNITIES IN VIRTUAL
ENVIRONMENT: SECOND LIFE**

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**SIGNIFICANCE OF COMMUNICATION
AND BUSINESS OPPORTUNITIES IN
VIRTUAL ENVIRONMENT: SECOND
LIFE**

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摘要

Second life (SL) 是一个由其用户设想和创造的在线 3D 虚拟世界。其用户借助此平台可以进行开发、交友、参与社会活动以及交易虚拟物品或服务。虚拟世界是一个基于计算机的模拟环境，用户可以在其中通过不同的媒介进行沟通交流。SL 就是这样一项基于信息与通信技术 (ICT) 的创新，其出现对信息系统 (IS) 领域具有重大意义。本论文旨在调查人们使用 SL 的原因以及 SL 中蕴藏的商机。沟通的需求促使了社会网络的出现并且为买卖双方合作提供了机遇。在 SL 中最常见的沟通形式为文本和语音，包括信息、博客、电子邮件以及视频会议。用户参与进入 SL 的目的在于结交朋友和进行娱乐活动。一些用户也通过虚拟物品的交易获得现实的收益。许多世界知名的公司也选择通过参与 SL 来推广自己的产品和服务。

本研究的理论背景包括通信理论、社会系统理论、内在动机理论以及口碑传播理论。本论文采用对 SL 用户进行在线问卷调查的方式收集量化信息，并通过对玩家、商业用户、公司代表进行的案例分析，来研究用户的传播行为以及在线的商业行为。研究还包括一些实体公司在 SL 中获得商业成功的经历。研究结果强调沟通在 SL 中相对于其他社交网站 (Facebook, Myspace, Twitter and Youtube) 的有效性和优越性，以及其对于现实商业的价值。研究结果证明 SL 对于个人以及实体公司实施电子商务和推广业务来说是最佳的选择。研究结果显示 30 岁以上的用户是 SL 的长期用户并且通常具备专业的商业知识，30 岁以下的用户使用 SL 的行为呈现临时性特征并主要注重娱乐和社交功能。SL 中用户体现的性别差异与现实世界相符。对于大多数用户，收发消息是最常见的沟通方式；视频会议则主要适用于实体公司进行在线业务。一些实体公司在 SL 中运营失败主要源于初期投资和精力投入不足。与现实情况相符，在 SL 中，商家的初期投资、时间投入和产品质量为商家能否成功的三个重要因素。此外，广告、客户关系、售后服务和客流量对于电子商务的推广也是同样重要的。SL 在技术进步、品牌推广、资源管理、商业战略和原型开发等方面具有

优势。虚拟环境中的沟通对于社交网络起了至关重要的作用，并且对促进现实世界的经济有着直接的影响。尽管环境是虚拟的，但是其中的沟通行为和商业战略和现实情况十分相似。现实中，在信息共享和决策制定方面，沟通对政策制定者、管理层和领导都有着巨大的影响。

关键词：Second life，虚拟世界、沟通、商业、社会网络、在线游戏。

Abstract

Second Life is an online, 3D virtual world imagined and created by its residents. The residents can explore, meet people, participate in social activities, create and trade virtual properties and services. Virtual world is a computer based simulated environment where avatars can communicate each other through different communication media. Second Life in this connection, is a latest innovation of Information Communication Technology (ICT). Second Life technology provides one of the major contributions in Information System (IS). The aim of the current study is to investigate why people communicate in Second Life and opportunities of business in Second Life. Communication establishes social networking and provides collaboration between producers and consumers. The most common communication media used in Second Life are text and voice, instant messaging, blogs, email and video conferencing. The intention of residents entering Second Life is to interact with each other, make friends and have fun and entertainment. Some people trade virtual goods and services to earn real currency. Most of the well renowned real world companies entered Second Life to promote their products and services. The major theoretical background used in this study was the communication theory and social systems, theory of intrinsic motivation and word of mouth communication. Online survey from residents in the form of questionnaires was performed to collect quantitative data. A case study from Second Life players, business practitioners and company representatives was also performed to study communication behavior of residents and online business experiences. Success history of some real world companies in Second Life was also included in this study. The result was focused on the effectiveness and superiority of communication in Second Life among other social networking sites such as Facebook, Myspace, Twitter and Youtube and its significance on real world business. Second Life was the best choice for individual and real world companies to perform e-business and promote real world commerce. Residents above 30 years old were found permanent residents or lifers of Second Life and actual business professional. Avatars below 30 years old are casuals and focused on entertainment and social networking. Gender effect was found in Second Life as in real life. Instant messaging was more popular for general users. Video

conferencing was the choice of real world companies to conduct online business events. Some real world companies are unsuccessful in Second Life due to lack of initial investment and enough time engagement. Initial capital investment, sufficient time engagement and quality of products were equally important in Second Life as in real world. Moreover, advertising, customer relation, after sales service and consumer traffic are mandatory for e-business promotion. Second Life was found favorable for technological development, brand promotion, resource management, business strategy and prototyping. Communication in virtual environment plays a crucial role for social networking and has direct influence to raise real world economy. The environment is virtual but the communication behavior and business strategies are almost similar with real world. The communication in real world has significance to policy makers, managers and leaders for information sharing and decision making.

Key words: Second Life, virtual world, communication, business opportunities, social networking, online games

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List of Abbreviations

3D	Three Dimensional
AI	Artificial Intelligence
AMOS	Analysis of Moment Structure
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CPU	Central Processor Unit
CS	Community Standard
IBM	International Business Machine
IM	Instant Messaging
IS	Information System
ICR	Internal Consistency Reliability
ICT	Information Communication Technology
IT	Information Technology
LSL	Linden Scripting Language
LISREL	Linear Structural Relations
MMORPG	Massively Multiplayer Online Role Playing Game
MUD	Multi User Domain
RL	Real Life
SEM	Structural Equation Modeling
SPLA	Smart Partial Least Square
SL	Second Life
TOS	Terms of Services
VOIP	Voice over Internet Protocol
VW	Virtual World
WOM	Word of Mouth

List of Symbols

L\$	Linden Dollar
US\$	US Dollar

Chapter 1 Introduction and Overview: Research Source, Background and Significance

1.1 Research source

The source of the current research is obtained from broad study of literatures, course works and books relating to virtual world and Second Life and relevant theories and information relating to this topic. The majority of research source is based on published articles on reputed journals. Some of the information was retrieved from internet using search engines such as wikipedia and Second Life website. Exploring to Second Life virtual environment and interaction with people also provided ideas to formulate the current research.

1.2 Research background

Second Life is an online virtual world electronic environment, developed by US based Linden lab in 2003. It is human centered and the latest innovation of Information Communication Technology (ICT). Virtual worlds are creation of mind and place for people's imagination. There are more than one hundred virtual worlds in computer simulated environment. Second Life is one of the leading and rapidly growing virtual worlds among them. Second Life is also called a Massively Multiplayer Online Role Playing Game (MMORPG) where people have fun and entertainment and play games. The person who performs all the activities in Second Life is called 'avatar' or 'resident'. Avatar is the 3D representation of human being. All Second Life users have their own avatars. The appearance of the avatar such as body shape, height, weight, hairstyle and clothes can be designed and changed as per the desire. One of the interesting feature in Second Life is that male avatar can represent himself as a female and vice versa. Sometimes they can change their avatar to animal appearance. Residents can move from one place to another, make friends, have interaction with each other and design and create products as per their imagination. Moreover, they can sell and buy new products and services and perform numerous social activities. It has been providing a new and enhanced advertising material, product placements in the form of 3D objects inside virtual world, creating

concept of advertising ^[1]. Second Life has an extensive application on social and behavioral science research.

A Second Life virtual environment has a possibility to make a number of ethnographic researches. Ethnography is the scientific place or environment where different activities or behaviors of the people are studied. Second Life is considered as a real world laboratory and a computer based experimental place. It is useful for designing, development and testing of new products and services. Second Life has gaming environment. Online game story, graphics, length and control are highly related to enjoyment and have a significant impact on behavioral intention ^[2]. It has own virtual currency called Linden Dollar (L\$). The virtual currency is convertible to US dollar and used to sell and buy virtual products and services. Many people are able to earn real money by performing online trade such as purchasing land, leasing and selling different kinds of virtual creation. There are million of users and more than 1.5 million US\$ transactions everyday. Second Life offers scripting and graphics tools which are used for designing and creating virtual products and services. The scripting language is called Linden Scripting Language (LSL) and its syntax is similar to C and java script. Second Life is a place where people can create any types of creations of their imagination. Sometimes Second Life virtual environment is also called 'your world your imagination'. In this connection, residents are getting much more freedom. However, Second Life has its own Terms of Services (TOS) and Community Standard (CS) agreement which abides user by rules and regulation. Virtual world reduces the time consumption in real world. As a result, people spend less time in real life enjoyment and communication ^[3]. Steve and Sharon *et al.* (2008) ^[4] developed ICT networking project to demonstrate collaboration opportunities in Second Life.

Communication is widely used in social and behavioral science where human computer interaction takes place. Virtual world is a 3D environment and communication is required to perform social and business activities. The place is globally shared for communication, interaction and to perform different activities ^[5]. Interactivity is one of the important feature of Second Life and it has gaming environment. The major communication media in Second Life are text, voice, instant messaging (IM), email and blogs. The voice system works on the principle of voice over internet protocol (VOIP) which was added in 2007. All the communication sound in Second Life such as foot step, bird's chirp and gestures is programmed on

Linden Scripting Language (LSL). LSL is an effective scripting tool to design and create products, establish communication sound and controlling behavior of the objects. Each region in the Second Life is called ‘grid’ and runs on a single core of a multi-core server, running proprietary software. The server run scripts in the region and provides communication between avatars and objects present in the region. Linden lab pursues the use of open standards technologies and uses free and open source software such as Apache, MySQL and squid. The purpose is to move everything to open standards by upgrading the Second Life protocol.

The basic definition of communication is to send, process and receive information from one place to another through electronic means. In Second Life, computer mediated environment plays vital role for communication. Figure 1.1 shows the basic block diagram of communication system. The source of the information might be voice, text or video. The information signal which is produced from the information source is non electrical in nature. So for a long distance communication it should be converted into electrical form through input transducer. The transmitter helps to increase the power of the signal and forwards it to a channel. The channel might be wired or wireless. In Second Life, wireless communication takes place. The signal is contaminated by external or internal means resulting low quality of signal. Sometimes the quality of voice signal in Second Life is disrupted by noise and distortion and owing to this, voice communication is not clear. The term ‘noise’ is defined as introduction of unwanted energy inside the communication channel.

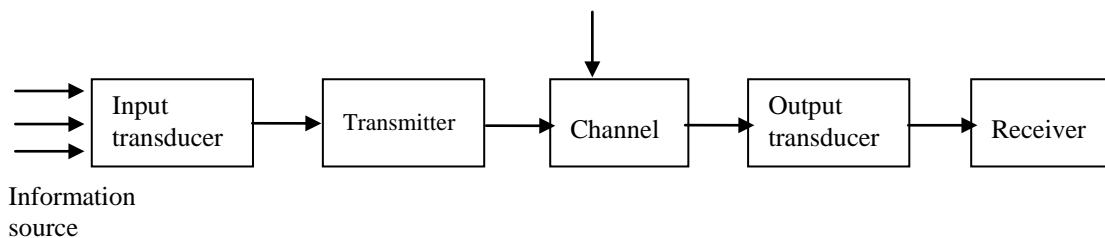


Figure 1.1 Block diagram of communication system

The output transducer helps to absorb noise and it serves as a filter. The end user is the receiver or end user of information. All communication activities in Second Life are performed by the Linden server. Linden lab has a number of high capacity communication servers.

The motivation to perform communication research in Second Life is that it is an electronic environment and without communication no activities takes place. The communication removes the geographical constraints and improves coordination and collaboration among people. Many ICT organizations have been taking benefit from Second Life to test and develop their products and services. Second Life is an appropriate place for research, development, marketing and IT solutions. The possibilities of exploring the potential of Second Life are for business communications, information dissemination and innovation. Second Life has been replacing traditional advertising networks by modern online social network ^[6].

The outcome of current research in Second Life communication has real life implications to policy makers, managers and leaders. Second Life virtual environment is useful for making business policies and strategies, information sharing and social and public relation through social interaction. People are motivated to join Second Life as it is transforming society and effecting immediate environment, ^[7]. Furthermore, the virtual environment is used for culture sharing, fun and entertainment and to develop learning skills ^[8]. For all these purposes, reliable and effective communication is required. Second Life has a wealth of information which should be shared. The managers and organization leaders will be greatly benefited by obtaining management information. Hence, communication plays an important role on information management.

There have been performed a limited number of researches on Second Life communication. Some of the researches have been performed on effectiveness of chat environment on Second Life. Few of them are on virtual reality, virtual community and social networking enlightening human avatar relationship. Second Life virtual environment is an appropriate place to earn real money. Most of the revenue in Second Life is generated from buying and selling lands as well as land maintenance fee. Some money can be generated from subscription fee. The consumer survey is very important in Second Life. More we know and understand about the consumers, more effectively we can communicate and market to them. The interaction with customer helps to receive immediate reaction and feedback. We can use Second Life for effective marketing, building relationships with customers, partners and creating business value ^[1]. Second Life can provide a great deal of value for real life businesses by providing them an opportunity as equals with customers, suppliers and business partners. As Second Life grows, its ecosystem and economy

are becoming more and more crucial in real world, which enables to enhance businesses and number of organizations. This is the interest of individuals to know what residents are doing in Second Life and in real life. In this connection, Second Life is largely known for its recreational and business activities. The virtual community is globally shared and becoming an online destination of choice for big companies looking to test and sell new products and promote their brands ^[5]. The economy is real and can make the real profit.

1.3 Purpose and significance of research

The current research covers a broad study on communication behavior of residents in Second Life virtual environment. Second Life is a web based computer simulated virtual environment. The twenty first century is the era of internet. So it has brought a number of opportunities in e-commerce field. No business is possible without effective communication. Due to this, Second Life offers numerous trading and learning opportunities through communication and collaboration ^[4]. It proposes a mechanism to facilitate the communities to grow into scale-free networks. This is an advanced form of web 1.0 and called web 2.0 technology with additional services of voice communication. An exploratory study of Second Life can be performed in web 2.0 technology. This is a place for social networking thus referred as collaborative virtual environment or social system ^[9]. Besides Second Life, there are other social networking websites such as Facebook, Myspace, Twitter and Youtube. Comparing to these, Second Life takes a high social responsibility and transparency. The importance of this study is to learn human communication behavior, interpersonal communication and cognition in multiuser virtual environment.

Figure 1.2 shows the virtual environment of Second Life where people from different part of the globe gather in particular place in the form of 3D human shape to communicate. Communication enables them to build social network, participate in fun and entertainment and perform business activities.

The research question of the current study is “why do people communicate in Second Life and opportunities to conduct online business in Second Life”. The significance of communication in virtual environment has been linked with e-business. Communication helps to increase the brand of the products, provide organizational information, and present training and learning skills. The importance of the research is that Second Life is a suitable place for business strategy, social

interaction, sharing culture and idea among different people residing at different parts of the world and to motivate them to join Second Life. Second Life is thus facilitating as a virtual community ^[10]. It enables to increase the brand of the products, present organizational information, and provide training and learning skills ^[1, 8]. People can participate on distance education and have new experiences and opportunities. Most of the information is social such as asking questions, receiving feedback and recommendation and culture sharing. According to Linden lab, the monetary transaction of more than US\$ 1.5 million takes place in Second Life everyday.



Figure 1.2 Second Life virtual environments

Another significance of Second Life is the concept of presence and telepresence. Presence is defined as “sense of being in virtual environment” physically. All humanoid avatars show their presence. Telepresence means being in an environment through communication media ^[11]. A virtual reality is referred to as a real or simulated environment in which a perceiver experiences telepresence. Thus communication research has importance in human computer interaction. We can consider Second Life as a social networking and communication software. Other social networking software such as MSN messenger, Yahoo messenger, AOL and Skype are also becoming popular. Similarly, people have been using blogs, wikis and

podcast for interactivity. The current study has tested the reliability of Second Life communication comparing with other social networking software. The recent data shows that more than 80% of internet users will be communicating through Second Life by the end of 2011.

Second Life has the feature of synchronicity i.e. people could react with each other promptly. Due to prompt interactivity immediate feedback can be collected. Email is asynchronous because people could receive feedback after few duration of time. Sometimes it may take one week or even more. Due to the feature of interactivity decision making process is speedy. Fun and social interaction is one of the most important outcomes of virtual world ^[9]. The online world is different from the offline world or face to face world. One of the drawbacks of online communication is that people are not able to physically communicate with each other by hand shaking, hugging, kissing and patting. Lack of face to face cues has a curious impact about how people interact on online environment.

The fundamental advantage working in virtual worlds is that they offer much more potential for customers to interact with new products and immediate problem solution. Second Life is largely known for its recreational and business activities. We can use Second Life for effective marketing, build relationship with customers and creating business. It provides real life business by giving them an opportunity to involve with customers, suppliers and business partners ^[1]. Second Life has become a strong communication media allowing distant participants to interact with real world to enhance collaboration ^[10]. So they reduce the cost for learning. Second Life has importance for both the marketers and advertisers. Owing to the growing number of users and reliability of Second Life platform, the current research will be significant for IT researchers and management professionals.

Some previous researches are focused on interactivity through online virtual game. People often play online games for fun and enjoyment and spend time. The communication plays vital role during game playing ^[2]. Some of the important factors are feeling of telepresence, enjoyment, immersion and participation from a distance. Thus it was learnt that previous researches are inadequate and inconclusive on communication research.

1.4 Literature review

1.4.1 Social networking

Virtual world such as Second Life is an electronic gaming and online social networking place serving as an information superhighway. The space is globally shared which enables people to perceive and utilize the environment ^[5]. The traditional advertising network is being replaced by modern electronic social networks, and behavior of individual in online networks can be different from the behavior of the same person in traditional social network ^[6]. In this connection, the communication behavior in real life and virtual life becomes different. Virtual world is the computer generated multi agent system reflecting meta games and interactive dramas. The virtual community theory reveals the human behavior modeling for virtual agents. In virtual community people interact with each other through electronic media. Virtual worlds have been attracting researchers in a very short period of time. There are three phase virtual communities in society model ^[7]:

1. Variables that effect individuals decision to join virtual communities
2. Variables that explain how members of virtual communities affect their immediate environment
3. Variables that describe how virtual communities are transforming the society.

Some researches on Second Life have been performed on development and evaluation of virtual campus for learning environment ^[8]. Virtual campuses are recreational, collaborative and communicative zones. The result on learning environment is focused on presence, communication and awareness. In addition, it paid attention on perceived sociality, virtual learning environment, productivity and general satisfaction. Barbara and Gloria (1997) ^[9] formulated that the collaborative virtual environment can be called as a social system. Avatar movement, nature of turn making, virtual meetings, cultural formations and communication in online communities are studied under Multi User Domain (MUD).

Leimeister *et al.*, (2004) ^[10] found the success factors for establishing and managing virtual communities. They defined that “*a virtual community consists of people who interact together socially or technical platform. The community is formed on common interest, problem and task governed by code of behavior. The technical platform in virtual community enables its members for interaction and builds trust among them.*” Virtual reality defines the concept of presence and telepresence. Presence can be thought as the experience of one’s physical environment. It can be defined as the sense of being in an electronic environment. Telepresence is referred to as the presence in the environment through

communication media ^[11]. It was found that there are two categories of users in Second Life. One user group who remain for a long period of time is called lifers. They might have long term job and have strong social relationship. Another user group who remain for a short period of time is called casuals ^[12].

In social networking the implementation of quality control, security, privacy and bandwidth is very important. There exists a number of social networking software for online communication. Some of them are IM, text chat, web blogs, wikis, social guides, social libraries and virtual world. Besides this, social networking sites such as Facebook, Myspace and Twitter based on web 2.0 are becoming popular. The development of web 2.0 technology helps for policy makers, intelligent analysts and researchers to better understand communication theory ^[13]. O'Reilly and associates ^[14] initiated the term web 2.0 in 2004 and later produced a statement refining the concept ^[15]. O'Reilly mentions some core patterns of web 2.0 as harnessing collective intelligence, innovation in assembly rich user experiences, software above the level of a single device and lightweight software and business models and cost effective scalability. Harnessing collective intelligence is sometimes described as the core pattern of web 2.0 that mentions architectures of participation ^[16] and holds the effective use of network effects as well as feedback loops to create systems. The second core pattern above is jargon for the fact that information has become as important as or more important than software, since software itself has become a commodity. Web 2.0 permits the mass servicing of micromarkets cost effectively. At the end, O'Reilly claims that lightweight software and new business models are changing the economics of online software development, providing new players with powerful new weapons against established players and entire industries.

After the introduction of internet in 1990, the development of social interaction sites took place. One of them is Second Life, in which people have their virtual identity and they can communicate with each other. Blogs are one sided communication tool. Youtube is becoming popular video sharing site. Second Life holds a leadership position in virtual world. The media equation theory states that the human computer interaction is social. People follow social rules while interacting with technologies. Comparing Second Life with Facebook, there is no real identity of people in Second Life. There is no reality in name, gender and affiliation. But in Facebook, people have their real name, picture and profile information. In this sense,

Facebook provides more real information than Second Life. The challenging issue is the authenticity of individual in virtual environment.

Riva (2000)^[17] formulated that there are three types of presence in virtual world: social, physical and co-presence. Second Life communication is useful for managers to share knowledge. The previous survey showed that 97% of managers believe that knowledge bears strategic competitive advantage. Lombard and Dilton suggested six concepts of presence: realism, immersion, transportation, social richness, social actor with medium and medium as a social actor. Physical presence refers to the sense of being physically in a mediated space whereas social presence refers to sense of being there through communication. Co-presence is the combination of presence and social presence. Bass (1969)^[18] stated that the new users in Second Life are ‘innovators’ or ‘early adopters’. Clemons (2009)^[6] argues that the “behavior of individuals in online networks can be very different from the behavior of the same individuals interacting in a more traditional social network”.

1.4.2 Communication in Second Life

Word of mouth communication became an important market force for consumer decision making. Word of mouth is the formal transmission of ideas, opinions, comments and information between two or more individuals. “The consumer is an active participant in an interactive exercise of multiple feedback loops and highly immediate communication”^[19]. There is the difference between avatar email and traditional email communication. Second Life facilitates avatar email which has media richness and social presence. Managers prefer rich medium (e.g. face to face communication) rather than lean media. Traditional email is a lean media^[20].

Second Life communication has significance to play online games. Games are played for enjoyment. So, enjoyment is one of the important factors of gaming behavior. Moreover, people play online games to remove challenges, make friends, spend time but the basic reason is to enjoy^[21, 22]. Second Life has scripting tool for monitoring and controlling the entire communication system. The podcast is an important communication media to communicate from Second Life to real life^[21]. Machinima is a video created by avatars. Chatbots are artificial intelligence (AI) based software used for responding reference questions while having facial expressions in virtual environment^[22].

In Second Life communication, three factors are very important. They are body language, appearance and facial expression. Appearance plays very important role in face to face communication. Voice communication is more effective than text. It brings emotional data and needs high bandwidth. There is no actual facial expression or lip movement in voice communication. Second Life has numerous technological challenges such as poor graphics, data transmission problem and server failure (downtime). In Second Life voice communication is important than text. Birdwhistell (1970) ^[23] states that 65% of information takes place through facial expression and remaining 35% through spoken words. Non verbal communication is limited in Second Life. Facial expressions are used to show reactions and these are shown through gestures. In some cases, Second Life has technical limitations, hence the possibility of physical expression is rare. Second Life has limitation on body language in some extent. Residents can walk, run, stand and fly easily but animations and gestures are sophisticated ^[24]. Additional features on animations and gestures are frequently uploaded in Second Life. Due to the limitation of nonverbal communications many users use Skype and other VOIP solutions for voice communications. Unfortunately, there is no actual synchronization of voice with facial expression and lip movement. Accordingly, Second Life has been missing actual face to face communication. Peter *et al.*, (2007) ^[24] mentions that the privacy and trust should be maintained in order to encourage face to face meeting. There is a public domain code in Second Life to encrypt communication for sending sensitive message to protect from the unauthorized users. A peer to peer IM is used for private voice communication and conference call should be used for group users to have secured communication. The distance plays important role for communication. For instance, one must be within 10 m to hear whisper, 20 m to hear chat and 100 m to hear shout. Second Life main greed is public and controlled by Linden Lab, so the security is low. Other challenging issues of the Second Life are speed of the graphic cards, bandwidth, server capacity and sensory channels. Due to the growing number of users, Second Life has been facing the problem of system instability that affects online business events. Some other limitations are lack of web interfaces and powerful programming language. Comparing Second Life with other social networking sites such as Facebook, Myspace, Twitter and Youtube, it bears a high social and communication responsibility.

Telepresence is defined as the experience of presence in an environment by means of a communication medium. In another word, presence is a natural perception, whereas telepresence is mediated perception of environment. The environment can be temporary, real or virtual (computer mediated). Heeter (1992)^[25] described three types of presence: subjective personal presence, social presence and synthetic presence. Robinett (1992)^[26] made distinction between real and synthetic experience. Held and Durlach (1992)^[11] made a remark that telepresence is common to teleoperation and the experience of the virtual environment. By employing concept of virtual reality, this is defined as a simulated environment in which a user experiences telepresence^[11]. The definition of communication is transmission of information from sender to receiver. But in the case of telepresence the user may be either sender or receiver. There are two models of communication: traditional media and virtual reality.

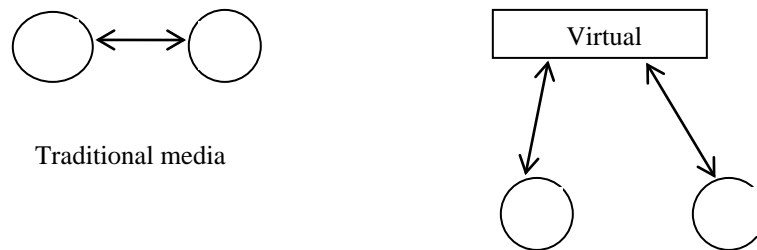


Figure 1.3 Communication model

(Source: Jonathan S., 1992. Defining virtual reality: dimensions determining telepresence. Journal of communications. 4: 73-93)^[27].

Figure 1.4 shows two models of Communication. The first one is traditional media and second one is virtual reality in the sense of telepresence view. The traditional media have no mediated environment whereas in telepresence mediated environment are created instead of transmitting information directly^[28]. The result that can be achieved from the figure is that virtual reality is more advanced and the latest innovation in computer mediated communication technology. The distant participants can show there presence through modern communication media such as voice, instant messaging and video conferencing. Due to its media richness characteristics people can have immediate response and feedback during communication enabling prompt decision making and information sharing. Traditional media are offline so have no computer mediated environment. Virtual

reality plays pivotal role for the development of communication technology. It has implication in real life practice for policy makers, managers and leaders for providing a reliable and quick decision making. In this connection, virtual reality bears concept of presence and telepresence. Some examples of telepresence are reading a letter from distant friend, user of multiple online systems such as conference, listening of live recording of music and video game play. Telepresence is referred to as both technology and perceiver. In the contrary, face to face communication is called interactive communication. The determinants of telepresence are vividness and interactivity. Vividness refers to the ability of a technology to create a rich mediated environments and interactivity presents the degree to which users can influence the content form of the mediated environment ^[29, 30]. Interactivity is variable characteristics of communication and has great concern to researchers ^[31]. The three important factors that contribute to interactivity are speed, range and mapping. The speed of time or response time is very important in communication. Range can be defined as the amount of change that can be affected to the mediated environment. Mapping is referred to as the way in which human actions have relation to actions within a mediated environment ^[31]. Multimedia, computer technologies and high speed data networks cause development of global village through interaction. Media is an example of telepresence and all mediated interactions such as telephone, e-mail, online chat, video conferencing and immersive virtual reality fall under communication research.

1.4.3 Business opportunities

Second Life has numerous opportunities for both real and virtual business. The individual users can sell their creations online whereas the real world companies keep their product information. Moreover, they conduct online business events to promote brand of their products. Web based technologies such as Second Life is useful to create new e-commerce for income generation and consumers participation ^[32]. Hemp (2006) ^[33] argues that the virtual worlds have future importance for marketers. They become interactive, collaborative and commercial platform for all. In this connection, there is a huge opportunity of virtual e-commerce. Virtual world offers flexibility in brand building, new product development, testing and advertisement ^[34]. Avatars and virtual representations play a crucial role to conduct marketing activities in Second Life and have numerous business opportunities ^[35, 34].

Virtual business is divided into three parts: virtual stores to conduct virtual commerce, web store to conduct e-commerce and brick and mortar store to conduct physical commerce^[36]. The most fun in Second Life is the creation of new products, share them and sell to others. The revenue status is that 80% of the money comes from land and land maintenance fees and 20% comes from subscription fees^[37]. Thus the web based technologies have motivated users for generating and engaging users. The researchers investigated that users are able to get enjoyment through IM^[41] and online shopping^[42] but less attention has paid to online gaming. Virtual worlds have significance in electronic gaming and social networking, so this is called a place as “information superhighway”^[5]. There is a plenty of opportunities to consumers for learning products. People interact with each other through electronic media. Thus virtual worlds have attracted researchers in a short period of time.

Virtual worlds are becoming popular everyday and they are developing inworld economies offering different types of business activities, called virtual commerce or v-commerce^[43]. Virtual markets are creating more advantages for them^[30] and improving the firm performance^[41]. A multidisciplinary approach is required to study synthetic environments^[42, 43]. Virtual presence may be advertisement or product placement and business sponsored virtual activities^[34]. The behavior of virtual avatars differs with real world people in some extent^[6].

Second Life is becoming an important place for marketing and brand promotion of the real life products and services. Virtual world is stable so there is a low risk of investment. In this connection, there is a huge opportunity of v-commerce or virtual commerce. Most of the virtual worlds have their own currency. The currency of Second Life is called Linden Dollar which is convertible to US Dollar. Second Life provides flexibility in brand building, new product development and advertisement^[34]. Virtual worlds are designed not only for entertainment and business opportunities but for achieving experience. So virtual environment is an effective, emotional and simulating environment for users. The Second Life virtual world offers more than 100 real life brands. The area of brand includes automobile (e.g. Mercedes, Mazda), electronics (Sony, Dell), Media (AOL, Sony BMG and Reuters), telecommunications (Telus and Vodafone), banking (ABN Amro and ING) and professional services (IBM and PA). Some advantages that IBM obtained from Second Life adoption are: resource management, technology management, business opportunity creation, corporate culture enhancement and business strategy. The

development of brand building in virtual world is new so few studies have been conducted in this field. The virtual world game is useful to reduce pressure from real life. So people get involved in virtual world to play games, engage in artistic activities. Owing to this, virtual worlds are becoming a new frontier for performing online business. The virtual presence may be advertisement or product development and business sponsored virtual activities. ^[6]. Users who buy virtual products have less interest to purchase real products in material life.

Traditional advertising media are losing their impact due to the disability of revenue generation. Modern advertising media such as online social networks including Second Life are playing important role in making money, exchange information and entertainment. In this connection, social networks have been replacing traditional advertisement media ^[6].

Second Life virtual environment keeps relationship between producers and consumers. The firms design, produce and distribute products. The consumers in another hand buy the products as per their interest and budgetary limitations. The communication establishes collaboration between producers and consumers. The firms have challenges to produce goods as per the consumer demand. An appropriate designing process and decision making is required to fulfill consumer demands. Some of the firms develop online digital computer network, an outcome of information technology for product development. Nowadays video game industries have been providing the consumer designed products. Games are played on online environment and multiple users can participate. Thus video games establish a favorable collaborative environment between producers and consumers ^[36]. Massively multiplayer online games are technically feasible, economically suitable for both producers and consumers to establish a favorable collaborative environment. Online games on virtual world are able to generate a good amount of revenue in real life. Due to this reason, virtual worlds are important source of emotional and material benefit ^[44]. Such web based technologies are useful to create new online business for income generation and users participation. Virtual worlds have the future scope for the development of e-commerce and internet.

Second Life has wide application in business, social networking and learning skills in virtual environment. Online games have motivated a number of users to join Second Life to create business value and socialization. Avatars, the 3D graphical representation of human show the feeling of telepresence and they are responsible to

interact, communicate and perform social activities. Although the Second Life environment is virtual but the events are real. People can generate real monetary values by creating, designing and selling virtual products and services. They have intellectual property right of their creations and products. In this connection, a large number of users have been joining Second Life everyday. Real world companies and organizations have been performing promotional activities in Second Life. Due to this the real life business has positive impact for its growth. The Second Life platform is globally shared, so people have much more freedom to perform the preferred activities. The social and economic interaction is the key features of Second Life and other virtual worlds. Second Life communication system is highly reliable and stable. It contents both audio and video contents and different communication media such as text, voice, IM and blogs. People use IM for secured communication. The communication system is synchronous. It facilitates information sharing and prompt decision making in business related issues. Moreover, the communication has helped to conduct real life business activities in Second Life. The voice communication has high media richness with facial expressions, gestures, language focus and personal focus. So voice is effective for face to face communication. Rich medium channels provide communications with too much information and superfluous message.

1.5 Structural diagram of thesis

The rest of the dissertation is organized as follows. The structural diagram of the thesis is presented in figure 1.4. In Chapter 2, we provide related work on research topic. The research question is divided into two parts: significance of communication and business opportunities in Second Life virtual world. Previous works have been revealed separately in these topics. Moreover, the literature review highlights the social networking aspects of Second Life. The theoretical background and research model is mentioned in Chapter 3. Major theories used in this study are communication theory and social system, theory of intrinsic motivation and world of mouth communication. Social capital theory has been considered as a supporting theory. A research model has been developed from broad literature review. In Chapter 4 we shall provide empirical study of

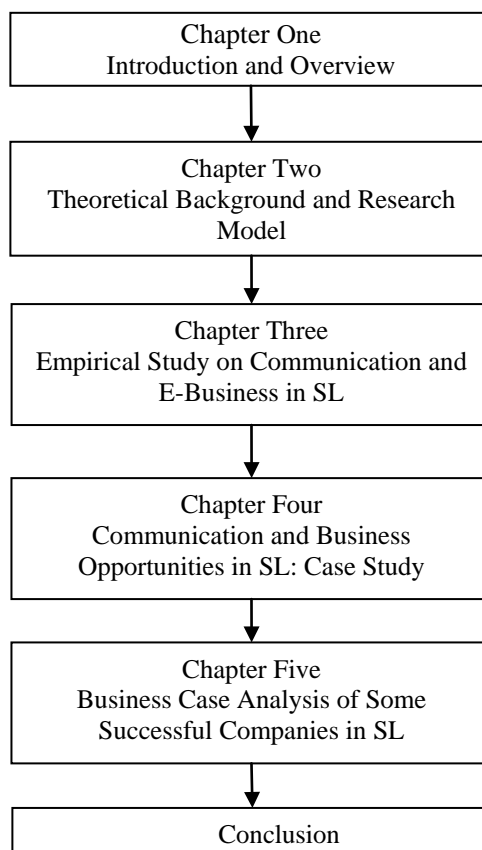


Figure 1.4 Structural diagram of the thesis

research question through online survey. The result and analysis of the study have been described through statistical analysis. A case study has also been performed to make the study more supportive which is incorporated in Chapter 5. Online interview from Second Life players, business professionals and company representatives have been taken to study communication behavior and e-business success. Chapter 6 includes case study of some successful companies in Second Life. The well renowned real world companies: IBM, Intel, Coca cola, Nissan and Cisco are taken to study their business achievement in Second Life. At the end, conclusion of the dissertation and future work is presented.

Chapter 2 Theoretical Foundation and Research Model

2.1 Theoretical foundation of the study

The present research is based upon some well known theories. Some of them are specified below:

2.1.1 Communication theory and social system

Communication is defined as the exchange of information from one place to another. It is an exchange of understanding. Lasswell defines communication theory as “who says what to whom in what channel with what effect”. Communication research in Second Life has a broad scope to study human behavior. The communication theory has been reflected at the beginning of Socrates and Plato. Later, Aristotle developed the theory of communication. Nowadays, communication theory has application on information systems, psychology, sociology, linguistic and advertising. Many authors and researchers divide communication by ‘context’ or ‘levels’ and human users are ‘symbol users’ or symbol makers. Interpersonal communication tends to focus on dyadic communication, communication involving face-to-face interaction, or communication as a function of developing relationships. Research into interpersonal communication theory typically focuses on the development, maintenance, and dissolution of relationships. Virtual world has become a strong communication media allowing distant participants to interact with real world to enhance collaboration ^[10]. The development of web 2.0 technology helps for policy makers, intelligent analysts and researchers to better understand communication theory ^[13]. Voice communication is important than text. Birdwhistell (1970) ^[23] stated that 65% of information takes place through facial expression and remaining 35% through spoken words. Interactivity is variable characteristics of communication and has great concern to researchers ^[31]. The important factors that contribute to interactivity are speed, range and mapping.

A social system is widely used term in sociological systems theory. Social systems are self-referential systems based on meaningful communication. They use communication to constitute and interconnect the events or actions which build up

the systems. The environment of social systems includes other social systems, (the environment of a family includes for example other families, the political system, the economic system, the medical system, and so on). Therefore communications between social systems is possible and social systems have to be observing systems, being able to use, for internal and external communication, a distinction between themselves and their environment, perceiving other systems within their environment. The basic requirement in social system is that there should be an interaction between at least two people. Barbara and Gloria (1997) ^[9] formulated that the collaborative virtual environment can be called as a social system. The place is globally shared for communication, interaction and to perform different activities ^[5]. Communication plays a vital role in Second Life social systems. The virtual community is globally shared and becoming an online destination of choice for big companies looking to test and sell new products and promote their brands ^[5]. There are different methods of measuring participation within social systems such as reach, engagement and frequency of participation. All social systems have commonalities. We can assume Second Life as a place for social networking.

2.1.2 Theory of intrinsic motivation

This is the theory which can be described as a motivation to engage in activities that enhance or maintain a person's self concept. It further states that the reward of performing an activity is the process of the activity itself and not an end result ^[45]. Intrinsic motivation is when people are motivated by internal factors, as opposed to the external drivers of extrinsic motivation. Intrinsic motivation drives individual to perform things for the fun. There is a paradox of intrinsic and extrinsic motivation. Intrinsic motivation is far stronger a motivator than extrinsic motivation, yet external motivation can easily act to displace intrinsic motivation. The factors that promote intrinsic motivation are challenge, curiosity, control, fantasy, competition and recognition. Intrinsic motivation theorists divide motives into two global categories: drives (also called extrinsic motivation) and intrinsic motivation. Drives are biological survival links whereas intrinsic motivation pertains to what some have called ego motives. Some of the examples of drive are hunger, thirst and pain. Whereas curiosity, autonomy and play are examples of intrinsic motivation. The intrinsic motivation is about competence or mastery.

By intrinsic motivation we mean a process of arousal and satisfaction in which the rewards come from carrying out an activity rather than a result of the activity. We speak of the rewards being intrinsic to a task rather than the task being a means to an end that is rewarded or satisfying. By contrast, one might work hard at a task in order to gain social approval. Such work, undertaken as a means to an end, is typically deficit motivated behavior, in which there is a reward as a consequence of effort to reach a goal where the deficit is reduced. Intrinsic motivation tends more to be appetitive, new information arousing a slight interest leading to an appetite for more. The Second Life community is curious, competent and challenging. So, individual and organizations are motivated to join Second Life virtual world.

Motivation is required for residents to live in Second Life for a long period of time. According to Markus (1995)^[46] the motivation is required to eliminate users' conservatism, fear of changing the environment and lack of involvement. The Second Life is a wide place for entertainment and engagement. People may have fun, interact with each other, make friends and form a social group through communication media. The theory is widely used to understand information system related human behavior.

2.1.3 Word of mouth communication

Consumers interact with each other through internet to share knowledge, experience and opinion. Word of mouth is an important marketing tool for consumer decision making. The marketing tool is useful for marketers, managers and researchers for decision making. Companies and consumers access online network to have communication and interaction. Hoffman and Novak (1996)^[47] stated that "the consumer is an active participant in an interactive exercise of multiple feedback loops and highly immediate communication." Through online technology, information can be transmitted worldwide at lower cost. In virtual environment, friendship can be made, information is gathered and collect opinion of experts. Information is exchanged through other social networking sites such as Myspace, Youtube, Facebook and Wikipedia. Virtual communities play an important role for new product development and consumers motivation. Blackwell *et al.*, (2001)^[48] stated that "World of mouth is the informal transmission of ideas, comments, opinions and information between two or more individuals, neither one of which is a marketer". Virtual communities can be considered as a word of mouth networks. The

impact of word of mouth communication is characterized into two parts: structural and interactional characteristics. The structural characteristics include network size, number of connections whereas interactional characteristics include strength and degree of homophily among network members. When people enter first time in virtual environment, they are not familiar with the virtual activities. So, they should engage in informational and instrumental activities.

There exists sufficient theoretical support for the idea that WOM impacts consumers' actions. Banerjee (1992, 1993) ^[49, 50] presents two models that propose that people are influenced by others' opinions. Mayzlin (2004) ^[51] focuses on WOM online and the potential that it presents for the organization to pose as a consumer and create firm to consumer communications that appear like consumer to consumer communications. WOM's impact depends on who is talking to whom. Granovetter (1973) ^[52] defines relationships as being either strong ties or weak ties. Further assumption can be made that communities are formed by relatively strong ties among their members. Then a direct implication of this model is that the only connections between communities are those made along weak ties. This highlights the vital role played by weak ties in the diffusion of WOM. Richins (1983) ^[53] observes at the moderating factors that determine whether one talks about negative experience. Anderson (1998) ^[54] opines about negative and positive WOM communication. He proposes that a very dissatisfied consumers and very satisfied consumers are most likely to engage in WOM. Those customers who described themselves as faithful were considerably more likely to engage in WOM. However, these customers were less expected to engage in WOM. This indicates that loyal customers engage only in negative WOM and only when they are dissatisfied.

Disseminating information through word of mouth communication is one of the most effective mediums for relaying important product and company information. For many years it has been largely ignored by companies and retailers. Word of mouth has been affecting people and organizations for many years. As its effectiveness becomes more clearly understood, it will be managed to affect many more. Word of mouth marketing which comprises a variety of subcategories such as buzz, blog, viral, grassroots, brand advocates, cause influencers and social media marketing. Because of the personal nature of the communications between individuals, it is believed that product information communicated in this way has an

added layer of credibility. Word of mouth depends on the extent of customer satisfaction with the product or service and on the degree of its perceived value.

2.1.4 Social capital theory (as a supporting theory)

Social capital theory is a sociological concept widely used in business, economics, organizational behavior and social sciences to refer to connections within and between social networks. Social contacts affect the productivity of individuals and groups. Hanifan in 1916 contrasts social capital with material goods in his article by defining as:

"I do not refer to real estate, or to personal property or to cold cash, but rather to that in life which tends to make these tangible substances count for most in the daily lives of people, namely, goodwill, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit... If he may come into contact with his neighbor, and they with other neighbors, there will be an accumulation of social capital, which may immediately satisfy his social needs and which may bear a social potentiality sufficient to the substantial improvement of living conditions in the whole community. The community as a whole will benefit by the cooperation of all its parts, while the individual will find in his associations the advantages of the help, sympathy, and fellowship of his neighbors". The concept of social capital existed since small communities formed and humans interacted with the expectation of reciprocation and trust. The social capital exists between individuals and can be studied at the individual level. Social capital resides in the relations among the nodes with physical and human capital facilitates, productive activity and social capital. It exists between individuals and by extension that can be accumulated by the individuals. It is all about establishing relationships purposefully and employing them to generate intangible and tangible benefits in short or long terms. The benefits could be social, psychological, emotional and economical.

Social capital is a broad term that encompasses the norms and networks facilitating collective actions for mutual benefits. This broad definition of the term makes it possible to multiple interpretations and usage. At one end social capital can be seen as a notion that is based on the premise that social relations have potential to facilitate the accrual of economic or non-economic benefits to the individuals and on

the other hand social capital can be seen to reside in the relations and not in the individuals themselves.

Figure 2.1 shows the schema of social capital theory formulated by Narayan and Cassidy (2001) ^[55]. Social capital is directly linked with seven factors. They are briefly summarized as follows:

Group characteristics: It includes number of membership, contribution of money, participation frequency and participation in decision making. Moreover, membership heterogeneity and source of group finding are the parts of group characteristics.

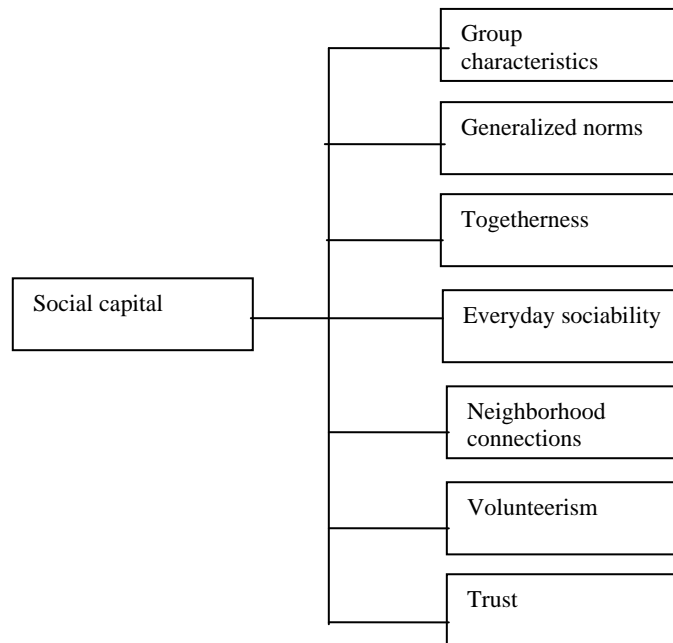


Figure 2.1 “Schema of social capital theory”

(Source: Narayan and Cassidy (2001) [55], <http://www.gnudung.com/literature/dimensions.html>)

Generalized norms: Generalized norms comprises of helpfulness of people, trust with people and fairness.

Togetherness: It defines how people get along together to make decision and solve problems.

Everyday sociability: This is the factor which indicates the daily social life of people and their behavior to deal and communicate with people.

Volunteerism: Volunteerism measures helping to other people. The help arises automatically from the mind and this is the human nature.

Trust: It indicates the belief among family, people, business and government. Trust is the key variable in ecommerce research.

2.1.5 Marketing concept in Second Life communication research

Second Life is a reliable place for making real capital. So marketing theory is applied in Second Life communication research. The concept of virtual reality is highly used in marketing. Virtual reality is a platform to consumer learning about the products in the concept of telepresence and theory of cognitive fit. Therefore, virtual reality has realistic computer environment, having 3D images of products^[38], interactivity and concept of telepresence^[56, 57]. Telepresence is defined as “sense of being there” in a virtual environment by means of communication media^[57]. Virtual reality influences consumer learning, their intention to purchase goods that satisfies theory of cognitive fit. The theory identifies a contingent effect of technologies. Virtual reality requires high media richness, interactivity and telepresence to enhance consumer learning about products. Since virtual reality is experienced in online environment, it requires vision and hearing for consumers. The feature of interactivity is to get immediate feedback through mediated environment. Almost all rich media have interactivity feature.

A transaction cost is a cost incurred in making an economic exchange. Most people, when buying or selling a stock must pay a commission to their broker, that commission is a transaction cost of doing the stock deal. Transaction costs cover a wide range, for example: communication charges, legal fees, informational cost of finding the price, quality, and durability, etc. and may also include transportation costs. Transaction costs are a critical factor in deciding whether to make a product or buy it. In virtual world there is no direct affect of transaction cost as business is performed electronically. The virtual market has low risk and requires low investment amount.

Consumers have positive, negative or neutral attitude about the products. They create positive attitude and decide to purchase the products. The theory suggests that virtual reality effects on consumer learning in terms of cognitive, affective and conative dimensions based on observations. Consumers experience products in three

ways: directly (physically or actual trials), indirectly (advertising) and virtually (virtual representation of the products) ^[38].

System complexity is a measure of complexity inside procedures and between them. It measures the complexity of a system design in terms of procedure calls, parameter passing and data use. It can be used to evaluate the difficulty of producing a designed system even before the actual implementation exists. System complexity can also be calculated from the source code to evaluate the same thing. System complexity is not suitable for the evaluation of how difficult it is to change an existing system. It consists of two elements: structural complexity (external) and data complexity (internal). Virtual community and social networks are experienced in online network thus considered as internal system complexity. The data collection in social networks is usually survey based, so the participants will act as external complexity of source information. The Externality theory is related with the consumption or production of good impacts on people other than the producers or consumers that are participating in the market for that good. They are the side effects borne by third parties ^[35]. In each case the firms or the individuals will bear some form of cost known as the external cost. This theory can be best applied in e-business through online social networks. The theory examines cases where some of the costs or benefits onto third parties. When it is a cost that is imposed on third parties, it is called a negative externality. When third parties benefit from an activity in which they are not directly involved, the benefit is called a positive externality.

2.2 Research model

The logical framework or research model on Second Life communication has been developed based on broad literature review. Figure 2.2 shows the research model of Second Life communications. The first part of the block is relating to the variables motivating individuals' to join in Second Life for communication. The variables are technical, social networking, entertainment and making revenue. In this case these variables act as dependent variables and Second Life communication acts as independent variable. The variables of second block are linguistic, media richness, interactivity, telepresence and trust. These are the variables explaining the Second Life communication's effect on their environment. In this case, the variables act as independent variables and Second Life communication acts as dependant variable.

The research model is prepared so as to study the role of communication in e-business through virtual world and its influence on different virtual activities. Electronic communication is essential for social networking, entertainment and making revenue. The influencing factors of communication are body language, media richness, interactivity and trust on technology. Web 2.0 based communication technology is popular in computer based communication. Thus the model is required to investigate communication behavior of residents in Second Life and its significance on real world business.

The contribution of research model is that the communication plays pivotal role in virtual environment to conduct business as well as all other activities. Second Life is becoming an important place for marketing and brand promotion of real life products and services. Thus virtual world has future importance for marketers. They become interactive, collaborative and commercial platform for all. In this connection, there is a huge opportunity of v-commerce or virtual e-commerce. Second Life provides flexibility in brand building, new product development and testing as well as advertisement. The virtual world game is useful to reduce pressure from real life. So, people get involved in virtual world to play games, engage in artistic activity. People play online games to remove challenges, make friends, spend time but the basic reason is to enjoy. Such web based technologies are useful to create new e-commerce for income generation and consumer participation. Due to this, virtual worlds are becoming new frontier doing online business. Majority of organizations are considering virtual worlds as a new platform performing online business with existing or new users.

Second Life maintains sound internal governance structures that will be significant for resident communities and business activities. Moreover, this will be helpful for organizing virtual property and intellectual property of virtual designs and creations. Virtual worlds should offer additional activities to invite real world investments that will integrate v-commerce. Virtual stores should offer e-commerce websites and allow transactions to the customers.

The contribution of mediating variable 'Second Life Communication' is to link motivating constructs and influencing constructs. Virtual worlds are the internet based simulated environments. The users have impression of being immersed in this artificial environment. In this connection the purpose of communication in Second Life is to get a feeling of enjoyment, telepresence, participation from a distance and

information sharing. The impact of communication technology has direct impact on society. Communication allows social interaction. Second Life in this connection has technical, behavioral and social strengths. The implication of communication theory and technical developments to Second Life will facilitate the speed of innovation in the future of information economy. Virtual reality is a creative and commercial communication medium. It has high media richness, interactivity and telepresence to enhance consumer learning about products. Due to the growth of virtual worlds, virtual reality is becoming popular in communication medium.

The explanation of each variable is provided below:

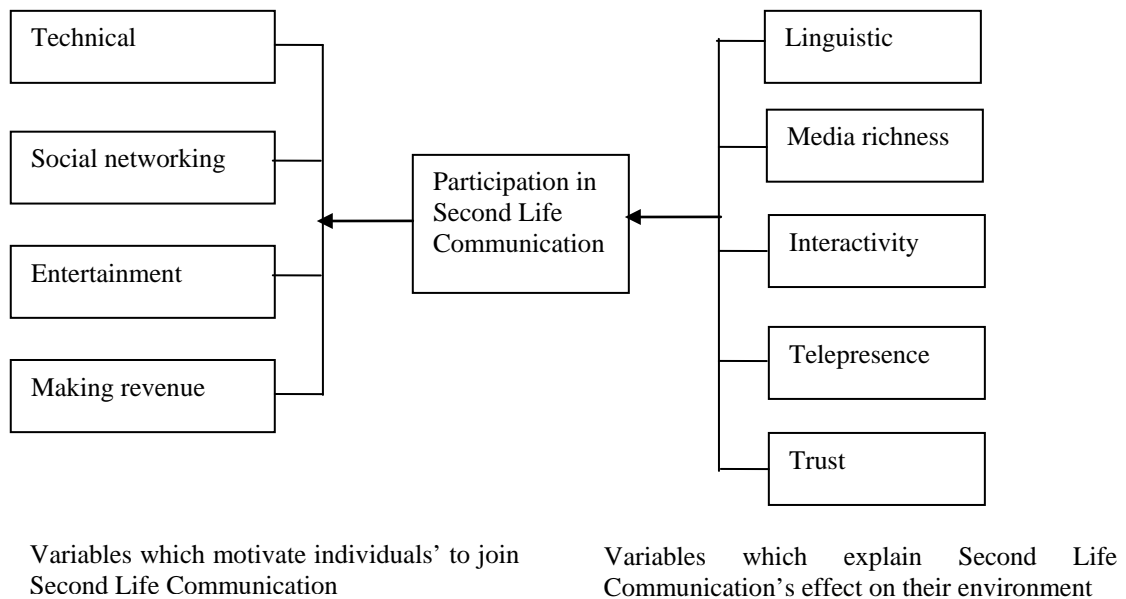


Figure 2.2 Research model

2.2.1 Constructs motivating individuals' to join Second Life Communication

The different reasons that motivate people to join Second Life communication are technological, social networking, entertainment and conduct business or earn real monetary value.

Technical: Second Life has different communication media such as text chat, voice, video, IM, email, wikis and blogs based on web 2.0 technology. Blogs are the one way communication tool. There are two categories of blogs: link-based blogs

that provide link to external sources and free-form blogs that encourages diary style contribution of the blogger's thought. Second Life enables new ways of communication by internet in 3D environments by voice over internet protocol (VOIP). The verbal communication takes place through voice communication and non verbal communication is performed by text chat, IM, email and gestures. Symbols, pictograms and disclaims are also used for communication. Avatars which are 3D graphical representation are responsible to perform all communication activities. The real identity of an individual is hidden, so the people do not recognize each other when they encounter^[58]. The avatars perform text communication or local chat, voice chat and IM but can not see and hear each other. Sending and receiving information is convenient in Second Life and comfortable to communicate through gestures and emotion^[20]. The voice and text communication in Second Life is synchronous because people could react with each other promptly getting immediate response and feedback. The decision making is prompt due to its synchronicity feature. Sometimes people make hasty decisions, so they become careless. During online communication people do not know the offline status whether they are talking with president or someone sitting nearby computer laughing. The online world is different from offline world or face to face world. People are not able to communicate physically with each other by hand shaking, hugging, kissing and patting. Lack of face to face cues has a curious impact about how people interact in online environment. The podcast is an important communication media to communicate from Second Life to real life. Machinima is a video created by avatars. Chatbots are artificial intelligence (AI) based software which is used for responding questions while having facial expressions in virtual environment^[59]. Latency is the big issue in electronic virtual worlds^[60]. Users have to log off their computers and back on, to get better connection. Second Life is a platform for ICT applications. Bandwidth is a key issue for a better voice and sound. Voice communication is important than text as it carries emotional data. Birdwhistell (1970)^[23] stated that 65% of information takes place through facial expressions and remaining 35% through spoken words. Non verbal communication is limited in Second Life. Facial expressions are used to show reactions and these are shown through gestures. In some cases, Second Life has technical limitations, so possibility of physical expression is rare. There is no actual synchronization of voice with facial expression and lip movement. As a result, Second Life is still missing actual face to face

communication ^[61]. Majority of people express that Second Life is easy to use and has clear voice communication ^[62].

In order to encourage face to face meeting in Second Life, privacy and trust should be maintained. There is a public domain code in Second Life to encrypt communication for sending sensitive message to protect from the unauthorized users ^[24]. A peer to peer IM is used for group users for secured communication. In Second Life the distance plays vital role for communication for e.g. one must be within 10 m to hear whisper, 20 m to hear chat and 100 m to hear shouting. The Second Life main grid is public and due to this, it has low security. Other challenging issues of Second Life communication are speed of the graphic cards, bandwidth, server capacity and limited sensory channels. The misuse of web 2.0 brings many problems such as virtual crime, time wastage, user addiction, lack of control and secrecy, clogging of bandwidth and breach of privacy and security ^[55]. The latest communication media and web 2.0 technology have facilitated Second Life as a social system.

H1: Second Life communication positively influences people for synchronous interaction.

Social networking: Virtual worlds enable new ways of communication, collaboration and coordination by internet in 3D environments by voice over internet protocol (VOIP) ^[62]. People interact with each other through different web 2.0 based communication media such as text chat, IM, voice and blogs to establish social networking. Second Life virtual world offers plain text and voice, emotions and gestures in the form of avatars. Second Life is one of the leading virtual worlds. The Second Life communication is synchronous i.e. people can get immediate feedback and response. Search and meet with new people is convenient in Second Life ^[62] so there is no feeling of loneliness ^[8]. People could share information promptly and establish close social relationship ^[63]. Due to its synchronicity the decision making is faster. Second Life plays a pivotal role on information sharing. Facial expression and body language are shown in graphical form. So, computer mediated non verbal communication takes place ^[64]. Verbal communication is performed by voice communication. In Second Life virtual environment, people can have a social group to perform a range of activities. They can make friendly relationship with each other to share information and participate on numerous virtual activities. According to social exchange theory there is the transformation of relationship between the individuals. They can share ideas and knowledge for surviving the relationship for a

long duration. Communication allows interaction and exchange information. It is through communication that virtual worlds confer status and standing. In this connection Second Life follows theory of communication and social system.

H2: Second Life communication directly affects residents to build social network in virtual environment.

Entertainment: The entertainment includes having fun with friends, wandering around, watching video and playing online games ^[62]. The gaming environment has player freedom, control and creativity. More than 80% of the gaming contents are created by Second Life users. So, online games can not be separated from players nor players can be separated from online games. Some people enjoy role playing games ^[65]. Online games are played for enjoyment. Hence, enjoyment is one of the important factors of gaming behavior. People play online games to remove challenges, make friends, spend time but the basic reason is to enjoy ^[21, 22]. People forget about real life world when engage in virtual world for a long time ^[66]. Such web based technologies are useful to create new e-commerce for income generation and consumer participation ^[32]. Fun and social interaction is another outcome of massively multiplayer online role playing games (MMORPG) ^[58]. Online games which are played in internet are outcome of e-commerce application. The theory of reasoned action states that “behavior intention is a function of an individual’s attitude toward the behavior and the individual’s subjective norms”. Some people play games for social relationship, some play to establish romantic activities and others to achieve economic profits. The ultimate goal of the gamers is to learn consumer behavior and product development. Second Life communication system is of the essence to perform entertainment related activities. Communication theory and social system have created Second Life as a platform for fun and enjoyment.

H3: Online games and entertainment activities are positively related to Second Life communication.

Making revenue: Consumers interact with each other through internet to share knowledge, experience and opinion. World of mouth (WOM) is an important marketing tool for consumer decision making ^[59]. “World of mouth is the informal transmission of ideas, comments, opinions and information between two or more individuals, neither one of which is a marketer ^[48].” WOM is helpful for marketers, managers and researchers for marketing decision. Both companies and consumers access online internet to have communication and interaction. Hoffmann and Novak

(1996)^[47] stated that “the consumer is an active participant in an interactive exercise of multiple feedback loops and highly immediate communication”.

The virtual worlds are developed under the principle of multi user domain (MUD). So, they have a wide scope in marketing. Some virtual worlds are dominating the markets. The growth on the number of virtual worlds facilitate to increase users’ revenue^[44]. The firms design, produce and distribute products. The consumers in another hand buy the goods as per their demand and budgetary limitations. The communication establishes collaboration between producers and consumers. The firms have challenges to produce the goods as per the consumer demand^[36]. An appropriate designing, process and decision making is required to fulfill consumer demand. Some of the firms developed online digital computer network, an outcome of IT for product development. Advertisement is a good source of revenue for organization. Moreover, a high amount of revenue can be generated from digital games. Digital game is active media whereas movies are passive. At present, the most realistic games for product placement are sports, racing and adventure games. The medium of communication for advertisement plays a pivotal role. Studies suggest that “the higher the level of excitement generated during the viewing process, the lower the level of cognitive resources to process advertising messages”. The advancements of graphics and artificial advancement, games lead to be in developed and upgraded form. Meanwhile, the downloadable games through internet tend to boost the advertising revenue for industries. The game developers should pay attention on advertising development and branding synergies. The advertisement plays crucial role in brand promotion of real life products and services^[1].

Majority of professional people join Second Life to make revenue^[62]. Virtual worlds are developing in world economies offering different types of business activities called virtual commerce or v-commerce^[40]. Virtual markets are creating more advantages for them^[33] and improving the firm performances^[35]. Virtual worlds are providing brand awareness and product marketing too^[33]. A multidisciplinary approach is required to study synthetic environments^[42, 43]. Some people think that virtual property is very important for them and they will quit real life job of could make enough revenue in Second Life^[62, 44].

H4: Participation in Second Life communication positively influences people to make online revenue.

Second Life communication: Second Life is an electronic environment and without communication no activities takes place. Virtual worlds are online communities in which residents communicate in simulated environment ^[67]. Virtual worlds enable new ways of collaboration and coordination through communication in 3D environment by Voice over Internet Protocol ^[62]. Second Life is the hot resource for communication, socialization, collaboration and participation in different activities. The virtual environment has audio and video contents and different communication media such as IM, text chat and blogs, based on web 2.0 technologies. Communication is preferred for socializing and content sharing ^[5]. The communication removes the geographical constraints and helps to bring people at one place around the world for coordination and collaboration. Most of the residents are satisfied with Second Life communication and they feel that it's easy to communicate ^[8]. Communication is highly effective to conduct social and business activities ^[63]. Many ICT organizations have been taking benefit from Second Life to test and develop their products and services. Second Life is a suitable platform for research, development, marketing and IT solutions. The possibilities of exploring Second Life are for business communications, information dissemination and innovation.

2.2.2 Constructs influencing Second Life communication's effect on their environment

Linguistic: The communication language plays crucial role in Second Life. People can express nonverbal communication through facial expressions, appearance, intonations, emotions, body language and gestures. People frequently change physical appearance and use gestures while talking ^[68, 20]. The gestures include laughing, crying and show different expressions. Emotions and gestures can be shown in voice communications whereas symbols can be used to text communication. As such communication theory is linked with communication language. People come closer during communications. It was found that compared with man, female come closer and touch with hand during communication. The smiley face is important during face to face communication. In marketing point of view smiley face is required to interact with customers. The interaction in computer mediated environment is less disruptive than real life face to face communications and people can communicate for a long period of time ^[69]. Face to face communication shows

physical presence during communication ^[24]. Some people keep distance while talking ^[70].

H5: Communication language (verbal and nonverbal) directly influences the Second Life communication.

Media richness: Communication medium is important for both interpersonal and interorganizational communication. It improves and modifies information gathering and dissemination capabilities ^[20]. So, the scope of new media is very high in information system research. Media richness is the outcome of rational theory of media. Usually written media has lack of media richness. Consequently people prefer new and rich media. The avatars which are 3D representation of human use text, voice, IM and email during communication. Voice communication has strong media richness among these, because immediate feedback and response can be received. Residents are satisfied to communicate due to media richness factors ^[62]. Due to this reason, rich media are useful for making prompt decision. The richness factors include facial expressions, gesture, voice and background music. Rich media is very important in organizational communication. Each communication media has strength and weakness. Some theories have been tested for media choice. The researchers found that rational theories of media choice have much attentions having combination of media richness theory and social presence theory. Media richness distinguishes between rich and lean media. Media richness is thus defined as “the ability of media to overcome different frames of reference or clarify ambiguous issues to change understanding in a timely manner” ^[46]. The richness characteristic consists of multiple information channels such as voice, gestures, immediate feedback and personal focus. The media characteristics derived from rational theory are multiple cues, immediate feedback, personal focus, language focus and social presence. Face to face or voice communication provides multiple cues in verbal forms. Traditional media such as newspaper and other text media tend to restrict nonverbal cues to be transmitted. Nonverbal cues include appearance, dress, body movements and facial expression. Moreover, it includes smell, touch, space as well as distance, eye contact and gaze.

Task equivocality is another issue in media richness. It refers to ambiguity, the existence of multiple and conflicting interpretations about an organizational situation. Equivocality often means confusion, disagreement and lack of understanding. High equivocality requires a rich medium. Rich medium channels provide communicators

with too much information and superfluous message. Thus voice communication is important than text. Rich media are effective for sending and receiving information quickly ^[20]. Managers prefer rich medium for face to face communications which has high equivocal task. Leaner medium such as email has low equivocal task. Managers prefer face to face communication rather than telephone, written memo and email.

H6: Rich media positively influences the superiority of Second Life communication.

Interactivity: Second Life has synchronous communications system. Due to its synchronicity feature, people can get immediate response that ensures fast decision making. Sometimes people become careless and make hasty decision so that it will be harmful for the organization ^[58]. “Interactivity is defined as the extent to which users can participate in modifying the form and contents of a mediated environment in a real time” ^[29, 30]. The interaction is needed during online game playing, sharing knowledge and learning ^[31]. The theory of communication bears interactivity feature. Virtual world is the environment where people can have interaction with each other in the form of human avatar. Second Life has flexibility on interaction ^[62]. People interact with single avatar repeatedly and interaction is required for personal relationship ^[37]. The interactive media are text and voice communications. They have been providing challenges for computer and information science with a new development. Avatars are responsible for building human computer relationship. The relationship can be shown by active diversity, interaction frequency and relational influence ^[57]. Human avatar relationship plays a crucial role to build interpersonal relationships in virtual world. Interaction is required to create social environment. If the individual has strong relationship with avatar then there will have less possibility of declining ^[71]. People interact directly with computer and behaviorally treat the computer as a social actor. The interactivity, language and gestures are simulated in the computer. People automatically resort to human interaction but directly to computer ^[72, 73]. Due to Second Life’s interactive feature, people found that virtual life is attractive than real life ^[74]. The avatars could establish network with other avatars ^[75]. Many organizations enter virtual worlds to establish business and generate revenue. The formation of relationship is a dynamic process. More positive the impression, the relationship will be enhanced and continue for a long time. If the needs of the individual meet with relationship than the belief on interaction will be

increased. It facilitates to make interaction enjoyable and increase frequency of interaction.

In virtual world, personal space plays vital role for interaction. Personal space is the comfort zone during interaction. The level of comfort depends upon the age, gender, culture and environmental location. When a person enters in a zone for interaction, sometimes he fills discomfort and anxiety. Telephone booths are separated to keep interpersonal distance. The personal spaces increase level of understanding and thus, important in human life and physical world. Sometimes people are annoyed when other avatars come to closure. Communication is required to have interaction with new users in Second Life ^[65]. So, they would like to maintain personal distance to remove discomfort and anxiety. The avatar gender and environmental layout are vital for interpersonal distance. During interaction, female become closer than male and mixed genders also keep closeness than male genders. Comparer to male, female and mixed gender touches with hand more during interaction. The residents of Second Life rarely move during interaction but people in real life change their positions frequently. So Second Life users do not have high sense of presence.

H7: Interactivity positively influences the communication participation in Second Life.

Telepresence: Virtual reality is the outcome of communication theory and bears concept of presence and telepresence. Presence means sense of being in an environment and telepresence means presence with communication media. Presence is a natural perception, whereas telepresence is mediated perception of environment. The environment can be temporary, real or virtual (computer mediated). Held and Durlach (1992) ^[11] made remark that telepresence is common to teleoperation and the experience of virtual environment. By employing concept of virtual reality it is defined as “a real or simulated environment in which a perceiver experiences telepresence”. The definition of communication is transmission of information from sender to receiver. But in the case of telepresence the user may be either sender or receiver. In telepresence, mediated environment are created instead of transmitting information directly ^[28]. Second Life residents feel sense of belonging and they feel proud living in Second Life ^[63, 65]. Some examples of telepresence are reading a letter from distant friend, use of multiple online systems such as conference, listening live recording of music and play video game. Telepresence is thus referred to as both

technology and perceiver. Face to face communication is called interactive communication ^[76]. The determinants of telepresence are vividness and interactivity. Vividness refers to “the ability of a technology to produce a sensorially rich mediated environments and interactivity refers to the degree to which users of a medium can influence the form of content of the mediated environment”. Communicating in Second Life is convenient and feeling of physical presence ^[8, 66].

H8: Participants in Second Life communications are directly influenced by telepresence.

Trust: Trust is the belief of people on technology. It is measured on reliability and stability of the system. Second Life is highly social and interactive platform. Some challenging issues of Second Life are that the system becomes unstable if gather more than 70 avatars at one place ^[77]. Residents turn off the Second Life system owing to latency ^[78]. Due to this the real world companies’ event becomes failure. Another issue is the hacking attempts to Second Life ^[77]. Moreover, privacy has decreased trust among residents ^[79]. There is also a fair of protection of virtual properties ^[80]. Virtual worlds have no national boundaries ^[81]. There is a need to monitor speed of delivery of MMORPG content and important to support innovation in virtual world and virtual commerce. Trust is often associated with risk, uncertainty and vulnerability ^[82], and psychologically, Holmes and Rempel (1989) ^[83] have widely defined it as, “the confident expectation of positive outcomes from an intimate partner” (p. 188). Theories suggest that trust is based on social and behavioral dimensions. For instance, Cvetkovich (1999) ^[84] stated that people perceived as similar, based on cognitive inference that they are part of an in-group, will be perceived as trustworthy. In the behavioral point of view, an individual who has previously demonstrated competence, consistency and fairness encourages attributions of trustworthiness ^[85]. People believe that Second Life is fast and reliable and no disturbance during communication ^[58, 63]. Communication is secured but sometimes users have to log off the computer ^[79, 78]. Trust is a complex interpersonal factor that has been broadly studied across multiple disciplines. The theoretical concept has both specific and generalized components: an individual may be perceived as trustworthy in particular circumstances, or he may be perceived as trustworthy across contexts.

H9: Trust on Second Life technology directly influences the communication and business activities in Second Life.

2.2.3 Effect of Second Life communication by entire constructs

In this stage, the reliability and feasibility of the entire model was checked based on the information received from stages 3.2.1 and 3.2.2. Table 2.1 shows the name of variables, acronym and description. There are altogether 10 construct variables and 39 items to be measured for data analysis. As shown in the research model (Fig. 2.2) the variables in left block are Technical, Social networking, Entertainment and Making revenue. Second Life Communication acts as a mediating variable. The variables in the right block are Linguistic, Media richness, Interactivity, Telepresence and Trust. In the table acronym of each variable, their description and indicator items were included. Each construct contains 3 or 4 indicator items and altogether there are 39 indicators. The item in each variable was selected from literature review and upon suggestion from Second Life users during pre-test and pilot test of online survey. The communication in virtual environment plays crucial role to perform online business events and establish social networking.

Table 2.1 Variables of research model

Construct variable	Acronym	Description	Items
Technical	TEC	Variables indicating technical aspects of Second Life	4 items
Social networking	SN	Includes variables related to social networks	4 items
Entertainment	ENT	Includes variables relating to entertainment activities in Second Life	4 items
Making revenue	MR	Includes variables relating to business activities in Second Life	4 items
Second Life communication	SLC	Variables indicating participation in Second Life communication	3 items
Linguistic	LIN	Includes variables relating to expression and appearance during communication	4 items
Media richness	MRH	Includes variables relating to rich media during communication	4 items
Interactivity	INT	Variables indicating interactive features of Second Life	4 items
Telepresence	TP	Includes variables relating to computer mediated communication	4 items
Trust	TRS	Variables indicating trust on Second Life communication technology	4 items

2.3 Summary

Residents communicate within Second Life for performing social activities,

sharing culture and information. The purpose of professional people to enter in Second Life is to make online revenue through effective communication. The IM is secured having high privacy of the message. Video conferencing were used for online meetings and conferences. During our online survey, it was found that a majority of people have satisfaction with Second Life technology, its communication system, social networking behavior and online business environment to create real business value.

Chapter 3 Empirical Study on Communication and E-business in Second Life

3.1 Online survey and data collection

The survey questionnaires were prepared from literature review. Pretest of the questionnaires was conducted with 20 users to check the reliability and clarity of questionnaires. Pretest was done for screening of questions i.e. select those which have clear meaning and understandable. The pilot test was performed with 25 Second Life experienced users. Some questions were modified as per the suggestion of users to avoid confusions and to assess survey reliability. The survey data is unique because behavioral data is taken with individual interaction. Altogether 2338 users were requested for survey participation. The responses were received from 550 users. Thus the response rate is 23.52%. Out of them 48 responses were discarded due to incomplete and invalid answers. Consequently, remaining 502 responses were used for data analysis. The follow up with residents was made twice to get the response. The data was collected online through survey conducted from January to April, 2010.

The survey contains 30 questionnaires and it takes 10 minute to answer. Each participant received 20 L\$ for answering survey questions. Second Life participants were contacted through IM, local chat and note card message. Majority of users were invited through IM, to focus their attention. However, some residents do not prefer to talk on IM. Most of the participants were selected who have more than one month experience in Second Life by checking their profile. However, few residents below one month also participated in this survey, viewing our profile and survey invitation through local chat. Lack of experience prevents from invalid assessment. Some residents suggested that local chat notice will also helpful to invite survey. So, all categories of people took part in the survey. However, people do not take enough care on local chat notice. The survey was taken from different locations (islands) of Second Life so that people of different interests and categories could take part in the survey. On personal conversation, survey link was sent after getting permission from them. Face to face communication with residents was performed to check their language proficiency, experience and interest to participate on the survey. It was

checked that each participant took part on survey only once, viewing their answers immediately after completion of the survey. The respondents who submitted survey less than five minutes was deleted manually as some of them did not answer seriously and completely.

Table 3.1 Demographics of residents in Second Life

N=502	Responses	Percentage	Mean	Variance	Standard deviation
Real gender					
Male	247	50	1.52	0.29	0.54
Female	237	48			
Don't want to indicate	10	2			
Gender in SL					
Male	240	49	1.53	0.29	0.53
Female	244	49			
Don't want to indicate	9	2			
Age in years					
Below 13	1	0	4.48	1.35	1.16
13-17	3	1			
18-24	124	25			
25-34	123	25			
35-44	129	26			
45 and above	111	22			
Don't want to indicate	8	2			
Location					
North America	250	52	2.29	2.78	1.67
South America	22	5			
Europe	131	27			
Asia	33	7			
Africa	5	1			
Australia	18	4			
Others	21	4			
Profession					
Student	112	23	5.53	12.91	3.59
Unemployed	29	6			
Management	40	8			
Technical/IT	62	12			
Administrative	25	5			
Production/Manufacturing	16	3			
Sales/Support	24	5			
Medical	25	5			
Retired	19	4			
Others	145	29			
Education					
Doctoral	16	3	3.65	1.40	1.18
Masters	72	15			
Bachelor	143	29			

High School	166	34			
Others	91	19			
Annual income					
Below \$1000	59	14	4.17	3.71	1.93
\$1000-\$5000	51	12			
\$5000-\$10,000	40	9			
\$10,000-\$20,000	52	12			
\$20,000-\$50,000	89	21			
\$50,000-\$100,000	95	22			
\$100,000 and above	37	9			

Table 3.1 shows the demographic information of Second Life residents. High number of responses (34%) was received from high school level user group. Each item of a questionnaire was rated on a five point likert scale from “strongly agree” to “strongly disagree”. Neutral was given the score of 3. Of all respondents, 50% were male, 48% were female and 2 % did not want to indicate their gender. Female were found to be more active and honest to answer the questions. The age varies from 18 to 70. The average age is 35. The respondents come from more than 80 nations. Majority of them are from North America (52%), Europe (27%), Asia (7%), South America (5%), Australia (4%) and others.

Anonymity of users was guaranteed, as people use avatar name in Second Life. Some residents were very helpful to provide information about Second Life communication including its future scope, business opportunities and their personal experiences. The survey questionnaires were prepared and uploaded on a survey weblink: http://surveyz.qualtrics.com/SE?SID=SV_ePyhOIkjV86AttW&SVID=Prod. The survey was taken from different sims of the Second Life so that different categories of people around the globe can be met. The priority has given for professional people who were registered more than two years in Second Life.

There were found three major categories of users’ viz.virtual experiencers, achievement pursuers and business users. Virtual experiencers were found in smallest segment. They feel sense of belonging in Second Life. The virtual environment helps them to forget about real life. People in this category are young and have lower income. Achievement pursuers have special and different purpose to live in Second Life. They have innovation and creativity. They have elder age, high income and skills on computer hardware. Business winners are engaged long time in each day and week in Second Life. They do not have much attention on pleasure, achievement and virtual experience. They earn more money but spend less. Majority

of business winners are business professionals, creators. They were found to be engaged more than two years in Second Life virtual environment.

Table 3.2 provides the demographic information of survey participants. A greater part of users are in Second Life since 1-2 years (25%). Each time the users remain in Second Life for 1-3 hours and most of them are engaged in social activities such as meeting people (89%). 59% of people use IM for secured communication. People use both voice and text, and the quality of voice is average. Besides Second Life, people use other communication networks such as Facebook (70%), Skype (55%), Youtube (50%), MSN messenger (48%), Myspace (25%) and Twitter (18%). Among these, Second Life is more popular among users. People have learning experience through lecture, training, and video conference.

Table 3.2 Experiences of Second Life residents

Living experience in SL					
Less than 1 month	29	6	3.90	2.23	1.49
1-6 months	83	17			
6months-1 year	71	14			
1-2 year	125	25			
2-3 year	101	20			
Above 3 years	86	17			
Duration in SL each time, hour					
Less than 1	15	3			
About 1	50	10	3.59	1.18	1.08
1-3	182	38			
3-5	106	22			
More than 5	130	27			
Duration in SL each week, hour					
Less than 1	9	2			
1-5	60	12	4.03	1.62	1.27
5-10	91	18			
10-20	146	30			
20-40	122	25			
Above 40	66	13			
Activities in SL					
Meet people	439	89	-	-	-
Explore	354	72			
Chat	401	81			
Buy	223	45			
Sell	96	19			
Hire	19	4			
Create	196	40			
Entertainment	218	44			

Others	137	28			
Media use					
Local chat	463	93	-	-	-
Instant messaging	464	93			
Voice	286	58			
Blog	52	10			
Wikis	44	9			
Email	137	28			
Search Engine	130	26			
Video games	23	5			
Podcast	11	2			
Others	59	12			
Best media					
Local chat	106	22	1.99	0.44	0.67
IM	290	59			
Voice	92	19			
Video	5	1			
Voice chat each time, hour					
Less than 1	211	42	3.01	4.63	2.15
1-2	64	13			
2-3	37	7			
3-5	19	4			
5 and above	25	5			
Never use voice	141	28			
Text chat each time, hour					
Less than 1	100	20	2.78	1.92	1.39
1-2	150	30			
2-3	93	19			
3-5	67	13			
5 and above	85	17			
Never use text chat	2	0			
Quality of voice					
5- very high value	49	10	4.29	10.13	3.18
4	120	24			
3	147	30			
2	56	11			
1- very low value	27	6			
Don't know	91	19			
Use of other social networking software					
Facebook	324	70	-	-	-
Myspace	117	25			
Twitter	85	18			
Youtube	234	50			
MSN Messenger	223	48			
Skype	254	55			
Yahoo Messenger	180	39			
AOL Instant Messaging	72	15			
Others	128	28			

Quality of SL comparing with other social networking sites					
5- very high value	220	45			
4	141	29	1.87	0.94	0.97
3	96	20			
2	21	4			
1- very low value	7	1			
Learning experiences in SL					
Lecture	90	20			
Training	124	28	-	-	-
Conference	59	13			
Video	59	13			
Others	243	55			

Demographic information consists of numeric data or statistics involving groups of people. Demographic information has many purposes: it can be used for research in the social sciences, creation of policy, identification of potential customers in marketing. The personal resources are particularly useful for research in the social sciences, although they may have other applications as well. Some demographic information takes the form of data, numbers that must be interpreted. Other demographic information takes the form of statistics, numbers that have already been interpreted.

3.2 Results

3.2.1 Measurement scale validation

3.2.1.1 Structural equation modeling

Structural equation modeling (SEM) tool, Smart Partial Least Squares (SPLS) Graph Version 2.0 was used to measure the reliability and validity of the data and to test the research model. Unlike covariance based SEM tools such as LISREL, PLS has the flexibility to represent both formative and reflective latent constructs^[86, 87], and places minimal demands on measurement scales, sample size and distribution assumptions^[88, 89]. This is because the component based PLS uses a least square estimation procedure to obtain parameter estimates while LISREL uses a maximum likelihood function to do so^[90, 91]. Convergent and discriminant validity and internal consistency reliability (ICR) was used to evaluate the psychometric properties of the measure for constructs. SEM is used for testing hypothesis, multiple variables including latent variables and multiple samples. Latent or hidden variables are

believed to exist but not directly observable. The observed variables are called indicators. SEM is also called analysis of covariance structure and incorporates factor analysis and path analysis. Thus SEM provides direct link between path diagrams, equations and fit statistics. It is divided into measurement model and structural model. The different stages of SEM are pointed as follows:

1. Defining individual constructs
2. Develop overall measurement model
3. Designing a study to produce empirical results
4. Assessing the measurement model validity
5. Specifying structural model
6. Assessing structural model validity

In SEM, all loadings should be preferably 0.7, variance extracted measures should equal or exceed 50% and construct reliabilities should equal or exceed .70. All loadings are significant as required for convergent validity. When examining convergent validity, we look at two additional measures: Variance extracted (VE) by each construct and construct reliabilities (CR). In SEM, t-tests are a special case of the analysis of variance. All t-statistics will be significant at p less than .001. If the probability value (p value) is less than the significance level, the null hypothesis is rejected. T value greater than 1.96 is significant at $p < 0.05$.

SEM is covariance based (for example AMOS) and PLS based. SEM such as LISREL and PLS are second generation data analysis techniques ^[92]. PLS is able to handle both reflective items and formative items and both the measurement model and structural model can be examined concurrently ^[93]. The first generation data analysis including linear regression, ANOVA, MANOVA etc. require to analyze the item loadings on the latent variables separately from the linkage of the independent variable to the dependent variable. SEM is best seen as a confirmatory, rather than an exploratory. It provides relationship among multiple independent and dependant variables which examines how items loads on the constructs via factor analysis and a separate examination of the hypothesized paths, run independently of the factor loadings. SEM is suitable for the mathematical modeling of complex processes to serve both theory ^[94] and practice ^[95]. It accesses the structural model and measurement model loadings of observed items (measurement) on their expected latent variables (constructs). Factor analysis and hypotheses are tested in the same analysis. It has application on validating instruments and testing constructs.

3.2.1.2 Confirmatory factor analysis

Confirmatory factor analysis (CFA) is used to analyze the structure of a data set against a proposed structure. CFA estimates the parameters of a measurement model in which the factor structure should be specified. CFA seeks to determine if the number of factors and the loadings of measured variables on them confirm to what is expected on the basis of pre-established theory. Indicator variables are selected on the basis of prior theory and factor analysis is used to see if they load as predicted on the expected number of factors. The researcher's a priori assumption is that each factor is associated with a specified subset of indicator variables.

Table 3.3 Overview of the results

	AVE	Composite Reliability	R Square	Cronbach's Alpha	Communality	Redundancy
ENT	0.941	0.979		0.968	0.941	
INT	0.608	0.752	0.135	0.734	0.708	0.066
LIN	0.867	0.951	0.045	0.923	0.867	0.038
MR	0.699	0.873		0.783	0.699	
MRH	0.764	0.907	0.207	0.846	0.764	0.152
SLC	0.765	0.905	0.248	0.846	0.764	0.043
SN	0.679	0.805		0.737	0.779	
TEC	0.635	0.773		0.775	0.735	
TEL	0.661	0.886	0.123	0.835	0.671	0.088
TRS	0.661	0.853	0.168	0.745	0.660	0.103

In order to validate the proposed research model, the validity and reliability of construct variables and measurement variables should be examined. To assess the construct validity and reliability, a test on Cronbach's alpha was conducted for each construct variables and underlying measurement variable. Table 3.3 shows the overall results of research model. Internal consistency is an indication of how well the items for a construct are correlated. Internal consistency can be measured in terms of Cronbach's alpha, that provides a lower bound of internal consistency and composite reliability, which is a more accurate measure of internal consistency. The overall Cronbach's alpha is 0.82 and varies between 0.73 to 0.97. Hair *et al.* (1998) [96] stated that the threshold value of Cronbach's alpha should be 0.60. If the reliability coefficients are all within generally accepted thresholds, the results suggest a high level of reliability of the construct variable and underlying measurement items [96]. The value of Cronbach's alpha of individual items shows that the construct

variables are reliable and valid. The squared loadings (also called communalities) are used in calculating the variance extracted for each construct. Communality is the sum of the squared factor loadings for all factors for a given variable (row). Communalities report the percentage of variance within each variable that is explained by the resulting factors. The value is above 70% which shows the adequate fit. Variance extracted of .5 or higher indicates adequate convergent validity. The value of AVE was obtained above .5 in our result. The value of construct reliability .7 or higher suggests good reliability. The internal consistency reliability (ICR) should be above .707. Coefficient of determination (R^2) is received from F-statistics. R^2 in PLS for dependent construct represents how much variances in each of the dependant variables are explained by the model. So, they are another set of statistics that show the quality of proposed research model. Unlike covariance based SEM tools like LISREL or AMOS, PLS does not produce any statistics on model fit indices. Once we are satisfied with the CFA statistics, it is suppose that our model will fit with underlying data. Internal reliability was evaluated by the composite reliability of each latent variable. Composite reliabilities of all constructs should be above .70 threshold ^[93]. In our result the value of composite reliability is above .70. The redundancy has no official value for analysis but higher value is preferred.

3.2.2 Model validation

3.2.2.1 Confirmatory factor analysis model

Figure 3.1 shows the result of CFA using SEM. Out of 39 items, 8 items were deleted due to lower factor loading less than 0.6. In technological construct (TEC) the fourth item (TEC4) was removed as people in Second Life do not feel enough comfort to use gestures or emotions through verbal communication. In Social networking construct (SN) fourth item (SN4) was deleted which was related to information sharing. Some questions are similar and repetitive as per the comments of the users, so they provided less priority in this matter. Likewise, on Entertainment (ENT), the second item (ENT2) was removed as people enjoy less on role playing games. The survey was focused on experiences users.

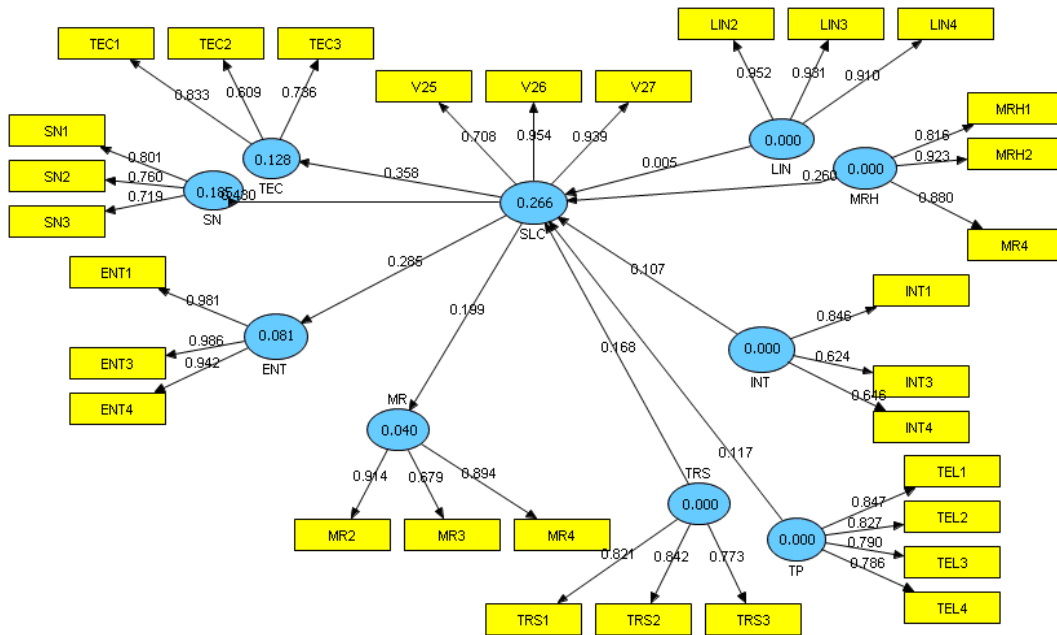


Figure 3.1 CFA model

So they do not spend more time on playing games. In Making Revenue (MR) construct, the first item (MR1) gave some trouble. Majority of people do not directly enter in Second Life to make revenue. First of all they will learn some skills on building, creating and programming. Then they move forward to make money. In Linguistic construct, the first item (LIN1) was omitted as people do not take enough care to change their appearance frequently. In Media Richness (MR), the users do not focus on voice for communication only, hence MR3 have been removed. From survey it was found that 59% of people prefer IM for communication. Likewise, in Interactivity construct (INT) the second item (INT2) was deleted as the users comment that the question had some similarity with fourth item. They prefer to communicate with new residents frequently. The Second Life communication is highly reliable and secured. Thus majority of people are disagreed with technical problems. Sometimes, the lagging and crashing problems arise in Second Life but it's rare. So the TRS4 item was removed from the analysis.

The result of CFA is provided in Table 3.4. Reliability of construct is how individuals respond and validity means what is supposed to measure. Individual item reliability can be checked by examining the factor loading of each item on its

corresponding latent variable. The loading of all items should be above .707^[93]. However, survey data highly depends upon the opinion of participants, so some fluctuation in result may take place. According to Mainly (1994)^[97] loading above 0.6 is usually considered high and below 0.4 is low. If all measurement items are strongly significant with a value of over 0.60, then it will be a good model fit and all construct variables are valid. The proposed research model shows a good construct fit as all factor loadings are above 0.6. The model seems statistically significant and well constructed. However, the analysis may have several limitations. Online surveys can suffer from selection bias, the people who fill out survey questionnaires may not be an average player. Linden lab has standard terms of services that users above 13 years old can register Second Life. Below 13 years of age categories it has teen Second Life where users can engage on social interaction, fun and entertainment. The age varies between 18 to 70 in Second Life. The mean age of participants (35 years) might not reflect the entire player population.

Table 3.4 Results of confirmatory factor analysis

	ENT	INT	LIN	MR	MRH	SLC	SN	TEC	TEL	TRS
ENT1	0.981	0.385	0.189	0.297	0.382	0.282	0.375	0.258	0.315	0.250
ENT3	0.986	0.395	0.197	0.309	0.392	0.286	0.383	0.257	0.333	0.256
ENT4	0.942	0.352	0.195	0.308	0.371	0.259	0.365	0.226	0.323	0.257
INT1	0.337	0.846	0.238	0.216	0.519	0.352	0.429	0.392	0.348	0.411
INT3	0.227	0.624	0.184	0.146	0.274	0.194	0.367	0.142	0.403	0.221
INT4	0.256	0.646	0.181	0.173	0.259	0.199	0.342	0.099	0.293	0.169
LIN2	0.219	0.305	0.952	0.308	0.295	0.205	0.328	0.155	0.455	0.287
LIN3	0.167	0.266	0.931	0.285	0.269	0.181	0.276	0.148	0.413	0.244
LIN4	0.169	0.222	0.910	0.283	0.271	0.202	0.226	0.123	0.354	0.244
MR2	0.276	0.239	0.275	0.914	0.223	0.176	0.207	0.175	0.265	0.176
MR3	0.283	0.252	0.283	0.679	0.151	0.159	0.184	0.101	0.4	0.200
MR4	0.224	0.139	0.225	0.894	0.174	0.162	0.181	0.133	0.205	0.151
MRH1	0.325	0.516	0.279	0.196	0.816	0.440	0.435	0.395	0.385	0.473
MRH2	0.381	0.456	0.264	0.212	0.923	0.395	0.397	0.498	0.386	0.478
MRH4	0.321	0.380	0.234	0.166	0.880	0.341	0.332	0.435	0.325	0.421
SLC1	0.175	0.189	0.065	0.060	0.251	0.708	0.233	0.163	0.175	0.208
SLC2	0.292	0.379	0.217	0.209	0.475	0.954	0.463	0.395	0.382	0.418
SLC3	0.259	0.352	0.227	0.210	0.420	0.939	0.382	0.324	0.315	0.372
SN1	0.314	0.489	0.270	0.190	0.397	0.352	0.801	0.323	0.334	0.348
SN2	0.255	0.290	0.180	0.115	0.326	0.338	0.760	0.259	0.258	0.378
SN3	0.317	0.435	0.229	0.228	0.299	0.286	0.719	0.202	0.412	0.214
TEC1	0.147	0.229	0.054	0.107	0.333	0.303	0.254	0.833	0.138	0.222
TEC2	0.062	0.029	0.033	0.020	0.129	0.164	0.115	0.609	0.023	0.109

TEC3	0.310	0.407	0.224	0.200	0.569	0.288	0.348	0.736	0.303	0.386
TEL1	0.194	0.309	0.344	0.280	0.281	0.262	0.306	0.156	0.847	0.324
TEL2	0.298	0.277	0.365	0.352	0.302	0.299	0.337	0.166	0.827	0.377
TEL3	0.349	0.564	0.355	0.255	0.474	0.332	0.447	0.283	0.790	0.367
TEL4	0.208	0.348	0.358	0.229	0.276	0.221	0.284	0.130	0.786	0.281
TRS1	0.228	0.273	0.232	0.154	0.393	0.348	0.348	0.263	0.322	0.821
TRS2	0.229	0.419	0.234	0.200	0.547	0.350	0.361	0.371	0.379	0.842
TRS3	0.174	0.285	0.211	0.159	0.327	0.263	0.307	0.195	0.325	0.773

3.2.2.2 Path model

Path analysis is required to test the research model. CFA contain only the measurement part, whereas path diagrams can be viewed as an SEM which has only structural path. Squared multiple correlation represents how much variances in each of the dependant variables are explained by the model. So they are another set of statistics that show the quality of research model. In SEM, the qualitative casual assumptions are represented by the missing variables in each equation, as well as vanishing covariances among some error items. These assumptions are tested in experimental studies and should be confirmed in observational studies.

Unlike covariance based SEM tools such as LISREL, PLS has the flexibility to represent both formative and reflective latent constructs, and places minimal demands on measurement scales, sample size and distribution assumptions ^[86, 87]. This is because the component based PLS uses a least square estimation procedure to obtain parameter estimates while LISREL uses a maximum likelihood function to do so ^[90, 91]. Convergent and discriminant validity and internal consistency reliability (ICR) was used to evaluate the psychometric properties of the measure for constructs ^[88, 89]. The convergent and discriminate validity of latent constructs with reflective indicators can be assessed by using following criteria:

1. The standardized item loadings should be no less than .707.
2. The item should load more strongly on their respective constructs than on other constructs.
3. The square root of the AVE should be no less than .707 (i.e. AVE should be no less than .50) ^[98].
4. The square root of the AVE should be larger than the correlations between the construct and all other constructs ^[86, 99].

All the reliability coefficients should be above .70 and each AVE is above .50, showing that the measurement are reliable and the latent construct can account for at

least 50% of the variance in the items. The loadings are in acceptable range and the t-values are significant at the .01 level. If the square root of the AVE is greater than all of the inter-construct correlations, it is evidence of sufficient discriminant validity [86]. In order to further access validity of measurement instruments, a cross-loading table was constructed. It can be observed that each item loading in the table is much higher on its assigned construct than on the other constructs, supporting adequate convergent and discriminant validity. Chin (1998) [86] suggests that, covariance based estimates such as reliability and AVE are not applicable for evaluating formative constructs. Instead, the path weights of indicators need to be examined to check if they significantly contribute to the emergent construct. PLS model, a common method factor whose indicators included the entire principal constructs indicators and calculated each indicator's variances, explained by the principal construct method.

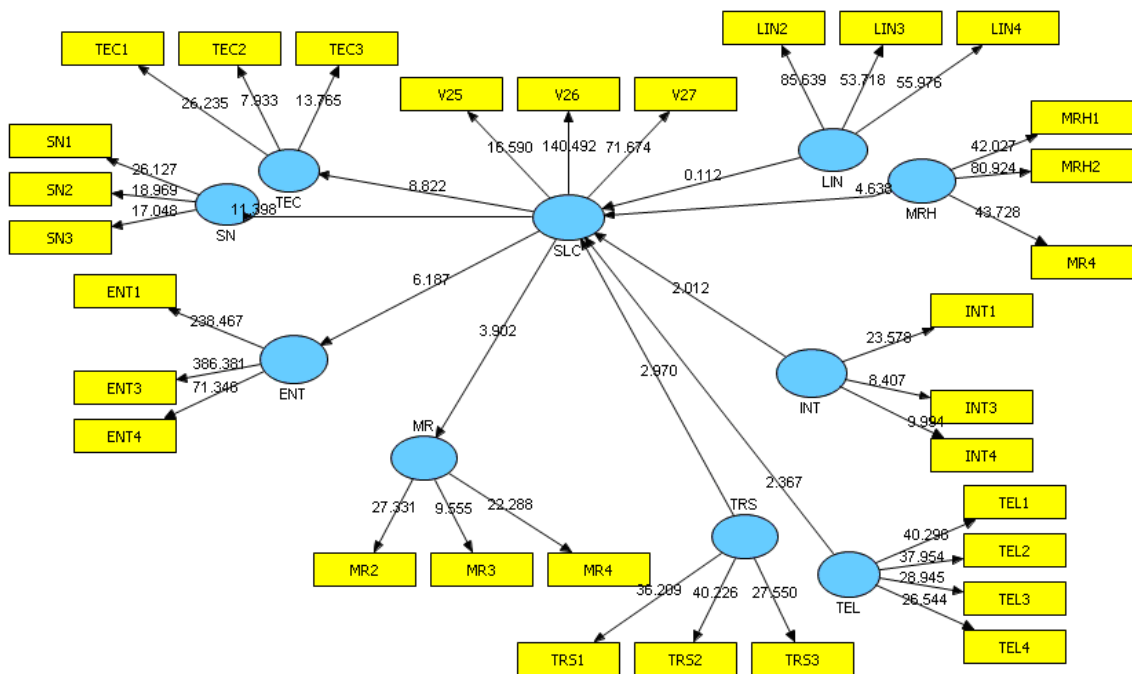


Figure 3.2 Path model

Figure 3.2 shows the path model. Path analysis is required to test the research model. CFA contain only the measurement part, whereas path diagrams can be viewed as an SEM which has only structural path. In SEM, t-tests are a special case of the analysis of variance. All t-statistics will be significant at p less than .001. If the

probability value (p value) is less than the significance level, the null hypothesis is rejected. T value greater than 1.96 is significant at $p < 0.05$. Due to the limitations of the survey result, this value seems less in the path between LIN to SLC. The value is 0.112. Second Life has certain amount of limitations to use linguistic features such as body language, gestures, emotions and lip movement.

Table 3.5 provides the result of path coefficient to test the research model. Path coefficients are standardized versions of linear regression weights which can be used in examining the possible causal linkage between statistical variables in the structural equation modeling approach. The standardization involves multiplying the ordinary regression coefficient by the standard deviations of the corresponding explanatory variable. It has no official value for interpretation. Higher the coefficient, greater the relationship with variables. The values of path coefficients in the table seem satisfactory. Thus the research model was well constructed. It facilitates validity and reliability of research model in this study.

Table 3.5 Path coefficients

	ENT	INT	LIN	MR	MRH	SLC	SN	TEC	TEL	TRS
ENT										
INT						0.085				
LIN						0.045				
MR										
MRH						0.274				
SLC	0.273			0.270			0.525	0.451		
SN										
TEC										
TEL						0.128				
TRS						0.130				

Table 3.6 outlines the value of Latent variable correlations and Square root of AVE. An AVE is used to assess the convergent and discriminant validity of the constructs. The AVE helps to measure the amount of variance that a construct captures from its indicators relative to the amount due to measurement error. So as to assess the convergent validity, AVE of the stipulated construct should be greater than 0.50 (i.e. the value of square root of the AVE should be greater than .707) showing that most variance is captured by the construct from its indicators ^[98].

Table 3.6 Latent variable correlations and Square root of AVE

	ENT	INT	LIN	MR	MRH	SLC	SN	TEC	TEL	TRS
ENT	0.970									
INT	0.389	0.779								
LIN	0.201	0.284	0.931							
MR	0.314	0.253	0.314	0.836						
MRH	0.393	0.525	0.301	0.221	0.874					
SLC	0.285	0.368	0.211	0.199	0.455	0.875				
SN	0.386	0.530	0.297	0.230	0.451	0.430	0.824			
TEC	0.255	0.339	0.152	0.165	0.507	0.358	0.348	0.797		
TEL	0.334	0.473	0.436	0.347	0.422	0.350	0.433	0.236	0.825	
TRS	0.262	0.404	0.278	0.211	0.528	0.401	0.419	0.348	0.421	0.813

All the reliability coefficients should be above .70 and each AVE is above .50, showing that the measurement are reliable and the latent construct can account for at least 50% of the variance in the items. The loadings are in acceptable range and the t-values are significant at the .01 level. If the square root of the AVE is greater than all of the inter-construct correlations, it is an evidence of sufficient discriminant validity [86]. In order to further access validity of measurement instruments, a cross loading table was constructed. It can be observed that each item loading in the table is much higher on its assigned construct than on the other constructs, supporting adequate convergent and discriminant validity. Chin (1998) [86] suggests that, covariance based estimates such as reliability and AVE are not applicable for evaluating formative constructs. Instead, the path weights of indicators need to be examined to check if they significantly contribute to the emergent construct.

Discriminant validity can be verified by two criteria: 1. the square root of the AVE for each construct is greater than its correlations with all other constructs. 2. The loading of each item on its target construct is larger than its cross-loadings on other constructs. Thus all the scales using reflective indicators are reliable and valid. Convergent validity is measure of how well the indicator variables of a latent construct reflect the true value of the construct. It can be measured in terms of item loading and the t-statistics of the loading. A significant level of 0.05 is required for convergent validity. Discriminant validity measures how well the indicator variables reflect their underlying latent construct rather than other latent constructs in the model. In this connection, the loading of an item on the underlying construct must be substantially higher than the cross-loadings on other constructs. The square root of

AVE of the latent construct must be much higher than the correlations of this construct with all other constructs. To assess the discriminant validity, the square root of AVE of a given construct should be greater than the correlations between the construct and all other constructs ^[86]. Convergent and discriminant validity can also be assessed by analyzing factor loadings of all construct indicators. The standardized item loadings should be larger than .707, and the items should load more strongly on their corresponding constructs than other constructs ^[99].

Table 3. 7 Summary of hypothesis test results

Hypothesis	T-Statistic	Support
H1: SLC→TEC	8.822**	Yes
H2: SLC→SN	11.398**	Yes
H3: SLC→ENT	6.187**	Yes
H4: SLC→MR	3.902**	Yes
H5: LIN→SLC	0.112*	Not supported
H6: MRH→ SLC	4.638**	Yes
H7: INT→ SLC	2.012**	Yes
H8: TEL→ SLC	2.367**	Yes
H9: TRS→ SLC	2.970**	Yes

* p<0.1, t-value not significant; ** at p<0.01, t- value significant

Table 3.7 shows the summary of hypothesis result results of research model. All t-statistics will be significant at p less than .001. If the probability value (p value) is less than the significance level, the null hypothesis is rejected. If the T value is greater than 2.63, then the path is significant at p<0.01. T value in between 2.63 and 1.96 is significant at p<0.05. Likewise, T value below 1.96 is not significant (P<0.01). Due to the limitations of the survey result T value seems less in the path between LIN to SLC. The value is 0.112.

3.3 Discussion

3.3.1 Summary of the results

Second Life has wide application in business, education and social networking. The influencing factor to join Second Life is that it has gaming environment and numerous social activities can be performed. The gaming environment has player

freedom, control and creativity. Online games in Second Life are generating huge amount of revenue. The participants are growing due to the innovation of virtual reality, increasing computer capacity and broadband internet access. It enables new way of communication and collaboration in 3D environment by voice over internet protocol. Other social networking sites such as Myspace, Facebook and Youtube are limited on their scope for communication and coordination. Second Life bears future revolutionary communication medium for conducting online business. Second Life is not created not only for fun and entertainment but also for experience. The richness and possibility of e-business is high. Some of the well renowned real world companies such as IBM, Reuters and Dell have opened large opportunities to conduct scientific and business activities in Second Life.

Communication in Second Life is essential for social networking. Social networking establishes relationship between producers and consumers. This relationship is useful for promoting e-business. Modern advertising media such as online social networks are playing vital role in making revenue, exchange information and entertainment. So web 2.0 social networks have been replacing traditional advertising media. The massively multiplayer online role playing games which are played in Second Life also help to enhance relation between players. The relation facilitates to offer products and services to other players that result to make online revenue. The online games are technically and economically feasible to establish collaborative environment. In this connection, virtual worlds are the future of e-commerce and internet. Due to the growth of online computer games, virtual reality is becoming popular in communication medium. Thus richness factors of Second Life communication plays crucial role to enhance real world economy.

Second Life is the latest innovation of information communication technology based on web 2.0 technology. This is a leading virtual world in electronic environment with more than 21 million users. The influencing factor to join Second Life is that it has gaming environment and social activities can be performed. It enables new way of communication and collaboration in 3D environment by voice over internet protocol. Other social networking sites such as Myspace, Facebook and Youtube are limited on their scope for communication and coordination. Second Life bears future revolutionary communication medium for conducting online business. Second Life is not created not only for fun and entertainment but also for experience. The richness and possibility of e-business is high. Some of the well renowned real

world companies such as IBM, Reuters and Dell have opened large opportunities to conduct scientific and business activities in Second Life.

During investigation it was discovered that users below 30 years of age are casuals and found to be engaged mostly in fun and entertainment activities in Second Life. Thus user group above 30 years old are lifers and real business practitioners as well as professionals. Moreover, the gender effect was observed in Second Life as in real life. Female are found to be more honest, interactive and careful to answer the questions. Besides scripting and creating skills experienced users of Second Life have computer hardware and software knowledge. They have used Second Life entirely as a communication medium. The findings on Second Life communication research will be useful for current management practice such as making business policies and strategies and sharing information to managers and leaders.

3.3.2 Contributions and implications

The current study has presented a research model to evaluate communication and business opportunities in Second Life. By means of survey data the research model and relationship between variables were tested. The model is statistically significant and well constructed. The research result shows that Second Life is an appropriate place for communication, social networking and business promotion. The popularity of Second Life has been increasing every day. A range of trading activities such as buying and selling land, leasing them and other services such as scripting, architecture and advertisement take place in this virtual environment. There is both real and virtual economy. Moreover, Second Life has education as well as training opportunities through effective communication. Second Life offers several marketing opportunities for real-world products and services. They are able to generate sustained consumer engagement with a brand. Second Life is emerging as a test place for new ideas, where real world products can be released at low cost with direct feedback from users. There are many opportunities for innovation and profit making in Second Life and a lot of business opportunities. A number of residents are making part or all of their real life income from Second Life businesses. Second Life real estate market provides opportunities for residents to establish their own communities and business locations.

The theoretical study on Second Life shows that virtual worlds enable new type of communication for collaboration and coordination by internet in 3D environment.

The development of web 2.0 technology has provided numerous facilities through communication on social system. All online social networks have intense interaction and called electronic social networks. The development of internet has impacted the growth of social networking sites. The theories suggest that virtual worlds have wide application in business, education and social networking. Electronic gaming and online social networking are more popular in virtual environment. The places are globally shared, social and economic interactions are the key features of virtual world. Second Life is highly communal due to effective communication. So, interaction for establishing social network and performing business are the key issues. The richness characteristics of communication media is useful for making quick decision and solve problem instantaneously.

The growing participation in virtual world is due to the innovation of virtual reality, increasing computer capacity and broadband internet access. Due to the social environment a large number of users have been engaged in Second Life. Second Life has a great importance for marketers. It becomes interactive, collaborative and commercial platform. In this connection, the theory shows that there is a huge opportunity for consumer learning and virtual e-commerce. People get involved in virtual world to play games, entertainment and engage in artistic activities. Owing to this, virtual world are becoming new frontier performing online business. So people are highly motivated to join Second Life. The result of motivation is to remove challenges, enjoyment and make revenue from online trade.

Virtual presence in business may be advertisement or product placement and business sponsored activities. The theories further suggest that online virtual world electronic environments have great research potential on social, behavioral and economic science. They are providing challenges on computer and information science with new developments. The social capital theory suggests that Second Life plays a pivotal role on sharing ideas on information economy. It argues that a person's behavior is partially shaped and controlled by the influence of social network and person's cognition such as expectations and beliefs. Face to face meeting in virtual environment is helpful for transferring knowledge. Facial expressions and body language are shown in graphical form. So, computer mediated non verbal communication takes place in Second Life. WOM is the informal transmission of ideas, comments, opinions and information between two or more individuals, neither one of which is a marker. Thus WOM provides a strong

marketing tool. Due to globalization and virtualization, Second Life is becoming a new territory economically, legally, socially and philosophically. Second Life provides virtual identity, communication and interaction facility through chat, games and online trade.

This study tests the theory of communication and social system as well as word of mouth communication through consumer learning. The contribution of the theories is that communication helps to establish social relation. The outcome of these theories is communication, public distribution and networking. Word of mouth has implication in customer satisfaction, new product development and market success. Theory of intrinsic motivation is required to remain in technical environment for a long time and perform different activities. This study is motivated by a need to understand the roles of effective communication in business. Our research model and empirical results provides the needs of synchronous communication for organizations, managers and policy makers. This study has key implications for practice. First, the findings suggest that Second Life bears high social and business responsibility than other social networking websites. Hence it helps to make decision to companies and individual for real life implication of their creation. Second, this study shows that the communication is a key part that confers standing and existence of virtual world.

3.4 Problems during research and solutions

3.4.1 Problems

Some problems were found during online interview and visit to different locations which are threats to anyone who are currently doing business and research in Second Life. Most important issues are concerned to reliability of Second Life software caused by both Linden server and residents. According to Second Life residents, the newly launched software called 'Beta 2 viewer' is not user friendly. Unlike general website, Second Life contains huge amount of 3D contents. Due to this a good performance of computer system and high speed internet connection are required in both residents' side and Second Life's servers. The statistics shows that Second Life servers are not stable enough and most residents still use low performance computer. Moreover, the data shows that twenty percent of all sessions were crashed at a time which is high and fifty percent of users have frame rates from

0-12 FPS which is low that makes residents difficult to interact and communicate to each other.

Second Life has limitation on server capacity. No matter what a place could attract lots of residents to visit, but the number of residents in one place at a time is limited by Second Life servers' capacity. According to observation and residents comments, less than a hundred of residents can be in one place at a time which is very low compared with a website that could handle thousands of users at a time. This problem decreases communication capacity and revenue from potential customers that could not access to the place. The only way for business owners is to buy more islands which definitely increase the investment cost. Another problem is high learning curve, it requires quite a long time until residents get familiar with the navigation control and building tools in Second Life. It is not simple as a website where users just move the cursors around the page and click buttons, it depends mostly on how sensitive the residents are. Next problem is griefing which is a crime in Second Life, but we found some vampire groups as griefers during Second Life visit. Language is also a problem because residents come from every part of the world. Some more problems are summarized hereunder:

- Majority of residents are engage on fun and entertainment, so it is time consuming to find business professionals and practitioners. Second Life in some extent is so addictive that people are careless.
 - Some residents keep business information confidential.
 - Experienced users such as builders, scripters and texture group are very busy.

So it is difficult to get answers from them.

- It takes time to verify how honestly the residents reply the answers. We have to check their profile and business status using people search button.
 - Some business islands are restricted to enter.
 - More trust should be provided that we are researcher in Second Life so as to obtain the answers.

The study of Second Life is still in the stage of infancy and has a number of challenges. The new users find technological complication to perform activities and adjust in the 3D environment. So Second Life research is time consuming. We have to deliver more time in initial periods to get familiarity with the new virtual atmosphere. If the person is not able to build society inside the virtual environment,

he could not reside there for a long time, hence they will leave the environment very soon. In this connection, we have to devote more time in Second Life, learn some new skills, socialize and perform business activities so that it will be interesting place for residents. Another drawback is that one should cut off his real life activities if engaged more time in Second Life. Due to the popularity of Second Life a large number of users have been registered. So the system becomes unstable causing disturbance in communication system and we have to log off the computer. It affects all online activities including research and business. People have high rate of ignorance in Second Life. Sometime residents are suffered from annoying and harassment that breaks mental peace. It is hard to get interview or survey answers from users as majority of them are not serious in this concern.

There are a limited numbers of researches performed on Second Life communication in the past being a new field of study. So collection of sufficient research materials such as empirical research papers, books and journals are difficult. Making investigative questions are also challenging. We have to make questionnaires with studying broad literature. Sometimes the questions do not match with the investigation, so have to change frequently. Similarly, development of theories and research model are time consuming. Further complicatedness in this research is to get answers of investigative questions from the Second Life users. The majority of residents are young. They spend more time with fun and entertainment. Therefore, they do not take enough care to answer the questions. As a result, online survey or data collection in Second Life is time consuming. Second Life is the meeting place of people around the world. Furthermore, use of common language is the problem. During communication, we have to seek English speaking users. Next problem is to test the validity and reliability of variables and models through statistical analysis. If the results do not come up to satisfactory, then we have to change the model and in some cases we have to change investigative questions.

During online survey the frequently encountered problems are summarized as follows:

1. People should be motivated to answer the questionnaires. The nature and interest of the people residing in Second Life is different. Majority of them spend time on social interaction, especially on entertainment and fun through voice and text chat.

2. Some residents are afraid to open survey link thinking that it contains spam and harmful to their computer. Thus it is difficult to convince them that the survey link is safe. The users are aware to provide personal information having fear of hacking.

3. Sometime the Second Life works very slowly. Due to this, the problem of crashing, lagging and teleporting occurs. The crashing occurs due to slow internet, video card, graphic card setting and dust in CPU.

4. Some Second Life users do not open any type of external links. Sometime even if they are agree to answer the questions, they do not open the link immediately. They will not take enough care or forget to get involved in survey later.

5. Frequent follow up with users should be made to be answered the questions.

6. Some skilled users such as creators, scripters and builders are very busy. So, they do not take adequate care about our request.

7. Some residents are rude, careless and drunker. They create unnecessary question on research.

8. In some cases the detail information of the researcher such as university details and research topic should be explained broadly.

9. Some residents do not understand English. However, they are cooperative and use translator to answer the questions.

10. One of the residents filed abuse report to Linden Lab complaining that I sent him the weblink with spam. So my Second Life account was blocked for 24 hours. I tried to convince him that the link is safe but he did not have trust with me. Linden Lab in such case does not investigate the case seriously.

11. Some residents did not answer the questions honestly as they have addiction on Second Life to perform other activities.

12. The Ethical Guideline or the Terms of Services should be strictly followed up in Second Life. We could not send the link to users without their permission.

13. Some islands in Second Life have restrictions to teleport. Every region has its own feature and people gather as per their interest.

14. Some people are involving to vampire group. They destroy peace and create intolerance.

15. People engaging in entertainment activities such as dance clubs and game do not take care to answer the questions.

16. The private regions are not allowed to enter.

17. Few residents mute to us if we are going to ask them more questions.

18. Some residents do not want to talk through IM. People do not take sufficient care on local chat.

19. The email address was asked to residents for further contact and clarification. Some of them refused to provide due to security and privacy reason.

3.4.2 Solutions

The difficulties arising from Second Life research can be minimized in some extent. The tedious part is to collect data from online survey. In order to motivate users L\$20 was offered for each participant. During data collection more time should be given to Second Life to have interaction with avatars and encourage them participating in online survey. We have to convince the users that we are researcher and the weblink is safe. Better the relationship we have with residents, more interesting the place will be and easier to get responses. We can build a strong social networking in Second Life through effective interaction.

Second Life is a computer mediated online environment. Hence, the internet connectivity should be fast to perform activities. Broadband internet connection should be used and computer system should not have problem. The residents should follow the terms of agreement and community standards to maintain rules and regulation. The Linden lab should expand the capacity of residents gathering in one place. The island is limited to one hundred people. So it creates lagging, crashing and teleporting problem that affects online activities.

3.5 Summary

Individual and big companies use virtual worlds as a bridge to their current real world business and drawing much attention to managers, researchers and business practitioners. Our findings are also important for companies entering virtual worlds and make Second Life as a new channel to interact with customers using new communication technologies. However, the conducted analysis has several limitations. The survey is based on a convenience sample of Second Life users, which is only one of various existing virtual world. So the generalizability of the study is limited and common method bias in survey data could not be completely removed.

Chapter 4 Case Study on Communication and Business Opportunities in Second Life

4.1 Background

Second Life is one of the fast growing and leading virtual worlds and one of the latest innovations of Information Communication Technology. In Second Life the residents have freedom to socialize, create, explore, meet other residents and build products and services and create online business value. Communication is vital to perform all the social and business activities. The virtual business has been greatly affecting the real world economy ^[67]. Second Life has potentiality of business communication, information dissemination and innovation. Due to this, Second Life is a powerful option for real world companies. The concept of virtual reality is important in communication research. Virtual reality is the interface between human and computer in 3D world interacting directly with virtual objects. It has majority of practical application and research activities on immersion, presence and philosophical investigation. Communication research is the interdisciplinary field of information system research.

The relationship between communication and e-business is that communication establishes social networking. Social networking and collaboration help to increase relationship with customers so that the producers could offer their creations. Web 2.0 is modern communication applications which use many expressions such as symbols, emotions and pictograms. Second Life has the potential to reduce information gap by using 3D animations, such as emotions, gestures and mimics. Second Life voice has richness features such as immediate response, multiple cues, verbal contents and personal focus based on VOIP technology. This helps to share information and make prompt decision on business activities. Advertising is a form of communication which helps to promote the brand of real world companies and increase business value. Second Life bears future revolutionary communication medium for conducting online business in a 3D environment. Companies and organizations are using virtual worlds to communicate with stakeholders through customer events, trainings and collaboration. Second Life combines social and visual components

which help to get resource and cost efficiencies. Many companies are incorporating virtual activities into their integrated marketing communication strategies.

Consumer learning is very important in Second Life which bears the concept of word of mouth communication. Better the relationship with consumer, better the market one could establish. Commutation plays pivotal role to generate business value. Advertisement and brand promotion are the key factors of marketing in Second Life. Moreover, modern web 2.0 communication technologies have made distance participants to approach closer. They can conduct educational seminars and meetings in virtual environment. Second Life is a suitable place for business, academic and non-profit organizations to present their information. Qualified builders, programmers and artists are found to promote commercial activities. In this connection, Second Life is known for its recreational and business platform. It provides a great deal in real life businesses to provide an opportunity to engage with customers, suppliers and business partners. Second Life has strong economic and legal connectivity to the real world.

Second Life provides new skills and use of real funds. It has a strong incentive and motivation to innovate and find market gaps. Creation of objects has real monetary value, accordingly have commercial opportunities. The users have ownership of objects they create. Some advantages that companies obtained from Second Life adoption are: resource management, technology management, business opportunity creation, corporate culture enhancement and business strategy. Second Life communication has significance to play online games. Online games are played to remove challenges, make friends, spend time but the basic reason is to enjoy ^[21, 22]. Such web based technologies are helpful to create new e-commerce for income generation and consumer participation ^[32]. It is through communication that Second Life confers status and standing.

4.1.1 Virtual world

Virtual worlds are online communities in which residents communicate in simulated environment ^[100]. Virtual worlds work over the internet and everyone around the globe can access easily. Virtual worlds are also called digital world, simulated world or massively multiplayer online role playing game (MMORPG). Lastowka and Hunter (2004) ^[80] described virtual worlds as “places where millions of people come to play, trade, create and socialize.”

According to Barnes (2007) ^[101] virtual worlds belong to the fantasy-oriented category of virtual communities. The population of virtual worlds has grown rapidly since 1996. In the meantime, several million people have accounts in virtual worlds. There are many virtual worlds on the Internet, for example, The Sims Online, Everquest, Lineage, Ultima Online, the tropical beaches of Tiki (There.com's There), the fantasy world of Norrath (Sony's Everquest), the interstellar expanses of the Milky Way (Electronic Art's Earth & Beyond), and even a galaxy far away (Sony's Star Wars Galaxies) ^[80]. The virtual worlds are built to access different age group of users ranging from kids to middle-aged or even older people. In virtual worlds, each resident is represented by a 3D character called avatar which can communicate with each other for socialization or business purposes on virtual sims. Avatars are designed mainly for social interaction ^[80]. They communicate with each other either through text (local chat), IM and voice. Avatars can communicate with others through body language.

Second Life a 3D virtual world, established in 2003 by US based company Linden Lab. Since then, million of users have joined Second Life to perform different activities. Everyday new users have been entering to Second Life. The 3D representation of human character called 'avatar' is responsible to move, explore, communicate, create and design products and services. The avatar is able to teleport from one place to another. There are many places in Second Life such as clubs, shopping malls, space stations and movie theatres. Moreover, online events such as fashion shows, wedding ceremony, and art exhibition can be found in Second Life. People can play online games for entertainment. They can form group to join sports, have discussions, entertainment, education and culture sharing.

All the contents in Second Life are user created. They can make and design virtual clothes and houses as per their imagination. Linden scripting language (LSL) can be used to create any type of objects and services. LSL code looks like C, Java Script or the Action Script language used in flash animation. Avatar animations can also be triggered by an LSL script. Best Second Life designers learn how to create buildings and scenes that look attractive and download quickly. People have the intellectual property right to protect and prevent their creations. Thus all type of real world activities are well mirrored in Second Life ^[102]. With real world businesses moving to virtual worlds, real world governments are now also becoming interested

in virtual worlds ^[42]. The governments of the Maldives and Sweden have opened official embassies in Second Life.

Residents can purchase land in Second Life to open business, display virtual creations and host online events. Linden Lab has been creating new lands every month to meet the demand of users. Land selling is one of the hot sources of income for Linden Lab. In order to purchase the land, residents have to pay a premium account of US\$ 9.95 per month as per the size of the land.

Second Life users get the sense of “being there” in the same place with other users. The fun in Second Life is to create things, share or sell them to others. But this is difficult for new users. In this connection, some experience is required to create a business environment. The technology behind Second Life is going to have more robust. The growth of Second Life depends on communication server infrastructure and the software that runs within it. The simulator acts as a web application server. This is a dual-core processor, allowing to have one processor’s worth of computing power to itself. The simulators work in conjunction with MYSQL databases, along with a network storage system that contains 33 terabytes of images. The simulators transmit instructions and communicate with other simulators that represent neighboring parcels of island, allowing users to see across the border into the next region. Moreover, the system facilitates physics simulation software that allows objects to behave as if they have weight, fall to the ground and bounce back upon collision with other objects. One of the challenges of Linden lab is to strengthen the simulators, and the reliability of their communication with the viewer software. In order to deliver a performance speed, a mono-enabled version of Second Life should be able to execute scripts written in programming languages other than LSL such as Python or Microsoft’s C#. The Second Life has to face several scheduled and unscheduled outages, such as system down for maintenance. This affects the real life business activities. Several universities are starting to teach courses in the virtual world and they have to wait until the system to be up when it’s time for class.

4.1.2 Virtual business

Virtual business or v-business refers to a business inside virtual environment. This is defined as a process to provide products or services in order to generate revenue as an objective of making profit ^[103]. Products are virtual but the real revenue can be earned in virtual world. Most people think of virtual worlds as just a

game but they are evolving toward a society in which social and economic interactions are the main drivers ^[104]. Residents can run global business in real time. Virtual worlds are inspiring both organization and individual to make revenue. The real world companies such as Nissan has been designing and testing new concept of cars. Banks such as ABN Amro and Meta Bank have been facilitating to open account, deposit and withdraw virtual funds. Some universities have been providing online lectures. Residents are running shops, clubs and recreation sites. Some of them are working as a programmer and designer. There is a huge opportunity of education and training, meeting and collaboration as well as marketing and product testing.

4.1.3 Research question

The research question of the current study is “why do people communicate in Second Life and opportunities to conduct e- business in Second Life”. The significance of communication in virtual environment has been linked with online business. The importance of the research is that Second Life is a suitable place for performing business, social interaction, sharing culture and idea among different people residing at different parts of the world and motivating them to enter in this virtual environment. The research is focused on communication and its impact to create real business value in Second Life. Communication helps to increase the brand of the products, provide organizational information, and present training and learning skills. People can participate on distance education and have new experiences and opportunities.

4.1.4 Purpose

The purpose of the current study is to learn communication behavior of residents in Second Life and its scope to create online business value. Second Life is a web based computer simulated virtual environment. So it has brought a number of opportunities in e-commerce field. No business is possible without effective communication. Due to this, Second Life offers numerous trading and learning opportunities through communication. Second Life is a wide platform for social networking. Besides Second Life, there are other social networking websites such as Facebook, Myspace, Twitter and Youtube. Comparing to these, Second Life takes high social responsibility and transparency. The importance of the study is to learn

human communication behavior, interpersonal communication and cognition in multiuser virtual environment.

4.1.5 Limitation

The limitation of the current study is that Second Life is still in the stage of development. A limited numbers of studies have been performed in communication. Customer survey is very important to learn their communication behavior and business skills. Better the relationship with customer, easier to offer products, receive feedback and create business. Thus Second Life research is time consuming. The system may encounter instability which effects to collect research information. A large number of residents are game focused and professional business practitioners are quite busy. So interaction with professional people takes a lot of effort. Regarding companies, the challenging issue is that they should invest some amount of capital in Second Life to start business and spend a lot of time for marketing. Businesses in Second Life involve designing and create products, real estates, marketing, advertisement and customer service. Moreover, it includes promotion and communication, seeking candidates and hiring people inworld.

4.1.6 Communication in Second Life

Communication is the process of sending, processing and receiving information from one place to another through electronic means. In Second Life, computer mediated environment plays vital role for communication. The source of the information is voice, text or video. The information signal which is produced from information source is non electrical in nature. So for a long distance communication it should be converted into electrical form through input transducer. The transmitter helps to increase the power of the signal and forwards it to a channel. The channel might be wired or wireless. In Second Life, wireless communication takes place. The signal is contaminated by external or internal means resulting low quality of signal. Sometimes the quality of voice signal in Second Life is disrupted by noise and distortion and owing to these, voice communication is not clear. The term 'noise' is defined as introduction of unwanted energy inside communication channel. The output transducer helps to absorb noise and it serves as a filter. The end user is the receiver or information retriever. All communication activities in Second Life are

performed by the Linden server. Linden lab has a number of high capacity communication servers.



Figure 4.1 Enabled voice communication in Second Life



Figure 4.2 Text Communication in Second Life (Local chat and IM)

Figure 4.1 shows active voice communication in Second Life. The green signal indicates that the avatar is talking with another user. Likewise Figure 4.2 provides text communication between avatars. The left window is for local chat which is public and right window is for private communication. Second Life is an electronic

environment and without communication no activities takes place. The communication removes the geographical constraints and helps to bring people at one place around the world for coordination and collaboration. Many ICT organizations have been taking benefit from Second Life to test and develop their products and services. Second Life is a suitable platform for research, development, marketing and IT solutions. The possibilities of exploring the potential of Second Life are for business communications, information dissemination and innovation.

4.1.7 Second Life economy

Second Life has its own internal currency called Linden dollar. The L\$ is used to buy and sell virtual products and services. According to Linden Lab there are more than 1.5 million L\$ transactions every day. An official Linden dollar exchange called Linden exchange is used to buy and sell products. One US\$ varies between 260 to 280 L\$.

4.1.8 Business opportunities

Second Life has wide platform to conduct business occupations. Some of the common business sources in Second Life are party and wedding planner, pet manufacturer, automotive manufacturer, fashion designer and custom designer. Moreover, architect, XML coder, scripter, game developer and tour guide make favorable revenue in Second Life. Second Life has public and private communication to conduct all the activities. The benefit of communication is for personal meetings, product simulations, trainings and to meet global partners. Moreover, communication is used to receive product feedback from clients, engage and raise funds and build community.

Anshe Chung (real life name Ailin Graef), a German resident was a first millionaire to earn real money in Second Life. She made revenue through virtual real estate dealings. She has gone real world with her talents, starting Anshe Chung Studios, a 3D environment developer with offices in Wuhan, China. Second Life aims to be a user with opportunities for both business and play. Linden lab has taken remarkable responsibility for users to retain the copyright for their creation. Thus Second Life has been attracting many entrepreneurs. A Second Life resident Crucial Armitage says “when I found out how expressive I could be in Second Life and that I retain copyrights for the things I make, I knew I was in Second Life to stay”. He

created online clothes and sold them. “My business has grown from a few bucks a month two years ago to selling more than enough to live on now and it’s growing every month” he says. He quitted 17 year real life job as a supermarket manager to engage and create business in Second Life. He is a landowner in Second Life and bears 10 islands. He knows scripting language well which is helpful to create objects. Dibbel, another Second Life resident sells books and says that there is an opportunity for B2B marketing.

Table 4.1 Examples of businesses in Second Life

Organization	Industry	Title and source	Description
Anshe Chung Studios	Virtual Real-estate	Second Life's First Millionaire ^[105]	Anshe Chung Studios is a company that emerged from inside a virtual world. It has made approximately one million real US dollars speculating on virtual real estate. Behind this avatar lies a real-world company located in China, employing several dozen artists and engineers ^[105] .
Canimal Zephyr	Fashion	Product developers in virtual world ^[106]	Maya Hofner is a full time fashion designer in Second Life. Her creations for women and for men are considered highly prestigious in Second Life. ^[106, p. 22]
American Apparel	Fashion	How Viable is Virtual Commerce? ^[104]	In mid 2006, American Apparel opened a store in Second Life offering virtual clothes. But immediately came pressure from consumers and commentators to integrate the virtual store with real world purchases. It was forced to provide real clothing discounts to virtual clothing purchasers: most of its virtual clothes sell only for less than \$1, about 270 Linden dollars. ^[104]
Ginko Financial	Banking	The Dismal Economics of Virtual	In August 2007, a genuine run on a bank located in Second Life, and

Worlds ^[107]	that bank's collapse. Depositors rushed to withdraw their funds from the bank, their predicament drew delighted attention. ^[107]
Source: (Hendaoui <i>et al.</i> , 2008 ^[105] ; Sivan, 2008 ^[106] , Zimmer, 2007 ^[104] ; Noam, 2007 ^[107])	

Table 4.1 shows the examples of some business opportunities in Second Life. Second Life 3D world can be adapted to serve a real business purpose that supports corporate commerce and marketing. Second Life presents enough opportunities that corporate technology leaders should pay attention to it. The 3D web is stable now and it has opened latest technologies. New types of businesses are born on the web, although the technology is new. Ms. Aimee Weber is an experienced user in Second Life. She opened clothing store and making revenue selling clothes. Moreover, she has developed her own real estate in areas such as Midnight City, where she rents out storefront locations and lofts. The Linden lab has a number of Communication servers to establish communication activities. They include MYSQL data bases, web servers and test simulators.

In Linden lab, about 80% of the money comes from land and land maintenance fees and 20% comes from subscriptions. Users have to pay a US\$ 9.95 per month as a subscription fee if they want to own land. The main competitors of Second Life are There.com and Active Worlds. Timeless Prototype is a Second Life resident who is a programmer in real life at a British digital media company, says “If you run a good shop in Second Life, you can earn a good living and can trade that cash out for US\$ via LindenX”. Charities have also helped to raise fund in Second Life. The American cancer society raised about US\$ 41,000 with Second Life.

From a business perspective the most attractive thing about Second Life is that it is a ready made platform for creating 3D contents. The Second Life environment is perfect for “rough prototyping” says Terry Beaubois, an architect who runs the creative Research Lab at Montana State University. Second Life economy is real and so are the profits. Residents buy and sell virtual land, open shops and work in night clubs. Moreover, they form business partnership and start business ventures. Good builders can always make money by building and selling houses, jewelry and so on. Good scripters are as important as builders. Designing clothes and hair makes real life income in Second Life. Nightclubs and Strip clubs also make profit in Second Life. Building, scripting and selling is the best way to make revenue.

4.2 Research method

4.2.1 Research strategy

The research method is categorized into two parts in majority: qualitative and quantitative. Quality defines character of something whereas quantity determines the amount of something. Qualitative method helps to identify component of subject whereas quantitative method determines the amount of components. The utilization of these methods depends upon research question. The research question is focused on communication and its significance to conduct online business in Second Life. Majority of professionals and companies are using modern communication technologies to conduct business in Second Life. Both quantitative and qualitative methods in this research have been chosen to support to answer the research question.

The current study is a qualitative study based on a case study approach that investigates virtual business opportunities in Second Life. Yin (2003)^[108] states that case study is a good choice when the investigator has little control over events or cannot manipulate relevant behaviors. On the other hand, in this research, there is no effect or control to virtual business events during their whole processes, the phenomenon was investigated without disturbing relative individuals or companies. Case study is preferred in examining contemporary events within its real life. The strength of case study is its ability to integrate a full variety of evidence, including interviews, documents, and observations^[108] as interview and observation was used as alternative methods for data collection. Case study can make a good use of data. Therefore, case study was chosen as an alternative research methodology.

The single case design is justifiable when the case represents a critical test of existing theory, a rare or unique circumstance, a representative or typical case, or the case serves a revelatory or longitudinal purpose^[108]. Second Life is representative as well as typical because of the following reasons:

1. Rich communication and business environment: 3D world, community based, creative and potential of e-commerce opportunities.
2. Popular among companies: Big brand companies such as IBM, Dell, Toyota and Reuters.
3. Popular among players: More than 19 million people. About half million residents regularly visit Second Life and million of dollars is spent each month.

Majority of the people are trying to make revenue in Second Life however, not everyone can succeed. Its popularity among companies and individuals makes Second Life be able to provide plenty of business events with regard to different industries to investigate a wide area of research scope. In conclusion, single case study method using Second Life as the case is suitable for investigation.

4.2.2 Data collection: online interview

In the first step online interview was performed with 20 Second Life residents to study their communication behavior and business experiences. Out of 20 residents 9 were selected for analysis. . The interview was conducted with text chat for 20-30 minutes with individual user. The category of residents includes Second Life players, experienced business practitioners and company representatives. The original interview of users was copied first and then edited. In the second part of the study, the success history of real world companies have provided based upon the information received from company representatives, Second Life website, Second Life online business articles and relevant literature. The original conversation records were stored and then edited. The interview process and information collection from various resources took place for four weeks and four hours a day. The qualitative data is received from interview. The qualitative research interview is a construction site of knowledge and lead to specific explanations to the interview results ^[109]. It can help to understand the virtual worlds from the subjects of view and to make use of participants' experiences to analyze virtual business phenomena. As a result, interview was used as one of the qualitative research methods. The semi-structured interview was used as this provides interviewees flexibility in asking and answering questions, thus lead to the freedom to explore the phenomena in more details. The objective of the interview is to get a better understanding of how communication is important in Second Life and its effectiveness to generate revenue. The interview is internet based and not face to face. The interpretation and explanation of the result is based on linking between theories and data to find some pattern matching or common phenomenon. The conversation was performed with Second Life players, land owners, island owners and business practitioners. Customer benefit in virtual world includes scope of product, quality, convenience, ease to access and customer service.

Some observations in Second Life include watching particular types of events, focus communication related activities and business potentialities to support data for interview. Different islands was visited to find out how often products and services exist in Second Life. Also observed how a resident can find his competitor in Second Life. The benefit of products and services was observed reading their description. Moreover, mode of advertising and customer service by companies was investigated to learn possible ways of revenue generation. Major coverage of the study in the form of open questionnaires include following:

1. How effective do you find communicating in Second Life?
2. Do you have experience to make real money in Second Life? How?
3. What is the popular business in Second Life in your opinion?
4. How successful the companies are?
5. How virtual events are effective for business promotion?
6. What is the future scope of Second Life business?
7. Do you think the communication plays vital role for business promotion in Second Life?
8. What are the problems and challenges for business in Second Life?

Additional information was collected from Second Life website, business articles (wiki) and relevant literature to make the study more supportive.

Second Life is a 3D virtual world, so it requires a high speed internet connection with a computer in good condition. The minimum requirements to use Second Life are as follows:

Internet connection: cable or DSL

Operating system: XP, Vista or Windows 7 (32-bit only)

Computer processor: 800 MHz Pentium III or Athlon, or better

Computer memory: 512 MB or more

Screen resolution: 1024x768 pixels

Graphics Card for XP: NVIDIA GeForce 6600 or better; ATI Radeon 8500, 9250 or better; OR Intel 945 chipset

4.2.3 Validity and reliability

Different sources of evidence can be used to provide strength of the case study. Yin (2003) ^[108] formulated triangulation method to collect multiple resources of the same phenomenon ^[110, 108]. There are different types of triangulation method such as

strategy triangulation, time triangulation, space triangulation, investigator triangulation, and theoretical triangulation ^[110]. For this study, some kinds of triangulation are adopted such as method triangulation, by using more than one data generation methods which are interview and observation to establish the construct validity and reliability of the evidence. Theoretical triangulation considering more than one theoretical perspective was used from many authors.

An argument is valid if and only if the truth of its premises entails the truth of its conclusion. It would be self-contradictory to affirm the premises and deny the conclusion. The corresponding conditional of a valid argument is a logical truth and the negation of its corresponding conditional is a contradiction. About the validity of participants, it was checked whether they really exist in Second Life and currently doing business there. Their existence was checked by using people search function according to their avatar's name. To check whether they are currently doing business in Second Life, properties of products or lands was checked whether they are really own them. To minimize the errors and biases in the study, not only companies in good conditions, but also failure ones are considered. For website references, for example Second Life website and Second Life wiki, was used to describe things or events that occurred within Second Life only, not used as a theoretical argument. While quoting academic references, it was tried to find the original literatures, compared the original and secondary versions, and selected the further developed ones to use, with notes on the improvements.

4.2.4 Ethics

Throughout all phases of the research process, researchers should be sensitive to ethical considerations ^[111]. As interviews and observations were used, the moral implications of an interview inquiry and field observations need to be considered. Kvale (1996) ^[109] presents the ethical issues at the seven stages of interviews. Israel & Hay (2006) ^[112] describe the methods of “avoiding harm, doing good” to participants in social researches. Accordingly, the principles followed are provided below:

Thematizing: on this first stage of study, Kvale (1996) ^[109] states that the purpose of the study should not only have scientific value, but also be able to improve the human situation investigated. The purpose of this research satisfies this requirement to investigate communication behavior and business issues relating to

Second Life, and provide reference to business opportunities in Second Life. The result of the research is useful to organizations and individuals that are extending or planning to extend business in virtual worlds.

Designing: while designing the interviews and selecting observation subjects, the possible consequences of the study for the subjects should be considered. The questions on business confidentialities, and the observations were not disturbing any activities in the virtual world.

Study situation: Concerning to the guidelines provided by Singer and Vinson (2002), ^[113] the purpose of this research was explained to the participants totally at the beginning of interviewing, and obtained all the subjects' agreements to participate in the project as IM was used for interview, all the original conversation records were kept. Confidentiality issue is the most important in this stage, according to Singer and Vinson (2002) and Israel and Hay (2006), ^[113, 112] the ideal protection of anonymity involves not collecting any data that can be used to identify participants, not even real names and in the reports, confidentiality and anonymity can be protected by aggregating the data. Also asked whether anonymity need to be used for them, such as whether they would like their real names, identities in Second Life, or company/ studio names to be written in this report.

Transcription: In this stage, the issue of confidentiality was considered again, and the interviewees' statements and actions were loyally recorded. The anonymity of interviewees should be maintained so that their personal information is not disclosed and privacy is kept.

Analysis: As the subjects have the right to say how their statements and behaviors are interpreted (Kvale, 1996), ^[109] and asked them whether they would like to read transcription and analysis after interviews/ observations. The analyzed information is vital to achieve expected result.

Verification: "It is the researchers' ethical responsibility to report knowledge that is as secured and verified as possible ^[109, p. 111]. Strictness was followed in selecting subjects during interviews and observations, and careful in recording and transcription.

Reporting: At this stage, the consequence of the report was considered to the subjects and the group or institution they belong to ^[109]. As this research on business activities has little possibility of harm, confidentiality issue is the most important. Considering this, the real names of the participants was not kept in this study.

4.2.5 Bias

Bias is defined as “systematic error that deriving from a conscious or unconscious tendency on the part of a researcher to produce data, and/or to interpret them, in a way that inclines towards erroneous conclusions which are in line with his or her commitments” ^[114]. Norris (1997) ^[115] provides potential sources of bias, for example, the sampling of time, places, events, people, issues, availability and reliability of sources, and researcher preferences. In this research, the theories used come from literature review in order to remove opinions that come from only one author. For the sampling of participants, interview with people was taken place that the researcher did not know before and their validity. For the selection of case study, reason was discussed why Second Life was selected as a case study. Not only are the positive things of communication and virtual business mentioned, also provided problems which are threats to virtual business. Furthermore, this research was reviewed by colleagues in order to remove some biases which were not appear into notice.

4.2.6 Constraints on research area

MacInnes and Hu (2007) ^[116] stated that “Even though there are so many people around the world who are active in these virtual worlds, scholars have only recently begun to understand the dynamics of these communities”. Some researchers have investigated the research opportunities on different aspects of virtual worlds. According to the research of Gregor (2006) ^[117] on structural nature of theory, Bray and Konsynski (2007) ^[42] conclude that several intriguing questions can inform both existing theory and generate wholly new theories on business, information systems, and political science in virtual worlds. Hendaoui *et al.*, (2008) ^[105] stated that new theories and concepts for virtual world need to be built in order to explore the frontiers between reality and virtuality. They point out seven fields of issues that researchers and managers will have to face in the near future. The issues are: Business Issues, Social and Political Issues, Communication and Collaborative Work Issues, Educational and Learning Issues, Technological Issues, Mapping between the Real World and the Virtual World, Ethical and Legal Issues. Business activities are one of v-business issues discussed by Hendaoui *et al.*, (2008) ^[105]. The increasing in demand for virtual products and services in virtual world has contributed to new types of businesses in the area of content creation, retail, conference and event

hosting, real estate and financial services ^[118]. Communication plays pivotal role in Second Life to conduct individual and organizational business activities. Li (2007), Laudon and Traver (2002) ^[119, 120] and Rayport and Jaworski (2001) ^[121] suggest that a business is needed for companies to thrive and survive. Thus business owners need to understand the concept of suitable business model to ensure the success. In accordance with literature review, there are a limited number of empirical researches on communication in the context of virtual world. Thus it becomes more and more important to provide a better understanding of the relationships between the communication and business in virtual world which is different from traditional business and e-Business.

4.3 Results and analysis

Virtual worlds enable new ways of collaboration and coordination through communication in 3D environment by Voice over Internet Protocol (VOIP) ^[62]. People interact with each other through web 2.0 applications such as voice, IM and video conferencing. Many virtual worlds offer plain text, voice, gestures and emotion for communication. Second Life has become an interactive, collaborative and commercial platform for users, marketers and researchers ^[1]. In this connection, there is a huge opportunity to perform virtual e-commerce. The virtual worlds provide flexibility in brand building, advertisement and new product development ^[34].

Mr. Crank is in Second Life for more than two years. According to him, the communication in Second Life is highly effective to perform business. People can create products and sell them to make money. But the creativity skill is needed to make products. He says that advertisement in Second Life is useful to promote the brand of the products. The negative points are that, Second Life is highly addictive. Thus people should forget their real life. Inhabitants of all categories gather in Second Life such as mentally ill and grievers. In this connection, Second Life is larger than real life to perform social and business activities.

Second Life is time consuming, so it takes a long time to accomplish the event. The technology is complex but Second Life residents are helpful to teach about the environment. The residents are engaged in professional jobs, creation of new products, open shops, buy and sell lands. Second Life has a huge opportunity to create real business value. Second Life is also a platform to play online games. Nowadays, many social interaction games have been developed in virtual

environment. Online games are played for enjoyment. So enjoyment is one of the important factors of gaming behavior ^[2]. Online games are creating a huge business and million of users are motivated to engage in it. The theory of motivation states that “the reward of performing an activity is the process of the activity itself and not an end result” ^[45].

Mr. Creator Byron is an experienced Second Life user. He finds that Second Life is useful for global communication. He creates avatars and different body parts. Sometimes he sells them to make money. According to him, the popular business in Second Life is land sale, skin and home. Real world companies are successful to promote their products through online events such as meeting and conference. The problems are lagging, copybotters and new Second Life viewer (Beta 2) which is not user friendly.

The Second Life platform has less technical and social problems. Due to this, a large number of people have been joining Second Life. The communication system is synchronous. Therefore immediate response and feedback can be received. It will be helpful for decision making, engage in business related activities and to increase social network. As such, Second Life platform follows the theory of communication and social system.

Second Life has its internal currency called Linden Dollar to trade virtual products. Second Life offers a place for online laboratory to test and develop new products and services ^[60]. It offers scripting and graphic tools for designing, creating and customizing virtual objects and services. The residents have intellectual property right and sociotechnical implication of online behavior. Second Life offers strategies on B2B, B2C and C2C businesses. Since the virtual market is stable, hence there is low risk of investment ^[122]. Virtual world is the hot resource for communication, socialization, collaboration and participation in different activities. Virtual world has an effective, emotional and simulating environment for users. The customer participation may be active or passive and environmental relationship may be immersive and absorptive. The virtual world is becoming a target place for marketing ^[33]. It provides richness and potential of advertisement. Advertisements are the reliable source of revenue for organization and communications that play a pivotal role for establishing collaboration between producer and consumer to generate business value. Word of mouth is an important marketing tool for consumer decision making. “The consumer is an active participant in an interactive exercise of multiple

feedback loops and highly immediate communication”^[47]. Word of mouth is an important tool for consumer decision making and useful for marketers, managers and researchers.

Mr. Herry Maltz has been working as an active consultant in Second Life game since 2006. According to him, voice in Second Life is efficient and easier, and one could not compare Second Life voice with Skype. Communication in Second Life cuts the real world cost. Teleconference and email are popular media. Communication is required to conduct business and have interaction. Second Life is a suitable platform to perform business activities and beneficial to real life companies. The challenge is competition and fluctuation on land prices. Linden Lab helps to resolve business related problems. Other challenges are qualified person for public relations, sales, and trust establishment.

Second Life has limitation on body language during communication. Residents can walk, fly, run, stand and fly easily but animations and gestures are sophisticated^[33]. Additional features on animations and gestures are frequently uploaded in Second Life. Due to the limitations of non verbal communications many users use Skype and other VOIP solutions for voice communication. Unfortunately, there is no actual synchronization of voice with facial expression and lip movement. Consequently, Second Life is still missing actual face to face communication. The gaming environment in Second Life has player freedom, control and creativity. More than 80% of the gaming contents are created by users. Therefore, online games can not be separated from online users^[24]. Communication is required to play games, socializing, content sharing and business promotion.

Ms. Precious Ruby is in Second Life since two years. She creates flowers and clothes. She argues that the real world designers are successful in Second Life. Communication is needed to offer products. Conference and meetings are highly informative in Second Life. Second Life has great potential for designers and business practitioners. The environment is technical and occasionally it encounters problems.

Second Life is a popular and leading online social networking virtual environment. Other social networking web 2.0 applications such as Facebook, Myspace and Youtube are also in application but these are limited on their scope for communication, collaboration and coordination^[14]. Longer the people remain in Second Life more interesting it will be for users. They could learn a number of new

activities, make new friends, participate in social activities, conduct business and have interaction with many people around the globe. It helps them to make strong relationship with others, which facilitates to remain in this fantastic world for a long period of time ^[44]. If avatars have some skill then they have a great opportunity to generate revenue. If one feels loneliness, then he will leave the place very soon. Some people would not like to talk about real life in virtual environment. They would like to hide their real identity, and professional life. They join Second Life to forget the real life. Voice communication is important than text as it carries emotional data. Birdwhistell (1970) ^[23] stated that 65% of information takes place through facial expressions and remaining 35% through spoken words. Non verbal communication is limited in Second Life. Facial expressions are used to show reactions and these are shown through gestures. In some cases, Second Life has technical limitations, so possibility of physical expression is rare.

Mr. Asterion Coen has been in Second Life more than three years. He has been working as a solution provider of IBM in Second Life. He provided information that IBM is exploiting maximum benefit from Second Life. The company is using Second Life to test products and services. Moreover, this environment is useful for scripting 3D objects and prototyping. Second Life reduces real world cost of meeting and conferences. Thus it can be used as a communication tool and real world laboratory. According to Mr. Asterion, virtual worlds are the future of the web. The constraint of Second Life is number of avatars gathering in one place is limited to one hundred. So, he would like to suggest Linden Lab to make flexibility on this.

The IM can be used when people are not in the same grid. The IM is highly secured so that no one can know about the conversation. Local chat is open for all and everyone can read the conversations. People prefer voice communication for immediate response. The major social problems in Second Life are annoying, harrasement and misconduct. The Second Life virtual world is open to all and has much more freedom.

Second Life is becoming an important place for marketing and brand promotion of real life products and services. Hemp (2006) ^[33] stated that virtual worlds have future importance for marketers. They become interactive, collaborative and commercial platform for all. In this connection, there is a huge opportunity of virtual e-commerce. They provide flexibility in brand building, new product development, testing and advertisement ^[34]. Virtual presence of organizations may be

advertisement or product placement and business sponsored virtual activities. Second Life is the computer mediated shared place for interacting among people ^[42]. People play online games to remove challenges, make friends, spend time but the basic reason is to enjoy ^[21, 22]. Such web based technologies are useful to create new e-commerce for income generation and consumer participation ^[32]. The incidents which are not possible in real life can be performed in Second Life. Thus it is different from real life.

Mr. Trixie Maddox's opinion is summarized as follows: Communication is needed to offer creations and customer relation. He sells avatar body parts such as hair, skin and others. He has the skill of scripting and 3D designing. He owns two islands and provides some space to friends with free of cost. Mr. Trixie is satisfied with his revenue. He does advertisement to increase the brand of the products and it's now well established. Moreover, he wants to improve the existing brand of the products as users seek new brands. He has the policy to refund products if customers do not like and sometimes exchanges with other products. Some initial investment is required to open business in Second Life. The challenging issues are competition, innovation and creativity. He took part in conferences and opines that virtual conference saves both time and cost.

Second Life communication such as voice is synchronous. Due to synchronicity immediate response and feedback can be received. This is called media richness theory. Face to face communication in real life has high richness feature. Media richness is defined as "the ability of media to overcome different frames of reference or clarify ambiguous issues to change understanding in a timely manner" ^[46, p. 147]. The richness characteristics consist of multiple information channels such as voice, gestures, immediate feedback and personal focus. Managers in real life prefer rich medium for face to face communication which has high equivocal task. Leaner medium such as written medium including e-mail have low equivocal task. So managers prefer face to face communication for immediate decision making rather than telephone, written memo and email. Interactivity is the key variable in communication research. Majority of the people prefer to socialize and participate in social activities. The virtual environment has audio and video contents and different communication media such as IM, text chat and blogs, based on web 2.0 technologies. Communication is preferred for socializing and content sharing ^[5].

The opinions and experiences of Spike Zimmerman are summarized as follows:

Communication is needed to contact with each other, socialize, run business and conduct online events. He does real estate business. Moreover, he is engaged with business consultation, market survey, advertising and customer experience projects. He says “we build houses, real estate design, product production, avatar design etc. Other services are exhibitions, video production and customer support in Second Life. We have an expert team of individuals to perform these activities”. He buys and sells the land because it’s easy to operate. He puts company’s product information on the website so that real world people can visit the site and get information. The challenging issues are time, customer and market. One should be good in programming, 3D scripting and ought to know customer’s interest. Advertising and communication is vital for brand promotion. He uses word of mouth and blogging. Communication is very important to conduct online business events. The sustainability of Second Life can not be imagined without communication.

The inhabitants are responsible for all the contents created in Second Life ^[68]. Some real life companies such as Toyota, Dell, Adidas and IBM have opened virtual stores in Second Life for brand awareness. Other companies perform promotional and social activities. Virtual worlds play a vital role to ease in online social networking and synthetic environment ^[123]. Second Life is greatly social and has highly effective communication so the theory of communication and social systems best suits. The theory of intrinsic motivation states the reward performing an activity is the process of the activity itself and not an ultimate result ^[45]. People are highly motivated to perform business activities as well. Since the virtual market is stable so there is low risk of investment ^[122]. Virtual world is the hot resource for communication, socialization, collaboration and performing professional activities. Some people have professional career in Second Life and some have full time job.

Timothy Hoxley expressed his experience as follows: Second Life is popular and convenient communication software to conduct online events. He sells clothes, accessories, bags and shoes etc. He has focused on women’s products because women want to dress up. Set of products is easy to sell as people want to buy shoes and shocks together. Moreover, scripting and building skill is required to conduct long term business. Mr. Timothy opines that product quality is very important in Second Life as in real life. Higher the traffic greater the sales volume. Customer service is also required in virtual world as in real world. He makes advertisement of the products and sometimes provides free stuffs. So he has satisfaction with the

revenue generated from Second Life. Other challenging issues are competition, design, quality and communication skill. Initial investment is required to rent a land and one should pay land maintenance fee every month.

Second Life plays a pivotal role on sharing ideas on information economy ^[24]. Face to face meeting in virtual environment is used for knowledge transfer. Facial expression and body language are shown in graphical form. So computer mediated non verbal communication takes place in Second Life. The interactivity, language and gestures are simulated in the computer. People automatically resort to human-human interaction but directly to computer ^[72, 73]. Some people found that virtual life is attractive than real life ^[74] and avatars could establish network with other avatars ^[75]. Many organizations enter virtual world to establish business and generate revenue. The firms design, produce and distribute products. The consumers in another hand purchase goods and services as per their budgetary limitations. The communication establishes collaboration between producers and consumers. Thus the word of mouth communication is highly used in consumer learning. The formation of relationship through interaction in virtual environment is a dynamic process ^[124]. Mr. Nguway Firelight builds objects in Second Life. He thinks that communication is required to locate market stuff and advertisement. Moreover, communication is needed to talk with people. Online events are very successful in Second Life. His girl friend makes money from Second Life. She is a teacher in real life. He joined Second Life for recreation, so no experience of making money.

Second Life technology bears concept of presence and telepresence. This is called virtual reality. Presence means being in the environment physically. The avatar indicates virtual presence of real person whereas telepresence is being in virtual environment by means of communication media ^[125]. Gibson (1979, p.75) ^[126] stated that “Presence can be thought of as the experience of one’s physical environment. It refers not to one’s surroundings as they exist in the physical world, but to the perception of those surroundings as mediated by both automatic and controlled mental processes”. Presence is a natural perception whereas telepresence is mediated perception of environment. The environment can be temporary, real or virtual. Virtual reality influences consumer learning, their intention to purchase goods which satisfies the theory of cognitive fit. The theory indicates a contingent effect of technologies. Virtual reality requires high richness, interactivity and telepresence to enhance consumer learning about products. Since virtual reality is

experienced in online environment, so it requires vision and learning for consumers. The feature of interactivity is immediate feedback through mediated environment. Consumers have positive, negative or neutral attitude about the products. The positive attitude helps them to make decision for purchasing products. The virtual reality in this sense effects on consumer learning in terms of cognitive, affective and conative dimensions based on observations made by Li, Daugherty and Biocca (2003) ^[38]. Virtual communities such as Second Life play a crucial role on supply of knowledge. The social capital theory and social cognitive theory are widely used for knowledge sharing. The major constructs of social capital theories are social interactions, norms of reciprocity, identification, shared vision and knowledge. The social capital theory suggests that social capital, the network of relationships possessed by an individual or a social network and the set of resources embedded within it strongly influence the extent to which interpersonal knowledge sharing occurs. Bandura (1997) ^[127] suggests that individual behavior is the product of the social network through the close social interactions, individuals are able to increase the depth, breath and efficiency of mutual knowledge transformation. Some people think that Second Life is a place for entertainment. So they enter Second Life for fun and enjoyment rather than making money. It was found from online conversations that people below 30 years old have less interest to perform online business in Second Life. The overall performance of Second Life was found satisfactory except system instability due to large number of users.

Table 4.2 presents the summary of findings on communication in Second Life. Second Life is an electronic environment and without communication no activities takes place. Advertisement is a form of communication which is helpful for brand promotion. Online events are highly interactive and informative. Voice is preferred best, as it has media richness feature. The richness factors include personal focus, immediate feedback and multiple cues. Virtual communication reduces real world cost and time. Furthermore, communication plays pivotal role for customer relationship and locate market. Word of mouth and blogs are means of business communication. Second Life is a future of the web and has sustainability through communication.

Table 4.2 Summary of findings on communication in Second Life

<p>Significance of Communication in Second Life</p>	<p>Participant 1: Communication is highly effective to perform business activities. Advertisement is also a form of communication.</p> <p>Participant 2: Second Life is useful for global communication. Online events such as meeting and conferences are reliable source of communication for business promotion.</p> <p>Participant 3: Voice communication is highly effective and can't be compared with Skype. Communication helps to reduce real world cost and needed for business interaction. Teleconferencing and email are more popular.</p> <p>Participant 4: Communication is helpful to offer products and services. Conferences and meetings are highly informative.</p> <p>Participant 5: Second Life is a communication tool. Communication reduces real world cost through online meeting and conferences. Second Life is the future of the web.</p> <p>Participant 6: Communication is required to maintain customer relationship and offer creations. Virtual conference saves both time and cost.</p> <p>Participant 7: Second Life is a popular and convenient communication software and highly reliable to conduct online events. A good communication skill is needed for customer relationship.</p> <p>Participant 8: Communication is needed to contact people, socialize and run business. Online events are a form of communication and greatly successful. Advertisement and communication are required for brand promotion. He uses word of mouth and blogging. Second Life has its sustainability through communication.</p> <p>Participant 9: Communication is required to locate market stuffs and advertisement. Moreover, it is needed for interaction. Online events are highly successful and they reduce real world cost.</p>
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Table 4.3 presents the summary of findings on business opportunities in Second Life. Creativity, quality and communication are vital for customer relation and business promotion. Higher the number of people higher the sales potential. Popular business in Second Life is land, home and body parts. Real world companies are successful to promote brand through advertising and online events. Second Life is highly effective for 3D scripting and prototyping. Skilled manpower is needed to conduct business activities. The real estate businesses are also successful in Second

Life. Some residents have recreational talents. However, some are addictive in Second Life environment.

Table 4.3 Summary of findings on online business opportunities in Second Life

<p>Business opportunities in Second Life and effect of communication for online business as well as problems and challenging issues</p>	<p>Participant 1: Creativity is needed to create products and sell them. Advertisement is important to promote brand of the products. Second Life has wide potential of business opportunities as of real life. The challenges are that Second Life is highly addictive. Grievers and mentally ill people break peace of the environment.</p> <p>Participant 2: Avatars and body parts are reliable source to make revenue. Moreover, the popular business is land sale, skin and home. Real world companies are promoting their products and services through online events and they are successful. The problems are lagging, copybotters and new Second Life viewer (Beta 2) which is not user friendly.</p> <p>Participant 3: Second Life is suitable platform to perform business and profitable to real world companies. The problem is competition and fluctuation on land prices. As in real life qualified man power for sales and public relation is required. Sometimes technical problems arise in Second Life.</p> <p>Participant 4: Working as a solution provider of IBM. IBM is using Second Life to test products and services. The real world meeting cost of the company has been reduced. Second Life is useful for scripting 3D objects and prototyping. The environment is useful as a communication tool and real world laboratory. The limitation is number of users gathering in one place is restricted to 100 which should be extended.</p> <p>Participant 5: He creates and sales hair, skin and other body parts. He has two islands. He does advertisement of his products and develops new brands. Customer support and refund policy is important as in real life. Some initial investment is required to initiate business. Virtual conference is useful and it saves both time and cost. The challenges are competition, innovation and creativity.</p> <p>Participant 6: He does real estate business including market survey, advertising and customer experience projects. Moreover, he builds houses, designs avatars, product videos and customer support. Buying and selling land is easy to operate. Keeping product information on website helps people to know about the products. The expert team of professional support to perform the activities.</p> <p>Participant 7: He has focused to sell women's products and prefer to offer</p>
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set of products such as shocks and shoes. Scripting knowledge is required to create products. Quality and customer service is important as in real life. Higher the traffic higher the sales volume. Advertisement and product offering is necessary to attract customers. The business challenges are initial investment, competition, design, quality and communication skill. He has satisfaction with the revenue generated from Second Life.

Participant 8: Joined Second Life for recreation and has no experience to make revenue. However, his girl friend makes money. Online events are helpful for business promotion.

Participant 9: Second Life is useful for the growth of real world economy. Professional people are highly benefited as they do not need full time job in real life. Some residents have part time jobs in Second Life. Creativity and networking is important for offering products.

Some of the experiences of other Second Life residents and result are summarized below. The information was collected during online survey during the period of February to April, 2010.

Table 4.4 Summary of findings on communication in Second Life

Communication in Second Life	Participant 1: Safe and effective source of interaction. The reliability should be improved further.
	Participant 2: Social side is much more effective and place for remote training and education. Working in a team is efficient. Found Second Life as an experimental place.
	Participant 3: Communication system has been facilitating global participants to gather in one platform for participating on e-business events.
	Participant 4: Problems on business communication should be focused more. Business owners are the professional people to whom we can communicate.
	Participant 5: He uses Second Life voice and Skype at one time. However, Second Life communication is more preferred. It saves time and effort to meet real life people.
	Participant 6: Immediate feedback can be received. Second Life lacks emotional cues and body language, as it has no face to face communication.

Participant 7: Online broadcast in Second Life should be focused. Besides infohubs, Second Life bears a number of islands for communication and social networking. He provided some landmarks to visit.

Participant 8: Second Life events do not affect real life. The virtual world is bound by rules and community standards. Second Life enables people to socialize but some people are greatly addictive.

Participant 9: Communication quality and server capacity of Linden Lab should be expanded to avoid lagging and crashing problem.

Participant 10: Satisfied with Second Life communication media. IM is the best for communication as it is secured and business secrecy can be maintained.

Table 4.4 presents summary of findings on Second Life communication. The result shows that Second Life communication is highly reliable and effective to socialize and conduct online events. Due to its synchronicity feature, immediate feedback can be received which is useful for decision making. In this connection, Second Life has real world implication to managers, policy makers and IT researchers. Second Life reduces real world cost as people around the world can gather in one place. Communication is highly efficient for training and education to Second Life users. Instant messaging was considered best as it bears security and privacy of information.

Thus Second Life is considered as an experimental place for real world events.

Table 4.5 Summary of findings on e-business in Second Life

E-business opportunities in Second Life	Participant 1: Online events such as video conference are effective for e-business promotion. He frequently participates in business events through meeting and conferences.
	Participant 2: Second Life is on growing stage. She found e-business not enough effective as she could not attract customers. Some real world companies are using Second Life for brand promotion.
	Participant 3: Real world companies should be brought in Second Life for business promotion. However, there are some challenges to survive companies in Second Life and establish real brand.
	Participant 4: It takes a lot of efforts to get real profit in Second Life. There are numerous residents in Second Life having no real experience of business. They visit from one location to another and try to use new products.

Participant 5: Initial investment, multiple and updated products as well as after sales service is required to attract customers. Second Life has an excellent future on e-business.

Participant 6: She is making good money at her own island. However, it is time consuming and one has to forget about real life activities.

Participant 7: Few places in Second Life have useful business environment. Some islands are public, so they lack privacy and secrecy.

Participant 8: People have creativity freedom. They can create virtual products and sell them to make real currency. The creativity skill facilitates to survive in the virtual world as well as in real world.

Participant 9: Residents can have their own sandbox to build products. They can rez objects and deliver products for sale. Sandbox is a private place for developing and building objects.

Participant 10: Majority of people spend time in fun and entertainment. So they create immersive and distracting environment. His priority is to engage in e-business activities.

The summary of results on e-business opportunities in Second Life is provided in Table 4.5. The result highlights that Second Life has wide scope for e-business. Video conferences are highly successful to perform business events. Most of the renowned companies such as IBM, Dell, Toyota and Cisco have entered Second Life to promote their real world brand and services. Some challenges for companies are initial investment, time and customer traffic. Moreover, the multiple and updated products with new design and after sales service is important for customer attraction. Most of the business activities are similar with real life. The professional people spend less time in real world. Many users in Second Life are new, so the companies should provide them knowledge about their products and services. In addition, privacy and security plays crucial role in e-business promotion. Second Life offers strategies on B2B, B2C and C2C businesses. Since the virtual market is stable, hence there is low risk of investment ^[122]. Virtual world is the hot resource for communication, socialization, collaboration and participation in different activities. Virtual world has an effective, emotional and simulating environment for users. The customer participation may be active or passive and environmental relationship may be immersive and absorptive. The virtual world is becoming a target place for marketing ^[33].

Yarmis, a Second Life resident says “to start business in Second Life, the user should understand what virtual worlds offer today”. He has spent a lot of time in Second Life and suggests that people having interested in virtual world for business do the same. He says “To grasp what’s really going on, you need to make a commitment to spend a number of hours there. That’s the only way you can see how rich an experience it really is”. The analysts say that “virtual worlds are relatively inexpensive, don’t require a great deal of start-up technology infrastructure, and provide naturalistic, immersive approach to simulating space, people and objects”.

Second Life helps IBM learn how to make the meetings more efficient in Second Life. “If you’re there with an Intel last name, you have to behave as if you are representing Intel” says Paul Steinberg, an engineer with the Intel software network. Business in Second Life is big understanding, exactly mirroring the steps and processes of business in the real world, with manufacturing, distribution, sales etc. Being a successful business in Second Life might indicate that the person should have experience running a company.

Virtual world like Second Life is the most popular web based community where users socialize, play games and sell products to imaginary people. Increasingly, tech-savvy businesses are using virtual worlds to design, create and test product concepts before they launch in the real world. The crucial advantage to working in virtual world is that they offer much more potential for customers to interact with new products. Working in virtual worlds help to solve the real world problems.

“Second Life has some drawbacks such as privacy and security” says Fred Fuchs, owner of Fire Sabre Consulting. It can be difficult to translate ideas developed in Second Life into more mainstream design software and it can be especially tough to get a sense of scale in Second Life, because avatars come in Second Life in all different sizes. But companies are experimenting Second Life insist that the prototyping possibilities and ease of collaboration it offers just aren’t available anywhere else.

Brouchoud and his partner Kandy began meeting with clients’ life. “We can invite clients inside the design concept instead of just showing them two dimensional drawings” Brouchoud says. “It gives customers a whole kind of visualization. There’s nothing like being able to walk into what could be your home”. He further says “Second Life has transformed the way I think about design. The designs are free, and it takes half the time to make the models with the in-world set of building tools”.

He paid Linden \$1,600 one time fee for his island in 2006 and pays \$300 in monthly rental fees on top of that, which supports the servers to host the island. Another Second Life resident 'Curet' bought private real estate in Second Life. He says "I know to do anything with new design, you would have a lot of other things in place in the real world potential clients".

The Linden Lab CEO Mark Kingdon says "Enterprise is a really important growth vector for us because Second Life is a really compelling platform for learning and collaboration. Especially today in large enterprises those are distributed around the world. Linden lab makes revenue by selling and renting virtual real estate with premium memberships and charging a fee on sales of Linden dollar. 15-20% of its revenue comes from enterprises and educational institutions. The Linden Lab CEO says 250 companies, including IBM, Intel and Northrop Grumman use SL for collaboration, training, meetings and conferencing, simulation and product design. The immersive workplaces allow companies to conduct meetings or host virtual events in Second Life. Companies from Intel, Cisco, IBM, Stanford University and Diageo all hold regular internal and occasionally external meetings in virtual worlds. Vodafone, the UK telecoms giant, will soon enable text messages sent between avatars to be re-routed to a real mobile. Meanwhile, military, emergency services and civil authorities are increasingly using virtual worlds for effective simulation and enabling trainings. Virtual worlds can save companies time, money and productivity. The result shows that the lifers are actual business professionals and permanent residents of Second Life. Casuals are focused on social networking, fun and entertainment. They are the temporary residents. Second Life is becoming an excellent platform for both individuals and companies. The rich communication media is facilitating Second Life to attract more users.

4.4 Discussion

Second Life is the latest innovation of information communication technology based on web 2.0 technology. This is a leading virtual world in electronic environment with more than 21 million users. Second Life has gaming environment and a number of social activities can be performed. Second Life bears future revolutionary communication medium for conducting online business. Second Life is not created not only for fun and entertainment but also an experimental place. The richness and possibility of e-business is high. Some of the well renowned real world

companies such as IBM, Reuters and Dell have opened large opportunities to conduct scientific and business activities in Second Life. Second Life provides real business value for customers, suppliers and business partners. It has low risk of investment. Companies are making Second Life a new channel to interact with customers using new communication technologies. They have been using Second Life for technological development, brand promotion, resource management and business strategy. Second Life real estate market provides residents to establish their own communities and business locations.

Second Life is an electronic environment and without communication no activities takes place. Advertisement is a form of communication which is helpful for brand promotion. Online events are highly interactive and informative. Voice is preferred best, as it has media richness feature. The richness factors include personal focus, immediate feedback and multiple cues. Furthermore, communication plays a pivotal role in customer relationships and locating markets. Word of mouth and blogs are means of business communication. Second Life is an integral part of the future of the web and has sustainability through communication. Due to its synchronicity feature, immediate feedback can be received which is useful for decision making. In this connection, Second Life has real world implication for managers, policy makers and IT researchers. Second Life reduces real world cost as people around the world can gather in one place. Communication is highly efficient for training and education for Second Life users. Instant messaging was considered best as it has security and privacy of information.

Creativity, quality and communication are vital for customer relations and business promotion. The higher the number of people larger the sales potential. Popular business enterprises in Second Life deals with land, home and body parts. Real world companies are successful in promoting their brand through advertising and online events. Second Life is highly effective for 3D scripting and prototyping. Skilled manpower is needed to conduct business activities. Some challenging issues are competition, innovation and customer support. The real estate businesses are also successful in Second Life. Some residents have recreational talents. However, some are addictive in the Second Life environment. Second Life is becoming an important place for marketing and brand promotion of real life products and services. Video conferences are highly successful in performing business events. Most of the renowned companies such as IBM, Dell, Toyota and Cisco have entered Second Life

to promote their real world brand and services. Some challenges for companies are initial investment, time and customer traffic. Moreover, the multiple and updated products with new designs and after sales services are important for customer attraction. Most of the business activities are similar to real life. The professional people spend less time in the real world. Many users in Second Life are new, so the companies should provide them knowledge about their products and services. In addition, privacy and security plays a crucial role in e-business promotion.

Second Life provides a secure operating platform for business transactions and cultural exchanges. It avoids geographic constraints where communication drives the innovation. Second Life is a metaverse or a rich medium for communication, collaboration and participation. Virtual worlds are fast growing internet based simulated environments where users can not only interact with each other, but deal with the products and services provided by businesses and individuals. Second Life is more socially focused rather than game based. Virtual worlds similar to Second Life make distance and remote learning realistic and feasible. Moreover, they facilitate information and knowledge sharing and learning. They provide business platforms for the residents. Some of the business skills are buying, selling advertising and providing services in the virtual environments.

In the rapidly growing market of online world users, Second Life is the most successful platform of an embodied, dynamically collaborative content creation place that is personally and economically transformative and scalable to the entire world.

4.5 Summary

The most popular ways of communication in Second Life are instant messaging and voice. Second Life is more popular than other web 2.0 social networking sites such as Facebook, Myspace, Twitter and Youtube due to its high social responsibility and transparency. It enables individuals and organizations to develop and test real life products and services. The online games in virtual environment are useful to reduce pressure from real life, spend time and establish social networking. It is through communication that virtual worlds confer status and standing. The Second Life confers a virtual community where individuals are united and characterized by close and long lasting relation.

Chapter 5 Business Case Analysis of Some Successful Companies in Second Life

Second Life is becoming an online destination of choice for renowned companies to test and sell new products and to promote their brands. The big companies can examine market for future product creation and host events to promote the brand. The well known real world companies entering to Second Life are Sun Microsystems, Warner Brothers Records, American Apparel, Adidas and Toyota. In October 10, 2006, Sun Microsystems hold a first press conference with John Gage, Chief Scientists of the company. Warner Brothers promoted singer's Album in Second Life. American Apparel launched a virtual store of clothes on July 2006. Adidas have been offering gym shoes in Second Life. The company tests market styles before rolling them out in the real world to check the color and design. Starwood Hotel was opened in 2007 in Second Life. It has tested architectural designs and furniture choices in online environment before building the physical hotels. Toyota offers virtual version of its cars in Second Life. Reebok designs shoes in Second Life and people wear the same design in real life and Second Life. Educational institutions such as Darmouth College have presence in Second Life. The college conducts emergency response exercises in the virtual environment.

Big media such as Reuters made its presence in Second Life in October 2006. The users are growing at about 38% over month, according to Linden Lab, the overall controller of Second Life. Companies like BBC Radio had created events and design buildings inside Second Life. Media companies face competition inside virtual world including new world notes and Second Life Herald. Mr. Adam Pasick is the Reuters fulltime technical reporter in Second Life. The Reuters also offers market information such as exchange rate between Linden dollar and US dollar and number of US dollars spent by players in Second Life in 24 hours. "Second Life is a really hot economy" says Pasick. Another company CNET thinks Second Life as a suitable way to promote its online features. CNET hold questions and answer session to ask questions to the CEO of Linden Lab in October 16, 2006. Video and podcasts are popular communication media for presentation. In this connection, Second Life offers more features and options for businesses. Mr. David Fleck, the Vice President of Marketing of Linden Lab says that "We are this canvas that allows companies to

do what they want to do in Second Life and it mimics real life much more accurately”.

Major organizations utilizing Second Life can be categorized into following categories:

- Collaboration: IBM
- Research and concept testing: Nissan
- Simulation and prototyping: Starwood
- Events, brand promotion: Coca Cola, Mazda, Nissan
- Political organization: Sweden Embassy
- Education and training: Harvard Law School

5.1 Opportunity of real business in Second Life

A Second Life resident Nappy Bread says “Second Life is really like real life. There is a whole culture and economy going on”. There are more than 1.5 million transactions in Second Life everyday. According to him such kind of economy has attached the notice of businesses. “It’s the only virtual world that has a self sustaining economy. We think of it as covering a growing city in the world. The world just happens to be virtual” says Guhan Selvaretnam, Reuters Vice President. In Second Life people can make money by creating and selling products, holding events and using talents by creating and selling products, holding events and using talents such as singing, dancing and playing musical instrument. “Second Life has become a new way for businesses to reach consumers” says Znethady Isbell, a Second Life resident. Big companies such as IBM, Nike, Toyota, Amazon.com and public relation and marketing firms sponsor events to promote their product and services. A Second Life resident Kamichat Watson says “there is a really interesting gold rush going on there”. Artists, entertainers and creative people earn real money playing in Second Life”. “Although making business in Second Life is time consuming, but it has direct effect on Real Life” says Znet Lady Isbell. The Second Life economy is growing quickly by effective communication.

5.2 Research method

This study was based on case study in the form of online interview from representatives of real world companies in Second Life. At least two or three participants of each company were taken. As per their request the anonymity of the

interviewees were maintained. The interview information was first copied, edited and summarized for study. The cases of successful companies such as IBM, Intel, Coca-cola, Nissan and Cisco have been brought into this study. The study was conducted from June 14 to June 27, 2010 for the period of two weeks. The island of each company was visited to collect qualitative data. The open questions were focused on their activities, success history and experience in Second Life. Moreover, additional information of these companies had been collected from Second Life website, Second Life wiki and literature. The outcomes of summary have been mentioned on following section.

5.2.1 IBM

IBM has invested more than USD 10 million to increase its presence in the market for technologies, according to its spokesman. IBM expands its use of Second Life. The company held virtual conference in 2008 and more than 200 participants were present. The meeting in Second Life is cost effective, which is one fifth the cost of real world event. “IBM has been making a significant investment in virtual worlds now for 2 years...it’s time to take from research to reality” says Karen Keeter, IBM marketing executive. There are more than 200,000 technical staffs worldwide and 320 leaders, which make IBM Academy of Technology (AOT). AOT members are responsible for identifying and pursuing technical developments and opportunities, improving IBM’s technology base and technical community. IBM’s virtual universe community (VUC) of approximately 7,000 members is responsible to run the event and train new Second Life users. The theme of the IBM conference is “where we could take the technology in the future”. IBM has built a circuit city and a store in Second Life as demonstration projects.

Second Life is beneficial for socializing and networking and can be the best part of physical world conference. Second Life has provided an opportunity to have a positive social and technical exchange. Virtual events are real and IBM looks forward to be a bright future in virtual world. Second Life will have a big impact on business on IBM and its clients and the best way to learn about virtual worlds use to them, which IBM is now committed to doing. “IBM wants to create 3D business environments that mirror Second Life’s interactivity and sense of immersion” says company’s spokesman. Second Life is having a big impact on real world commerce and business. “There are all sorts of new applications for this technology” he says.

The company believes the virtual realm has potential for training, conferences and e-commerce. Second Life has become a new trend among technology companies and benefits direct connections to potential customers. An IBM employee Wladawsky Berger said “I really believe that highly visual and collaborative interfaces will become very important in the way we interact with all IT applications in the future”. Virtual reality connects directly with the human mind he says. Further he says “There is something very human about visual interfaces. I almost think of text-based interfaces, including browsers, as ‘narrowband’ into our brains, whereas visual interfaces are ‘broadband’ into our brains”. The advantages of Second Life adoption for IBM are summarized as follows:

- Resource management: Meeting and online collaboration
- Technology management: Business solutions and simulations online
- Business opportunity creation: new modeling technology
- Corporate culture enhancement: understand enterprise culture, collaboration and knowledge exchange, used as a leadership development tool
- Competitive advantage: cost leadership, rich communication, efficient productivity and engagement
- Differentiation: Long term negotiation and life cycle, work together and do business
- Business strategy: customer relationships enhancement, employee productivity and creation, explore new business opportunities

5.2.2 Intel

Intel conducted Virtual Embedded Channel Conference (VECC) in 2008 in Second Life. About 150 people participated in this conference. The company saved real life budget (USD 265,000 of the 300,000). The keynote presentations, live product demos and social networking activities were performed. The voice conference cost USD 30,000, whereas face to face conference cost USD 300,000. The virtual conference saved travel cost. Moreover, it was free and easy to access. More than 20 different companies took part in the conference. It enabled to produce feedback and detailed reports on activity such as time duration and cost analysis. The event had fun for participants and created shared memories. Text chat was also used for conversation during conference period. The technical problem is that sometimes, the Second Life viewer crashes automatically so that real life events are disrupted.

5.2.3 Coca-Cola

Coca-cola is the largest manufacturer, distributor and marketer of nonalcoholic beverage. The company entered Second Life in 2006 and there are more than 400 brands over 200 countries. Coca-cola has its own island in Second Life. The young people have free access to record music in 'Coke Studio' which has high profile media and present the advertisement to global audience. According to Linden Lab "Second Life is first and foremost a social community. As a result, companies have found success in building community acceptance and participation by devising unique approaches such as hosting events or offering in-world experiences or products to generate the interest of Second Life residents". The advantages of using Second Life by Coca-cola are following:

- Brand promotion: satisfy customer's expectations, new design
- New market: marketing campaign, social advertising, future marketing efforts
- Competitive advantage: attracted public attention more than competitors
- Business strategy: establish new markets through virtual retails, brand promotion, enhance customer relationship
- Global audience
- Socialization

5.2.4 Nissan

Nissan is one of the top motor vehicle manufacturers which have significant success using Second Life to promote their cars in real world and get ideas and feedback to design forthcoming models. The advantages received by Nissan using Second Life are as follows:

- Cost saving: free trails in Second Life, collect feedback from residents for design, help to enrich product life cycle, quality and cost saving
- Brand promotion: Held driving campaigns like online car games and car exhibition in Second Life, comments on website and blogs
- Business strategy: Virtual modeling, enhance customer relationship

The major reasons that people and organizations engage in Second Life are:

- Socialization
- Creation (with ownership of the content)
- Collaborate in an immersive environment
- Optimize business for virtual commerce

- Develop a cost effective virtual commerce
- Discover innovative ways to teach, learn and collaborate
- Rich a global audience

Communication plays vital role to perform all above activities in Second Life.

5.2.5 Cisco

Cisco is using Second Life for business to business communication. Few of the residents in Second Life are network engineers and these are the customers of Cisco. Cisco is aggressively using Second Life to communicate with them. Second Life is a consumer form of entertainment and communications. Cisco has several sims to have user group meetings and International staff. They provide training and education to Second Life users and get feedback about products. They make presentations using Power Point, video and audio. They hold events to make contact with real life people to Second Life. This type of event is called 'mixed reality'. The importance of virtual world for Cisco is the opportunity for immediate customer interaction said Christian Renaud, Chief architect of Cisco. The customers are interested to know about Cisco product and services. He even found Cisco customer in real life. Renaud agrees that Second Life is a social networking tool similar to blogs or web discussion forums. It's away for people and companies to come together and interact with their business partners and customers. Cisco has both public and private sims. They use the private sims for prototyping and private conversations.

Table 5.1 presents the summary of findings on business opportunities for companies. The companies have been using Second Life for technological development, brand promotion, resource management and business strategy. Furthermore, some of them are using Second Life for prototyping. The products information and trainings through presentations and online demos help to reduce real word cost. Thus companies are making social network among users which have facilitated to increase customer relations and have direct impact on real world business. Communication plays crucial role to perform all business activities in Second Life.

Table 5.1 Summary of findings on business opportunities for companies

Company	Industry	Description
IBM	IT	Technological development, product information and training to new users through online conference and meeting. It has built a circuit city and store in Second Life for demonstration of products and services. IBM has been creating 3D business environment and has a huge impact on real world commerce and business. Advantages for the company are resource management, technology management, business opportunity creation, corporate culture enhancement and leadership development.
Intel	IT	Frequently holds virtual conference. The activities include presentation, live product demos and social networking. The conference helps to reduce real world cost and receive feedback immediately. The participants take fun and create shared memories. The problem is crashing of Second Life software.
Coca-Cola	Beverage	Coca-Cola has own island in Second Life. Sometimes it offers free virtual drinks to make the public community. The advantages for Coca-Cola are brand promotion, marketing campaign, public attention and make business strategy.
Nissan	Automobile	Gets ideas and feedback to design new models of vehicles. Other advantages are cost saving, brand promotion, make business strategy and rich a global audience.
Cisco	Communication products and services	Cisco is using Second Life for business communication. It has several sims to have user group meetings. It provides training and education to new Second Life users. Also provides presentations and holds events. The advantages are immediate customer interaction, get feedback and offer products and services. Cisco uses private sims for prototyping and private conversations.

Mr. Chris Melissinos, Chief Gaming Officer at Sun Microsystems noted that chat and IM in Second Life isn't safe. It all goes through Linden Lab's servers. So businesses need to be very careful. Cisco builds an entire network diagram for a corporate customer in Second Life. Real word advertisers are Linden Lab's main revenue source.

A Dutch Bank ABN Amro has entered Second Life in 2007. The bank has the opinion that Second Life is a way of connecting on a personal level actual and perspective customers as a part of the social community or web 2.0 technologies. The goal of the bank is to create an emotional bond with the customer. ABN Amro has opened its island in Second Life where highly educated people between the ages of 25 to 35 can meet. The bank wants to offer them services like training for job interviews and help to buy a first house. The bank holds events to collaborate with other organizations and attract visitors and create relationships. An avatar 'Ulrika' sells clogs and traditional Dutch clothing at island 'Our Virtual Holland'. She and other producers need credit card and banks both in virtual world and real world. This is the next step for the banks.

An avatar 'Spelier' says "we don't have a clear view whether it will be a success within a few years but are convinced that virtual worlds will have a future. The internet and the real world will intermingle more and more. It is called inter-reality. Nowadays we don't just surf the internet for information, buying products and services, the internet is becoming more and more a communication channel". He further said that ABN was looking to Second Life to find out how the bank could communicate more personally with its customers, how customers behave with virtual world and what kind of information they want to find there. An avatar 'Zac Su' made that "I think many business people's expectations about Second Life are dead wrong. People think it's about selling virtual products but it's really an opportunity to engage consumers in a different way". He further says "It's too early to say whether Second Life will dominate a 3D internet. But something like it will. We should all take notice and learn what we can".

An avatar 'Laszlo' says "The challenge with Second Life is that, unlike the web, which reached a point where it suddenly exploded, it's still kind of a fair distance away, where people have to make money and do business...the learning curve factor is going to be the big inhibitor". Second Life has challenges to perform business as the environment is completely 3D. The creations of products have real monetary

value but it takes a lot of time and effort to offer. Experienced users have opportunity to achieve a number of opportunities.

5.2.6 Brining real life business and job into Second Life

The real world companies have entered Second Life to promote their product brands and services. The products can be displayed in the form of advertisement. Moreover, the customers could get technical specifications and price detail of that product so that they could make decision to purchase. Online events such as workshop, conference and training are highly effective for brand promotion. Besides this, skilled people may have full time jobs and profession in Second Life. Second Life can be brought for effective marketing, building relationships with customers and partners and creating business value. When doing business in Second Life, one can't just give lecture to people with marketing message but regularly connect and engage with them. Second Life is a right place for customer interaction. People could download company's content and learn about its products.

June People, an executive vice president of Infinite Vision Media says "What you really want to do is build community in Second Life not just build a monument to your brand or the company". Second Life marketing is different from traditional media and the web. It is community focused. Many incidents of grieving in Second Life are caused by developers getting sloppy about security and then blaming Second Life for the lapses, rather than themselves. Second Life can provide a great deal of value of real life businesses by giving an opportunity to engage with customers, supplier and business partners. Major companies including Cisco, Nissan and Starwood have successfully used Second Life for marketing and communications as a tool for engaging with residents.

Virtual job interviews take place in Second Life as those in real world. The job fair organized worldwide, a recruitment advertising firm such as Accenture, EMC corporation, GE Money and US Cellular hire many skilled workers. Avatars can answer the questions through voice or text. Software engineers have a job opportunity in Second Life. "You get to know a candidate better" says Polly Pearson, and EMC vice president. "You see what they chose to wear, they laugh or interact with". Carlos Krefft, a software engineer took part in the online job fair for Hewlett-Packard. Like in real world job, one must be more creative and good with appearance.

A good communication helps to find job in Second Life. Besides this skill, knowledge, ability and a cultural fit is required for a job.

Second Life is a medium to facilitate communication, interaction, professional and social networking. Second Life transacts million of dollars on a daily basis and creates new forms of value (intellectual property). The Social Research Foundation is a company created specifically for corporate marketing in Second Life. Andrew Mallon formed this organization in Second Life to understand consumer behavior through the use of surveys. Andrew says “Second Life is a medium to market which can be studied many of the standard techniques plus a few unique to a virtual environment. To my knowledge there is no other large, standing panel of Second Life residents, thoroughly studied for both their real life and Second Life attributes. Unlike Myspace and Youtube, Second Life residents generate the content, value and commerce there. This means, if real life companies do not get in there and start establishing value, thousand of small entrepreneurs are ready to do it”. He suggests a “new mode of innovation and value creation called peer production, which describes what happens when masses of people and firms collaborate openly to drive innovation and growth in their industries”. He further says “the speed and complexity of change is such that no one company can create all the innovations needed to compete in IT or in any other industry”.

In addition to consumer research, one of the emerging areas of internet is the use of Second Life for secure staff meetings and recruitment. The most active Second Life residents (mid 30's) are typically successful in their real life. Another fact is that Second Life is absolutely not a game to them. According to Andrew, a web based survey can get quantitative answers but a focus group in Second Life allows for the interaction of participants. Products and packaging can be rendered in 3D environment, so participants can simulate them for training.

Second Life makes people more creative and interactive. The users first come to Second Life to have fun. If they can have enjoyment interacting with a brand, that is better for them. The companies should provide seminars on cutting age technology and products, and Second Life should bridge to real life and vice versa. He further makes suggestion to involve with the Second Life community and not just build the sim. “If companies sells product in real life, why not to create that product in Second Life, either low cost or free”? The Second Life should be made more enjoyable experience for the new residents and real life companies should accomplish a Second

Life marketing research first. Second Life offers an excellent opportunity for real life companies to generate profits due to the low costs of doing business in Second Life. The successful companies should have brand reputation, quality, superior design, association with design statement and after sales experience. It seems evident that a 24/7 company presence and invoking customer feedback may help bridge the gap between providers and consumers.

Although Second Life is a newly created environment, there are two clear ecosystems: one resident created and the other transitioned from the real world. In order to be successful in Second Life virtual environment, brand engagement requires a greater effort and care. The opportunity exists not only create a deeper bond with the customer but use this unique setting to engage them in such a way not attainable in the real world. It requires greater dedicated resources, have a continuous in-world presence and get constant feedback. Customer satisfaction knows no bounds in the real world, and same hold true in the virtual world.

Some ideas of marketing in Second Life are mentioned hereunder:

1. Product incentives: give out freebies or low price products so that people intend to visit Second Life.
2. Money incentive: give out some money to people so that they visit the location.
3. Location experience: adding atmosphere, a central theme and a clear message about the place and products
4. Traffic is god: Higher the number of people higher the rate of marketing.

Second Life is a great chance of change and get in touch with customer repeatedly. Not only Second Life but the whole web 2.0 world such as blogs, podcast or videocasting. These help to create a conversation and get more personal than average brand. Besides building things and advertising, frequent communication with resident is very important. It enables to have loyal customers, consumer care and have regular feedback. The companies should understand the potential of a virtual world. They should learn how to utilize it, so that they will stay longer in Second Life.

Peugeot, a Frankfurt Motor show is offering test drives of its new concept car in the online environment of Second Life. Peugeot says that the concept car is able to go upto 60 miles an hour in about 7 seconds. Thousands of auto journalists can gather here. Other automobile companies such as Nissan, Pontiac and Toyota have

set up shop in Second Life. Each brand provides customers to test and purchase their vehicles and add a host of customizations. Nissan provides varieties of vehicle colors.

In a rapidly growing market of online world users, Second Life is the most successful platform of an embodied, dynamically collaborative content creation place that is personally and economically transformative and scalable to the entire world. In short,

- Second Life is rapidly growing market: more than 80% of internet users join Second Life by 2011.
- Most successful: Second Life is a user created environment and most of the users are active.
- Embodied: User controlled avatars and flexible communication.
- Collaborative content creation platform: Contents in Second Life are frequently updated.
- Economically transformative: Users have intellectual property right and Linden dollar can be exchanged into US dollar.
- Personally transformative: business savvy homemakers, skilled and talented users, technical workers. Second Life is an eBay of the imagination. Scalable to the entire world and Second Life become a universally accessible having open source servers.

A company 1-800-flowers.com has opened virtual flower store in Second Life. The users can also interact with other store visitors and communicate with representatives of 1-800flowers.com. “We recognize that this is not just a place to jump into, so we can sell more flowers and gifts”, says the company’s president Chris Mc Cann. It’s a different environment and an emerging world.

5.2.7 Second Life: Virtual world and business

Some people consider that Second Life is not a game, it is a social space. The emerging future will include three separate worlds: the real world, the digital world (internet and 2D web) and the virtual world (3D). Second Life is also called ‘metaverse’ because it’s primarily social. Virtual worlds are a combination of advancements in software such as graphics, web 2.0 communication, hardware (PC’s computational and graphic capacity) and infrastructure (broadband networks). Virtual worlds are immersive, visually compelling and highly social. Both personal and professional relationships can carry over into the real world. Virtual worlds

provide a degree of control to individuals, control over their age, gender, appearance and setting. The key areas of business exploration in Second Life are:

- Education and collaboration: Conference calls and video conference for connecting people. Audio and voice capabilities made communication easily accessible.
- Sales: New channel for sales, customer relationships, teaching and media distribution.

Innovation: test and develop products. For example, Starwood hotels built a new concept within Second Life as a test environment before real world launch. They accumulate Second Life users' feedback to modify their plans before starting construction and franchising. Second Life is a representative and typical for case study because of the following reasons:

1. Representative business environment
2. Popular among real world companies
3. Popular among players

The benefits of communicating or collaborating within a Second Life will be much more evident. Second Life have established the possibility to become the next generation of interface to content, connections and collaboration effectively taking the 2D internet and changing it to a 3D experience. There was an expo named "2007 Virtual Business Services and Products Expo" in Second Life. The theme was "Beyond Storefronts Harnessing the Business Potential of Virtual Worlds". The goal of the expo was to bring content developers together where they can network with each other and form new collaborative connections with each other and business people who are interested to exploit the huge business potential in 3D virtual environment. There is the possibility of small to medium sized entrants to Second Life. The Second Life experience shows engaging talent within Second Life, that enables the delivery of better solutions to clients more cost effectively. IBM and Linden Lab have developed open standard business friendly.

Nowadays, the Japanese business companies are rapidly entering to Second Life for business promotion. Traditional advertising is losing its effectiveness as a marketing tool, real world business having set up operations in Second Life through virtual interaction. Advertising agencies are helping clients to build a corporate presence. Japanese companies such as Nissan, Mitsokoshi department store and telecom giant have entered Second Life. Second Life has attracted many Japanese

companies, providing Japan the third largest representation in Second Life after the U.S. and Brazil. The potential advantages from virtual marketing are significant for both businesses and their customer benefit says analysts. The Mitsukoshi's virtual shop provides coats to Second Life users free of cost, whereas Nissan provides a new car test drive. Atsushi Kametsu, an IT analyst at Nomura Research Institute in Japan, forecasts that manufacturers will one day make Second Life a main venue for building better relationships with customers. Mr. Kametsu says "electronics makers will be able to set up virtual service counters where residents can bring a 3D likeness. Second Life enables users to gestures such as smile, that will help virtual staff to develop relations with consumers who live in remote regions and such access will come at low cost. The Japanese businesses have focused on figuring out how to effectively exploit Second Life to get their corporate message across the places.

Experts say that companies used advertisements in the form of banner advertisement and text message to produce revenue on social networks such as Second Life, but greater marketing complication is needed in an environment as rich as Second Life. Users will be bored if flashy advertisements are carried out on offer. Virtual Tokyo, an 85 hectare island was founded by premier ad agency Dentsu Inc. It paid Linden Lab USD 10 million to get the property. The island has K210 University, TBS TV network, Mizuho Bank and sport contents. Some 2000 avatars participated in athletic competition. Dentsu hopes that by means of such events more than 3 million users will visit virtual Tokyo every year. Dentsu's virtual Tokyo project is leaded by Ken Aihara. Ken agrees that Japanese like new technology, they do so after it has been commercialized and made into tangible. However, technological creativity may provide the biggest challenge to Second Life users in Japan. Analysts think that Sony Corporation will be the major competitor to design digital video games in Second Life.

Daniel Terdiman, a Second Life resident says "Being an open ended virtual world in which you can do almost you want, it seems to me that Second Life offers almost unlimited opportunity. And as long as you have plan, some real talent, and are committed to your plan, I think that there are a lot of ways to make money there". He further says "The biggest overall earners will be in the real estate business like Anshe Chung but there aren't as many who are making big bucks, mostly because of how much you have to invest to get started in the Second Life real estate business." Mr. Daniel continues that "the Linden dollar stays stable, the amount of money

exchanged between residents stays fairly stable day to day and the amount of people earning money seems to be rising again. And part of this is that the economy is big enough that I can think it absorb some discontent over things like Ginko Financial and Copybot and the many other problems that have crept up with Second Life. They're also fairly transparent. They put up economic statistics on a daily basis. There certainly could be more transparency and they could provide a better statistic, which is the best measure of how many profitable residents there are. But on the whole, I think they do a good job". Regarding the question of difference between making money in the virtual world and real world, he replies "Running a Second Life business is just a choice of venue. People consider Second Life to be a 'game'. But it's not a game, and running a business there depends on the same kind of sound business tactics that one needs for any kind of entrepreneurial enterprise".

Virtual worlds have been growing since 1996 for business, society, politics, communication, technology and ethics etc. Second Life has the concept of v-business that has large effect to the real world economy. Virtual world is an online community in which individuals interact in simulated environment and operate over the internet. Virtual worlds are also called digital world, simulated worlds and MMORPG. V-business is the business performed in virtual world. Virtual worlds are online communities in which individuals interact in simulated environment and operate over the internet. Virtual worlds are places where millions of people come to play, trade, create and socialize. The synonyms are digital world, simulated worlds and MMORPG. V-business is the business performed in virtual world.

Business is inseparable part of strategic management which includes market factors, resources, knowledge and competencies. Customer satisfaction and competition are crucial factors of business. The strategic management confers how a company generates products and manages the relationships between different stakeholders and market. The increasing demand for virtual products and services in virtual world has contributed to new types of business in the area of content creation, retail, conference and event hosting, real estate and financial services^[118]. It includes generation of products and services (inputs) into profits (outputs). The business is related to customer relationship, product innovation and infrastructure management. Business in virtual world involves designing and producing products, marketing, advertising, customer services, promotion and communication, hiring people in-

world ^[118] ^[105]. The key business components are market, value proposition, activities, resources and revenue model. ^[119] ^[128]

The examples of customer benefits include low price, convenience, product and service quality. Moreover, it contains broad range of products, free gifts, customer service, ease of access, low shopping and prompt delivery. Virtual community can integrate a wide variety of a rich communications environment and facilitate the integration of content and communication through discussion forums, chat rooms and e-mail which can help members to understand and evaluate the community content communicating with each other.

Virtual worlds consist of 'sandbox' which is the space where residents can create free products and can be obtained by other residents. Virtual properties can be sold or traded with other residents. "In addition to an initial purchase price, most virtual worlds charge a reoccurring, monthly fee for virtual properties and, virtual properties exist only as long as the virtual world continues to exist" (Bray and Konsynski, 2007) ^[42]. Major characteristics of virtual community are:

1. Distinctive focus
2. Capacity to integrate content and communication
3. Emphasis on member generated content
4. Access to competing publishers and suppliers
5. Commercial orientation

Types of virtual communities that exist nowadays are transaction oriented, interest oriented, fantasy oriented and relationship oriented.

3. Land selling is one of the Second Life's sources of income which is similar to a real estate business in real world, except that it requires maintenance fee to preserve it. With real world businesses moving to virtual world, real world governments are now also becoming interested in virtual worlds ^[42].

The major problems and challenging issues during online interview are as follows:

1. Performance of computer system
2. Internet speed (both on user side and Second Life server)
3. Stability of Linden server
4. Crashing
5. Server capacity: 100 users at one place
6. Griefing

7. Language

8. High learning curve

People are able to work from home which enables to decrease the pollution generated by travel. Virtual world would generate more than 10,000 jobs in China. Second Life provides a secure operating platform for business transactions and cultural exchanges. Second Life avoids geographic constraints. Communication drives the innovation in Second Life. Second Life sometimes referred to as the 'metaverse' which is a rich medium for communication, collaboration and participation. Virtual worlds are fast growing internet based simulated environment where users can not only interact with each other, but deal with the products and services provided by businesses and individuals. Second Life is more social focused rather than game based. Virtual words similar to Second Life make the distance and remote learning realistic and feasible. Moreover, they facilitate information and knowledge sharing and learning. They provide business platform for the residents. Some of the business skills are buying, selling advertising and providing services in the virtual environments.

5.3 Summary

Second Life has become a platform for collaboration and business with low cost that removes geographic constraints. It is a part of the solution to communication and organizational challenges. Initial fund investment, adequate time engagement and quality as well as multiple categories of products are equally important in Second Life as in real world. In addition, advertising, customer relation, after sales service and consumer traffic are crucial for e-business promotion. Individual and big companies use virtual worlds as a bridge to their current real world business and drawing much attention of both managers and researchers.

5.4 Summary of the findings

5.4.1 Significance of communication with e-business

Some of the major findings of the research are mentioned hereunder:

Second Life bears the concept of virtual reality in which human computer interaction takes place through communication. Presence and telepresence are inseparable parts of communication. Communication in Second Life facilitates to

play games, social networking and business. Companies use Second Life for marketing and communication as a tool for engaging with residents. Second Life has a whole culture and economy inside. It saves time, money and increases productivity. Online events such as video conference and meeting are highly successful to promote brand of the products for companies.

Computer based communication is not as effective as face to face, because they miss emotional cues and lack of body language. Voice is equally important in Second Life as in real life. This is a place for building community, get information and buy products and services. Thus Second Life is becoming a reliable communication channel. Games are helpful to generate real revenue. In this connection, virtual worlds are also called massively multiplayer online games (MMORPG), digital world or simulated worlds. The significance of communication in Second Life is thus summarized into three parts: Representative business environment, popular among real world companies and popular among players.

Communication plays a significant role for establishing collaboration between producers and consumers to generate business value and it reduces real world cost. Communication is required to receive product feedback, build community, engage and raise funds. Moreover, the implication of communication is in brand promotion, organizational information and training and learning skills. As a result, Second Life has been replacing traditional advertising. Web based technologies such as Second Life is useful to create new e-commerce for income generation and customer interaction and participation.

Word of mouth communication is beneficial for consumer learning. Better the relationship with consumers, better the market. So virtual communication provides advantages to customers, suppliers, business partners, managers and researchers. Managers prefer rich medium such as face to face communication for interaction. Second Life provides synchronous communication for prompt decision making. Communication in virtual world removes geographical constraints and brings people at one place. Second Life being a strong communication technology takes high social responsibility and transparency than other social networking sites such as Facebook, Myspace, Twitter and Youtube. However, some limitations communicating through Second Life are communication server, speed of the internet, computer system and viewer software.

Business opportunities in Second Life are categorized into two segments: market segment and individual segment.

Market segment:

- Selling of virtual goods
- Provide virtual services such as 3D designs, scripting and virtual exhibition
- Real estate of virtual islands including selling, developing and renting of lands
- Consulting services on advertising, marketing and other business projects in virtual world.

Some companies did not have enough success in Second Life due to the lack of initial investment and engagement.

Customer segment

This is divided into two categories:

- Individual customer
- Real world companies

Both of them have clear definition of competitors as they can use powerful search engine to observe and target their competitors. Residents above 30 years old are engaged in business, creation, building and job. Individual below 30 years are engaged in social networking and entertainment. Similarly the gender effect is found in Second Life as in real life. Female are more somber to answer the questions rather than male. They are more cooperative and helpful for interaction.

Individual and companies have multiple product categories. Some companies focus on single product categories to set up unique brand name. Quality of product is also important in virtual world similar to real world. Customer attraction strategies are advertising inside and outside Second Life. Customer traffic is important to increase the business volume. For this, some companies offer free products in Second Life. Sales channels in virtual world as well as on website can be used. Customer service is vital in virtual world to improve and extend business. Skill is required for building, scripting and developing virtual lands. Initial investment is obligatory to open business. Some of the business sources are retail stores, services, real estate, universities, insurance companies and media. Some of the virtual business problems are viewer session crashed, low viewer frame rates, server capacity, griefers and language. The theories were used to analyze the findings.

The biggest business in Second Life is avatar parts (skins, faces, bodies and hairstyle), avatar's accessories (rings, glasses and jewelry) and clothes. Some of the real products are books, music and clothes for which Second Life provides website to purchase these products. Thus Second Life acts as a bridge to real world business. The service provided is 3D designing, building and land development and scripting. Moreover, some real estate businesses are selling and renting lands, houses, apartment and consultation services. Second Life is limited by virtual experience as there is no sense of smell, test and touch. Second Life has no boundary of physical location. Companies can target customers by learning their demands. Business owners are able to provide business consultations, market surveys, virtual office design and buildings. Like real world, Second Life has competition of products and services. Residents can visit competitor's location to evaluate quality of the products. Providing more than one product category can increase sales volume. However, providing a single product helps to promote its brand and customers easily recognize that product. The customer benefit focuses on quality which includes design, beauty and user friendly. Second Life has less impact of fast delivery and low price. Many companies provide free products to increase customer traffic. Like traditional business, customer service such as getting feedback, satisfaction guarantee and refund for damaged products is important in Second Life. Advertising is beneficial in both inside and outside virtual world. The outside world includes website and blogs. Important factors on business promotion are traffic volume, keyword for advertisement, demonstration of products and customer survey after purchase. There are two sales channels in Second Life: stores in Second Life and third party purchase. Customers can use both of these channels. The need of multiple contact points, 3D modeling and customer accessibility should be considered. Virtual business greatly effects real world economy. Second Life communication is thus a powerful option for real world companies, business representatives and players.

Social side in Second Life is interesting but business side takes a lot of effort and time. Some companies have dropped their projects in Second Life due to lack of investment and they consider Second Life as a place for experiment. For some companies and individual it's a new way of business to reach customers. As a consequence, it has direct effect on real life economy.

The main finding of this research has been pointed as follows:

1. Second Life residents above 30 years of old (real life age) are found permanent residents or lifers in SL and they are the actual business professionals with strong social relationships. Majority of lifers are female. Users below 30 years of old are temporary users or casuals. SL was discovered as a superior and effective communication media among other virtual worlds (e.g. Active world, There.com) and other social networking sites such as Facebook, Myspace, Twitter and Youtube as majority of users are engaged in social and business activities in Second Life. Second Life was the best choice for individual and real world companies to perform e-business and promote real world commerce.

2. Gender effect in Second Life was found similar as in real life. Female were found more interactive and energetic to participate on online survey. Majority of the residents did not hide their real gender during interaction as the users do not have real name, gender and identity. The anonymity is guaranteed during interaction. Inhabitants above 35 years of age were engaged in product creations, testing and trade.

3. Online events such as conference, training and lecture are highly effective for real world companies to promote business. Instant messaging was the best communication medium for general users. Video conferencing (rich media) was the choice of real world companies to conduct online business events. The voice communication is clear, reliable and fast. The communication has privacy and security.

4. Some real world companies are unsuccessful in Second Life due to lack of initial investment and enough time engagement. They consider Second Life only as an experimental place and do not take it seriously.

5. Second Life is greatly social and highly responsible than other social networking websites such as Facebook, Twitter, Myspace and Youtube. The virtual identity of people helps to preserve their personal information.

6. Product and service quality, customer relationship and after sales service in Second Life was uniformly important as in real life. Furthermore, category of products, advertising and consumer traffic had significant effect on e-business expansion. Second Life was found favorable for technological development, brand promotion, resource management, business strategy and prototyping. Thus virtual world business has direct influence to raise real world economy. The outcome of rich

communication in real world has significance to managers, leaders and policy makers for information sharing and decision making.

5.4.2 Contributions and implications

This study shows that Second Life is an appropriate place for communication, social networking and business promotion. The popularity of Second Life has been increasing every day. A range of trading activities such as buying and selling land, leasing them and other services such as scripting, architecture and advertisement take place in this virtual environment. There is both real and virtual economy. Moreover, Second Life has education as well as training opportunities through effective communication. Second Life offers several marketing opportunities for real world products and services. They are able to generate sustained consumer engagement with a brand. Second Life is emerging as a test place for new ideas, where real world products can be released at low cost with direct feedback from users. There are many opportunities for innovation and profit making in Second Life and a lot of business opportunities. A number of residents are making part or all of their real life income from Second Life businesses. Second Life real estate market provides opportunities for residents to establish their own communities and business locations.

This study tests the theory of communication and social system and media richness theory. Communication helps to establish social relation. The outcome of these theories is communication, public distribution and networking. Media richness has importance to make prompt decision on real world practice. Moreover, synchronous communication is needed for organizations, managers and policy makers. The current study is motivated by a need to understand the roles of effective communication in business. The research has key implications for practice. First, the findings suggest that Second Life bears high social and business responsibility than other social networking websites. Hence it helps to make decision to companies and individual for real life implication of their creation. Second, this study shows that the communication is a key part that confers standing and existence of virtual worlds.

5.5 Summary

There are a number of problems that was found during observation and interview which are threats to users who are conducting business in Second Life. Second Life contains lots of 3D content, so a good performance of computer system

and high speed internet connection are required in both residents' computer and Second Life's servers. Lower FPS systems appear laggy to the end users as they control their avatar. From observation, less than one hundred users can be in one place at a time which is very low compared with a website that could handle thousands of users at a time. This problem decreases revenue from potential customers that could not access to the place. The only way for business owners is to purchase more islands which increase the cost. Some other problems are use of common language, crashing, griefing and high learning curve, which requires quite some time until residents get familiar with the navigation control and building tools in Second Life.

Conclusions

Second Life is believed as a most trusted and reliable communication medium. In this study we checked significance of communication in Second Life through online survey and case study. The success of social networking and online business depends upon the reliability of communication. Social networking is becoming one of the inseparable parts of the e-business. Second Life has become a platform for collaboration and business that removes geographic constraints through effective communication. Thus it reduces real world cost to meet global participants in one platform. Like the real world or the web, many residents play with creation, using the virtual world as a medium for communication and expression. People and organizations who build businesses are successful to turn their activities within Second Life. Second Life communication is synchronous that facilitates for effective communication among residents. Second Life is a part of the solution to communication and organizational challenges. With its VOIP capabilities, Second Life has proven to be an excellent tool in building and maintaining cultures within a team. In this connection, Second Life has become a regular tool for maintaining trust and connections among residents. The creation of trust and culture at a distance is an advantage over conventional outsourcing and communication technology.

This study supported the outcomes of online communication research by mentioning the processes that contributed to attitude and behaviors in the 3D virtual environment. As people increasingly integrate their online and offline selves, sharing experiences and influence in virtual environments, researchers will be able to observe new, emergent phenomena through the patterns of observed in these behaviors. Second Life bears high social and business responsibility. Some of the important findings of this study are summarized as follows:

1. Second Life residents above 30 years of old are found permanent residents or lifers in SL and they are the actual business professionals with strong social relationships. Majority of lifers are female. Users below 30 years of old are temporary users or casuals. SL was discovered as a superior and effective communication media among other virtual worlds and social networking sites. Second Life was the best choice for individual and real world companies to perform e-business and promote real world commerce.

2. Gender effect in Second Life was found similar as in real life. Female were found more interactive and energetic to participate on online survey. Majority of the residents did not hide their real gender during interaction as the users do not have real name, gender and identity. The anonymity is guaranteed during interaction. Inhabitants above 35 years of age were engaged in product creations, testing and trade.

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Individual and big companies use virtual worlds as a bridge to their current real world business and drawing much attention of both managers and researchers. Their business concept and strategies in virtual worlds are worth investigating.

This study mainly focuses on professional and companies rising from web 2.0 communication technologies. This research may have some limitations. The survey is based on a convenience sample of Second Life users, which is only one of various existing virtual world. So the generalizability of the study is limited. The survey data in this study has some common method bias. The possibility of the existence of the

common method bias can not be completely eliminated. Since Second Life is still in the developing stage, further research on communication should be performed as per the emergent technology.

References

1. Stuart, B. and Brand, J.M. Value in Virtual Worlds: An Axiological Approach Journal of Electronic Commerce Research, 2008, 9(3): 195-206.
2. Wu, J., Li, P.T. and Rao, S. Why They Enjoy Virtual Game Worlds? An Empirical Investigation. Journal of Electronic Commerce Research, 2008, 9(3): 219-230.
3. Hui, P., Lei, Z. and Hong, W. Time Distribution of Game Players and Economic Gross Replacement. Computer Society, Second International Symposium on Intelligent Information Technology and Security Informatics, 2009: 54-58.
4. Steve, H., Sharon, G., Miko, A. and *et al.*, Collaborative Opportunities in Second Life: Collective Experiences. University of Western Sydney, Australia, 2008: 114-11.
5. Messinger, P.R., Stroulia, E., Lyons, K., Bone, M., Niud, R.H., Smirnova, K. and Perelgute, S. Virtual Worlds-Past, present and Future: New Direction in Social Computing. Decision Support Systems, 2009, 47(3): 204-228.
6. Clemons, E.K. The Complex Problem of Monetizing Virtual Electronic Social Networks. Decision Support Systems, 2009, 48(1): 46-56.
7. Romm, C., Pliskin, N. And Clarke R. Virtual Communities and Society: Toward an Integrative Three Phase Model. International Journal of Information Management, 1997, 17(4): 261-270.
8. Lucia, A.D., Francese, R., Passero, I. and Tortora, G. Development and Evolution of a Virtual Campus on Second Life: The Case of Second DMI. Computers and Education, 2008, 52: 220- 233.
9. Barbara, B. and Gloria, M. Social Conventions in Collaborative Virtual Environments. German National Research Center for Information Technology, 2007.
10. Leimster, J.M., Pascal, S. and Helmut K. Success Factors of Virtual Communities from the Perspective of Members and Operators: An Empirical Study, 2004. 37th Hawaii International Conference on System Sciences, 2004.
11. Held, R. M., and Durlach, N. I. Telepresence and Presence. Teleoperators and Virtual Environments, 1992, 1 (1): 102-112.

12. Carman N. and Elena F. Capturing and Sharing Memories in a Virtual World. *New Media Experiences*, 2009: 1161-1170.
13. Hsinchun, C., Sven, T. and Fu, T.J. Cyber Extremism in Web 2.0: An Exploratory Study of International Jihadist Groups. *IEEE International Conference on Intelligence and Security Informatics*, 2008.
14. O'Reilly, T. What is Web 2.0? Design Patterns and Business Models for the Next Generation of Software, 2005. Available at: www.oreillynet.com/lpt/a/6228 (accessed 12 March 2009).
15. Musser, J. and O'Reilly, T. Web 2.0 Principles and Best Practices [O'Reilly Radar Report] (O'Reilly Media, Sebastopol, 2006).
16. Hinchcliffe D. Web 2.0 blog. Available at: web2.socialcomputingmagazine.com (accessed 2 March 2009).
17. Riva, G. Virtual Reality as Assessment Tool in Psychology. *Virtual Reality in Neuro- Psycho Physiology*, Netherlands. *International Journal of Information Management*, 1997, 17(4): 261-270.
18. Bass, F. M. A New Product Growth Model for Consumer Durables. *Management Science*, 1999, 15(5): 215– 227.
19. Valck, K.D., Bruggen, G.H. and Wierenga B. Virtual communities: A Marketing Perspective. *Decision Support System*, 2009, 47(3): 185-203.
20. Younghua, L., Kozar, K.A. and Larsen, K.R. Avatar E-mail Verses Traditional E-mail: Perceptual Difference and Media Selection Difference. *Decision Support Systems*, 2007, 46(2): 451-467.
21. Davis, J. P., Steur, K. and Pagulayan, R. A Survey Method for Assessing Perceptions of a Game: The Consumer Playtest in Game Design. *Game Studies*, 2005, 5(1), [Available online] <http://www.gamestudies.org>.
22. Kim, K.H., Park, J.Y., Kim, D.Y., Moon, H.I., and Chun, H.C. E-lifestyle and Motives to Use Online Games. *Irish Marketing Review*, 2002, 15(2): 71-77.
23. Birdwhistell, R.L. Kinesics and context; essays on body motion communication, 1970, p. 338. University of Pennsylvania publications in conduct and communication. Philadelphia, University of Pennsylvania Press.
24. Peter, R., Mark, B., Aukje, T., and Marcia, L. Face to Face with White Rabbit-Sharing Ideas in Second Life. Victoria University of Wellington, 2008, New Zealand.

25. Heeter, C. Being there: The subjective experience of presence in virtual environments. *Teleoperators and Virtual Environments*, 1992, 1(2): 262-271.
26. Robinett, W. Synthetic experience: A proposed taxonomy and presence. *Teleoperators and virtual environments*, 1992, 1(2): 229-247.
27. Jonathan, S. Defining virtual reality: Dimensions determining telepresence, *Journal of Communication*, 1992, 42(4): 73-93.
28. Sheridan, T. B. Musings on Telepresence and Virtual Presence, 1992, 1 (1): 120-126.
29. Heckel, P. *The elements of friendly software design* (new edition), 1991. Alameda, CA: SYBEX.
30. Laurel, B. Interface as mimesis. In D. N. Norman and S. W. Draper (Eds.), *User-centered system design*, 1986: 67-86. Hillsdale, NJ: Lawrence Erlbaum Associates.
31. Norman, D. N. *The design of everyday things*. 1988. New York: Doubleday. [Available online], http://katsvision.com/canm606/session_3/03_norman_01.pdf.
32. Holsapple, C. W., Pakath, R. and Sasidharan, S. A Website Interface Design Framework for the Cognitively Impaired: A Study in the Context of Alzheimer's Disease. *Journal of Electronic Commerce Research*, 2005, 6(4): 291-303.
33. Hemp, P. Avatar-Based Marketing. *Harvard Business Review*, 2006, 84(6):48-57.
34. Vedrashko, I. *Advertising in Computer Games*. Department of Comparative and Media Studies, Massachusetts Institute of Technology, 2006, Cambridge MA.
35. Chambers, J. The Sponsered Avatar: Examining the Present Reality and Future Possibilities of Advertising in Digital Games. *Proceedings of DiGRA 2005 Conference: Changing Views Worlds in Play*, 2005.
36. Arakji, R.Y. and Lang, K. R. Avatar Business Value Analyses: A Method for the Evaluation of Business Value Creation in Virtual Commerce. *Journal of Electronic Commerce Research*, 2008, 9(3): 207-218.
37. Yi, Z., Weiquan, W. and Yan, Z. Attribution of Human Avatar Relationship Closeness in a Virtual Community. City University of Hongkong, 2008. [Available online] <http://ssrn.com/abstract=1330750>.
38. Li, H., Daugherty, T., and Biocca, F. The Role of Virtual Experience in Consumer Learning. *Journal of Consumer Psychology*, 2003, 13(4): 395-408.

39. Koufans, M. Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior. *Information Systems Research*, 2002, 13 (20): 205-223.
40. Castranova, E. *Synthetic Worlds: The Business and Culture of Online Games*, IL, Chicago: The University of Chicago Press, 2005.
41. Zhuang, Y. Does Electronic Business Create Value for Firms? An Organizational Innovation Perspective. *Journal of Electronic Commerce Research*, 2005, 6(2):146-159.
42. Bray D. and Konsynski, B. Virtual Worlds: Mutli-Disciplinary Research Opportunities. *The DATABASE for Advanced Information Systems*, 2007, 38(4). [Available online], <http://ssrn.com/abstract=1016485>.
43. Roche, E. Setting the Research Agenda. *The DATABASE for Advances in Information Systems*, 2007, 38(4): 7- 10.
44. Castranova, E. Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier. CESifo Working Paper, No. 618, 2001.
45. Lesser, J. and Madabhushi, L. Measurement of Consumer Intrinsic Motivation: Exploratory Assessment of Its Two Primary Dimensions and Theoretical Bases. *Marketing Management Journal*, 2001, 11(2): 81-96.
46. Markus, M.L. Electronic Mail as the Medium of Managerial Choice. *Organization Science*, 1994, 5(4): 502-527.
47. Hoffman, D.L. and Novak, T.P. Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations, *Journal of Marketing*, 1996, 60 (3): 50-68.
48. Blackwell R.D., Miniard, P.W. and Engel, J.F. *Consumer Behavior*. 2001. Orlando, FL.
49. Banerjee, A. A Simple Model of Herd Behavior. *Quarterly Journal of Economics*, 1992, 110: 797–817.
50. Banerjee, A. The Economics of Rumours. *Review of Economics Study*, 1993, 60: 309-327.
51. Mayzlin, D. Promotional Chat on the Internet. Working paper. Yale School of Management, 2004, New Haven, CT.
52. Granovetter, M. The Strength of Weak Ties. *American Journal of Sociology*, 1973, 78(6): 1360–1380.

53. Richins, M. L. Negative Word-of-Mouth by Dissatisfied Consumers: A Pilot Study, 1983, *Journal of Marketing*, 47(1): 68–78.
54. Anderson, E. W. 1998. Customer Satisfaction and Word of Mouth. *Journal of Service Research*, 1998, 1(1) 5–17.
55. Narayan and Cassidy (2001), [Available online] <http://www.gnudung.com/literature/dimensions.html>.
56. Klein, L. R. Creating Virtual Experience. 2001. Rice University.
57. Steur, J. Defining Virtual Reality: Dimensions Determining Telepresence. *Journal of Communication*, 1992, 42(4): 73-93.
58. Lee, K.S. The Online Identity and Deviant Behavior: Who are you in MMORPG? 2007. Carnegie Mellon University, USA.
59. Daden Limited. Chatboats and Automated Avatars in Second Life, 2008. [Available online] www.daden.co.uk/pages/00406.html.
60. Bainbridge, W.S. The Scientific Research Potential of Virtual Worlds. *Science*, 2007, 317: 472-476, DOI: 10.1126/science.
61. Warr, W.A. Social software: fun and games, or business tools? *Journal of Information Science*, 2008, 34: 591-604. Originally published online Jun 13, 2008.
62. Fteschriin M. and Lattermann C. User Acceptance of Virtual World. *Journal of Electronic Commerce*, 2008, 9(3): 231-242.
63. Chiu, C.M., Hsu, M.H. and Wang, E.T. Understanding Knowledge Sharing in Virtual Communities: An Integration of Social Capital and Social Cognitive Theories. *Decision Support Systems*, 2006, 42: 1872-1888.
64. Yee, N., Bailenson, J.N., Urbanek M., Chang, F. and Merget, D. The Unbearable Likeness of Being Digital: The Persistence of Nonverbal Social Norms in Online Virtual Environments. *Cyber Psychology and Behavior*, 2007, 10(1): 115-121.
65. Whang, L.S. and Chang, G.Y. Lifestyle of Virtual World Residents, Living in the Online Game, “Lineage”. *International Conference on Cyberworld*, 2003.
66. Banos, R.M., Botella, C., Palacios, A.G., Villa, H., Perpina, C. and Alcaniz, M. Presence and Reality Judgement in Virtual Environments: A Unitary Construct? *Cyber Psychology and Behavior*, 2000, 3(3): 327-335.
67. Castronova, E. On Virtual Economies. *The International Journal of Computer Game Research*, 2003, 3 (2).

68. Ondrejka, C.R. Escaping the Gilded Cage: User Created Content and Building the Metaverse, in *The state of play: law, games, and virtual worlds*, J.M. Balkin and B.S. Noveck, Editors. 2006, New York University Press: New York. p. viii, p. 304.
69. Rafaeli, S. and Sudweeks, F. Interactivity on the nets. *Information Systems and Human Communication Technology Divisions*, 1994. ICA Annual Conference, Sydney, Australia.
70. Nasser, N., Powell, N. and Moore, D. *Virtual Environments and Human Computer Interaction Anxiety: An Experimental Study*, 2007.
71. Bruckman, A. and Jensen, C. *Building virtual communities: Learning and change in Cyberspace*, 2002: 21-33. New York, NY: Cambridge University Press.
72. Nass, C. and Moon, Y. Machines and mindlessness: social responses to computers. *Journal of Social Issues*, 2000, 56(1): 81-103.
73. Sundar, S. S. and Nass. Source orientation in human-computer interaction: programmer, networker, or independent social actor? *Com. Res.*, 2000, 27(6): 683-703.
74. Talamasca, A. SL addiction: Do you have a problem? 2006, Retrieved June 12, 2008, from <http://www.secondlifeinsider.com/2006/10/13/sl-addiction-do-you-have-a-problem/>.
75. Bennett, J. and M. Beith. Alternate universe [Electronic version]. *Newsweek*, 2007, Retrieved in January 15, 2009 from <http://www.newsweek.com/id/32824>.
76. Durlak, J. T. A Typology for Interactive Media. In M. L. McLaughlin (ed.), *Communication Yearbook 10*, 1987. Newbury Park, CA: Sage.
77. BBC News. Security Breach Hits Online World, 2006 [www document], <http://news.bbc.co.uk/2/hi/technology/5333996.stm>.
78. Claypool, M. and Claypool, K. Latency and Player Actions in Online Games. *Communications of the ACM*, 2006, 49(11): 40-45.
79. Teltzrow, M., Meyer, B. and Lenz, H.J. Multi-Channel Consumer Perceptions. *Journal of Electronic Commerce Research*, 2007, 8(1): 18-31.
80. Lastowka, F. and Hunter, D. *The Laws of the Virtual Worlds*. *California Law Review*, 2005, 92 (1): 3-74.
81. Goldsmith, J. and Wu, T. *Who Controls the Internet?*, Oxford University, New York, University Press, 2006.

82. Kramer, R. M. Trust and distrust in organizations: Emerging perspectives, enduring questions. *Annual Review of Psychology*, 1999, 50: 569-598.
83. Homans, G. C. Social behavior as exchange. *The American Journal of Sociology*, 1958, 63(6): 597-606.
84. Cvetkovich, G. The attribution of social trust. In G.Cvetkovich & R. E. Lofstedt (Eds.), 1999. *Social trust and the management of risk* (pp. 53-61). London: Earthscan Publications Ltd.
85. Poortinga, W. & Pidgeon, N. F. Exploring the dimensionality of trust in risk regulation. *Risk Analysis*, 2003, 23(5): 961-972.
86. Chin, W.W. The Partial Least Squares Approach to Structural Equation Modeling, in *Modern Methods for Business Research*, G. A. Marcoulides (ed.), Lawrence Erlbaum Associates, Mahwah, NJ, 1998: 295-336.
87. Falk, R.F. and Miller, N.B. *A Primer for Soft Modeling*. The University of Akron, Akron, OH, 1992.
88. Fornell, C. and Bookstein, L. Two Structural Equation Models: LISREL and PLS applied to consumer exit-voice theory, *Journal of Marketing Research*, 1982, 19: 440-452.
89. Lohmoller, J. *Latent Variable Path Modeling With Partial Least Squares*, Physica-Verlag, 1989, Heidelberg,
90. Chin, W.W. *PLS-Graph User's Guide Version 3.0*. Houston, TX: C.T. Bauer College of Business, 2001, University of Houston.
91. Yi, M.Y. and Davis, F.D. Developing and Validating an Observational Learning Model of Computer Software Training and Skill Acquisition, *Information Systems Research*, 2003, 14(2):146-169.
92. Bagozzi, R. P. and C. Fornell. Theoretical Concepts, Measurement, and Meaning, In, vol. 2 C. Fornell (Ed.) *A Second Generation of Multivariate Analysis*: Praeger, 1982: 5-23.
93. Barclay, D., Higgins, C. and Thompson, R. The Partial Least Squares Approach to Causal Modeling: Personal computer adoption and use as an illustration, *Technology Study*, 1995, 2: 285-309.
94. Bollen, K. A. *Structural Equations with Latent Variables*, New York: John Wiley and Sons, 1989.

95. Dubin, R. Theory Building in Applied Areas, in Handbook of Industrial and Organizational Psychology, Chicago: Rand McNally College Publishing Co. 1976: 17-26.
96. Hair, J.F., R.E. Anderson, R.L. Tatham, and W.C. Black. Multivariate Data Analysis with Readings, 1998. Englewood Cliffs NJ: Prentice Hall.
97. Manly, B.F. Factor Analysis, in: Manly BFJ (ed.) Multivariate Statistical Methods. London, United Kingdom, 1994. Chapman and Hall.
98. Fornell, C. and Larcker, D. F. Evaluating Structural Equations Models with Unobservable Variables and Measurement Error. Journal of Marketing Research, 1981, 18(1): 39-50.
99. Compeau, D. R., Higgins, C. A. and Huff, S. Social Cognitive Theory and Individual Reactions to Computing Technology: A longitudinal study, MIS Quarterly, 1999, 23(2): 145-158.
100. Chesney, T., Chuah, S. & Hoffmann, R. Virtual World Experimentation: An Exploratory Study, 2007. [Available online]. Available at: <http://ssrn.com/abstract=1068225> [accessed 25 March 2010].
101. Barnes, S. E-Commerce and V-Business: Digital Enterprise in the Twenty-First Century. 2nd ed., 2007. Oxford: Butterworth-Heinemann.
102. Cheal, C. Second Life: Hype or Hyperlearning? On The Horizon, 2007, 15 (4): 204-210.
103. Rappa, M. Business models on the web, 2008 [Available online] <http://digitalenterprise.org/models/models.pdf> [accessed 10 April 2009].
104. Zimmer, L. How Viable is Virtual Commerce? - Businesses that understand the potential of Second Life are finding real-world commercial opportunities in the virtual space. Manhasset, 2007, 6 (1): 44-48.
105. Hendaoui, A., Limayem, M. & Thompson, C.W. 3D Social Virtual Worlds: Research Issues and Challenges. IEEE Computer Society, 2008, 12(1): 88-92.
106. Sivan, Y. Y. Virtual Worlds 101 Model: An Intro Course from Second Life to the 3D3C Metaverse, 2008 [Available online]. <http://yesha.sivan.googlepages.com/VirWorlds101v02-02.pdf> [accessed 2 March 2009]
107. Noam, E. M. The Dismal Economics of Virtual Worlds. Database for Advances in Information Systems, 2007, 38 (4): 106-109.

108. Yin, R. K. *Case Study Research: Design and Methods*. 3rd ed., 2003, Thousand Oaks, CA: Sage.
109. Kvale, S. *Interviews: an Introduction to Qualitative Research Interviewing*, 1996. Thousand Oaks, Calif: Sage.
110. Oates, B. J. *Researching Information Systems and Computing*, 2006. Thousand Oaks, CA: Sage.
111. Creswell, J. W. *Qualitative inquiry and research design: choosing among five traditions*. 2nd, 2007, Thousand Oaks: Sage.
112. Israel, M. & Hay, I. *Research Ethics for Social Scientists: Between Ethical Conduct and Regulatory Compliance*, 2006. Thousand Oaks: Sage.
113. Singer, J. & Vinson, N. G. Ethical issues in empirical studies of software engineering, *IEEE Transactions on Software Engineering*, 2002, 28 (12): 1171-1180.
114. Hammersley, M. & Gomm, R. Bias in Social Research, *Sociological Research Online*, 1997 [Available online]. <http://www.socresonline.org.uk/2/1/2.html> [accessed 22 May 2009].
115. Norris, N. Error, Bias and Validity in Qualitative Research. *Educational Action Research*, 1997, 5(1): 172 - 176.
116. MacInnes, I. & Hu, L. Business Models and Operational Issues in the Chinese Online Game Industry. *Telematics and Informatics*, 2007: 130–144.
117. Gregor, S. The Nature of Theory in Information Systems. *MIS Quarterly*, 2006, 30 (3): 611-642.
118. Salomon, M. *Business in Second Life: An Introduction*, 2007 [Available online] Available at: <http://www.smartinternet.com.au> [accessed 9 July 2009].
119. Li, F. *What is E-Business? How the Internet Transforms Organizations*, 2007. Oxford: Blackwell.
120. Laudon, K. C. & Traver, C. G. *E-commerce: Business, Technology, Society*, 2002. United States: Addison Wesley.
121. Rayport, J.F. & Jaworski, B.J. *E-Commerce*, 2001. New York: McGraw-Hill.
122. Wei L, Williams M. *Innovations and Technology Research Laboratory*. University of Technology, Sydney, 2007, NSW 2007, Australia.
123. Kobayashi-Hillary M. *Building a Future with BRICs: The Next Decade for Offshoring*. NY, 2007, New York City: Springer.

124. Ballard D.S, Weigel D.J. Communication Process in Marital Commitment: an Integrative Approach. In J. M. Adams and W. H. Jones (ed), Handbook of Interpersonal Commitment and Relationship Stability, 1999: 407-424. New York Kluwer Academic/ Plenum Publishers.
125. Reeves, B. and Nass, C. I. The media equation: How people treat computers, television and new media real people and places, 1996. Stanford, CA: CSLI Publications.
126. Gibson, J. J. The ecological approach to visual perception. Boston: Houghton Mifflin, 1979.
127. Bandura A. Self-efficacy: the exercise of control. Freeman, New York, 1997.
128. Hedman, J., & Kalling, T. IT and Business Models. Concepts and Theories. Malmö: Libero, 2002.

Appendices

A. Questionnaires on individual variable

Variables	Selected questions
Technical	<ol style="list-style-type: none"> 1. SL technology is easy to use (Fetscherin and Lattermann, 2008) ^[53] 2. The voice communication is clear and understandable in SL (Fetscherin and Lattermann, 2008) ^[53] 3. SL communication is useful for me to send/receive information quickly (Younghwa <i>et al.</i>, 2009) ^[17] 4. I feel comfortable to communicate through gestures or emotions in SL (Younghwa <i>et al.</i>, 2009) ^[17]
Social networking	<ol style="list-style-type: none"> 1. SL is effective for me to search or meet people (Fetscherin and Lattermann, 2008) ^[53] 2. I don't feel loneliness in SL (Lucia <i>et al.</i>, 2009) ^[8] 3. I maintain close social relationship with some SL residents (Chiu <i>et al.</i>, 2006) ^[117] 4. Sharing information is important for me in SL (Chiu <i>et al.</i>, 2006) ^[117]
Entertainment	<ol style="list-style-type: none"> 1. Communicating in SL is fun for me (Fetscherin and Lattermann, 2008) ^[53] 2. I enjoy role playing games in SL (Wu, Li and Rao, 2008) ^[2] 3. SL communication enables me to participate in interesting events (Whang and Chang, 2003) ^[118] 4. Communicating in SL activities help me to forget about outside world (Banos <i>et al.</i>, 2000) ^[119]
Making revenue	<ol style="list-style-type: none"> 1. I come to SL to earn money (Fetscherin and Lattermann, 2008) ^[53] 2. In my opinion, SL is useful for product marketing (Hemp, 2006) ^[30] 3. My property is very important for me in SL (Fetscherin and Lattermann, 2008) ^[53] 4. If I could make enough money selling things from SL, I would quit my current real life job (Castranova, 2001) ^[41]
Linguistic	<ol style="list-style-type: none"> 1. I like to change my avatars physical appearance frequently in SL

	(Ondrejka, 2006) ^[110]
	2. SL is convenient for me for face to face communication (Peter <i>et al.</i> , 2008) ^[21]
	3. I use gestures in SL while talking (Younghwa <i>et al.</i> , 2009) ^[17]
	4. I would like to keep distance while talking (Nasseri, Powell and Moore, 2007) ^[120]
Media richness	1. I am satisfied communicating in SL (Fetscherin and Lattermann, 2008) ^[53]
	2. I can send/receive information quickly in SL (Younghwa <i>et al.</i> , 2009) ^[17]
	3. Voice communication is important for me than text (Younghwa <i>et al.</i> , 2009) ^[17]
	4. SL communication helps me to make decision in real life (Markus, 1994) ^[43]
Interactivity	1. The SL communication is flexible to interact (Fetscherin and Lattermann, 2008) ^[53]
	2. I interact with single avatar frequently in SL (Yi, Wei-quan and Yan, 2007) ^[34]
	3. Interaction helps me to make personal relationship in SL (Yi, Wei-quan and Yan, 2007) ^[34]
	4. I frequently communicate with new resident I meet in SL (Whang and Chang, 2003) ^[118]
Telepresence	1. Living in SL gives me sense of belonging (Chiu <i>et al.</i> , 2006) ^[117]
	2. I feel proud living in SL (Whang and Chang, 2003) ^[118]
	3. Communicating with other residents is convenient for me in SL (Lucia <i>et. al.</i> , 2009) ^[8]
	4. Communicating in SL provides me feeling of physical presence (Banos <i>et al.</i> , 2000) ^[119]
Trust	1. I feel no disturbance during communication in SL (Chiu <i>et al.</i> , 2006) ^[117]
	2. The Second Life communication is fast and reliable (Lee, 2007) ^[49]
	3. Communication in SL is secured (Teltzrow <i>et al.</i> , 2007) ^[65]
	4. Sometimes the communication service in SL suddenly stops and I have to log off the computer (Claypool and Claypool, 2004) ^[64]
Second Life Communication	1. I'm satisfied to communicate in SL (Lucia <i>et al.</i> , 2009) ^[8]
	2. Communicate in SL is easy (Lucia <i>et al.</i> , 2009) ^[8]
	3. SL communication is highly effective (Chiu <i>et al.</i> , 2006) ^[117]

B. Conversation with Second Life residents during online survey

Participant 1: Ricki Keng (March 3, 2010): "What stands out to me about communications in SL, is that its a nice way to interact, because for me it feels more personal then email or other text only communications, while keeping a nice safe feeling of anonimosity that you don't have with for instance video or voice chat. It saves time, money and effort to meet real world people. They can gather in one place for interaction. It's just not as reliable as I would like to see it. My experience is that those businesses that want to use e-communication already do and that communication is a lot more effective then the Second Life type. I have video internet conference several times a week, and even with powerful computers the extra crud in Second Life prohibitive. Online events in Second Life are highly effective for e-business."

Participant 2: Lady Letov (March 4, 2010): "I started in Second Life (SL) four years ago as a work project setting up a business presence for a real life corporation...but no one came, so we dropped the project. I enjoy the social side of it but do not see it as an e-business medium just yet. Second Life is still in the growing stage. My company has a research group that has worked with Linden Labs to establish an internal SL environment (just for employees) they are looking at it as a way to do remote training and education. Some consumer companies are using it for brand promotion/identification, like placing a coke bottle on TV shows...but the few actual selling sites have not taken off. I work for IBM. I managed a team that built a piece of the SL site. I participated in IBM events in SL, but the public SL world was not effective for us. It really was more of an experiment".

Participant 3: Sassy Romano (March 6, 2010): "As I said, you should be asking what makes e- business successful in SL not how to bring a Real Life (RL) business here which is unwanted. Answer this for example... can you name one very exclusive shoe brand here? Surely the research should be asking why the likes of Stiletto Moody for shoes are here making a real business yet Jimmy Choo's are not even in existence. And the answer is, there's nothing that Jimmy Choo's can bring that the likes of a good 3D modeler can't already do on a budget that's appropriate for the platform. They're not REAL, nobody needs to pay for a brand name (a RL brand name). The whole consumption model here is different, I don't feel that RL brands apply. Marketing principles sure, there's nothing new there but for the reasons stated, it's just not an instant crossover to a leisure platform. I appreciate the communication system that is attracting distant participants for e-business events."

Participant 4: Zypher Yao (March 7, 2010): "I gathered the study seems to be trying to feel something out. You may find that adding a few open ended questions such as what is the most important thing to you about SL or what's the biggest problem in SL. they may generate

a wide range of messy responses (non statistical) however it will give you a good sense of what kind of question to ask in your formal investigation and because you're studying business communications... you may want to ask something about e-business... like do you have one in SL...? Do you want on in SL...? Does your business pay for itself...? (Let me tell you now that most of the sims you see are being supported by other means)... It is rare to encounter people who are actually making a profits in SL, my sim is one of those cases.... also you were asking in a newbie hub, your responses there would be different than if you contact many business owners directly. Many customers come to my sim by referral. They see one of my magical effects, right click on it get the creators profile... look at my profile picks then they get the name of my shop (which is there). Some come by doing SL searches. Though I don't rank to high on the "magic" search word yet."

Participant 5: Elithera Blackheart (March 9, 2010): "I can say honestly that I probably would use voice more if I didn't Skype at the same time but because I Skype and do SL at the same time, the skyping hinders talking in SL, it's an unusual situation--my boyfriend here in SL is actually my boyfriend in RL, so we do SL and Skype at the same time. I guess maybe that's too much information but since it seemed to be about voice, I just thought you should know. I have spent hours on the phone with certain friends when I'm free (in SL). As far as e-business is concerned initial investment, multiple and updated products as well as after sales service is required. I'm in SL since three years. As per my experience SL has pleasant e-business future."

Participant 6: Velma Paine (March 11, 2010): "It would give me some immediate feedback on how the overseas customer would use SL...IF they could use it....and give them the opportunity to make other connections....I am making good money here on the meeting sim. But it takes a lot of time to perform activities. Computer based communication certainly not as effective as face to face, missed emotional cues, lack of body language. It is very easy to mislead people when they rely on an avatar for body language cues".

Participant 7: Jessii Placebo (March 13, 2010): "Interestingly I like to study the behaviors of the characters in SL and in my experience I believe it brings out the worst kind since there is no accountability in SL only one's conscience. I am more interested in the sociology rather than the methods of communication. You miss the breadth and depth of the communication that goes on in SL, for example live performance broadcast leading to CD and MP# downloads via sites like CD Baby are a LOT more important than things like Myspace from both a social and financial point of view. There are artists all around on SL...and a LOT of people miss that. As I say - have you spent all of your time at infohubs? I'd recommend checking out the actual communities:///app/inventory/254495c0-2afb-9961-6b80-cbf5fcd36bae/select?name=NOT%20TOO%20HOT%20Blues%20CLub%2C%20Moon%20Park%20East%20%2834%2C%204%2C%2025%29

secondlife:///app/agent/acb1252f-5929-42d4-b181-e24ca1352555/about

Another landmark:

secondlife:///app/inventory/6ee22dd1-4e4b-4f24-6ab3-

87dd66b4f55f/select?name=THE%20CROSSROADS~BIKERS%20BLUES%20PARA%2C%20The%20Crossroads%20%28111%2C%20147%2C%2049%29

A couple of places that I've found very useful with business environment but there are many others. Infohubs are like bus stations. Some business islands are open for all public so they lack privacy and secrecy."

Participant 8: Thomass Adamski (March 14, 2010): "None of them would say that SL affects their real life. You are asking to be correct and honest... but something it's very hard to admit. I guess you could be more "sottile" in your questions. SL have new rules, is not only pixeòs someone invent a new space with strong rules to attract people that's clear there. All people here can say they like SL cause you can meet people all over the world but I saw people crying, cause of SL and someone else building their death to see other people crying". Compared with other social network SL is highly social. Look for universities in SL. You can't have it in other social sites. Business side is interesting as you have creativity freedom. You can build, script and sell them to survive both in virtual and real life."

Participant 9: Marit Huet (March 16, 2010): "Every resident in SL can build here in sandbox, which is not always possible on other land, by restrictions of the owner. Some have expertise on building objects, and some come here to rez objects that others build. Content purchased in shops, is often delivered in boxes. The communication quality and capacity of servers should be expanded as I frequently encounter lagging and crashing problems. I missed some of the important business events."

Participant 10: Serinda Randt (March 19, 2010): "Your delineation for professions is pretty bad... what about service industries... I am a teacher so I have to choose "other"? So how would you classify "working as an exotic dancer"... entertainment? Personally, I know a LOT of people who have used SL at work and they spend a lot of time at sex clubs, etc... if I were a boss I would be reluctant to use SL for e-business because it can be so immersive and distracting, of course my experience is in no way a representative sample. I'm satisfied with the use of communication media. I prefer IM as it is highly secured and business privacy can be maintained."

C. Miscellaneous conversations

Leepiper Ghost (March 1, 2010): "I'm studying Psychology in real life and find that Second Life is a good place to study the human mind".

Angela Telling (March 1, 2010): "You're going to encounter a lot of people in Second Life who are really quite fed up with being inspected and questioned about their Second Life,

even if the 'student' is genuine, which they generally are not. So piss off and get yourself some mice. Muted”.

Danofwa Flangan (March 1, 2010): “I really hate people using Second Life for research project”.

Maximo Alex (March 1, 2010): “If Second Life concentrated more on easing fast communication than visual experience, it would be a major success”.

Bflame Fride (March 5, 2010): “I originally started using Second Life as a way to do a little research on using social media in education. Now I just play around in here at times”.

Reba Rajal (March 14, 2010): “Most of the people here are lacking something in their real life that they disparately need to have”.

Macro Bury (March 21, 2010): “Well, computer based communication certainly not as effective as face to face, missed emotional cues, lack of body language. It is very easy to mislead people when they rely on an avatar for body language cues”.

Natasha Stepanov (April 9, 2010): "What stands out to me about communications in SL, is that its a nice way to interact, because for me it feels more personal then email or other text only communications, while keeping a nice safe feeling of anonimousity that you don't have with for instance video or voice chat. It's just not as reliable as I would like to see it”.

D. Survey responses

Dear SECOND LIFE Residents,

Thank you in advance for participating in this online survey. I am a senior research student. The purpose of the survey is to understand communication behavior of Second Life residents and opportunities of online business in SECOND LIFE. The survey contains 30 small questions and it takes about 10 minutes to answer the questions.

All the information received from you will be CONFIDENTIAL. The answers will be used for my research thesis only.

If you are interested to participate in our research, please contact me at: gsharmahit2008@gmail.com

Please do not forget to click '>>' button at the end (on the right side) after filling up.

Thank you for your participation. Please inform me if you have any suggestions or comments on survey questionnaires.

Please note that Second Life is abbreviated as "SL".

Final Report

Last Modified: 04/25/2010

1. What is your gender in real life?

#	Answer	Response	%
1	Male	248	50%
2	Female	237	48%
3	Don't want to indicate	10	2%
	Total	495	100%

Statistic	Value
Min Value	1
Max Value	3
Mean	1.52
Variance	0.29
Standard Deviation	0.54
Total Responses	495

2. What is your gender in SL?

#	Answer	Response	%
1	Male	241	49%
2	Female	244	49%
3	Don't want to indicate	9	2%
	Total	494	100%

Statistic	Value
Min Value	1
Max Value	3
Mean	1.53
Variance	0.29
Standard Deviation	0.53
Total Responses	494

3. What is your current age?

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#	Answer	Response	%
1	Below 13	1	0%
2	13-17 years	3	1%
3	18-24 years	124	25%
4	25-34 years	123	25%
5	35-44 years	130	26%
6	45 years and above	111	22%
7	Don't want to indicate	8	2%
	Total	500	100%

Statistic	Value
Min Value	1
Max Value	7
Mean	4.49
Variance	1.35
Standard Deviation	1.16
Total Responses	500

4. What is your location?

#	Answer	Response	%
1	North America	250	52%
2	South America	22	5%
3	Europe	131	27%
4	Asia	34	7%
5	Africa	5	1%
6	Australia	18	4%
7	Others	21	4%
	Total	481	100%

Statistic	Value
Min Value	1
Max Value	7
Mean	2.29
Variance	2.78
Standard Deviation	1.67
Total Responses	481

5. What is your profession?

#	Answer	Resp	%
1	Student	112	22%
2	Unemployed	29	6%
3	Management	40	8%
4	Technical/IT	63	13%
5	Administrative	25	5%
6	Production/Manufacturing	16	3%
7	Sales/Support	24	5%
8	Medical	25	5%
9	Retired	19	4%
10	Others	145	29%
	Total	498	100%

Statistic	Value
Min Value	1
Max Value	10
Mean	5.53
Variance	12.89
Standard Deviation	3.59
Total Responses	498

6. What highest education degree do you have? (Optional)



#	Answer	Response	%
1	Doctoral degree	16	3%
2	Masters degree	73	15%
3	Bachelor degree	143	29%
4	Others	91	19%
5	High School	166	34%
	Total	489	100%

Statistic	Value
Min Value	1
Max Value	5
Mean	3.65
Variance	1.40
Standard Deviation	1.18
Total Responses	489

7. What is your annual income without taxes (in US dollars)? (Optional)

#	Answer	Response	%
1	Below \$1000	59	14%
2	\$1000-\$5000	51	12%
3	\$5000-\$10,000	40	9%
4	\$10,000-\$20,000	52	12%
5	\$20,000-\$50,000	89	21%

Dissertation for the Doctoral Degree in Management, HIT

6	\$50,000-\$100,000		96	23%
7	\$100,000 and above		37	9%
	Total		424	100%

Statistic	Value
Min Value	1
Max Value	7
Mean	4.17
Variance	3.71
Standard Deviation	1.93
Total Responses	424

8. How long have you been in SL?

#	Answer	Response	%
1	Less than 1 month	29	6%
2	1-6 month	83	17%
3	6 month-1 year	71	14%
4	1-2 year	125	25%
5	2-3 year	101	20%
6	Above 3 years	87	18%
	Total	496	100%

Statistic	Value
Min Value	1
Max Value	6
Mean	3.90
Variance	2.24
Standard Deviation	1.50
Total Responses	496

9. How long do you spend in SL each time?

#	Answer	Response	%
1	Less than 1 hour	15	3%
2	About 1 hour	50	10%
3	1-3 hours	183	38%
4	3-5 hours	106	22%

5	more than 5 hours		130	27%
	Total		484	100%

Statistic	Value
Min Value	1
Max Value	5
Mean	3.59
Variance	1.17
Standard Deviation	1.08
Total Responses	484

10. On average how long do you spend in SL in one week?






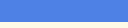
#	Answer		Response	%
1	Less than 1 hour		9	2%
2	1-5 hours		60	12%
3	5-10 hours		91	18%
4	10-20 hours		147	30%
5	20-40 hours		122	25%
6	above 40 hours		66	13%
	Total		495	100%

Statistic	Value
Min Value	1
Max Value	6
Mean	4.03
Variance	1.61
Standard Deviation	1.27
Total Responses	495

11. What usually you do in SL? Please mark all applicable to you.

#	Answer		Response	%
1	Meet people		439	89%
2	Explore		354	72%
3	Chat		401	81%

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4	Buy		223	45%
5	Sell		97	20%
6	Hire		19	4%
7	Create		196	40%
8	Entertainment		218	44%
10	Others		137	28%

Statistic	Value
Min Value	1
Max Value	10
Total Responses	495

12. How do you feel about SL communication?

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	I am satisfied to communicate in SL	223	179	73	14	3	492	1.77
2	Communicate in SL is easy	32	90	115	154	93	484	3.38
3	SL communication is highly effective	104	181	149	39	9	482	2.31

Statistic	I am satisfied to communicate in SL	Communicate in SL is easy	SL communication is highly effective
Min Value	1	1	1
Max Value	5	5	5
Mean	1.77	3.38	2.31
Variance	0.72	1.39	0.92
Standard Deviation	0.85	1.18	0.96
Total Responses	492	484	482

13. Which of the following media do you use for communication and information sharing in SL? Please check all that you use.

#	Answer	Response	%
1	Local chat	464	93%
2	Instant Messaging (IM)	465	93%
3	Voice	286	57%
4	Blog	52	10%
5	Wikis	45	9%
6	Email	138	28%
7	Search engine	131	26%
8	Video games	23	5%
9	Podcast	11	2%
10	Others	59	12%

Statistic	Value
Min Value	1
Max Value	10
Total Responses	498

14. Which of the following do you find the best in SL?

#	Answer	Response	%
1	Local chat	106	21%
2	IM	291	59%
3	Voice	92	19%
4	Video	5	1%
	Total	494	100%

Statistic	Value
Min Value	1
Max Value	4
Mean	1.99
Variance	0.44
Standard Deviation	0.66
Total Responses	494

15. How long do you spend in voice chat each time in SL?

#	Answer		Response	%
1	Less than 1 hour		211	42%
2	1-2 hours		64	13%
3	2-3 hours		37	7%
4	3-5 hours		19	4%
5	5 hours and more		25	5%
6	Never use voice		142	29%
	Total		498	100%

Statistic	Value
Min Value	1
Max Value	6
Mean	3.02
Variance	4.64
Standard Deviation	2.15
Total Responses	498

16. How long do you spend in text chat each time?

#	Answer		Response	%
1	Less than 1 hour		100	20%
2	1-2 hours		150	30%
3	2-3 hours		94	19%
4	3-5 hours		67	13%
5	5 hours and more		85	17%
6	Never use text chat		2	0%
	Total		498	100%

Statistic	Value
Min Value	1
Max Value	6
Mean	2.79

Variance	1.92
Standard Deviation	1.38
Total Responses	498

17. How would you rate the quality of voice in SL?

#	Answer	Response	%
1	5 - Very high value	49	10%
2	4	120	24%
3	3	147	30%
4	2	56	11%
9	1- Very low value	27	5%
10	Don't know	92	19%
	Total	491	100%

Statistic	Value
Min Value	1
Max Value	10
Mean	4.31
Variance	10.22
Standard Deviation	3.20
Total Responses	491

18. How well does the following statement describe you? (Technological point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	SL technology is easy to use	170	216	72	36	2	496	1.96
2	The voice communication is clear and understandable in SL	92	189	148	43	15	487	2.38
3	SL communication is useful for me to send/receive information quickly	140	202	121	24	5	492	2.09
4	I feel comfortable to	146	162	115	47	19	489	2.25

Appendices

	communicate through gestures or emotions in SL							
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Statistic	SL technology is easy to use	The voice communication is clear and understandable in SL	SL communication is useful for me to send/receive information quickly	I feel comfortable to communicate through gestures or emotions in SL
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.96	2.38	2.09	2.25
Variance	0.81	0.98	0.81	1.21
Standard Deviation	0.90	0.99	0.90	1.10
Total Responses	496	487	492	489

19. How well does the following statement describe you? (Social Networking point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	SL is effective for me to search or meet people	192	221	58	13	2	486	1.79
2	I don't feel loneliness in SL	138	159	127	50	9	483	2.24
3	I maintain close social relationship with some SL residents	225	146	74	27	11	483	1.87
4	Sharing information is important for me in SL	119	158	158	35	13	483	2.31

Statistic	SL is effective for me to	I don't feel loneliness in	I maintain close social relationship	Sharing information is
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	search or meet people	SL	with some SL residents	important for me in SL
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.79	2.24	1.87	2.31
Variance	0.62	1.07	1.03	1.01
Standard Deviation	0.78	1.04	1.02	1.01
Total Responses	486	483	483	483

20. How well does the following statement describe you? (Entertainment point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disgr	Resp	Mean
1	Communicating in SL is fun for me	272	180	33	5	2	492	1.55
2	I enjoy role playing games in SL	110	105	149	74	49	487	2.69
3	SL communication enables me to participate in interesting events	160	187	115	15	9	486	2.02
4	Communicating in SL activities help me to forget about outside world	135	144	121	50	32	482	2.38

Statistic	Communicating in SL is fun for me	I enjoy role playing games in SL	SL communication enables me to participate in interesting events	Communicating in SL activities help me to forget about outside world
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.55	2.69	2.02	2.38
Variance	0.49	1.58	0.86	1.40
Standard Deviation	0.70	1.26	0.93	1.18

Appendices

Total Responses	492	487	486	482
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21. How well does the following statement describe you? (Making revenue or business point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	I come to SL to earn money	24	61	146	90	161	482	3.63
2	In my opinion, SL is useful for product marketing	53	137	192	63	32	477	2.76
3	My property is very important for me in SL	67	124	163	52	67	473	2.85
4	If I could make enough money selling things from SL, I would quit my current real life job	119	61	98	60	143	481	3.10

Statistic	I come to SL to earn money	In my opinion, SL is useful for product marketing	My property is very important for me in SL	If I could make enough money selling things from SL, I would quit my current real life job
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	3.63	2.76	2.85	3.10
Variance	1.46	1.08	1.49	2.43
Standard Deviation	1.21	1.04	1.22	1.56
Total Responses	482	477	473	481

22. How well does the following statement describe you? (Linguistic point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	I like to change my physical avatars	133	119	94	70	72	488	2.65

	appearance frequently in SL							
2	SL is convenient for me for face to face communication	102	174	147	40	21	484	2.39
3	I use gestures in SL while talking	85	120	107	108	62	482	2.88
4	I would like to keep distance while talking	21	88	228	97	45	479	3.12

Statistic	I like to change my avatars physical appearance frequently in SL	SL is convenient for me for face to face communication	I use gestures in SL while talking	I would like to keep distance while talking
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	2.65	2.39	2.88	3.12
Variance	1.95	1.09	1.68	0.93
Standard Deviation	1.40	1.04	1.30	0.96
Total Responses	488	484	482	479

23. How well does the following statement describe you? (Media richness point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	I am satisfied communicating in SL	187	218	67	10	3	485	1.81
2	I can send/receive information quickly in SL	179	200	80	18	2	479	1.88
3	Voice communication is important for me than text	66	76	132	102	102	478	3.21
4	SL communication helps me to make decision in real life	37	89	152	84	113	475	3.31

Statistic	I am satisfied communicating in SL	I can send/receive information quickly in SL	Voice communication is important for me than text	SL communication helps me to make decision in real life
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.81	1.88	3.21	3.31
Variance	0.63	0.72	1.74	1.53
Standard Deviation	0.79	0.85	1.32	1.24
Total Responses	485	479	478	475

24. How well does the following statement describe you? (Interactivity point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	The SL communication is flexible to interact	150	247	83	7	2	489	1.90
2	I interact with single avatar frequently in SL	186	192	78	23	6	485	1.91
3	Interaction helps me to make personal relationship in SL	151	198	96	27	10	482	2.06
4	I frequently communicate with new resident I meet in SL	154	200	93	24	9	480	2.03

Statistic	The SL communication is flexible to interact	I interact with single avatar frequently in SL	Interaction helps me to make personal relationship in SL	I frequently communicate with new resident I meet in SL
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.90	1.91	2.06	2.03
Variance	0.56	0.84	0.92	0.88

Standard Deviation	0.75	0.92	0.96	0.94
Total Responses	489	485	482	480

25. How well does the following statement describe you? (Telepresence point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	Living in SL gives me sense of belonging	74	156	171	51	33	485	2.61
2	I feel proud living in SL	84	134	172	57	33	480	2.63
3	Communicating with other residents is convenient for me in SL	135	243	87	14	3	482	1.98
4	Communicating in SL provides me feeling of physical presence	105	174	137	44	18	478	2.36

Statistic	Living in SL gives me sense of belonging	I feel proud living in SL	Communicating with other residents is convenient for me in SL	Communicating in SL provides me feeling of physical presence
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	2.61	2.63	1.98	2.36
Variance	1.16	1.24	0.63	1.08
Standard Deviation	1.08	1.11	0.80	1.04
Total Responses	485	480	482	478

26. How well does the following statement describe you? (Trust point of view)

#	Question	St agree	Sw agree	Ntrl	Sw disagree	St disagr	Resp	Mean
1	I feel no disturbance during communication in	80	193	143	54	16	486	2.45





Appendices

	SL							
2	The communication in SL is fast and reliable	100	216	112	41	13	482	2.28
3	Communication in SL is secured	47	131	169	91	48	486	2.92
4	Sometimes the communication service in SL suddenly stops and I have to log off the computer	110	156	117	59	43	485	2.52

Statistic	I feel no disturbance during communication in SL	The communication in SL is fast and reliable	Communication in SL is secured	Sometimes the communication service in SL suddenly stops and I have to log off the computer
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	2.45	2.28	2.92	2.52
Variance	1.00	0.95	1.24	1.48
Standard Deviation	1.00	0.97	1.11	1.22
Total Responses	486	482	486	485

27. Please indicate which of the following other social networking communication software you use?

#	Answer	Response	%
1	Facebook	325	70%
2	Myspace	117	25%
3	Twitter	86	18%
4	Youtube	234	50%
6	MSN Messenger	223	48%

7	Skype		255	55%
8	Yahoo Messenger		180	39%
9	AOL Instant Messaging		72	15%
10	Others		128	27%

Statistic	Value
Min Value	1
Max Value	10
Total Responses	466

28. How would you rate the quality of SL comparing with other social networking sites such as Facebook, Myspace, Twitter and You tube?

#	Answer		Response	%
1	5 - Very high value		220	45%
2	4		141	29%
3	3		96	20%
4	2		21	4%
5	1 - Very low value		7	1%
	Total		485	100%

Statistic	Value
Min Value	1
Max Value	5
Mean	1.87
Variance	0.94
Standard Deviation	0.97
Total Responses	485

29. Which of the following learning experience do you have in SL?

#	Answer		Response	%
1	Lecture		90	20%
2	Training		124	28%
3	Conference		59	13%
4	Video		59	13%
5	Others		243	55%

Statistic	Value
Min Value	1
Max Value	5
Total Responses	443

30. Please leave your email address for any confusions and further communication. Thank you very much for your participation.

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Statistic	Value
Total Responses	298

E. Online conversation with Second Life residents during case study

May 10, 2010, Crank Falconer

[16:32] Gaju Xenno: hi crank

[16:32] CranK Falconer: hi

[16:33] Gaju Xenno: how are you?

[16:33] CranK Falconer: I'm fine thanks, how are you?

[16:33] Gaju Xenno: I'm fine

[16:33] CranK Falconer: nice to hear

[16:33] Gaju Xenno: do you have some free time to ask questions?

[16:34] CranK Falconer: yeah maybe I can help you, but it depends upon my knowledge

[16:34] Gaju Xenno: oh...

[16:35] Gaju Xenno: how effective do you find SL for communication?

[16:35] CranK Falconer: I think it is very effective

[16:35] CranK Falconer: the advantage of SL is: you can be what you want

[16:35] Gaju Xenno: oh yes...

[16:36] CranK Falconer: so it's easier for people to communicate because they are more self confident, aren't they?

[16:36] Gaju Xenno: yes

[16:36] Gaju Xenno: do have experience to make real money here?

[16:37] CranK Falconer: I didn't think about the money yet

[16:37] CranK Falconer: but it would be nice
[16:37] CranK Falconer: smiles
[16:37] Gaju Xenno: yes...but many people can make money creating and selling things
[16:38] CranK Falconer: yes that's right... but I don't have that much time to create and sell things. And maybe I am not creative enough:-D
[16:39] Gaju Xenno: Do you have any idea about companies business here?
[16:39] CranK Falconer: I have got any idea, sorry
[16:40] Gaju Xenno: no problem
[16:40] CranK Falconer: if its allowed to ask: Why do you ask questions like that? Do you write a report about SL or what?
[16:40] Gaju Xenno: yes, I'm doing research on SL and I have to prepare a report
[16:41] CranK Falconer: oh nice
[16:41] CranK Falconer: so Gaju where do you come from`?
[16:41] Gaju Xenno: china, you?
[16:41] CranK Falconer: Germany, Europe
[16:41] Gaju Xenno: oh...nice country
[16:42] CranK Falconer: yes but the history of Germany is very sad...
[16:42] CranK Falconer: so if you want you can ask me more Gaju
[16:42] Gaju Xenno: ok sure
[16:43] Gaju Xenno: what are the challenging issues or problem of SL in your pinion?
[16:44] CranK Falconer: I think the advantage that you can be what you want is not good all the time
[16:44] CranK Falconer: very evil people can log in into SL too
[16:45] CranK Falconer: like people who loves violence
[16:45] Gaju Xenno: yes sometimes they give trouble to others
[16:45] CranK Falconer: people who are mentally ill
[16:45] CranK Falconer: so you have to be careful
[16:46] CranK Falconer: and the biggest problem of SL is: You can emphasize with your avatar so much, that you could forget that there is a real life too
[16:46] CranK Falconer: so you get addicted to SL, that's dangerous I think
[16:47] Gaju Xenno: oh yes....people remain in SL more than 8-9 hours everyday here ... It's addictive
[16:48] CranK Falconer: yes, I got contact with people who live only in SL
[16:48] CranK Falconer: the whole day
[16:48] Gaju Xenno: one last question
[16:48] CranK Falconer: please
[16:49] Gaju Xenno: my research is focused on communication in SL and it's impact on business. Could you please tell me something about your opinion on this?
[16:51] CranK Falconer: my opinion... Yes I think for companies SL can be very good. You can advertise here and you can create and sell things easier
[16:51] CranK Falconer: the world here is bigger than the real world
[16:51] CranK Falconer: but it is faster
[16:51] CranK Falconer: can you understand me? My English is uh:-s
[16:51] CranK Falconer: you can teleport, there is IM
[16:51] Gaju Xenno: yes
[16:52] CranK Falconer: so I hope I could help you Gaju
[16:52] Gaju Xenno: yes, thank you for your help.... I think the information will be

useful

[16:53] CranK Falconer: oh no problem :-)

[16:53] Gaju Xenno: have a nice time

[16:53] CranK Falconer: you too Gaju

[16:53] CranK Falconer: good luck with your report

[16:53] Gaju Xenno: thank you

[16:53] CranK Falconer: no problem

May 10, 2010, Creator Byron

[17:01] Gaju Xenno: hi Creator

[17:04] Gaju Xenno: I'm doing research on SL. The topic is Communication in SL and its impact on businesses. Could you please help me to answer few questions?

[17:04] Creator Byron: ok

[17:05] Gaju Xenno: how effective do you find SL for communication?

[17:06] Creator Byron: pretty effective.

[17:06] Creator Byron: as u can communicate with people all over the world.

[17:07] Gaju Xenno: yes, which one is the preferred communication media for you?

[17:08] Creator Byron: u mean, chatting and voice?

[17:08] Gaju Xenno: yes

[17:09] Creator Byron: I like both, to be honest.

[17:09] Gaju Xenno: oh...

[17:10] Gaju Xenno: do you have experience to make real money here?

[17:10] Creator Byron: no, only in losing. :-)

[17:10] Creator Byron: oh, now you say so

[17:10] Creator Byron: I made 2 dollars selling my Caps. :-)

[17:10] Gaju Xenno: oh...smiles

[17:11] Creator Byron: but

[17:11] Creator Byron: that's it

[17:11] Gaju Xenno: what is the popular business here?

[17:11] Creator Byron: well, I put my bet on, Skins, Homes and Land Sales.

[17:12] Gaju Xenno: oh...

[17:12] Gaju Xenno: in your opinion how successful the companies are to perform business here?

[17:13] Creator Byron: good.

[17:13] Creator Byron: real successful, they got an economy running here.

[17:14] Gaju Xenno: and how virtual events such as meeting, conference is effective for business promotion in SL?

[17:15] Creator Byron: I have no idea, I think that has nothing to do with it, may be they can promote their business a little with it, but few to less will show up in them store or on them land.

[17:16] Gaju Xenno: last question

[17:16] Gaju Xenno: what are the challenging issues or problem in SL in your opinion?

[17:17] Creator Byron: what my problems are with SL?

[17:17] Gaju Xenno: not your problem, problems of SL

[17:17] Creator Byron: well

[17:17] Creator Byron: then

[17:17] Creator Byron: first of all, the lag.
[17:17] Creator Byron: copybotters, I hate them.
[17:17] Creator Byron: and
[17:18] Creator Byron: the new viewer
[17:18] Creator Byron: those are problems of SL...
[17:18] Gaju Xenno: oh yes...Beta 2 viewer is not comfortable to use
[17:18] Creator Byron: indeed, its not user friendly
[17:19] Gaju Xenno: thank you for your time Creator
[17:20] Gaju Xenno: by the way you create things here?
[17:20] Creator Byron: Yes, as example my avatar.
[17:20] Gaju Xenno: what sort of things?
[17:21] Creator Byron: like my avatar
[17:21] Creator Byron: particles
[17:21] Creator Byron: well
[17:21] Creator Byron: all sorts of things
[17:21] Gaju Xenno: oh...
[17:21] Gaju Xenno: then you can sell them
[17:22] Creator Byron: yes, I could, but I wont sell my avatar, it's my first in creation, and I use it for SWRP.
[17:23] Gaju Xenno: but you can sell your creations...not avatar
[17:23] Creator Byron: yes
[17:23] Gaju Xenno: have a nice time
[17:23] Creator Byron: yes, you too :-)

May 11, 2010, Herry Maltz

[18:11] Gaju Xenno: hi Herry
[18:12] Herry Maltz: Hello Gaju
[18:12] Gaju Xenno: how are you?
[18:12] Herry Maltz: Good, yourself?
[18:12] Gaju Xenno: I'm good. Do you have some free time?
[18:13] Herry Maltz: Typing up my SL Resume as I've just started back on the game more frequent, but what did you have in mind?
[18:13] Gaju Xenno: I'm doing research on SL. The topic is 'Communication in SL and its impact on business'. Could you please help me to answer few questions?
[18:14] Herry Maltz: Not sure I could assist too well with your answers, but sure, what are the questions?
[18:14] Gaju Xenno: how effective do you find SL for communication?
[18:16] Herry Maltz: Well that would entirely depend on what you mean in terms of communication. Now that SL has voice, it's become much easier, however I don't believe SL communication will be matching with things such as Skype for quite some time... As it's generally a better platform and enables webcam communication. Overall though I would say SL communication isn't bad, generally it's always working and never gives us too many problems for the most part.
[18:17] Gaju Xenno: voice. Text is common but how effective the video conferencing and podcast to run events?
[18:18] Herry Maltz: That I wouldn't be able to comment on, as I don't have a whole lot of experience dealing with that in terms of running events.

[18:18] Gaju Xenno: oh...

[18:19] Gaju Xenno: do you have experience to make real money here?

[18:20] Herry Maltz: Now that I can definitely comment on, I've made a good deal of money off the game, not recently though, I've found it to be a bit more difficult now days to do so with the amount of competition in the game today, and the ratio of prices involving land and such

[18:21] Gaju Xenno: in your opinion how successful the companies are to do business here?

[18:21] Herry Maltz: Are you referring to RL companies coming into SL?

[18:22] Gaju Xenno: yes

[18:24] Herry Maltz: I've had a little involvement with that, it would ideally depend on the type of company they are. I know of a few companies that have attempted to come into the grid to make profits or explore the options of the software, and a few of them had actually left due to not enough of a profit margin. On the other hand I've been involved with a few companies that enjoy the idea of the software, as it gives a unique experience to employees that may be at different locations. Why fly an employee to a central location to have a meeting when you can have a unique experience on software such as this makes things interesting and definitely makes people very curious and involved in my opinion

[18:25] Gaju Xenno: oh...yes you have good analysis

[18:25] Herry Maltz: That would come with my consulting experience, as I've been an active consultant on the game since 2006 or so

[18:25] Gaju Xenno: Any challenges/problems to conduct business here?

[18:26] Herry Maltz: Which context? in terms of companies in RL doing business here? or business in general such as business' in the game?

[18:26] Gaju Xenno: overall

[18:29] Herry Maltz: Well overall nothing is perfect, so of course with any type of software you have the potential for something to break and or not function correctly. Luckily Linden Lab has been pretty decent over the years at resolving most of the problems that could cause problems with people conducting whatever type business they are involved in on the grid. I think the biggest issue would be finding qualified individuals for different tasks, such as filling roles of public relations or simply sales associates. Often you run into people that may not be who they claim they are, and may not have done exactly what they say they've done, thus you either trust them or give them the chance, or you don't... But overall it's a chance most have to take due to the limited pool of candidates to fill positions within companies and organizations

[18:30] Gaju Xenno: last question: in your opinion how communication is effective for business?

[18:34] Herry Maltz: Well for one it definitely cuts prices down significantly...Going off the earlier example of flying people out to a central location to have a meeting, virtually you can rent a space privately where meetings can be conducted for much less than flying people out, or even conducting business remotely. In terms of communication, sky is pretty much the limit, this definitely beats phone conferences and email and or other web related communication techniques. Nothing is worse than sitting on the phone in a conference as it's generally unorganized and sometimes quite hectic. On here, there provides more of a basis for organization and aides in a smoother experience overall to conduct business as a whole. The key thing is not entirely the content of the discussion but also how it's said. Due to the psychological aspect of the way humans interact and interpret different things

that people say, I believe the platform for communication is definitely a lot better and much more organized so that everyone can be...

[18:34] Herry Maltz: brought to the same page and work can be taken care of right the first time, where as lack of communication can cause problems with someone not on the same page and doing a project or task incorrectly or not to the standards and or requirements that the project or task needs to be completed in.

[18:36] Gaju Xenno: thank you Herry for your time and help. I hope the information will be very helpful for my research

[18:36] Herry Maltz: Sounds good, was a pleasure

[18:36] Gaju Xenno: have a nice time

[18:36] Herry Maltz: You too, take it easy :)

May 12, 2010, Precious Ruby

[18:53] Gaju Xenno: hi Precious

[18:53] Precious Ruby: Hello

[18:54] Gaju Xenno: how are you? busy?

[18:54] Precious Ruby: oh just trying on clothing

[18:54] Precious Ruby: nothing drastic.

[18:54] Gaju Xenno: i need your help if you could provide few minutes

[18:55] Precious Ruby: sure if I can

[18:55] Gaju Xenno: I'm doing research on SL. The topic is 'Communication in SL and its impact on business'. Could you please help me to answer few questions?

[18:55] Precious Ruby: And again if I can sure

[18:56] Gaju Xenno: how effective do you find SL for communication?

[18:56] Precious Ruby: its pretty good..

[18:57] Gaju Xenno: any problems or disruption during communication?

[18:58] Precious Ruby: oh yes... when SL is acting up so is communication

[18:58] Gaju Xenno: oh...

[18:58] Gaju Xenno: do you have experience to make real money here?

[18:59] Precious Ruby: no...never tried...

[18:59] Precious Ruby: not my dream I guess you could say

[18:59] Gaju Xenno: oh...that's no problem...but do you create things?

[19:00] Precious Ruby: I have a few things yes

[19:00] Gaju Xenno: what sort?

[19:01] Precious Ruby: well such as unwater things...like corals ...and flowers

[19:01] Precious Ruby: clothing

[19:02] Gaju Xenno: oh...then you can sell them. I guess

[19:02] Precious Ruby: oh I could ...not my cup of tea though

[19:03] Gaju Xenno: in your opinion how real world companies are successful to do business here?

[19:04] Precious Ruby: well I think they would do awesome... and I'm sure lots do ... such as me I would prefer real-life designer outfits here... they would sell as good as any store in RL I'm sure...

[19:05] Gaju Xenno: oh...that means SL is a right place to conduct business right?

[19:05] Precious Ruby: yes certainly

[19:05] Gaju Xenno: I have two more questions

[19:06] Precious Ruby: ok

[19:06] Gaju Xenno: what is the role of communication in business in your opinion?
[19:07] Precious Ruby: well to be able to sell it you need communication
[19:07] Precious Ruby: just like in RL ...you have to SELL your product
[19:07] Precious Ruby: you can't do it very well with sign language...lol
[19:07] Gaju Xenno: that's correct
[19:08] Gaju Xenno: last question: have you participated any events such as meeting, conference here?
[19:08] Precious Ruby: yes
[19:09] Precious Ruby: just yesterday infact
[19:09] Gaju Xenno: conference?
[19:09] Precious Ruby: yes
[19:09] Gaju Xenno: how effective it was?
[19:09] Precious Ruby: it was great...
[19:09] Gaju Xenno: oh...
[19:09] Precious Ruby: I enjoyed it
[19:10] Gaju Xenno: I think SL is full of information
[19:10] Precious Ruby: it is...and you learn tons here
[19:11] Precious Ruby: even if you don't build and sell
[19:11] Gaju Xenno: thank you for your answers precious. I hope it will be helpful
[19:11] Precious Ruby: you're quite welcome
[19:11] Precious Ruby: have a nice night...
[19:12] Gaju Xenno: nice talk with you
[19:12] Precious Ruby: you also
[19:12] Gaju Xenno: bye
[19:12] Precious Ruby: TC...

May 13, 2010, Asterion Coen (Solution Provider)

[19:37] Gaju Xenno: hi Asterion
[19:37] Asterion Coen: hello :)
[19:37] Gaju Xenno: are you an IBM member?
[19:38] Asterion Coen: at all, I'm a solution provider
[19:38] Gaju Xenno: oh...
[19:38] Gaju Xenno: I'm doing research on SL. The topic is 'Communication in SL and its impact on business'. Could you please help me to answer few questions?
[19:39] Asterion Coen: I'm not a specialist about that, but why not
[19:40] Gaju Xenno: how effective do you find SL for communication?
[19:40] Asterion Coen: what kind of communication?
[19:41] Asterion Coen: meeting, and that kind of stuffs?
[19:41] Gaju Xenno: any voice, text, videoconferencing etc.
[19:41] Asterion Coen: SL is fine about that. A lot of companies, govs, or other universities use it on SL
[19:41] Asterion Coen: the limitation is the number of avatars max in a sim
[19:42] Asterion Coen: less than 100
[19:42] Gaju Xenno: oh... how successful the IBM in SL?
[19:43] Asterion Coen: IBM is probably the only company exploiting the maximum SL possibilities
[19:43] Asterion Coen: but you should to contact them about that :)

[19:43] Gaju Xenno: what are the services provided by IBM in SL?
[19:44] Asterion Coen: IBM mostly uses SL as a communication tool, a lab about virtual worlds, and some other operations
[19:45] Asterion Coen: they economize money on SL doing meeting on here instead losing money with a RL event
[19:45] Asterion Coen: for that kind of survey, maybe it would be better u meet a linden specialized with companies
[19:46] Gaju Xenno: oh yes...SL is highly economical but how effective the meeting doing in SL if we compare with RL?
[19:46] Asterion Coen: well, I think that about RL, about conference, but in SL you also can use 3D scripted objects
[19:47] Asterion Coen: an avatar can test a plane or a car, for example :)
[19:47] Gaju Xenno: oh yes..
[19:47] Asterion Coen: some companies r using SL for prototyping
[19:48] Gaju Xenno: could you please suggest me some companies to whom I may contact here?
[19:48] Asterion Coen: I would say IBM ;)
[19:48] Asterion Coen: but the best is that you contact Amanda linden
[19:48] Asterion Coen: in charge of business for linden lab
[19:49] Asterion Coen: and Scott linden, in charge of governments in SL
[19:49] Asterion Coen: u also can to contact Rocket seller (about NASA, or other space companies related stuffs)
[19:50] Gaju Xenno: oh thank you
[19:50] Gaju Xenno: last question
[19:51] Gaju Xenno: what is the future of SL for business promotion and personal revenue generation?
[19:51] Asterion Coen: the virtual worlds are the future of the web
[19:51] Gaju Xenno: thank you Asterion for your time
[19:51] Asterion Coen: you are welcome

May 14, 2010, Trixie Maddox

[22:14] Gaju Xenno: hi Trixie
[22:14] Trixie Maddox: hi gaju
[22:14] Gaju Xenno: how are you?
[22:15] Trixie Maddox: great you?
[22:15] Gaju Xenno: I'm good
[22:15] Gaju Xenno: what are u doing here?
[22:15] Trixie Maddox: building things
[22:16] Trixie Maddox: what you are doing?
[22:16] Gaju Xenno: I'm doing research on SL. The topic is 'Communication in SL and its impact on business'. Could you please help me to answer few questions?
[22:17] Trixie Maddox: sure
[22:17] Gaju Xenno: how effective did you find SL for communication?
[22:18] Trixie Maddox: its great, without communication no activities take place
[22:18] Gaju Xenno: why do you communicate in SL?
[22:18] Trixie Maddox: to offer my creations and build customer relation
[22:19] Gaju Xenno: oh

- [22:19] Gaju Xenno: do you have experience to make real money here?
[22:19] Trixie Maddox: yes, by selling products
[22:20] Gaju Xenno: what kind of products are you selling?
[22:20] Trixie Maddox: I'm selling avatar body parts like hair skin, and others. I do scripting and 3D designing myself.
[22:21] Gaju Xenno: do you have your own land here?
[22:21] Trixie Maddox: I own two islands. I have provided some parts to my friends.
[22:21] Gaju Xenno: on rent?
[22:22] Trixie Maddox: no, I'm just helping them
[22:22] Gaju Xenno: are you satisfied with your revenue?
[22:23] Trixie Maddox: It's good for me. It supports for my real life
[22:24] Gaju Xenno: how do you offer your customer to buy your products?
[22:25] Trixie Maddox: I do advertising and paid for it. Now my brand is established and people buy even its bit expensive
[22:25] Gaju Xenno: do you have to invest some money at the beginning?
[22:26] Trixie Maddox: no need but you can invest later you start earning some money but it's not high amount
[22:27] Gaju Xenno: what are the features of your products?
[22:27] Trixie Maddox: beautiful but bit expensive. People want new brand so have to improve the quality of brand. I earned much money from existing brand and like to improve it
[22:28] Gaju Xenno: what about customer satisfaction with your products?
[22:29] Trixie Maddox: I refund the products if they do not like it
[22:29] Trixie Maddox: and sometimes exchange with other
[22:29] Gaju Xenno: what are other challenging issues in business?
[22:30] Trixie Maddox: competition and innovation are very important. Moreover, creativity is most
[22:30] Gaju Xenno: do you have any idea about real world companies doing business here?
[22:31] Trixie Maddox: yes, there are many and they're doing well.
[22:31] Trixie Maddox: Sometimes I get invitation to participate on conference. I took part twice and it's informative for product and service promotion
[22:32] Gaju Xenno: do you think the communication in SL is as effective as in RL?
[22:32] Trixie Maddox: I think so. Certain categories of users are here and they're getting benefit from virtual communication. It saves time as well as cost.
[22:33] Gaju Xenno: thank you for your time Trixie
[22:33] Trixie Maddox: you're welcome and good luck for your research

May 15, 2010, Spike Zimmerman

- [22:40] Gaju Xenno: hi Spike
[22:40] Spike Zimmerman: hi
[22:41] Gaju Xenno: how are you?
[22:41] Spike Zimmerman: good you?
[22:41] Gaju Xenno: I'm good
[22:42] Gaju Xenno: do you have some free time to talk?
[22:42] Spike Zimmerman: yes, what do you need?
[22:43] Gaju Xenno: I'm doing research on SL. The topic is 'Communication in SL and its impact on business'. Could you please help me to answer few questions?

- [22:44] Spike Zimmerman: ok
- [22:44] Gaju Xenno: how effective did you find SL for communication?
- [22:45] Spike Zimmerman: it's quite a good medium to establish contact with each other, socialize, run business and conduct online events like meeting, lectures etc.
- [22:45] Gaju Xenno: What usually you do here?
- [22:46] Spike Zimmerman: hmm
- [22:46] Spike Zimmerman: I do real estate business
- [22:46] Gaju Xenno: could you please explain in detail?
- [22:47] Spike Zimmerman: Business consultation, market survey, advertising and customer experience projects. We build houses, real estate design, product production, avatar design etc. Other services are exhibitions, video production and customer support in Second Life. We have an expert team of individuals to perform these activities
- [22:49] Gaju Xenno: how did you start your business here?
- [22:49] Spike Zimmerman: I bought land at 8000 L initially. I built some beautiful houses and sold it later at 10,000. I earned 2000
- [22:50] Gaju Xenno: oh...so you were motivated to earn here. But why you chose real estate business?
- [22:50] Spike Zimmerman: I chose real estate business because it's easy to operate. I have my company's website and provided the list of all virtual products.
- [22:51] Gaju Xenno: what is the problem to perform business in SL?
- [22:51] Spike Zimmerman: It needs time, customer and the market
- [22:51] Gaju Xenno: any more?
- [22:52] Spike Zimmerman: one should be good in programming, 3D script to build objects. Advertising of the products and frequent communication with customers. Furthermore, know customer's interest, practice of building objects, and competitive products/prices are important factors.
- [22:54] Gaju Xenno: what are your schemes to attract customers?
- [22:54] Spike Zimmerman: I do advertising but mostly word of mouth and blogging
- [22:55] Gaju Xenno: What are the obstacles to do business in SL?
- [22:55] Spike Zimmerman: SL reliability causes massive drops in revenue. I don't have enough time to make new products.
- [22:56] Gaju Xenno: What customer service do you provide here?
- [22:57] Spike Zimmerman: If there is any problems, I'll fix it, but I don't refund them as it creates a problem to manage. I explain everything to customer before they buy. They have to confirm that they like it.
- [22:59] Gaju Xenno: last question, how communication is related with business?
- [23:00] Spike Zimmerman: since this is not the real world so communication plays a vital role for all activities including business. Building interaction with customers, holding online business promotion such as conference, meeting and even for advertising communication plays a vital role. We could not imagine the sustainability of SL without communication.
- [23:02] Gaju Xenno: Thank you for your time and views Spike
- [23:02] Spike Zimmerman: yw, have a good day

May 15, 2010, Timothy Hoxley

- [23:10] Gaju Xenno: hi Timothy
- [23:10] Timothy Hoxley: hi
- [23:10] Gaju Xenno: are you free to talk?

- [23:11] Timothy Hoxley: yes I can manage time
- [23:11] Gaju Xenno: I'm doing research on SL. The topic is 'Communication in SL and its impact on business'. How effective did you find SL for communication?
- [23:12] Timothy Hoxley: SL is itself a communication software and it keeps great importance
- [23:12] Gaju Xenno: what do you do here?
- [23:12] Timothy Hoxley: I sell products
- [23:13] Gaju Xenno: what type of products?
- [23:13] Timothy Hoxley: I sell clothes, accessories, bags, shoes etc. and many products for women
- [23:13] Gaju Xenno: why don't you focus on one product?
- [23:14] Timothy Hoxley: People are more likely to buy a set of products like shoes and socks together. I want to sell more. I can do scripting and build these products myself
- [23:14] Gaju Xenno: oh...
- [23:14] Gaju Xenno: what is your main focus?
- [23:15] Timothy Hoxley: Product quality. The customer's won't buy if the quality is not good and I'm more focused on women because they want to dress up.
- [23:15] Gaju Xenno: what about your revenue? Are you satisfied with this?
- [23:16] Timothy Hoxley: It's alright for me. I can earn every month, if I have more products I can earn more money.
- [23:16] Gaju Xenno: how do you attract customers?
- [23:17] Timothy Hoxley: I advertise at SL exchange and update the product details. Sometimes, I provide free products.
- [23:17] Gaju Xenno: do you provide customer service?
- [23:17] Timothy Hoxley: Yes, I return with new products if there is any problem. You can't copy the new products as it has copyright, same in real life. I have unique design of my products
- [23:19] Gaju Xenno: do you frequently create new products?
- [23:19] Timothy Hoxley: If we don't build new products, the popularity will be dropped. I have to learn coding scripts to build products. If you want to sell products, you can rent a land and if you want to do a business, you need to upgrade the account to buy land and have to pay fee every month. You should have good pc and high speed internet.
- [23:21] Gaju Xenno: what is the important need to perform business in SL?
- [23:21] Timothy Hoxley: competencies, design, quality products and communication skill
- [23:22] Timothy Hoxley: more traffic would bring more customers and need designing and programming skill
- [23:22] Gaju Xenno: what are the problems and challenging issues of SL to do business?
- [23:23] Timothy Hoxley: Internet speed, good interaction and relationship with customers. Initially buying land is good but you have to invest first. It's for people who have more money. You have to pay monthly fee to Linden lab. You can also open shop but have to pay maintenance fee monthly
- [23:25] Gaju Xenno: oh...
- [23:25] Gaju Xenno: do you participate on online events like business conferences?
- [23:25] Timothy Hoxley: I took part earlier, they are very useful for business promotion but I do not have enough time now.
- [23:26] Gaju Xenno: thank you Timothy for your time
- [23:26] Timothy Hoxley: You're welcome Gaju. Good luck!

May 17, 2010, Nguway Firelight

[16:20] Gaju Xenno: hi Nguway
[16:20] Nguway Firelight: hello
[16:21] Gaju Xenno: are you building something?
[16:21] Nguway Firelight: I am making a sporting 4 wheeler into a military one. :)
[16:21] Gaju Xenno: great
[16:22] Gaju Xenno: do you have some free time?
[16:22] Nguway Firelight: what for?
[16:22] Gaju Xenno: I'm doing research on SL. The topic is 'Communication in SL and its impact on business'. Could you please help me to answer few questions?
[16:22] Nguway Firelight: sure
[16:23] Gaju Xenno: how effective did you find SL for communication?
[16:23] Nguway Firelight: like, talking to people kind of communication?
[16:23] Gaju Xenno: yes
[16:24] Nguway Firelight: extremely effective.
[16:24] Gaju Xenno: how this communication is related to business in your opinion?
[16:24] Gaju Xenno: related
[16:25] Nguway Firelight: um...
[16:25] Nguway Firelight: it can be used to find/market stuff
[16:25] Nguway Firelight: or spam people with ads
[16:26] Nguway Firelight: but mostly it is used for talking and noncommercial stuff, from my personal experience at least
[16:26] Gaju Xenno: oh...but how effective the online events here?
[16:27] Nguway Firelight: I' m sorry?
[16:27] Gaju Xenno: like meeting, conference etc.
[16:27] Nguway Firelight: oh
[16:27] Nguway Firelight: it depends on the people and the cause
[16:27] Nguway Firelight: if people are interested then it will work great
[16:28] Gaju Xenno: have you participated ever?
[16:28] Nguway Firelight: yes
[16:28] Nguway Firelight: I am in several groups that call for going to meetings/events/etc on occasion
[16:29] Gaju Xenno: how effective did u find?
[16:29] Nguway Firelight: like, how successful were the events?
[16:29] Gaju Xenno: exactly
[16:30] Nguway Firelight: usually very successful
[16:31] Gaju Xenno: do you have any idea about the business status of real world companies here? how they are successful?
[16:31] Nguway Firelight: yes
[16:31] Nguway Firelight: my mate makes her living off of Second Life
[16:31] Nguway Firelight: for real life
[16:31] Gaju Xenno: what does she do?
[16:32] Nguway Firelight: she is a teaches college, and military classes
[16:32] Gaju Xenno: that's great
[16:32] Nguway Firelight: :)

[16:33] Gaju Xenno: and do you have experience to make real money here?
[16:33] Nguway Firelight: I do not. I haven't spent or made any real money on SL
[16:34] Gaju Xenno: oh...any plan in the future?
[16:34] Nguway Firelight: and I do not care to.
[16:34] Gaju Xenno: btw where r u from Nguway?
[16:34] Nguway Firelight: no. I joined SL for recreation only, and I plan to keep it that way.
[16:35] Nguway Firelight: I am from utah, USA

F. Online conversation with company representatives in Second Life

The interview information received from real world companies in Second Life is summarized below. As per the request of the users the anonymity has been maintained.

IBM representative

“Our company has invested more than USD 10 million to increase its presence in the market for technologies. We held virtual conference in 2008 and more than 200 participants were present. It helped to reduce the real world cost and people all around the world could participate. IBM has been making a significant investment in virtual worlds now for 2 years...it's time to take from research to reality. IBM has more than 200,000 technical staffs worldwide that make IBM Academy of Technology. The virtual universe community of approx. 7,000 members is responsible to run the event and train new Second Life users. IBM wants to create 3D business environments that mirror Second Life's interactivity and sense of immersion. There are all sorts of new applications for this technology. We really believe that highly visual and collaborative interfaces will become very important in the way we interact with all IT applications in the future. Virtual reality connects directly with the human mind. There is something very human about visual interfaces. I almost think of text-based interfaces, including browsers, as 'narrowband' into our brains, whereas visual interfaces are 'broadband' into our brains”.

Intel representative

“Intel conducted virtual Conference in 2008 in Second Life. About 150 people actively took participation. We saved real life budget (USD 265,000 of the 300,000). The major events include keynote presentations, live product demos and social networking activities. The voice conference cost USD 30,000, whereas face to face conference cost USD 300,000. The virtual conference saved travel cost. It was free and easy to access. More than 20 different companies took part in the conference. It enabled to produce feedback and detailed reports on activity such as time duration and cost analysis. The event had fun for participants and created shared memories. Text chat was also used for conversation during conference period.”

Coca-Cola representative

“Our company started entry in Second Life in 2006. It became the largest manufacturer, distributor and marketer of nonalcoholic beverage. We have more than 400 brands over 200 countries. The company bought own island with linden lab to promote its brand. The young people have free access to record music in ‘Coke Studio’ which has high profile media and present the advertisement to global audience. Coca- Cola has appreciation from the visitors in our sim. Second Life is beneficial to us for brand promotion, search new market and make business strategy. Sometimes it offers free virtual drinks to make the public community. The advantages for Coca- Cola are brand promotion, marketing campaign, public attention and make business strategy. Moreover, it is using Second Life for socialization, collaboration and global reach among users.”

Nissan representative

“We have been using Second Life to promote our cars in real world and get ideas and feedback to design forthcoming models. Second Life is giving us benefit for cost saving, new model development and socialization. Besides this we can discover innovative ways to teach, learn and collaborate. Since Second Life is an experimental place we can modify the design of our cars many times and bring into a new and convenient shape. Other advantages that we can get are cost saving, brand promotion, make business strategy and rich a global audience.”

Cisco representative

“Cisco is using Second Life for B2B communication. We have network engineers in our sim. We have several sims to have user group meetings and International staff. The company provides training and education to Second Life users and gets feedback about products. The presentations are made using Power Point, video and audio. The events are hold to make contact with real life people to Second Life. This event is called ‘mixed reality’. The importance of virtual world for Cisco is the opportunity for immediate customer interaction. The customers are interested to know about Cisco product and services. Second Life is a social networking tool similar to blogs or web discussion forums. It’s away for people and companies to come together and interact with their business partners and customers. Cisco has both public and private sims. Cisco uses the private sims for prototyping and private conversations. We are using Second Life for business communication. We frequently conduct group meetings. It provides training and education to new Second Life users. Also provides presentations and holds events. The advantages are immediate customer interaction, get feedback and offer products and services. Cisco uses private sims for prototyping and private conversations.”

Publications


1. Sharma Gajendra, Qiang Ye, Wenjun Sun and Zhao Daying. Significance of Communication and E-Business in Second Life Virtual World. *Information Technology Research Journal*, 1(1), pp.1-12, 2011.
STATUS: Published
2. Sharma Gajendra, Qiang Ye, Wenjun Sun and Qi Lu. Communication and Online Business Opportunities in Virtual Environment: Second Life. *International Journal of Web Based Communities*, 2011
STATUS: Accepted and under publication process (**EI Source**)
3. Sharma Gajendra, Wenjun Sun and Qi Lu. Communication in Second Life and E-Business Opportunities: A Case Analysis. *Information Technology Journal*, 10(3), pp. 499-510, 2011.
STATUS: Published (**EI Source: 20110313589966**)
4. Huiying Li, Qiang Ye and Gajendra Sharma. Herding Behavior in C2C E-Commerce: Empirical Investigation in China. *Proceedings of 2010 International Conference on Management Science & Engineering*. Australia, pp. 33-39, Nov. 24-26, 2010.
STATUS: Published (**EI Source: 20111313852976**)
5. Gajendra Sharma and Ye Qiang. E-Commerce: An Issue of Communication and Impact on Second Life Virtual Environment. *Nepal Engineers' Association, Technical Journal*, XLII-EC28 (1), pp. 29-35, 2010.
STATUS: Published (**ISSN: 2091-0592-1**)
6. Gajendra Sharma, Ye Qiang and Sun Wenjun. Communication Behavior and E-Business Opportunities in Virtual Environment: A Case Study in Second Life. *Proceedings of the Ninth Wuhan International Conference on E-Business*, pp. 367-372, May 29-30, 2010, Wuhan, China.
STATUS: Published (**ISTP Source, DS No.: BRR19, ISBN: 978-0-9800510-3-2**).
7. Sharma Gajendra and Wenjun Sun. Second Life: A Computer Mediated Environment for Communication and E-Business Management. *Proceedings of the 2010 International Conference on Challenges in Environmental Science and Computer Engineering*, pp. 431-434, March 6-7, 2010, Wuhan, China.
STATUS: Published (**EI Source: 20103913261517**)
8. Sharma Gajendra, Wenjun Sun and Qiang Ye. Second Life: A Strong Communication Tool in Social Networking and Business. *Information Technology Journal*, 9(3), pp. 524-534, 2010.
STATUS: Published (**EI Source: 20101112762610**)

9. Ye Qiang and Gajendra Sharma. The Implementation of Technology Acceptance Model in Information Technology: An Overview. Technical Journal. 11th National Convention of Engineers, Nepal Engineers Association, pp. 109-118, May 13-15, 2009, Kathmandu, Nepal.
STATUS: Published

Declaration

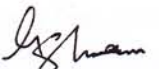
Statement 1 (Copyright)

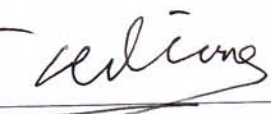
I, the undersigned, declare this work has not previously been submitted in candidature for any degree. The dissertation is the result of my own work and investigations, except where otherwise stated. Other sources are acknowledged by giving explicit references. A complete list of references is appended.

Signed  (candidate) Date 2011.9.25

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Resume

Gajendra Sharma joined Harbin Institute of Technology (HIT), China at the department of Management Science and Engineering in 2008. He received the degree of Masters of Engineering in Electronics and Communication in 1997 from Moscow University of Communication and Information Technology, Russia. During the following years he was employed in different organizations in Nepal as a professional Engineer. He had also worked in a managerial and academic position in different companies and Engineering institutions on full time and part time basis. He served as a President of Himalaya College of Engineering (Affiliated to Tribhuvan University) in Nepal for last three years from 2005 to 2008. His research interest is focused on online social networks. The current research project includes e-business and social networking based on web 2.0 technologies. He is expected to complete his PhD in 2011 from School of Management, HIT.